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Great Barrier Reef Marine Park Authority

Reef Authority

Independent assessment of management effectiveness for the

Great Barrier Reef

OUTLOOK REPORT 2024



BMT

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Executive Summary

Framework for the report

Under s54 of the *Great Barrier Reef Marine Park Act 1975* a Great Barrier Reef Outlook Report (Outlook Report) must be prepared every five years. The Outlook Report provides a recurring assessment of the health of the Great Barrier Reef (the Reef) and its overall management. Part of the Outlook Report (Chapter 7) includes consideration of existing protection and management for the Great Barrier Reef Region (the Region).

To support this assessment, an independent management effectiveness review is conducted in advance of the Outlook Report, to provide an analysis on how the Region is being managed. This independent review is based on the International Union for the Conservation of Nature-World Commission on Protected Areas (IUCN-WCPA) management effectiveness evaluation framework (Hockings et al. 2006). This framework is internationally recognised for evaluating protected areas and consists of six management elements: Context, Planning, Inputs, Processes, Outputs and Outcomes.

This report presents the management effectiveness review for the 2024 Outlook Report. It uses the same methodology as the three previous reviews and examines 14 management topics. These topics relate to managing: direct use of the Region (eight topics); external factors influencing the Region (three topics); and protecting the Region's values (three topics).

Each element has a common set of indicators that are assessed in relation to each topic. These provide the basis for grading each topic and element. Grades are based on a four-point scale: *ineffective*, *partially effective*, *mostly effective* and *effective*.

This report also considers broader topics related to the management of the Region, including the role of environmental regulation, engagement, knowledge, innovation and integration, and resourcing.

Key findings

Overall grades and trends for each topic are summarised in relation to the six assessment elements (Table 1) and indicate that 58 per cent (49/84) of element grades either remained stable or improved, while 42 per cent (35/84) declined (Figure 1) since the Independent assessment of management effectiveness for the Great Barrier Reef

Outlook Report 2019 (Leverington et al. 2019). The reasons for changes differ across topics. Notable improvements generally include the improvement in funding and planning initiatives through the Reef 2050 Long-Term Sustainability Plan (the Reef 2050 Plan) and Queensland Sustainable Fisheries Strategy 2017-2027 while declines reflect the increasing challenges posed by climate change on the existing planning and governance systems as well as increasing recognition of other impacting processes.

In relation to trends within the elements (Figure 2), the Outputs for 11 topics improved or remained stable. For Processes this was ten topics, and for Inputs and Outcomes, this was eight topics. Planning had the highest number of topics with declining trends (nine) followed by Context (seven), Inputs and Outcomes (six) and Processes (four).

Table 1: Summary of assessment results for each topic in relation to the elements of context, planning, inputs, processes, outputs and outcomes[1]

		Context		Planning		Inputs		Processes		Outputs		Outcomes	
	Topic	Grade	Trend	Grade	Trend	Grade	Trend	Grade	Trend	Grade	Trend	Grade	Trend
Managing direct use of the Region	Commercial marine tourism	E	↔	ME	↘	ME	↘	ME	↔	E	↔	ME	↓
	Defence activities	E	↔	ME	↓	ME	↓	E	↔	E	↔	E	↔
	Fishing	ME	↘	ME	↔	ME	↔	ME	↔	ME	↔	PE	↘
	Ports	E	↔	ME	↓	ME	↔	ME	↔	ME	↔	E	↔
	Recreation	ME	↓	ME	↘	ME	↗	ME	↔	ME	↑	ME	↔
	Research activities	E	↔	ME	↓	ME	↓	ME	↓	ME	↓	E	↔
	Shipping	E	↔	E	↔	ME	↔	E	↔	ME	↔	E	↔
	Traditional use of marine resources	ME	↓	ME	↓	ME	↔	ME	↔	ME	↓	ME	↓
Managing external factors influencing the Region	Climate change	PE	↓	ME	↑	PE	↗	PE	↗	PE	↑	I	↗
	Coastal development	PE	↓	ME	↘	PE	↓	PE	↓	ME	↔	PE	↘
	Land-based run-off	E	↔	E	↘	ME	↓	ME	↓	ME	↓	PE	↔
Managing to protect the Region's values	Biodiversity values	E	↑	ME	↘	ME	↔	ME	↔	ME	↔	PE	↘
	Heritage values	ME	↘	ME	↔	PE	↔	ME	↔	ME	↔	PE	↓
	Community benefits of the environment	ME	↘	ME	↔	PE	↓	ME	↘	ME	↔	ME	↔

E Effective ME Mostly Effective PE Partially Effective I Ineffective

Trends are indicated by arrows:

↑ Trend since 2019 has been an upwards change in grade
↗ Trend since 2019 is increasing but has not caused an upwards grade change
↔ Grade has remained stable compared to 2019, with no major trends
↘ Trend since 2019 is decreasing but has not caused a downwards grade change
↓ Trend since 2019 has been a downwards change in grade

[1] *Note*: In undertaking this 2024 review, the independent assessors identified errors and inconsistencies between the publish grades and indicator ratings across topics in previous reports (i.e. Management Effectiveness Reports, Outlook Report). The trends in Table 1 reflect the corrected grades and trends in relation to the 2019 Management Effectiveness Report. Further details are provided throughout this report (i.e. Sections 2, 3, 4 and 5).

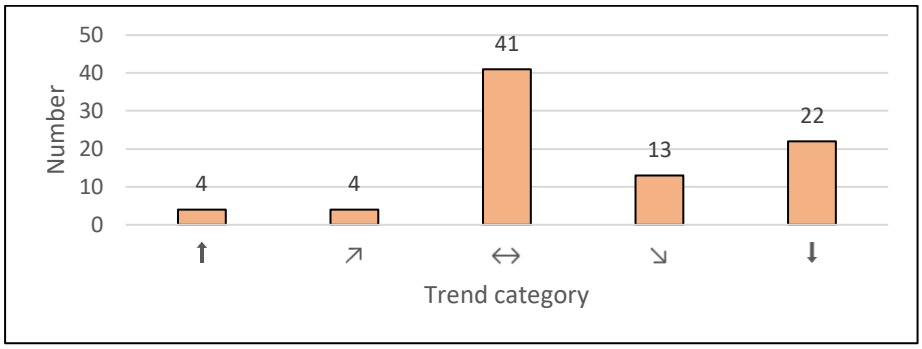


Figure 1: Number of element grade trends, by category 2019-2024

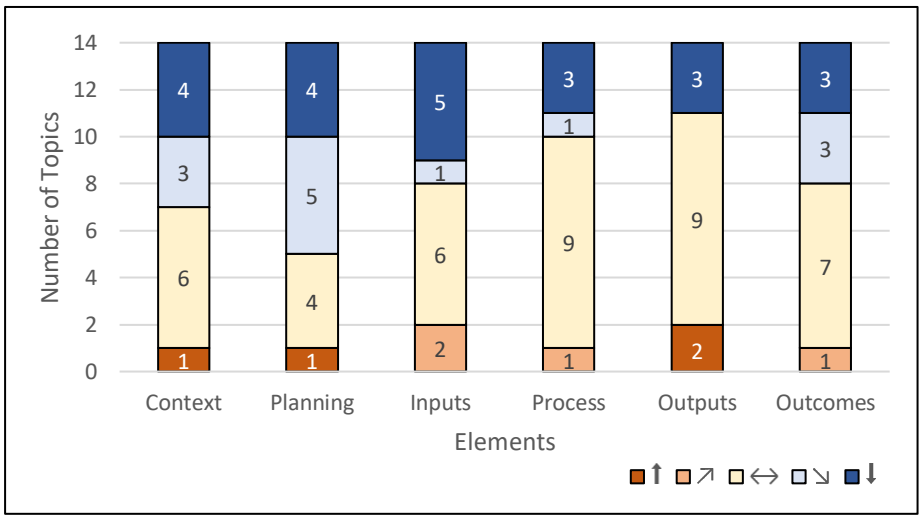


Figure 2: Number of trend categories by element, 2019-2024

The majority of elements relating to direct use were assessed as mainly *effective* or *mostly effective* (Table 1). In particular, Defence and Shipping have a large number of *effective* elements, consistent with previous assessment periods.

Land-based Run-off, Biodiversity and Community Benefits are also generally well managed areas as well, with a single *partially effective* grade each, either for Outcomes or Inputs. By contrast, Climate Change, Heritage and Coastal Development are weaker topics, with the highest number of elements graded as *partially effective*, including across Inputs, Processes and Outcomes.

There are ongoing or emerging issues with the achievement of Outcomes in Fishing, Climate Change, Coastal Development, Land-based Run-off, Biodiversity and Heritage topics. In particular, Outcomes for Biodiversity are *partially effective* but include a

number of indicators rated *ineffective,* while Heritage Outcomes have declined from *mostly effective* to *partially effective*.

The weakest topics are Coastal Development with four elements graded as *partially effective* and Climate Change with three elements graded as *partially effective*. This represents a significant ongoing management risk for the Reef and remains difficult to manage within current governance systems.

Managing direct use

Commercial marine tourism

The commercial marine tourism industry plays a significant role in showcasing the Reef's natural and cultural values, enhancing visitor experiences and assisting in managing and protecting the Reef's values. Overall, the management effectiveness for this topic was graded as *mostly effective.* Since 2019 the grade for the elements Context and Outputs remained *effective,* the elements of Planning, Inputs and Processes remained *mostly effective*, while Outcomes declined from *effective* to *mostly effective*.

About 80 per cent of tourism visits occur within about seven per cent of the area of the Marine Park, with 86 per cent of visitation focused on waters near Cairns, Port Douglas and the Whitsundays (McLean et al. 2020). Impacts can include physical damage to reefs and corals from boats, trampling and snorkelling, pollution from rubbish and human waste, wildlife disturbances and over-crowding at some high-use sites resulting in lowered amenity and loss of cultural values. However, these risks continue to be reduced through improved management and education, including new policies and guidelines (e.g. cruise ship operations, moorings, superyacht cruising) and new strategies such as the Tourism management action strategy (2021). In addition, as at the end of 2023, there are now 123 Master Reef Guides located across the Marine Park delivering up-to-date scientific and management information about the Reef and its values and how visitors can make a difference. Management agencies also work closely with the commercial marine tourism industry and use an industry-based ecotourism certification program to ensure an ecologically sustainable and high-quality experience for visitors to the Region. The number of high standard tourism operators has increased from 19 (2004) to 69 (2017) and 72 (2023). However, Indigenous Reef tourism operations are limited and lack visibility (McLean et al. 2020).

Programs such as the Eye on the Reef, a Reef monitoring, assessment and capacity-building program, have seen increases in the number of Reef health surveys and rapid

monitoring surveys conducted by visitors and received by the Reef Authority. The Eye on the Reef app enables citizen scientists to contribute GPS-tagged observations to the Reef Authority to assist in real-time management.

Reef tourism was heavily impacted during the coronavirus pandemic and the industry experienced decreased tourist numbers and shortages in skilled staff. Yearly visitation to the Reef decreased by about 41 per cent from 2012 to 2020. There has been a 22 per cent increase in numbers from 2020 to 2022, although it is expected to take several years for visitation to return to levels experienced before the pandemic. The Commonwealth Government contributed significant funds to support the commercial marine tourism industry during the pandemic. The industry continues to experience difficulties in attracting staff, training staff and retaining them in the industry.

Overall, the impact of the commercial marine tourism industry on the Reef is restricted in extent, low in severity and there are well-resourced planning and management systems in place to support sustainable tourism outcomes. The main ongoing threat to the Reef is from climate change and the cumulative impact of multiple stressors such as coral bleaching and severe cyclones. These threats are likely to impact on the quality of the nature-based reef experience, enjoyment of visitors and visitor numbers and the economic sustainability of the industry.

Defence activities

The management of Defence activities in the Region continues to be effective, supporting the findings of previous reports (Outlook Report 2009, Outlook Report 2014, Outlook Report 2019). This is built on a mature international environmental management system for Defence, together with close collaboration with the Reef Authority, as set out in a Memorandum of Understanding, and with other agencies, as relevant. Defence has a high-level of in-house expertise to support management and assessment activities and commits to delivering best practice where relevant. Due to the long-standing relationship, there is also a good understanding within the Reef Authority of Defence activities.

The Strategic Environmental Assessment of Defence Activities in the Great Barrier Reef World Heritage Area (PGM Environment & EcoLogical Australia 2014) provides contextual understanding of the environmental risk of Defence activities in the Region. This assessment has generally remained relevant for the Region but is anticipated to be updated in coming years. In this context, environmental risks are managed in accordance with the national-scale Defence environmental management system,

including site- and activity-specific management arrangements, although there is also a Region-specific Great Barrier Reef and Coral Sea Planning Handbook.

In recognition of the emerging risk of perfluoroalkyl substances in recent years, Defence is implementing a comprehensive framework focused on understanding the risk for contaminated sites and incorporating appropriate management actions. Similarly, there are ongoing works to manage legacy contamination of unexploded ordnance remain, utilising a risk-based approach.

Fishing (commercial and recreational)

Fishing is the principal extractive use in the Region. The most significant management effort for fishing in recent years has been the implementation of the Queensland Sustainable Fisheries Strategy 2017-2027 (DAF 2017). This was introduced prior to the Outlook Report 2019 and has been implemented over the current assessment period. This Strategy aims to significantly improve the management of commercial and recreational fisheries, primarily through improved assessment of fish stocks and ecological risks to inform adaptive management of quotas and rules, with a commitment to achieving 60 per cent biomass retention for each fishery. The implementation of the Strategy is ongoing with 27 of 33 actions already delivered by 2022. Stock assessments, harvest strategies and ecological risk assessments are now in place for majority of fisheries in Queensland.

There are lags in the achievement of improved outcomes, however, reflecting biological timeframes for recovery of fish stocks. Additionally, in implementing an enhanced focus on stock assessments, there has been an increase in the number of fisheries identified as depleted, including some that may have been depleted during previous assessment periods. Appropriate management arrangements are now in place for all these fisheries to support recovery.

In parallel with the Sustainable Fisheries Strategy, the need for improved protection of species of conservation concern has been identified, including through the introduction of independent data validation on commercial fishing vessels. However, the development of an appropriate approach remains ongoing and is an area for future improvement. The protection of these species and other non-target species will also be supported through the implementation of actions associated with the Great Barrier Reef gill net fishing phase out occurring from 2023 to 2027.

Overall funding for management of Fishing has increased over the reporting period and has supported both assessments and compliance. The implementation of the

Sustainable Fisheries Strategy has also provided renewed forums for stakeholder engagement, primarily through Fishery Working Groups.

Ports

Ports within the Region continue to be well managed. Port authorities are typically well resourced and provide a high degree of environmental management and monitoring effort within their port areas. There is also a good working relationship between port authorities and key regulators, including the Department of Transport and Main Roads, which has a leading role in benchmarking port planning and dredging management, and the Reef Authority, which has an interest in dredging and placement activities. While the Reef Authority often does not have direct jurisdiction within port areas, as most ports are excluded from the Marine Park, ongoing engagement has been formalised through a Memorandum of Understanding with the Queensland Ports Association and the membership of the Reef Authority on various port Technical Advisory and Consultative Committees.

Improvements in the management and planning framework for dredging, at sea placement and port development were introduced in previous reporting periods and are being implemented as part of standard practice. These initiatives align with international best practice.

Over the assessment period there has been an enhanced recognition of risks associated with marine biosecurity within ports (i.e. marine pests already established in coastal waters) and underwater noise. This has prompted policy development in these areas but this is ongoing. Similarly, while the National Strategy for Reducing Vessel Strike on cetaceans and other Marine Megafauna (DoEE 2017) was introduced during a previous reporting period, its implementation is ongoing, with results on key actions (e.g. monitoring, research into mitigation approaches) yet to be finalised and integrated into the planning system.

Port authorities recently have commenced formal engagement and support to local waterway partnerships to improve the holistic management of catchment-related issues, including sediment contribution into port areas.

Recreation (excluding fishing)

Under the Reef Authority's Recreation Management Strategy 2012 (RMS), Recreation consists of 'an independent visit for enjoyment that is not part of a commercial operation'. For management purposes responsibility for Recreation is spread across numerous Commonwealth and Queensland government agencies with the primary

responsibility falling to the Reef Authority, the Queensland Parks and Wildlife Service (QPWS), and Maritime Safety Queensland.

The primary management tool for Recreation on the Reef is the RMS. This document is nested under additional management tools including the Zoning Plan. Specific management plans were developed or are in development for key areas of recreation such as the 2018 Whitsundays Plan of Management and the proposed Southern Plan of Management. The RMS was created as a response to the Outlook Report 2009 and has been reviewed in a broad sense every five years through the Outlook Report management effectiveness review. While these reviews largely indicate recreation is well managed, they do also highlight that little research has been done around current impacts.

Slow revision of the risk rating for recreation is likely due to the low risk profile associated with Recreation, as recognised in the RMS and in international literature, such as the IUCN Outlook Report for the Great Barrier Reef World Heritage Area (IUCN, 2017). While direct recreational usage declined due to COVID-19 for the great barrier reef region (Tourism Visitation Data, GBRMPA) from 2020 to 2022 vessel registrations have continued to increase consistently from 2019 to 2022 (Department of Transport and Main Roads), and high interstate migration to Queensland particularly post covid in 2019 and 2020 (Australian Bureau of Statistics) all indicate that tourism to the reef is expanding. To account for these changes regular review of management plans is necessary to ensure that risks are minimised and mitigated as much as practicable.

Dedicated monitoring to understand the role of recreation for the reef remains a key gap in management for the Great Barrier Reef. Several projects have begun since 2019 including mapping of patterns in vessel activity via a partnership between the Reef Authority and CSIRO and three Reef Trust Partnership (RTP) integrated monitoring and reporting (IMR) projects to establish systematic monitoring frameworks for: Sustainable Use and Benefits (SEABORNE), Stewardship efforts for the Reef (PROTECT) and Governance. These projects were established to provide data for identified critical monitoring gaps in reporting to the Reef 2050 Plan. These projects represent a potential avenue for filling knowledge gaps related to recreation usage on the Reef (usage type, patterns and motivations, infrastructure development rate and location etc.). However, only the project that aims to map patterns of vessels and the SEABOURNE project directly address the knowledge gap in relation to recreation. This work will aide in increasing awareness around recreational usage on the Reef by providing a clear process through which managers can assess use. While these

projects seem promising in furthering the current understanding of recreation in the Region it is too early to say if they will be sufficient to fill the existing knowledge gaps.

Current funding is targeted primarily at filling knowledge gaps surrounding recreational usage in the Region, through funding for the Reef Authority/CSIRO project: Mapping patterns of vessel activity. Importantly, though, this project currently focuses only on developing and testing new vessel monitoring methods and does not itself include ongoing data collection (monitoring). Significant funding has also been directed to the maintenance and evaluation of moorings to assess their effectiveness in reef protection and preventing anchor damage through the RJFMP. Another significant source of funding for recreation management efforts goes toward compliance work via the RJFMP with $35 million from the Australian and Queensland governments and $16 million in funding from other sources. When considering funding for recreation management activities it is also relevant to note that funding for potentially useful projects such as SEABORNE and PROTECT are currently only allocated through 2024. Without clear indications regarding where and how much funding will be allocated past this time, the long-term potential for these programs cannot be assessed.

Stakeholder engagement remains strong, with the Reef Authority and QPWS staff in regional offices continuing to interact with recreational users, particularly through Local Marine Advisory Committees and engagement with the Reef Guardian programs. While Recreation is considered a low-risk activity to the values of the Region, lack of recent review of this risk remains a key concern.

Research activities

Research activities support the knowledge base upon which future management policies and decisions can be based. The elements Content and Outcomes were graded as *effective,* while Planning, Inputs, Processes and Outputs were graded as *mostly effective*. This represents a general decline from 2019, indicative of the uncertainty surrounding the adequacy of current Marine Park permission systems in keeping pace with new types of research efforts, as well as a need for greater baseline information to inform permitting and research decisions on the Reef. Key policy achievements include the Policy on Great Barrier Reef Interventions, which represents a vital first step in planning for new intervention and adaptation research efforts into the future.

Most impacts associated with research are well managed and understood by managers, although there is a lack of understanding regarding the cumulative impacts

associated with research, especially in relation to extractive and other potentially damaging research efforts. There is the potential for risk of lasting harm from the cumulative impact of research on reefs surrounding the four major research stations where most research takes place. However, some researchers recognised this was a knowledge gap but postulated that any damage to these 'sacrificial reefs' was likely to be outweighed by benefits from the research.

For the Reef Authority, changes to the permitting systems in relation to research, largely revolved around adapting to the new level of uncertainty and complexity inherent in intervention and adaptation research. Current projects that aim to help build resilience of reef ecosystems in the face of climate change via the current forward plan for the Reef Restoration and Adaptation Program, represent early trials that are generally small in scale and of lower complexity. Given the climate change related pressures to the Reef, it is anticipated that these types of projects will increase in scale and complexity, with the ultimate goal of implemented intervention programs. In response to this emerging field, the Reef Authority developed and implemented the Policy on Great Barrier Reef Interventions to improve resilience of habitats in the Marine Park. This document provides guidance on what restoration work will be permitted in the GBR with an associated Joint Guidelines Permit applications for reef restoration adaptation to help streamline managers decision making process. While this guidance is somewhat limited due to insufficient biophysical information around potential high impact activities and ambiguity around spatial aspects, these documents represent a positive step toward managing research efforts in face of future uncertainty.

Shipping

Shipping activities are well managed within the Region, primarily through the ongoing implementation of the multi-jurisdictional North East Shipping Management Plan (NESMG 2014). The implementation of this plan, including periodic reviews and reprioritisation of management actions, provides an effective framework for continuous improvement in the sector. The effectiveness of the plan reflects strong working relationships between the Australian Maritime Safety Authority, Maritime Safety Queensland and the Reef Authority.

Additional to the plan, substantial improvements in the management of shipping activities were implemented during the previous reporting period and remain in place. Key changes over the assessment period related to the use of exhaust gas cleaning systems to reduce sulphur fuel emissions. While these have been assessed, their potential impacts to the Reef, as a specific sensitive environment, are uncertain.

As for Ports, there are recognised gaps in the understanding of and response to vessel strike and underwater noise risks for shipping areas. Since 2017, there has been ongoing implementation of actions associated with the National Strategy for Reducing Vessel Strike on cetaceans and other Marine Megafauna (DoEE 2017) but these have yet to be integrated into planning and management arrangements for shipping. Similarly, policy development for underwater noise is underway but will not be implemented until future assessment periods.

Resourcing and coordination for response to vessel incidents and marine pollution is well established within the Australian Maritime Safety Authority and Maritime Safety Queensland. This includes arrangements under the Queensland Coastal Contingency Action Plan (MSQ 2021).

Traditional use of marine resources

Traditional use of marine resources is undertaken by Aboriginal and Torres Strait Islander peoples, who are the Traditional Owners and Custodians of the Reef and its catchment. This use, which has been practised for millennia, incorporates undertaking activities as part of the Traditional Owners' cultures, customs or traditions and to satisfy personal, domestic or communal needs and may include fishing, collecting, hunting and looking after cultural and heritage places. The management effectiveness for all elements of this topic were graded as *mostly effective*. However, since 2019 there were declines in four of the elements (i.e. Context, Planning, Outputs and Outcomes).

Ten Traditional Use of Marine Resources Agreements (TUMRAs) and one Indigenous Land Use Agreement (ILUA) are in place, covering 46 per cent of the Region's coastline, an increase from 25 per cent in 2019, and covering approximately 22 per cent of the Marine Park. They incorporate cultural lore and contemporary science to promote sustainable use of key species and ecosystems.

Sea Country values mapping was undertaken in some accredited TUMRA regions (e.g. Manduburra Traditional Owners in 2019-20) to better understand the cultural values specific to Traditional Owner Sea Country. More mapping is underway and this is managed by the Reef Authority's Sea Country values mapping program within its TUMRA Section. The various Indigenous rangers' programs, operated by the State and Commonwealth governments, enable Indigenous rangers to be on-country to guide management and uphold compliance across the Region. The COVID-19 pandemic limited access to many communities and delayed some outcomes. Traditional Owners experienced further restrictions in accessing Sea Country due to limited boats and resources to conduct protection and rehabilitation activities.

Within TUMRA areas, accredited groups often self-manage the traditional use of marine resources, including imposing restrictions on take of certain species (e.g. dugongs and green turtles) in order to conserve species and ecosystems critical to the health of people, culture and the environment. Traditional Owners are engaged in a range of monitoring projects and report on the condition of their Sea Country. In 2020 the Traditional Owner Technical Working Group was formed (as part of the Reef Trust Partnership Integrated Monitoring and Reporting Program) to guide the implementation of the Strong Peoples-Strong Country framework. Traditional use of marine resources is thought to have a minor and localised impact on the Reef's values (Workshop participant 2023) when compared to the impacts from multiple interacting threats relating to climate change, extreme weather events, marine debris, land-based run-off and others.

Planning and governance systems relating to traditional use of marine resources are complex. There are numerous plans and strategies, including the Aboriginal and Torres Strait Islander Heritage Strategy (2019) (under review) that identifies actions to keep Indigenous heritage, including traditional use of marine resources, strong, safe and healthy. The Reef 2050 Traditional Owner Implementation Plan (2022) is providing support to further understand and agree on a range of governance concepts, including co-management and co-governance and clarification of Traditional Owner rights and interests.

Engagement with Traditional Owners currently focuses on informing and consulting through fora such as the Indigenous Reef Advisory Committee, Reef Advisory Committee and others. Significant strides have been made to improve governance systems and engagement to incorporate co-management and co-governance arrangements, including the 2023 Agreement to Partner signed between the Commonwealth and Queensland governments and the Reef 2050 Traditional Owner Steering Groups members. The Gurra Gurra Framework 2020–2026 guides the Queensland Government to reframe relationships with Traditional Owners by placing Country and people at the centre of policy, programs and service delivery; structurally enabling co-governance and co-stewardship, respecting community-led decision making processes and timeframes; exploring new ways of working through co-design and co-delivery; and emphasis on the need for cultural capability.

Knowledge sharing has improved and training programs are important. The TUMRA program's mentoring and 'buddy' system between established and developing TUMRA areas has been a significant capacity builder for saltwater Traditional Owners.

Overall, the establishment of TUMRAs has assisted in the management of Sea Country including improved understanding of agreement areas and enhanced management of marine resources through incorporation of Traditional knowledge and practices. The TUMRA program has supported Aboriginal and Torres Strait Islander peoples to return to country and deliver a range of field management activities. This has resulted in benefits to Traditional Owners through employment and training, and 'stronger people and stronger country'.

Challenges include: developing contemporary Indigenous-led plans and customary management approaches and policies that allow responses to be determined locally and aligned with customary laws/lores, capacity and management aspirations; strengthening the available tools (e.g. TUMRAs, compliance programs, enforcement capacity and strategies); embedding Traditional Owners in all aspects of Reef monitoring and evaluation; enhancing equity, particularly in relation to the engagement of women in decision making; addressing the employment of Indigenous peoples to undertake work on Country; and enhancing regional governance models that include Traditional Owners

Managing external factors influencing the Region

Climate change

The Reef ecosystem is very vulnerable to the impacts of climate change. Since 2019, the threats of climate change have continued to escalate. Climate change is considered the single most significant threat to the Region's long-term outlook and the ecological consequences of climate change are expected to have cascading social and economic consequences.

The scale of the threats posed by climate change means that further changes to the Reef ecosystem are inevitable. Notwithstanding the seriousness of the challenges the Reef faces, there is still opportunity to preserve the values of the Reef, and limit further decline, if effective and timely mitigation of risks occur within the next decade.

Significant global action to address climate change is critical to slowing the deterioration of the Reef's ecosystem and heritage values. The Paris Agreement under the United Nations Framework Convention on Climate Change provides the international framework under which actions to mitigate global climate change impacts are occurring. Effective global actions to mitigate climate change are necessary to manage climate change impacts on the Reef.

The Reef Authority has limited jurisdictional responsibility for directly addressing the drivers of climate change. In Australia, the primary responsibility for addressing global warming lies with the Commonwealth Government, which has committed to reducing greenhouse gas emissions by 43 per cent below 2005 levels by 2030 and to net zero by 2050. Australia is also leading the International Partnership for Blue Carbon.

In the Position Statement Climate Change the Reef Authority states that climate change is the greatest threat to the Great Barrier Reef, and only the strongest and fastest global action to decrease greenhouse gas emissions will reduce the risks and limit impacts to the Reef. The updated Reef Plan 2050 includes a specific work area to limit the impacts of climate change and articulates clear goals and strategic actions towards achieving emission reduction targets.

Climate change risks to the values of the Reef are recognised in the Queensland Climate Adaptation Strategy. The Reef Authority acknowledges the significant work that Reef Guardian Councils are taking to address climate change through their operations and with the community.

Reflecting significant policy progress regarding climate change mitigation and adaptation at national, state, and local levels, the management effectiveness element grades for Climate Change have improved since the Management Effectiveness Report 2019, (Leverington et al. 2019). Only one element, Planning was graded as *mostly* effective, an improvement from *partially effective* in 2019. Context, Inputs, Processes and Outputs were graded as *partially* effective, with the last three elements increasing in effectiveness since 2019. Outcomes remained *ineffective*, although with an increasing trend.

Despite advances in planning and the increased resources dedicated to addressing climate change, the management of the Reef in the face of climate change must still overcome considerable challenges. Irreversible impacts from climate change on the Reef's ecological and socio-ecological systems are probable and the exact impacts are undetermined. The Reef governance system, which is complex and decentralised, was established when there was only very limited understanding of the impacts of climate change on the Reef. Therefore, the current management system may lack the agility required to adapt to rapidly evolving climate change impacts.

Coastal development

The Great Barrier Reef coastal zone is recognised by the Queensland Government as a region of significant environmental, social, cultural heritage and economic importance,

and this sentiment is reflected internationally. Coastal ecosystems adjacent to the Reef provide ecological processes critical to the health of the Reef. Protecting, maintaining and restoring these coastal ecosystems are essential components of halting and reversing declines in inshore ecosystem health and maintaining the Outstanding Universal Value (OUV) of the World Heritage Area.

The values for the Reef relevant to coastal development are clearly understood by managers, and the current condition and trend of these values are well known. Values relevant to coastal development are clearly articulated in the Outlook Report 2019, Informing the Outlook for Great Barrier Reef coastal ecosystems document, the Great Barrier Reef Strategic Assessment, and the 2017 Scientific Consensus Statement.

Planning systems to effectively address coastal development are well developed. However, non-statutory planning related to coastal development, such as regional natural resource planning, lack the resourcing needed to achieve their full potential. Coastal development is recognised as having a high impact on the Region's ecosystem values.

Population growth, poorly managed land-use, development and infrastructure in the catchment may affect the marine ecosystem. Indirectly, this would place pressure on the profitability of Reef-dependent uses.

Land-based Run-off

Land-based Run-off, particularly from agricultural land uses, has long been identified as a major contributor to poor ecosystem condition in the Reef (Eberhard et al. 2021, GBRMPA 2014a, b, Commonwealth of Australia 2021). The Reef 2050 Water Quality Improvement Plan guides how industry, government and the community will work together to improve the quality of water flowing to the Reef. The Commonwealth and Queensland governments continue to implement the actions in this plan.

Since 2019 there have been significant regulatory shifts by the Queensland Government, including strengthened Reef Protection Regulations and setting the water quality targets as Reef Water Quality Objectives (WQOs) in Queensland's environmental legislative framework. These Reef Protection Regulations require landowners to achieve minimum standards for practices on grazing land and banana and sugarcane farms to minimise fine sediment and nutrient discharges to water that flows to the Reef. The regulations were rolled out over a period of five years to allow farmers and industry time to adapt to the new requirements. This staged approach,

while necessary to allow time for adoption, also means that its efficacy is hard to measure at present while programs are still in their infancy.

Improvements to monitoring systems to help monitor anthropogenic run-off have been a priority since 2019, with notable technological improvements to systems such as the eReefs marine modelling system.

Key industry partnerships that aim to help in the management of Land-based Run-off and pursue best management practices (BMP) in the Region include Smartcane, Banana Best Management Practice, Hort 360, and GRASS, all of which have continued to operate as an important intermediary between industry and regulatory actors. As farmers can meet new regulatory requirements via participation in one of these programs, they remain an important tool in water quality management on the Reef.

Managing to protect the Region's values

Biodiversity values

Biodiversity is a critical component of the Reef's OUV and natural heritage value. The protection of biodiversity within the Region is at the centre of planning and management actions and is undertaken by a vast array of managers within the Region. Compared to 2019, the management effectiveness grades for the elements Planning, Inputs, Processes and Outputs remained *mostly effective*, while the grade for Outcomes remained *partially effective*. The grade for Context improved from *mostly effective* to *effective*. However, trends since 2019 for several indicators within the elements of Planning and Outcomes declined, reflecting poor protection of values, poor reduction of major risks and threats to the Reef and poor environmental and economic sustainability in relation to use of the Reef.

In March 2022 the joint World Heritage Commission and IUCN Reactive Monitoring Mission to the Reef (Carter & Thulstrup 2022) raised concerns about a range of issues including climate change-related factors, the lack of clear targets and implementation measures within management frameworks, strategies and plans, and lack of concrete actions sufficient to conserve the Reef's OUV under global temperature increase scenarios. In this reporting period there has been significant investment in Reef programs, updating of relevant plans (e.g. Reef 2050 Plan), expanded monitoring efforts, prioritisation of research and improvements to governance arrangements (e.g. expansion of TUMRAs).

The Queensland State of the Environment Report 2020 (DES 2021) states that confidence around condition status is limited for some species and ecosystem processes due to lack of long-term data over a broad area. It further indicates that population recruitment is reduced for many species (e.g. corals, fish, seabirds) and that ecological processes are poorly understood despite their 'deteriorating condition' and impacts on the integrity of the Reef's OUV. The AIMS Long Term Monitoring Program (2022) provides data on coral cover and coral bleaching. The Reef has experienced five mass coral bleaching events, with two occurring in this reporting period (2020 and 2022) and four severe cyclones (i.e. Category 3 and above) (since 2014), all of which have contributed to a reduction in coral abundance and damage to reef structure. AIMS monitoring results for 2021 indicated some recovery, especially in the Southern Reef but the increasing frequency and extent of mass bleaching events pose a significant risk to the state of the reefs. There is some evidence that reefs have shifted in their assemblages, with recovery driven by fast-growing *Acropora* corals and reliance on an adequate supply of larvae from non-impacted reefs and sufficiently stable substrate for settling larvae (Bozec et al. 2022).

The Reef continues to be exposed to cumulative stressors and consequential impacts. The combined impact of coral bleaching, severe cyclones, poor water quality, crown-of-thorns starfish outbreaks along with other stressors such as unsustainable fishing practices (e.g. gill nets), marine debris and changes to coastal ecosystems are not well understood.

The planning and governance systems for the Reef are complex, spanning terrestrial and marine environments, and include many diverse of stakeholders and partners, requiring coordination across multiple jurisdictions and sectors. There are many plans (e.g. Reef 2050 Plan, Zoning Plans, management plans), policies and legislation that apply across multiple scales. However, there have been challenges in integration and effective implementation, resourcing and monitoring. Governance was identified as a critical monitoring gap in the Priority Monitoring Gaps prospectus (2021) reflecting the need for review and may lead to consideration of more 'transformative' governance arrangements (Dale et al. 2016, Morrison 2017, 2019, 2020, Turner 2022) to address the stressors on the Reef.

Monitoring programs have expanded. The Reef 2050 Integrated Monitoring and Reporting Program (RIMReP) focuses on addressing priority gaps, reef-wide decision support systems and developing new strategies to access information. Several priority projects focus on biophysical and social monitoring. Information sharing has improved. RIMReP's centrepiece is the Reef Knowledge System that provides up-to-date information about the Reef to guide management decisions.

Partnerships are expanding and there are significant improvements in engagement with Traditional Owners, including the incorporation of Indigenous knowledges and moves towards co-management through Traditional Use Marine Use Agreements and other mechanisms.

Other challenges include: identifying realistic values and outcomes for the Reef under a climate changed future and the likelihood that ecosystem function decline appears to be inevitable; managing for coral resilience and understanding how multiple stressors affect different demographic processes and reef recovery; better integration of planning, funding and regulatory decisions across jurisdictions; delivering effective solutions at several levels - Reef-wide, regional and local; engaging in co-management and co-governance arrangements with Traditional Owners to manage biodiversity; prioritising actions and continuing to improve methods for understanding and responding to cumulative impacts; establishing effective review processes to assess the planning systems and related plans to ensure that they are delivering on outcomes for Reef biodiversity; understanding how permitted uses are cumulatively impacting biodiversity values; and enhancing communication among all players.

Heritage values

Heritage values include Indigenous heritage values (i.e. as cultural practices, sites of significance, languages and archaeology) and historic heritage values. Grades for the elements Context, Planning, Processes and Outputs have remained *mostly effective* since 2019. Inputs have remained *partially effective*, while Outcomes have declined from *mostly effective* to *partially effective*.

Significant improvements have been made in terms of documentation, monitoring and reporting frameworks in relation to heritage values, and knowledge sharing among key players. The Aboriginal and Torres Strait Islander Heritage Strategy (2019) is a five-year strategy to improve the protection of Indigenous heritage within the Region. The Reef Authority is working with Traditional Owners to focus on ways to keep Indigenous heritage in the Reef safe and healthy. The Reef Integrated Monitoring and Reporting Program (RIMReP) includes Traditional Owners as part of the program's governance. The Strong Peoples-Strong Country Framework is in its infancy (in a pilot phase with four groups). The Framework will assist in establishing indicators to monitor Indigenous heritage in RIMReP, which will support the understanding of progress towards Reef 2050 planning. The Land and Sea Country page, a component of the Reef Knowledge System, includes links to a wide variety of information relevant to Sea Country.

A Data Management System for RIMReP is being developed. There is also the Reef Authority's Cultural Knowledge Management System. Information systems such as these can assist Traditional Owners share and or store culturally sensitive (and other) information, as appropriate. The Toolkit for safeguarding Indigenous heritage and knowledge (2020) recognises the rights of Indigenous people to protect and manage their heritage and respects their rights in traditional knowledge and traditional cultural expression. It provides a framework for making formalised arrangements through its Protocol and Guidelines, and an 'Indigenous Knowledge Sharing Agreement' Template (not yet tested).

Other major achievements include the Great Barrier Reef Marine Park Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25 that outlines a strategic approach to identifying, protecting and managing the heritage values of Commonwealth heritage places within the Marine Park on behalf of the Commonwealth; the Traditional Owner Implementation Plan (2022) provides support to further understand and agree on a range of governance concepts, including co-management and co-governance and clarification of Traditional Owner rights and interests; the First Nations Heritage Protection Alliance (2021) is working to reform protections that preserve cultural treasures for future generations and to co-design partnerships with the Alliance communities to reform cultural heritage laws, including the review and restructure of process, procedure and protocols for First Nations cultural heritage protections.

Commonwealth listed and priority historic heritage sites are well protected, maintained and monitored. The management of most other historic sites in the Region receives little attention and they are vulnerable to a range of impacts. Special Management Areas continue to protect two Catalina aeroplane wrecks. The Joint Field Management Program focuses on the implementation and field delivery of agreements, mentoring, training and empowering of Land and Sea Rangers and Indigenous Compliance Officers and delivers compliance and maintenance services to Historic heritage structures and sites. It is responsible for protecting both Indigenous and Historic heritage values on island national parks and Commonwealth islands, including story places and other locations of ceremonial and spiritual significance.

Key challenges include: delivering a Reef-wide approach to engagement that incorporates Traditional Owners as 'real partners'; better application of relevant international and national principles relating to Heritage across all areas of Reef planning and management; systematically identifying the location of Heritage places (and values) and ensuring that this information is considered during assessment and planning processes; achieving a more comprehensive understanding of impacts to heritage values and their spatial extent; review and updating of relevant legislation to

strengthen outcomes for Heritage; addressing overlaps and inconsistencies among planning tools and enhancing integration of Heritage matters into local government planning mechanisms, across agencies and across terrestrial and marine planning systems; improving digital spatial data/tools, data management and data sharing; expanding protection of sites of heritage value; achieving strong governance that is based on co-governance arrangements; continuing education and awareness programs to minimise risks to heritage.

Community benefits of the environment

Community benefits of the environment encompasses socio-economic and socio-cultural, attributes of the Reef. Many of these attributes are values-based and include benefits such as employment, income, understanding, appreciation, enjoyment, personal connection, health benefits and access to Reef resources. Community benefits are now included in many of the policy and decision-making guidelines for the Reef.

Significant work has been undertaken to understand the range of community benefits across the Region and to incorporate community benefits into planning, policy and assessment processes. The Social and Economic Long Term Monitoring Program (SELTMP) gathers long-term data about Reef users, communities and industries, and their changing relationship with the Reef over time. SELTMP provides decision-makers the needed information on human use and dependency, wellbeing, and cultural context to ensure management decision reflect the needs of the people who interact with the Reef.

Recognition that the most significant threats to the long-term health of the Reef are outside the Reef Authority's jurisdiction (e.g. climate change, land-based run-off) has encouraged managing agencies to increase efforts to work with and influence the broader community and Local Marine Advisory Committees.

Management of elements within the management framework

Context was the strongest management effectiveness element with an overall grade of *mostly effective*, including seven topics assessed as *effective* and five as *mostly effective*. Climate Change and Coastal Development were graded as *partially effective*. Declining trends were reported for Fishing, Heritage and Community Benefits, with a downward grade change for Climate Change, Recreation, Traditional Use and Coastal Development. Only Biodiversity experienced an upward grade change, in part due to

the substantially increased investment into better understanding values, condition and trends in the face of significant threats, including climate change.

There was good understanding of Reef values (CO1) and the broader level influences (CO4) relevant to each topic, as well as knowing key stakeholders (CO5) and the broad status of condition and trends (CO2). Understanding of direct impacts (CO1) was generally good but could be enhanced through improved consideration of cumulative and consequential impacts.

Planning overall was graded as *mostly effective,* with two topics graded as *effective* (Land-based Run-off and Shipping) and the remainder (11 topics) graded as *mostly effective*. Declining trends were reported for Coastal Development, Land-based Run-off, Commercial Marine Tourism, Recreation and Biodiversity; while Defence, Ports, Traditional Use and Research experienced a downward grade change. The only topic to see an upward grade change was Climate Change.

The strongest Planning indicators included the provision of certainty around where different activities can occur (PL9), the setting of clear actions (PL3) and the consistency of planning across jurisdictions (PL8). The weakest indicator was the provision of monitoring in support of the planning system (PL5). Lack of monitoring data was a significant factor in Heritage, particularly in relation to underwater shipwrecks, plane wrecks and other relics. This lack of information impacts on good decision making about Heritage and related uses. The Reef 2050 Plan is the overarching plan addressing most of the key elements required for effective Reef management and the Intergovernmental Agreement sets a framework for joint coordination of planning and management.

Inputs was graded as *mostly effective* overall. Ten topics were graded as *mostly effective* and four rated *partially effective* (Climate Change, Coastal Development, Heritage and Community Benefits). While many topics were stable since 2019, there was a declining trend for Commercial Marine Tourism and downward grade changes for Coastal Development, Land-based Run-off, Community Benefits, Defence and Research, and an improving trend for Climate Change and Recreation.

Overall funding (IN1) increased across most topics with marked improvements in the funding for water quality improvement, Reef management and conservation, Reef Restoration and Adaptation and strengthening partnerships and stewardship. There were ongoing difficulties in human resourcing (IN2, IN3) across most topics, including the ability to attract staff with the ‘right skills’. Data inputs were generally strong (e.g. biophysical and socio-economic information (IN4, IN5), although data gaps remain in

Indigenous and Historic heritage information (IN6, IN7). There was also a high level of non-government (e.g. volunteer) involvement (IN8), reflecting strong levels of community engagement and interest across many topics.

Processes overall was graded as *mostly effective*. Two topics were rated as *effective* (Defence and Shipping), 10 topics were graded as *mostly effective* and two topics were graded as *partially effective* (Climate Change and Coastal Development). Many topics remained stable since 2019 but there was a declining trend for Community Benefits and downward grade changes for Coastal Development, Land-based Run-off and Research. There was an improving trend for Climate Change.

The strongest Processes indicators were the engagement with stakeholders (PR1) and local communities (PR2) and the integration of biophysical (PR9) information into decision-making. Engagement in Reef governance focused primarily on informing, consulting and involving, although there was a growing emphasis on collaboration and empowerment, especially in relation to Traditional Owner groups. The weakest indicators were the appropriate consideration of impacts (PR8) and the application of Indigenous heritage (PR11) and Historic heritage (PR12) information and performance monitoring (PR4). The Reef's polycentric system of governance is highly regarded globally but was described in this assessment as 'ageing and in need of updating' (Interviewee 2023), requiring more 'transformative' approaches (Turner et al. 2022), with the ability to adapt rapidly to evolving impacts (Bray et al. 2023, Dale et al. 2016, Morrison 2020, Australian Academy of Science 2023).

Outputs overall was graded as *mostly effective*. Two topics were graded as *effective* (Commercial Marine Tourism and Defence) and 11 topics were graded as *mostly effective*. Climate Change was graded as *partially effective*. Since 2019 the majority of topics have had a stable trend, although there were upward grade changes for Climate Change and Recreation and downward grade changes for Land-based Run-off, Traditional Use and Research. Declines were mostly the result of resourcing issues during the period of COVID-19 restrictions, which impacted the outputs that could be delivered, while improvements reflected improvements in the planning system for Climate Change.

The delivery of Outputs (OP4) was generally strong across all topics especially in terms of delivering products and related actions but with weaknesses in achievement of results against objectives (OP3), in part reflecting the absence of clear objectives for some topics or misalignment of outputs with expected objectives.

Outcomes is the weakest management effectiveness element although results were highly variable across topics. Overall the Outcomes element was graded as *mostly*

effective. However, the Outcomes for five topics were graded as *partially effective* (Biodiversity, Coastal Development, Fishing, Heritage and Land-based Run-off) and Climate Change was graded as *ineffective*. This is the highest number of *partially effective* and *ineffective* grades across all elements. Four topics had their Outcomes graded as *mostly effective* (Commercial Marine Tourism, Community Benefits, Recreation and Traditional Use) and four were *effective* (Defence, Research, Ports and Shipping), all of these being direct uses of the Reef. No topics had an upward grade change, although Climate Change had an increasing trend from 2019. Three topics had a declining trend (Coastal Development, Fishing and Biodiversity) while three had a downward change in grade (Heritage, Commercial Marine Tourism, Traditional Use).

The relatively poor achievement of Outcomes across several topics partly reflects a range of external influences on the Reef (e.g. bleaching events, climate change stressors) but also reflects an increased understanding of the extent of existing impacts (e.g. depletion of fished species' stocks). There was evidence of effective partnerships (OC7) across most topics, with partnerships increasing in number and diversity and involving a greater range of sectors.

Management approaches

Environmental regulation

The management of the Region is assisted through the use of statutory instruments, preeminent of which are the *Great Barrier Reef Marine Park Act 1975* (Marine Park Act), the *Great Barrier Reef Marine Park Zoning Plan 2003* and *Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004*, and a range of sector/activity-specific Acts (e.g. Queensland *Fisheries Act 1994*) and associated regulations. The Marine Park, the World Heritage Area, the National Heritage Property and many of the values of the Reef (e.g. threatened and migratory species) are also listed as a Matter of National Environmental Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). While these instruments have generally kept pace with the changing context associated with management of the Reef more generally, continuing review and updating of legislation and policy are needed to enhance effective management. Samuel (2020) identified the need for significant reform in actions for national environmental assessment and permitting for activities that may have a significant impact on MNES. These reforms are currently being addressed (e.g. Nature Positive Plan: better for the environment, better for business (DCCEEW 2022).

There are largely effective joint management arrangements in place between the Commonwealth and Queensland governments in relation to Marine Park permitting, field presence and compliance activities. These arrangements seek to minimise

jurisdictional overlap. However, some jurisdictional inconsistencies and misalignment remain.

Zoning Plans provide an effective spatial tool for managing activities that can occur 'as of right' without a permit and activities that are prohibited in certain zones. Higher protected zones under the plan have delivered benefits for marine ecosystems. A diverse array of supporting tools and planning arrangements are also in place to manage direct use. More specific arrangements are also identified for high use areas under Plans of Management, which are being updated (e.g. Whitsundays) and expanded (e.g. Southern Plan of Management).

Compliance systems are increasingly sophisticated, especially regarding the tracking of vessels and vessel activities. However, there remain gaps associated with monitoring of blackwater pump-out in the Region and fishing practices. Compliance monitoring has been enhanced through increased funding of the RJFMP from 2018 and this has continued over the current reporting period.

Various non-statutory mechanisms are in place, including policies, strategies, position statements, guidelines and management plans, including strategies developed in the lead up to the Outlook Report 2019 and implemented over the current reporting period (e.g. Maintenance Dredging Strategy, Sustainable Fisheries Strategy). Many of these policies and strategies would benefit from more outcome-oriented targets, with clear objectives, actions and milestones, as well as ongoing reporting and evaluation.

The Reef protection regulations were introduced in 2019 to provide greater statutory controls associated with point source and non-point source pollution to the Reef. This aims to address one of the most significant external impacts to the Reef. The impact of the regulations is being monitored.

The Reef 2050 Plan has overtaken some of these strategies as an overarching plan for the Region. There would be benefit from mapping the relationship between the Reef 2050 Plan and remaining strategies to understand these interactions. The process of reviewing and updating these instruments needs to be more adaptable and responsive as new evidence emerges (Chubb 2023).

Engagement

Reef stakeholders are well known to managers (CO5) and the Reef Authority's Actor Network Mapping project is improving the identification of relevant Reef actors. In terms of the type of engagement (IAPP 2018), relationships were strongest between the Reef Authority and the Commonwealth and Queensland governments, with

engagement focussed on: 'informing' (e.g. education and stewardship programs, Great Barrier Reef Aquarium, Reef Knowledge System); 'consulting' (e.g. Reef Authority Board, Advisory Committees and LMACs, information collection); and 'involving' stakeholders (e.g. RJFMP partners, trained community volunteers, Indigenous rangers, Master Reef Guides and others). There was less evidence of 'collaborating' and 'empowering' engagement. However, greater efforts have been made to engage with Traditional Owners, especially through the expanded TUMRA program and policy commitments to co-management with Aboriginal and Torres Strait Islander Peoples by the Reef Authority and DES. There were also strong and growing connections between research and decision making and a range of actors (e.g. National Environmental Science Program and Reef 2050 Integrated Monitoring and Reporting Program).

Reef partnerships have increased in number and diversity and are underpinned by increasingly complex arrangements. The key types of partnerships include: knowledge-based reporting (e.g. report cards, monitoring programs); integrated delivery (e.g. joint permission system, RJFMP, Reef Guardian Schools, regional delivery with NRM groups for land-based management under the Reef 2050 Water Quality Improvement Plan); policy and planning which is underpinned by the Intergovernmental Agreement (e.g. Reef Advisory Committees and sectoral arrangements); and working with Traditional Owners (e.g. TUMRA program and Indigenous Reef Advisory Committee).

The Reef Trust supports the delivery of the Reef 2050 Plan and in 2018 formed a partnership with the Great Barrier Reef Foundation to enable funding mechanisms for new Australian Government investment in Reef protection. This Reef Trust Partnership is addressing water quality, reef restoration and adaptation, greater engagement of Traditional Owners and local communities and critical monitoring gaps, among others.

Key challenges include: developing effective engagement with all relevant communities and which is tailored to their needs and provides 'real empowerment' (Chubb 2023:3); appropriate resourcing of effective engagement and partnering with Traditional Owners; ensuring the most effective engagement of all Reef Advisory Committees in planning and decision making; enhancing the engagement of local governments in diverse decision-making processes; developing greater cross-sectoral and cross-scale collaboration and partnerships among stakeholders and reduced reliance on 'siloed' decision making; ensuring adequate resourcing within the Reef Authority to provide a centralised point of distribution, data management and coordination of collaboration; addressing human resourcing within the Authority and a range of sectors.

Knowledge, innovation and integration

Research and monitoring are a key factor underpinning management effectiveness for the Reef. Information on research and monitoring is well documented in the Outlook Report process, Science and Knowledge Needs for Management (2021), ongoing work with renewing the Scientific Consensus Statement, and through the Marine and Coastal Hub of the National Environmental Science Program. These processes and others have identified key knowledge gaps (e.g. Priority Monitoring Gaps prospectus, 2021). Programs and projects (e.g. Priority projects) have been developed in response. However, greater adaptability and flexibility in relation to research and monitoring will be needed as research efforts are directed towards building Reef resilience in relation to a range of possible scenarios that address the predicted impacts of climate change and other threats.

The Reef Authority and other agencies have developed key research partnerships with the CSIRO, AIMS and major Australian universities, and utilise citizen science programs to assist in addressing knowledge gaps. Some of the most significant ongoing programs for the Reef are:

- Reef Restoration and Adaptation Program (RRAP) - provides a framework for testing novel interventions to build the resilience of the Reef under a changing climate.
- Reef 2050 Integrated Monitoring and Reporting Program (RIMReP) - a broad suite of critical monitoring projects that provide information on status and trends towards meeting the Reef 2050 Plan's goals and objectives.
- Social and Economic Long-Term Monitoring Program (SELTMP) - a core monitoring programs under the broader RIMReP program, providing key insights to the socio-economic and human dimensions of the Reef and associated use.
- AIMS Long-Term Monitoring Program - measures the status and trend of reefs in the World Heritage Area.
- Reef Authority Marine Monitoring Program monitors the health of inshore coral, seagrass and water quality.

Key challenges include: incorporating a wide range of diverse knowledge sets across multiple sectors, in particular Traditional Knowledges (Australian Academy of Science 2023); monitoring of Traditional Owner reef use and well-being; consolidating data from Reef-related projects; expanding monitoring and modelling in response to a climate-changed future in order to support decision making (Australian Academy of

Science 2023); and effectively communicating findings to all stakeholders, in particular the general public.

Resourcing of management arrangements

The development of the Reef 2050 Plan has led to significant increases in funding of actions under the Plan at various scales from national to local. Resourcing has generally improved or stabilised across the current reporting period. However, recent market demands have significantly impacted the ability to recruit new staff in 2022-2023, with some key positions remaining vacant at the time of reporting.

The challenges facing the Reef are substantial and investment into improved planning and governance and multi-scaled approaches (Reef-wide, regional and local) may require a wider discussion of the type of investments that will be needed into the future to address the diverse range of impacts outlined in this Report.

1. Introduction

The Great Barrier Reef Outlook Report (Outlook Report) is prepared by the Great Barrier Reef Marine Park Authority (the Reef Authority) every five years, as required under the *Great Barrier Reef Marine Park Act 1975* (section 54) and the Great Barrier Reef Marine Park Regulations 2019. The Outlook Report provides an assessment of Reef health and management within the Great Barrier Reef Region (the Region) (Figure 3, Figure 4). This report assesses the *effective*ness of management within the Region and forms the basis for Chapter 7 of the Outlook Report. It builds upon previous reports undertaken in 2009, 2014 and 2019.

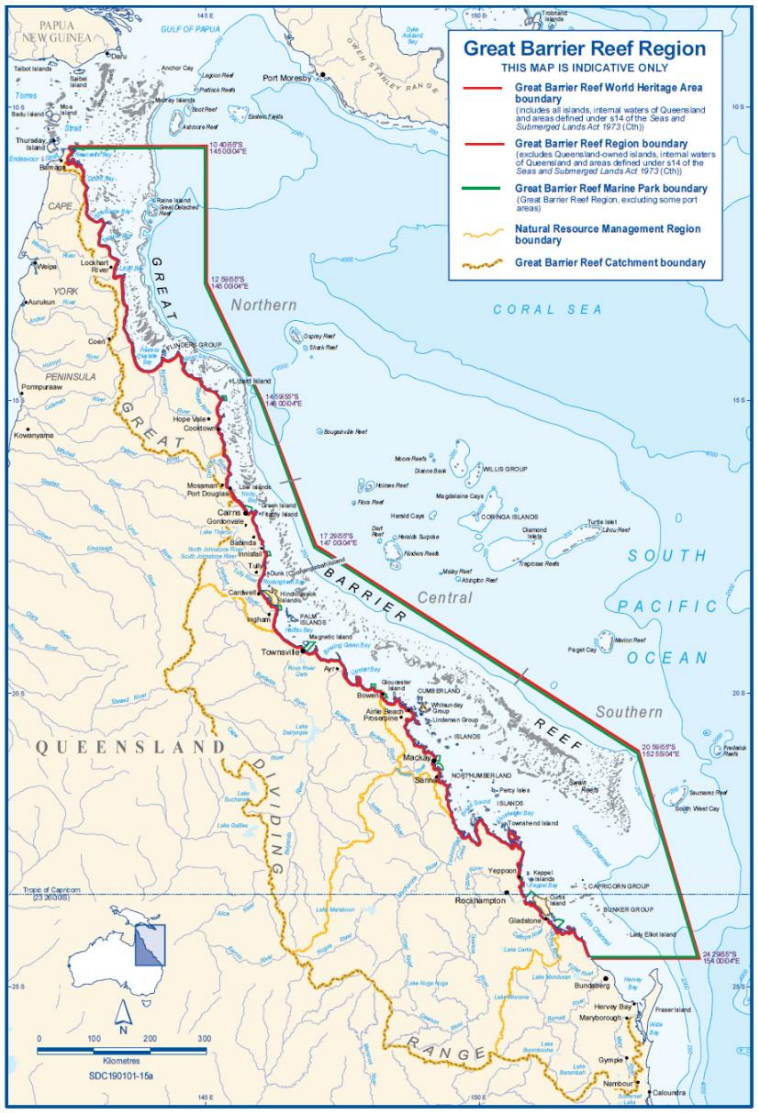


Figure 3: Great Barrier Reef Region

Source: GBRMPA (2019, Figure 1.1)

Protection and management responsibilities in the Region

The Great Barrier Reef Region extends from the mean low water mark to the Great Barrier Reef Region boundary and comprises both Queensland Territory and Commonwealth Territory. The Region covers around 346,000km^2, with the land area that drains into the Reef being about 424,000km^2. Responsibility for management is shared between the Queensland Government, with primary responsibility for regulation of natural resource management and environment protection, and the Australian Government, with responsibility for the Great Barrier Reef (the Reef) and Australia's world and national heritage properties.

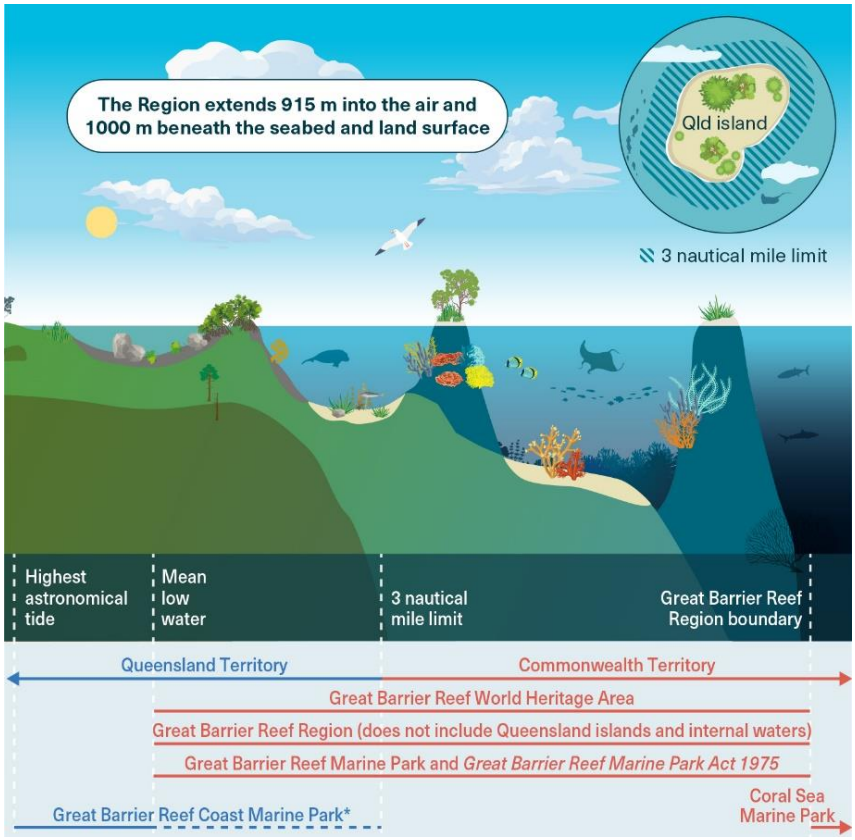


Figure 4: Jurisdictional boundaries relating to the Great Barrier Reef Region
Source: GBRMPA (2019, Figure 1.2)

The Reef Authority manages the Great Barrier Reef Marine Park (the Marine Park) in accordance with the *Great Barrier Reef Marine Park Act 1975* (Cth) (Marine Park Act), the main object of which is to provide for the long-term protection and conservation of the environment, biodiversity and heritage values of the Region. The Australian and Queensland governments work in partnership, as formalised in the Great Barrier Reef

Intergovernmental Agreement 2009. Joint management occurs in relation to many issues within the Marine Park, the adjacent Queensland Great Barrier Reef Coast Marine Park and Queensland island national parks.

Management partners and stakeholders

The government and government-associated management agencies for the Region (Table 2) include a range of Queensland and Commonwealth government agencies as well as the government-owned corporations responsible for managing Queensland ports. There are multiple additional partners engaged in the protection and management of the Region. This includes Traditional Owners, who retain strong connections with Land and Sea Country, organisations from industry, agriculture, research, tourism, shipping, the community and many others spread across terrestrial and marine environments.

The Reef Authority is supported by two Reef Advisory Committees and 12 Local Marine Advisory Committees. These mechanisms help to involve local communities and other stakeholders in the management of the Marine Park.

Table 2: Agencies responsible for managing the values of the Great Barrier Reef Region

Agency	Jurisdiction	Relevant Topic Areas	
Great Barrier Reef Marine Park Authority	Federal	All topics	
Department of Climate Change, Energy, the Environment and Water	Federal	• Biodiversity • Climate change • Coastal development • Community benefits • Commercial marine tourism • Fishing	• Heritage • Land-based Run-off • Ports • Recreation • Research • Shipping • Traditional use of marine resources
Department of Agriculture, Fisheries and Forestry	Federal	• Fishing	• Recreation
Defence	Federal	• Defence	•
Australian Maritime Safety Authority	Federal	• Ports	• Shipping

Agency	Jurisdiction	Relevant Topic Areas	
Department of Environment and Science (including Queensland Parks and Wildlife Service)	State	• Biodiversity • Climate change • Coastal development • Community benefits • Commercial marine tourism • Fishing	• Heritage • Land-based Run-off • Ports • Recreation • Research • Shipping • Traditional use of marine resources
Department of Transport and Main Roads	State	• Commercial marine tourism	• Ports • Shipping
Department of Agriculture and Fisheries	State	• Fishing • Recreation	• Coastal development (aquaculture and agriculture)
Maritime Safety Queensland	State	• Commercial marine tourism • Ports	• Recreation • Shipping • Community benefits
Queensland Ports Authority	Queensland ports	• Ports	• Shipping
Far North Queensland Ports Corporation Ltd	Ports of Quintell Beach, Cape Flattery, Cooktown, Cairns and Mourilyan	• Ports	
Port of Townsville Ltd	Ports of Lucinda and Townsville	• Ports	
North Queensland Bulk Ports Corporation Ltd	Ports of Mackay, Hay Point, Abbot Point	• Ports	
Gladstone Port Corporation Ltd	Ports of Rockhampton and Gladstone	• Ports	

2. Management effectiveness assessment methodology

A broad assessment of the effectiveness of the management activities undertaken to conserve the Region's values is an important part of the planning framework for the Reef. This assessment helps to determine the current status and trends in relation to various values and uses, identify major risks, assess Reef resilience and plan for the future.

The effectiveness of measures to protect and manage the Region's values was independently assessed in the Management Effectiveness Report 2009 (Hockings & Gilligan 2009), 2014 (Hockings et al. 2014) and 2019 (Leverington et al. 2019). A similar independent assessment was undertaken for this report.

The assessment considers all the aspects of management within the Region in relation to selected topics (e.g. Biodiversity, Fishing, Traditional Use etc). These management activities incorporate all relevant stakeholders and partners, including the Reef Authority and other Commonwealth and Queensland government agencies and others (Table 2). The assessment also considers threats that extend outside the Region and affect the values of the Region (e.g. climate change).

Management effectiveness assessment framework

Protected area management effectiveness (PAME) evaluations are undertaken globally to assess how well protected areas are being managed. PAME assessments provide a strong basis for pro-active and adaptive protected area management.

PAME incorporates assessment of:

- Design issues (for individual protected areas and systems)
- Adequacy and appropriateness of management systems/ processes
- Delivery of protected area objectives and conservation of values (Hockings et al. 2006).

Management effectiveness assessment

The assessment of how well protected areas are being managed

i.e. the extent to which management is *protecting values* and *achieving goals and objectives* and *how this can be improved*

Hockings et al. 2006

Purposes of PAME

- Better management (adaptive)
- Assist in effective resource allocation
- Promote accountability and transparency
- Help involve community, build constituency and promote protected area values

Hockings et al. 2006

The IUCN Framework (Figure 5 and Table 3) for assessing management effectiveness (Hockings et al. 2006) is used widely to evaluate protected area management effectiveness in diverse circumstances.

This Framework identifies six important **elements** within the protected area management cycle. It is based on the notion that good management requires a thorough understanding of individual protected area conditions, be carefully planned and implemented, with regular monitoring, resulting in adaptive management responses.

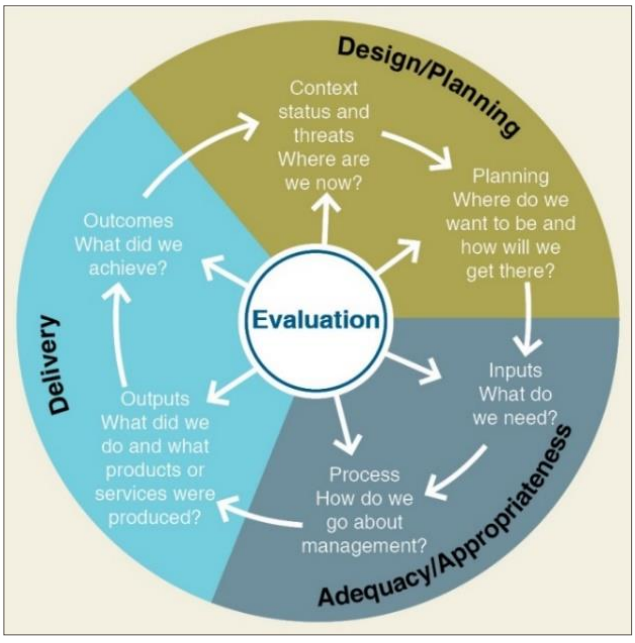


Figure 5: The Framework for assessing the management effectiveness of protected areas. Source: Hockings et al. 2006

Elements of effective protected area (PA) management

Context

PA values, threats, opportunities, stakeholders, management and political environment

Planning

PA vision, goals, objectives and strategies to conserve values and reduce threats

Inputs

Resources of staff, money, equipment

Processes

How the management actions are implemented

Outputs

Goods and services (outlined in management plans and work plans)

Outcomes

Impacts that achieve defined goals and objectives

Table 3: IUCN-WCPA Framework for assessing management effectiveness of protected areas and protected area systems

	Design		Appropriateness / Adequacy		Delivery	
Elements of management cycle	Context	Planning	Inputs	Processes	Outputs	Outcomes
Focus of evaluation: Assessment of:	Importance, threats and policy environment	PA design and planning	Resources needed to carry out management	The way in which management is conducted	Implementation of management programmes and actions; delivery of products and services	The outcomes and the extent to which they achieved objectives
Criteria that are assessed	Significance / values Threats Vulnerability Stakeholder attitudes National context / external environment	PA legislation and policy PA system design PA design Management planning	Resources available to the agency Resources available to the protected area e.g. staff, funding, equipment, facilities, information	Suitability of management processes and the extent to which established or accepted processes are being implemented[2]	Results of management actions Services and products	Impacts: effects of management in relation to objectives

The management effectiveness reports are required to assess, among other things, the existing measures to protect and manage the ecosystems within the Region. The assessment methodology for the first management effectiveness report (Hockings & Gilligan 2009) was developed using the IUCN Framework and assessed all six elements. This methodology was adapted slightly for the 2014 report and has remained consistent for the 2019 and 2024 reports.

[2] Includes governance and leadership, policy development; administration, work programming and internal organisation; evaluation; maintenance of infrastructure, facilities, equipment; staff training; human resource management; law enforcement; community involvement; communication, education and interpretation; community development assistance; sustainable resource use – management and audit; visitor management restoration and rehabilitation; resource protection and threat reduction; research and monitoring (Hockings et al. 2015).

Evaluation objectives and scope

The key objectives of this assessment of the management effectiveness of the Reef are to:

- critically evaluate state and trends in effectiveness of current:
  - Management of direct use of the Great Barrier Reef Region
  - Management of external factors that influence the Great Barrier Reef Region
  - Management to protect the Great Barrier Reef Region's values
- critically evaluate state and trends in effectiveness of the six elements of the IUCN management effectiveness framework as well as any additional management approaches
- inform the development of the 'Existing protection and management' chapter of the 2024 Outlook Report, and
- meet the legislative need for a comprehensive and independent assessment of management effectiveness as part of the 2024 Outlook Report.

Benefits of undertaking PAME

- Improved stakeholder engagement, more cooperative teams and partnerships
- Sharing of knowledge
- Reflection on the current condition and trends
- Identifying 'ways forward' to improve management
- Basis for adaptive planning – plans, policies, practices, resource allocation
- PAME is only useful if it results in better management of a protected area

Hockings et al. 2006

The assessment framework used in 2024 applied the same methodology used in 2009, 2014 and 2019 to enable comparisons over time and to build on the prior experiences of stakeholders engaged in previous assessments. No additional field research was undertaken to justify the ratings and grades, which relied on existing published literature, monitoring and survey data, and the informed opinions of managers, other key stakeholders, and the independent assessors.

The scope of the assessment included the activities of all Commonwealth and Queensland government agencies and the range of partners that contribute to protection and management of the Region. Thus, the scope extends beyond the

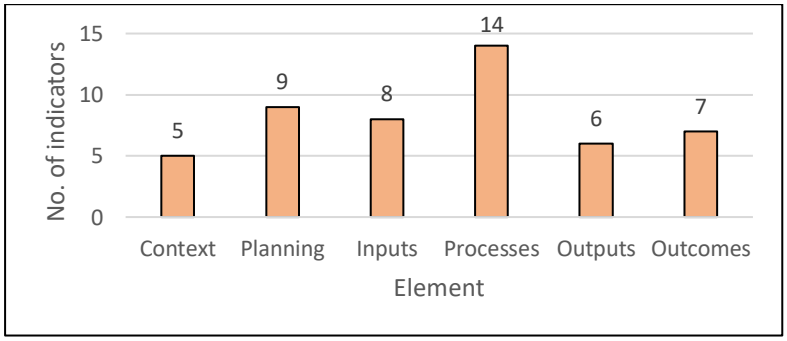
activities of the Reef Authority. The assessment incorporates management actions undertaken both inside and outside of the Region and includes consideration of global issues such as climate change.

Management topics and indicators

The 14 management topics addressed in this assessment are the same as in management effectiveness reports for 2014 and 2019 (Table 4). Each **topic** was assessed against 49 indicators (Table 5) grouped according to the six Framework **elements** (i.e. Context, Planning, Inputs etc) (Figure 6).

Table 4: Management topics by clusters

Managing direct use	Managing external factors	Managing to protect the Region's values
• Commercial marine tourism • Defence activities • Fishing (commercial and recreational) • Ports • Recreation (not including fishing) • Research activities • Shipping • Traditional use of marine resources	• Climate change • Coastal development • Land-based Run-off	• Biodiversity values • Heritage values (historic and Indigenous) • Community benefits of the environment



Indicators

Quantitative or qualitative variables that provide useful information about a criterion and can be used to help compile a picture of the status and trends in protected area effectiveness.

Figure 6: Number of indicators in each IUCN Framework element

The indicators incorporate several recurring key terms and concepts that have been applied consistently throughout the report and topic evidence tables (Appendix 5).

Table 6 provides a brief explanation of some of these terms and concepts.

Table 5: Indicators used to assess effectiveness of management topics

CONTEXT
CO1 The values of the Great Barrier Reef relevant to *** are understood by managers
CO2 The current condition and trend of values relevant to *** are known by managers
CO3 Impacts (direct, indirect and cumulative) associated with *** are understood by managers.
CO4 The broader (national and international) level influences relevant to *** are understood by managers.
CO5 The stakeholders relevant to *** are well known by managers.
PLANNING
PL1 There is a planning system in place that effectively addresses ***
PL2 The planning system for *** addresses the major factors influencing the Great Barrier Reef Region's values.
PL3 Actions for implementation regarding *** are clearly identified within the plan
PL4 Clear, measurable and appropriate objectives for management of *** have been documented
PL5 There are plans and systems in place to ensure appropriate and adequate monitoring information is gathered in relation to ***
PL6 The main stakeholders and/or the local community are effectively engaged in planning to address ***
PL7 Sufficient policy currently exists to effectively address ***
PL8 There is consistency across jurisdictions when planning for ***
PL9 Plans relevant to *** provide certainty regarding where uses may occur, the type of activities allowed or specifically disallowed, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.
INPUTS
IN1 Financial resources are adequate and prioritised to meet management objectives to address ***
IN2 Human resources within the managing organisations are adequate to meet specific management objectives to address ***
IN3 The right skill sets and expertise are currently available to the managing organisations to address ***
IN4 The necessary biophysical information is currently available to address ***
IN5 The necessary socio-economic information is currently available to address ***
IN6 The necessary Indigenous heritage information is currently available to address ***
IN7 The necessary historic heritage information is currently available to address ***

IN8 There are additional sources of non-government input (for example volunteers) contributing to address ***
PROCESSES
PR1 The main stakeholders and/or industry(ies) are effectively engaged in the ongoing management of ***
PR2 The local community is effectively engaged in the ongoing management of ***
PR3 There is a sound governance system in place to address ***
PR4 There is effective performance monitoring, including. regular assessment of appropriateness and effectiveness of tools, to gauge progress towards the objective(s) for ***
PR5 Appropriate training is available to the managing agencies to address ***
PR6 Management of *** is consistently implemented across the relevant jurisdictions
PR7 There are effective processes applied to resolve differing views/ conflicts regarding ***
PR8 Impacts (direct, indirect and cumulative) of activities associated with *** are appropriately considered.
PR9 The best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding ***
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding ***
PR11 The best available Indigenous heritage information is applied appropriately to make relevant management decisions regarding **
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding ***
PR13 Relevant standards are identified and being met regarding ***
PR14 Targets have been established to benchmark management performance for ***
OUTPUTS
OP1 To date, the actual management program (or activities) have progressed in accordance with the planned work program for ***
OP2 Implementation of management documents and/or programs relevant to ** have progressed in accordance with timeframes specified
OP3 The results (in OP1 above) have achieved their stated management objectives for ***
OP4 To date, products or services have been produced in accordance with the stated management objectives for ***
OP5 Effective knowledge management systems regarding *** are in place within agencies
OP6 Effective systems are in place to share knowledge on *** with the community
OUTCOMES
OC1 The relevant managing agencies are to date effectively addressing ** and moving towards the attainment of the desired outcomes.

OC2 The outputs relating to *** are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)
OC3 the outputs (refer OP1 and 3) for *** are reducing the major risks and the threats to the Great Barrier Reef
OC4 Use of the Great Barrier Reef relating to *** is demonstrably environmentally sustainable
OC5 Use of the Great Barrier Reef relating to *** is demonstrably economically sustainable
OC6 Use of the Great Barrier Reef relating to *** is demonstrably socially sustainable in terms of understanding and/or enjoyment
OC7 The relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address **

Table 6: Key terms and concepts within management effectiveness indicators

Indicator term	Explanation
Managers (CO1-CO5)	A person, group or organisation involved in activities related to management of various factors that affect the Reef. This may include the Reef Authority, various government departments, local governments, natural resource management organisations, tourism operators, Traditional Owners, farmers, fishers and port authorities.
Managing organisations (IN2, IN3) / **Managing agencies** (OC1)	Managing organisations are a subset of managers, typically consisting of an institutional group with a specific focus on certain management activities. The term includes both government and non-government actors such as the Reef Authority, Traditional Owner groups, and natural resource management groups. Within OC1, 'managing agencies' is used interchangeably with 'managing organisations'.
Stakeholder (CO5, PL6, PR1)	A person, group or organisation with a stake or interest in matters related to the Reef. This includes, among others, Traditional Owners, industry sectors, science and research organisations, local communities and individuals, conservation groups, the Reef Authority and government at all levels. Stakeholders have varying levels of engagement and influence in decision making.
Partnerships (OC7)	These are collaborative relationships between two or more parties. They form a strong foundation on which to advance outcomes across the Reef. They support program delivery and build an enabling environment in which other actions or strategies are implemented. Examples of partnerships relevant to the Reef include the Reef Trust Partnership, and partnerships with the Australian Institute of Marine Science and Traditional Owners through TUMRAs.
Effective engagement (PL6, PR1, PR3)	The effectiveness of engagement is considered across five levels (IAPP 2018, based on Arnstein 1969): 1. Informing – providing balanced, objective information to assist understanding of a problem, alternatives, opportunities and/or solutions. 2. Consulting – to obtain feedback on analysis, alternatives or decisions. 3. Involving – working directly throughout the process to ensure

	relevant concerns/aspirations are understood and considered. 4. Collaborating – partnering with relevant groups in each aspect of the decision. 5. Empowering – placing the final decision making in the hands of others.
Planning system (PL1, PL2, PL5)	Planning systems provide alignment, coordination and integration of relevant planning instruments being employed by all levels (i.e. local, state and national) and sectors of government (i.e. environment, infrastructure). The planning system may incorporate both marine and terrestrial spatial planning. It considers integration of planning activities undertaken at various levels, including from international to local (vertical) and across sectors (horizontal). The system incorporates a diverse array of documents, including legislation, regulations, policy, strategies, plans, guidelines, position statements and the like. The effectiveness of the planning system depends in part on the integration of planning and related plans within the system, the linkages among the key actors within the system and the extent to which it meets the agreed visions, goals, objectives and outcomes detailed in the planning documents.
Sound governance system (PR3)	A sound governance system incorporates effective networks or linkages among the actors, including across jurisdictions. It may have aspects of centralised (top-down) or decentralised (bottom-up) processes, but the aim is to ensure that all the key stakeholders are effectively engaged. The structural elements of governance incorporate the legislation, plans, policies and programs related to the Reef and which provide the basis for governing the Region. The functional elements of governance consider how decision-making powers are distributed among the actors, the strength of the connections among the actors, the various knowledges that are incorporated, how compliance and law enforcement are addressed and disputes resolved and whether benefit sharing arrangements may be in place (Day et al. 2016). The Marine Park has a polycentric governance system that includes diverse actors operating at several levels (e.g. international to local and across sectors). Polycentric systems typically have multiple centres of semi-autonomous decision-making, thereby creating parallel and interconnected decision-making processes (e.g. Carlisle & Gruby 2017).
Understanding/ knowing (CO1-CO5)	These are assessed in relation to the documents that are in place to manage the Reef. This may include the Reef 2050 Plan, various legislation, strategies, guidelines and the like. No separate survey of managers or stakeholders was undertaken to determine the level of understanding or knowing.
Sustainable use (OC4, OC5, OC6)	Use of the Great Barrier Reef and associated resources meets the needs of the current generation without compromising the ability or enjoyment of the Reef for future generations.

Assessment ratings, grades and trends

Each of the 14 topics was assessed against 49 indicators using a standard rating and grading system. Confidence levels for each indicator were stated and trends identified.

Ratings

A four-point rating scale commonly used in management effectiveness evaluation systems was adopted to rate performance in relation to each indicator (Table 7).

Table 7: Indicator rating scale

Rating	Description (% of optimal condition)
1	0 - 20
2	21 - 50
3	51 - 80
4	81 - 100

Grades

A grade was assigned to **each element** (e.g. Context) of the IUCN Framework across all topics. To determine this grade, the **ratings for the topic indicators** in each element (e.g. for Context this included the indicators CO1 to CO5) **were added and then scaled to provide a total score out of 40**. A grading system was developed to convert these total scores (out of 40) to a statement or **grade** of management effectiveness ranging from *effective* to *ineffective* management (Table 8).

Table 8: Grading scale for elements[3]

Grade	Total Element Score
Effective	35 - 40
Mostly effective	27 - 34
Partially effective	16 - 26
Ineffective	0 - 15

Confidence

The confidence level associated with each indicator score was determined across all topics. Two categories were identified (Table 9).

Table 9: Confidence rating

Confidence	Description
Adequate high-quality evidence	Based on monitoring/survey data, scientific reports, research etc, and/or there is a high level of consensus
Limited evidence	Assessment based on anecdotal knowledge or has limited consensus or supporting data

[3] *Note*: All element scores were rounded up (for decimal numbers 5, 6, 7, 8, 9) or down (for decimal numbers 1, 2, 3, 4).

Trend

Trends were calculated in relation to: (a) each indicator; and (b) the overall grade for each element (Context, Planning, Inputs, Processes, Outputs and Outcomes) for each management topic (Table 4). The trend categories were: improving, deteriorating, or stable (Table 10). When the overall grade for an element within a topic remained the same, but the per centage change in overall result for the element equalled or exceeded 7.5 per cent, the trend was shown as either deteriorating or improving, rather than stable (Leverington et al. 2019).

Data errors and inconsistencies

***Note**: In conducting the 2024 assessment, the assessors identified errors or inconsistencies in the indicator ratings and element grades and trends in the 2019 Management Effectiveness Report (Leverington et al. 2019) and the Great Barrier Reef Outlook Report 2019 (GBRMPA 2019). The ratings, grades and trends presented in this 2024 Management Effectiveness Report are based on corrected ratings, grades and trends for 2019 that have been verified by the 2019 independent assessors (refer Appendix 6). The confirmed errors and corrected results are noted within relevant sections of this report.*

***Note**: For the purpose of this assessment, grades and ratings for 2014 and 2009 have been taken at face value from the published reports (Hockings et al. 2014; Hockings & Gilligan, 2009). If there have been slight variations in methods through time, this could potentially make re-calculation of results with current methods subject to discrepancies.*

Table 10: Trend categories

Trend		Description
↑	Improving	Trend since 2019 has been an **upwards change in grade**
↗	Improving	Trend since 2019 is increasing but has not caused an upwards grade change
↔	Stable	Grade has remained stable compared to 2019, with no major trends
↘	Deteriorating	Trend since 2019 is decreasing but has not caused a downwards grade change
↓	Deteriorating	Trend since 2019 has been a **downwards change in grade**

Scale and complexity

The 14 topics considered in the assessment vary in scale (Region-wide to specific sites) and complexity e.g. major complexity (e.g. Climate Change) to minor complexity (e.g. Defence activities). In general, direct use topics are less complex than those related to external factors and values, due to the presence of additional actors and interests and the interconnectedness of management requirements in the latter areas.

Ratings for management topics were not weighted, and thus the assessment for each topic needs to be interpreted in the context of differences in scale and complexity.

Assessment process

There were several steps in the assessment process (Figure 7). Phase 1 addressed the purpose of the evaluation and was explained previously (refer Evaluation objectives and scope).

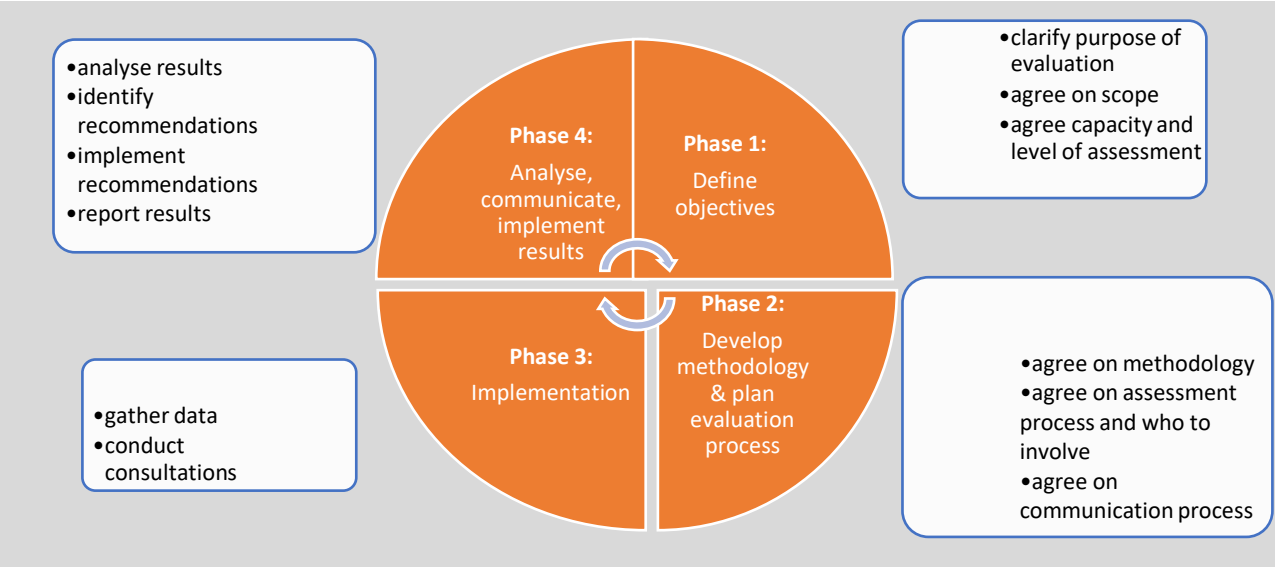


Figure 7: Major phases of the assessment Source: Adapted from Hocking et al. (2006)

Design of a new data recording tool – MEAT

A purpose-built data recording excel workbook – the Management Effectiveness Assessment Tool (MEAT) for the Great Barrier Reef Region (Peterson 2023) – was designed to:

Tool

An instrument that aids in the actual undertaking of an evaluation, e.g. questionnaire or scorecard

Stern et al. 2005

- facilitate data entry related to indicators across 14 topics
- enable easy comparisons of indicator ratings, element grades and trends over time
- collate and summarise information
- incorporate automated development of graphical images (e.g. summary tables and charts) that are available in a dashboard and can be used for reporting purposes
- store data over multiple Outlook assessments to enable long-term comparisons of management effectiveness, and
- provide supporting information (e.g. Reef values, objectives, threats, managers, programs, investment priorities etc) used by the assessors to help determine indicator ratings and provide consistency across topics.

For each topic of the assessment, the MEAT included:

- the automated entry of ratings (1-4) for each indicator across the 14 topics
- statements to justify the rating for each indicator
- supporting evidence or sources of information
- the confidence attached to the indicator rating
- the trend in the rating since the previous Management Effectiveness Report (2019).

The MEAT helps to: minimise errors in data entry across multiple data sheets; reduce reporting errors; and facilitate transparency and visibility across all elements and indicators and over time.

Data gathering

Data relevant to each of the 49 indicators across 14 topics were assembled, with assistance from the Reef Authority and other Commonwealth and Queensland government agencies. The independent assessors were directed to various reports, plans, biological surveys, published papers, statistics, operational plans and work plans to aid in allocating indicator ratings.

The assessors reviewed evidence related to each indicator across the 14 topics, checked source documentation and sought additional information from relevant research papers and reports.

Data recording

Based on the preliminary data gathering, the assessors populated the MEAT, including assigning an initial rating, confidence and trend to each of the indicators.

Initial stakeholder workshop – to gather data and compile draft evaluation

Selected stakeholders across the 14 topic areas were invited by the Reef Authority to attend a stakeholder workshop (Figure 8) conducted from 16-17 March 2023. This included representatives from the Reef Authority, Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW), Defence, Australian Maritime Safety Authority (AMSA), Queensland Department of Environment and Science (DES), including Queensland Parks and Wildlife Service (QPWS), Department of Agriculture and Fisheries (DAF), Department of Transport and Main Roads (TMR), Maritime Safety Queensland (MSQ), and the Queensland Ports Association (QPA).

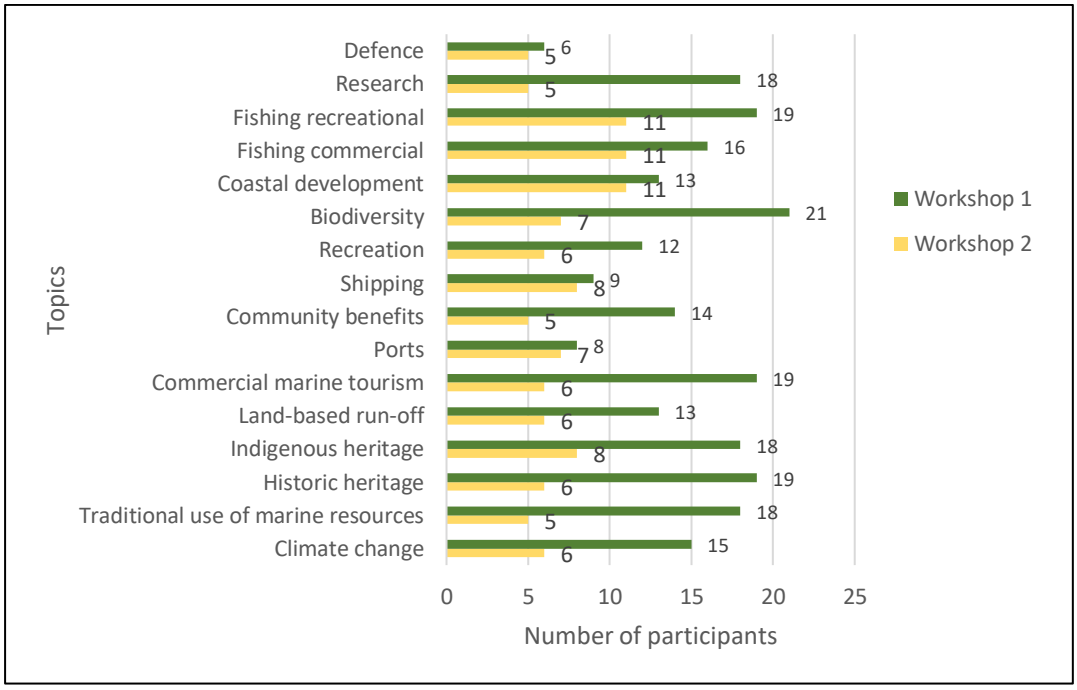


Figure 8: Number of participants attending the workshop sessions related to the management effectiveness assessment topics

The workshop sessions were conducted separately for each topic, including separate workshops for Indigenous heritage and Historic heritage, under the Heritage topic, and commercial and recreational fishing, under the Fishing topic. The independent assessors facilitated the workshop sessions, which were conducted in a spirit of cooperation and a desire to identify the most recent and pertinent information to support the assessment.

There was no attempt to assign ratings for the indicators at these workshops, but rather the purpose was to identify gaps in the data, discuss strengths and challenges and give the participants the opportunity to raise relevant issues. Through an iterative process of discussion and review, the assessors later adjusted their preliminary ratings. Relevant supporting evidence for each indicator, was inserted into the MEAT and included in this report (Appendix 5).

Draft report with ratings, grades, trends and evidence

Based on the preliminary evidence, draft indicator ratings and grades and trends for each element and topic were calculated, and a summary of the effectiveness of the six elements of the management cycle across all the topics and supporting graphics were developed. This allowed the identification of strengths and weaknesses of current management (section 8).

The draft report was provided to the Reef Authority, who disseminated it to the relevant Commonwealth and Queensland government agencies and authorities for review and evidence updating.

Semi-structured interviews

Twenty-three people participated in nineteen semi-structured interviews to ensure that a diverse range of stakeholders and evidence were incorporated into the assessment (i.e. in addition to the evidence provided by the stakeholders at the workshops). Interviews were conducted following both the first and second workshops (from April to October 2023).

Interviewees, identified by the assessors, were usually contacted by the Reef Authority and invited to participate in an interview. The assessors formally contacted the interviewees, arranged a time to meet, provided information related to the project and draft questions to enable the participants to prepare. Interviews were conducted mainly online and included one or several participants. Interviewees were advised that their statements were confidential and would not be attributed individually in any reporting. Interviews were recorded with the permission of the interviewees. Statements from these interviews were included in the topic evidence tables in the MEAT (Appendix 5) and in the text within this report, where relevant.

Interviews were conducted with representatives from Biosecurity Queensland (1 person), three universities (3 people), CSIRO (1 person), four coastal local governments (5 people) (Reef Guardian Councils); members of two Reef Advisory Committees, including the Tourism Reef Advisory Committee (3 people) and the Indigenous Reef Advisory Committee (2 people, also affiliated with DES, Office of the Great Barrier Reef); Australian

Institute of Marine Science (AIMS) (1 person); Department of State Development, Infrastructure, Local Government and Planning (DSDILGP) (4 people); one Aboriginal Corporation (1 person); and two independent consultants (2 people).

The questions that were asked in the interviews related primarily to the particular topic under investigation. However, in general the questions addressed:

- the significant changes in the management of the topic since 2019 and the factors influencing this change
- changes that impacted the capacity of managers to manage the topic
- the significant changes in outcomes and the evidence to support these claims, and
- how to improve the desired outcomes.

Second stakeholder workshop – to discuss and revise the draft report

The purpose of the second workshop held in Townsville from 8-9 May 2023 was to provide an opportunity for those who had been provided with the draft report to discuss the report findings. The workshop attendees included the Reef Authority, DCCEEW, Defence DES/QPWS, TMR, DAF, AMSA, MSQ (Figure 8). Stakeholders worked across the 14 topic areas to discuss the evidence, ratings, grades and trends.

Draft Report Version 2

The Reef Authority and selected agencies reviewed the draft report and provided written comments. These were reviewed by the assessors. Version 2 was completed on 21 July 2023 and provided to the Reef Authority for review.

Draft Report Version 3, Report production and finalisation

The assessors collated all the evidence related to the 14 topics and produced a revised draft report (Version 3) on 29 September 2023. Comments were sought and incorporated from the Reef Authority, Commonwealth and Queensland governments. This resulted in the finalisation of the 2024 Management Effectiveness Report (Version 4) on 27 October, which informed Chapter 7 of the 2024 Great Barrier Reef Outlook Report[4].

The Reef 2050 Plan is referred to throughout this report. A separate, but related, Reef 2050 Insights Report considers the Reef 2050 Plan's strength and opportunities and its

[4] *Note*: Where new information (including regulations, policy updates or program changes and the like) impact on the results of this version of the Report (V4), subsequent updates may be made to this Report with the acknowledgement of the independent assessors.

contribution to the effective management of the Region and is based on the findings of this management effectiveness review.

Limitations

In conducting this assessment and preparing this report, the following limitations have been noted:

- Indicators – The assessors were not provided with detailed statements of how indicators were applied by previous reviewers. While the statements of evidence in previous reports give some suggestion as to the focus of the assessment in relation to the indicators, it is possible that the current assessment may provide a different focus and this may influence the resultant indicator ratings. This is likely to be most prominent with regards to indicators that include the key terms and concepts noted in Table 6.
- Non-government input – While interviews were conducted with some non-government organisations and representatives, the majority of inputs into the management effectiveness assessment have been from government-provided evidence, workshops conducted with government representatives, and publicly available data and peer-reviewed literature. This has limited the range of stakeholder inputs relied on for the review. To date, Traditional Owner involvement has been limited to agency staff and members of the Indigenous Reef Advisory Committee.
- Joint engagement – Workshops were conducted primarily with government agencies (refer above). This limited the ability to build a joint government and non-government approach to the assessment of management effectiveness and facilitate a shared understanding amongst all stakeholders.
- Salient, credible and legible evidence – Salience refers to the relevance of information for a given topic. Some of the evidence provided by the government agencies lacked saliency for specific topics. For example, evidence provided for Coastal Development largely focused on management aspects relevant to Land-based Run-off. While the assessors have supplemented this evidence through interviews and publicly available data, there are some areas where this has limited the ability to conduct a critical evaluation for these areas and may have led to a more descriptive evaluation and gaps in evidence.

Management effectiveness of management tools and approaches

Management effectiveness for the Region was also summarised in relation to three main management approaches used to protect and manage the Region:

- Environmental regulation — management tools such as regulations, zoning plans, management plans, permits and licences, and compliance are used to establish the statutory arrangements and environmental standards necessary to protect and manage the Reef.
- Engagement — managing agencies work with Traditional Owners, the community, business, industry and local government to influence best practice and encourage actions that will help secure the future health of the Region.
- Knowledge, integration and innovation — management is based on the best available science as well as drawing on traditional ecological knowledge and information from the wider community and is informed by the results of ongoing monitoring.

Several tools are used to implement these approaches:

- Acts and Regulations
- zoning plans
- management plans
- permits and licences (including environmental impact assessment)
- Traditional Owner agreements
- compliance
- site infrastructure
- memoranda of understanding
- fees and charges
- policy (including strategies, policies, position statements, site management arrangements and guidelines)
- partnerships
- stewardship and best practice
- education and community awareness
- research and monitoring
- reporting

Report structure

This report includes:

- a summary of the assessment of each topic (refer Sections 3, 4 and 5)
- a summary of the six elements of Context, Planning, Inputs, Processes, Outputs and Outcomes (Section 6)
- the effectiveness of the main management tools in delivering outcomes for each of the 14 topics (Section 7).

The grades are based on the grading statements (Appendix 1). A matrix of all results is presented in Appendix 3 (Table 33), with detailed results of the assessment of each management topic against the 49 indicators, including evidence relied on, provided in Appendix 5.

3. Assessment of managing direct use of the Region

Commercial marine tourism

Commercial marine tourism is managed by the Reef Authority, QPWS, Commonwealth Government and a diverse range of partners and stakeholders. The *Great Barrier Reef Marine Park Act 1975* (Section 2A) allows for ecologically sustainable use of the Reef that includes public enjoyment and appreciation, public education about, and understanding of, the Region and recreational, economic and cultural activities. The *Great Barrier Reef Marine Park Zoning Plan 2003* (Zoning Plan) provides for the conduct of a tourist program, with permissions, in certain zones of the Marine Park. Compared to the 2019 results (Leverington et al. 2019), the management effectiveness grade for Context and Outputs remained *effective* (Table 11). The elements of Planning, Inputs and Processes remained *mostly effective*, while the element Outcomes declined from *effective* to *mostly effective*.

Table 11: Assessment results for Commercial Marine Tourism

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	E	↔	E	↔	E	↔	E
Planning	ME	↘	ME	↔	ME	↓	E
Inputs	ME	↘	ME	↗	ME	↘	ME
Processes	ME	↔	ME	↔	ME	↓	E
Outputs	E	↔	E	↔	E	↔	E
Outcomes	ME	↓	E	↔	E	↔	E

E Effective ME Mostly Effective PE Partially Effective I Ineffective

↗ Trend is increasing but has not caused an upwards grade change
↔ Grade has remained stable with no major trends
↘ Trend is decreasing but has not caused a downward grade change
↓ Trend has been a downwards change in grade

The commercial marine tourism industry plays a significant role in showcasing the Reef's natural and cultural values, enhancing visitor experiences and assisting in managing and protecting the Region's values. Managers have a sound understanding of the Region's values relevant to commercial marine tourism. These values include biodiversity (coral reefs, a diverse range of species), aesthetics (tropical islands and beaches, clear water), World Heritage status, research and education, Indigenous heritage and socio-economic values (CSIRO 2021). Tourism is a significant direct use in the Region, in terms of both economic value and employment. The Marine Park supports more than 60,000 jobs and provides access to over two million tourists each year (Reef Authority 2023). About 80 per cent of tourism visits occur within about seven per cent of the area of the Marine Park (McLean et al. 2020), with 86 per cent of visits being in the water adjacent to Cairns, Port Douglas and the Whitsundays (GBRMPA 2022). The remaining areas of the Reef have low tourism visitation and very low-level impacts. Most reefs that are the basis of the commercial marine tourism industry are within 10km to 60km from the mainland. Visitors often travel by boat, taking several hours to reach their reef destination.

Commercial marine tourism includes commercial activities that provide transport, accommodation or services to people who visit the Region mainly for enjoyment purposes. Activities may include: structure-based tourism operations (day trip operations to pontoons are the largest single component of the industry; underwater observatories); vessel-based operations (site specific or roving; may operate to islands or moorings and include fishing); extended vessel-based operations (stop at multiple destinations); bareboat charter (mainly in the Whitsunday Islands where yachts are available for charter); cruise ships (pass through and anchor); aircraft-based operations (conventional, seaplanes, helicopters for sightseeing and transfers); resort and shore-based operations (several island-based resorts in the Marine Park and mainland resorts adjacent to the Marine Park). A range of activities may be undertaken including boating (kayaking), fishing, snorkelling and diving, most of which are relatively low risk to the Reef. There are about 1050 islands in the World Heritage Area, and about 27 include resorts, mainly on high rocky islands in the Whitsunday Islands region. The main sand cays with resorts are Green Island, Heron Island and Lady Elliott Island.

The Reef Authority's Annual Report (2022) indicated that tourism activities, overall, were not regarded as major threats to the Reef. However, tourism impacts may include: physical damage to reefs and corals from boats (anchor damage, groundings and sinkings) and from trampling and snorkelling; damage to coastal and island vegetation and dunes; pollution from rubbish and human waste; wildlife disturbances (e.g. whales, marine turtles and seabirds); and over-crowding at some high-use sites causing social impacts (reduced amenity, loss of cultural values). Island tourist resorts

may have additional impacts related to power and water generation, garbage and sewage discharges, and the construction of buildings, marinas and sometimes dredging. Tourism infrastructure may have an impact on water quality and coastal ecosystems. Most of these threats are being reduced (refer below) by regulation, permit arrangements, education, compliance action and adoption of best practices for a range of activities.

The main current and ongoing threat to the Reef is from climate change. Surveys conducted by the Reef Joint Field Management Program (RJFMP) and the Australian Institute of Marine Science (AIMS) confirmed a mass bleaching event in 2020 and in March 2022, with coral bleaching observed at multiple reefs in all regions. The 2022 event was the fourth coral bleaching event since 2016 and the sixth to occur on the Reef since 1998 (GBRMPA 2022). The cumulative effect of multiple stressors such as coral bleaching and severe cyclones on the commercial marine tourism industry can reduce the quality of the nature-based reef experience and the enjoyment of visitors, and result in reduced visitor numbers and lower economic sustainability. The Reef Authority's Reef Blueprint for Resilience (update to be released in 2023-24) committed to addressing the impacts of climate change and enhancing reef resilience (GBRMPA 2022).

A complex planning system supports the commercial marine tourism industry. This system spans marine and terrestrial environments, incorporates multiple jurisdictions and multiple plans, strategies, policies and other documents that guide the location, use, intensity and timing of activities and regulate and guide the placement of related infrastructure in order to reduce any risks associated with commercial marine tourism. The Zoning Plan provides spatial control of use and access within the Marine Park. It enables tourism use through a permitting system. Plans of Management (POMs) are working well and are in place for the high tourist visitation areas (e.g. Cairns, Hinchinbrook and Whitsundays). They identify arrangements for activities, areas, species or ecological communities and are undertaken with community groups including Traditional Owners. POMs may address impacts on wildlife from vessels and aircraft, identify areas for boat anchorages, and address types of activities suitable in various areas. However, POMs are restricted in application, with many areas of the Reef lacking comprehensive planning input. There is also no systematic monitoring system to assess the effectiveness of POMs. With increasing use of the Reef, these gaps can impact on effective permitting of use resulting in case-by-case assessments and lack of consistency.

As part of the Values-Based Management Framework, planning is well progressed for national park islands and their surrounding marine park (e.g. Whitsundays and

Magnetic Island). The focus has been on island tenures (under the *Nature Conservation Act 1992*) that have relevant values below the highest astronomical tide mark (i.e. including seabirds and turtles). Some progress is being made within the Department of Environment and Science (DES) to develop the Values Based Management Framework to incorporate the Marine Park.

The Tourism Management Action Strategy (GBRMPA 2021) aims to deliver sustainable tourism outcomes, improved infrastructure, processes to support tourist numbers and behaviours and governance arrangements, including effective consultation with Traditional Owners. It will guide the review, simplification, deregulation and rationalisation of tourism policies and other management tools under the Policy and Planning Strategic Roadmap.

In general, high tourism visitation sites are being intensively managed, as evidenced by limits that have been placed on the number of vessels and group sizes, improved infrastructure and adoption of best practices by operators. This results in relatively low impacts from tourism activities and concentration of impacts in a few intensively managed areas. New documents are in place for Cruise Ship Operations (2019) and Moorings in the Great Barrier Reef Policy (2019), Superyacht Cruising (2020), Joint Guide for Current Permit Holders (2021), and best environmental practices for diving and snorkelling and various standards (e.g. sewage discharge). These reflect the increased demand for tourism activities and the need to minimise impacts on the Reef by informing permit holders and streamlining permit conditions.

Planning system

"There is a diversity of plans that make up this planning system. It implies there is a comprehensive, visible set of planning tools that are operational. This may be the case for the Authority, but it is not clear to the commercial marine tourism operators"

Interviewee 2023
Workshop participant 2023

Some in the commercial marine tourism industry believe that the Reef Authority's planning is focussed on 'the now' and that there is a 'need to plan for the future in an holistic way'. Planning and engagement with the commercial marine tourism industry and other stakeholders is not as comprehensive as it could be and the 'industry may lack a comprehensive understanding of the planning system' (Interviewee 2023). Others state,

> 'the planning system is complex to navigate. The system needs to be more agile and adaptable to continue to maintain positive environmental outcomes while allowing the industry to build … within a changing environment. The system is rigid to navigate and slow… The planning system has played its role historically. Now it needs updating'

(Interviewee 2023), to include 'adaptive planning and management and increased flexibility'' (Workshop participant 2023).

The governance system for the Reef is polycentric. The Reef Authority manages commercial marine tourism in partnership with the Australian and Queensland governments (e.g. DES/QPWS) through complimentary zoning plans, regulations, permission system and policy, and the RJFMP. These arrangements are captured under the Intergovernmental Agreement and the Reef 2050 Plan. Commercial marine tourism specific partners include Tourism Australia, Tourism and Events Queensland and industry associations such as the Queensland Tourism Industry Council, Ecotourism Australia, EarthCheck, the Association of Marine Park Tourism Operators (AMPTO), Whitsunday Charter Boat Industry Association and Whitsunday Bareboat Owners Association, ship/superyacht industry, Indigenous tourism operations and others, including local governments (in relation to planning and marina development).

Governance framework

"Everything is inter-twined. The framework is complex, but it does its job. However, we need to start by revitalising Reef governance".

Workshop participant 2023

Governance effectiveness

"Processes are inefficient, but not ineffective".

Workshop participant 2023

The structural elements of commercial marine tourism governance (Dale et al. 2016) are well developed in relation to vision setting, diversity of plans, policies and programs, evidence-based decision-making processes, strategy development, implementation, monitoring and evaluation. However, there is a recognised need to update many plans and related documents to enhance their relevance.

In relation to the functional elements of governance (Dale et al 2016), the Reef Authority and commercial marine tourism industry recognise the need for collaboration. Decision-making powers are distributed among the key players but the Reef Authority plays a central role. Joint permits are implemented and streamlined through Permits Online – a permit system and bookings database. Complementary Zoning Plans and joint Marine Parks permits allow for greater consistency and efficiency for permit applications including development of six Routine (standardised) permits for low-risk activities. Compliance incidents involving the tourism industry are reported annually and occur mainly in the more intensively used Cairns and Whitsunday areas. Reports are mainly about breaches of marine parks permits, unpermitted activity, POM

Governance review

"Governance systems are in place but they haven't moved. There are old policies. Existing complementary arrangements are not sufficiently flexible to address emerging issues. We are trying to address a lot of issues on the run".

Workshop participant 2023

offences, and groundings and moorings offences. The Reef Authority is investing heavily to improve permit compliance, especially around tourism structures.

Stakeholder engagement within the planning and governance system is mainly at the lower end of the 'engagement spectrum' (IAPP 2018) and includes: mainly *informing* (e.g. targeted education and stewardship programs); *consulting* (e.g. Local Marine Advisory Committees provide a direct link with stakeholders and input is sought on various site plans); and *involving* (e.g. Reef Guardians, High Standard Tourism Program). There is less focus on *collaboration* and *empowering* engagement. For example, the Tourism Reef Advisory Committee (TRAC), with 15 tourism stakeholders and management partners, should provide advice on tourism related matters to the Reef Authority Board through the Reef Authority. However, the TRAC is mainly a receiver of information. It meets 'only about twice a year' and does not 'have a comprehensive understanding of or engagement in strategic planning process' (Interviewee 2023).

More effective engagement

"We need to have more structured engagement…and stronger knowledge in the Marine Park Authority about the Commercial marine tourism industry"

Interviewee 2023

The complex joint management arrangements between the Reef Authority and QPWS, overall, are viewed by the stakeholders as working relatively well, although streamlining and alignment can be improved along with updating of policies. Siloed approaches (i.e. limited knowledge sharing and collaboration among partners and within the Reef Authority) are seen as a limitation to effective governance. Some Reef Authority staff describe the governance system as 'ageing and in need of updating' (Workshop participant 2023). However, due to the highly integrated nature of planning and management documents, change is perceived to be difficult. Further, because the system is 'mostly effective, albeit inefficient' there has not been the impetus to review and update the planning and governance systems.

Silos

"There is the Reef engagement and experience side and the regulatory side and often they don't talk to each other and this makes it difficult for tourism operators".

Workshop participant 2023

For the commercial marine tourism industry, management involves meeting regulatory provisions and ensuring an outstanding experience for visitors. As a result, tourism operators are becoming more involved in Reef projects, including providing educational programs, reef monitoring and restoration projects. The Reef Authority is engaged in a range of valuable partnerships with accredited tour operators. The commercial marine tourism industry undertakes in-water actions such as reef restoration, crown-of-thorns/*Drupella* control, sightings, compliance reports and the

presentation of World Heritage values to domestic and international visitors. These partnerships offer opportunities for interactions that build understanding of the tourism-relevant values of the Reef.

The High Standard Tourism program encourages best practice tourism operations. High Standard Tourism Operators voluntarily operate to a higher standard than required by legislation. These operators are independently certified and monitored (by Ecotourism Australia and EarthCheck) as meeting best practice management standards. Certified operators can apply for an extended tourism program permit of 20 years. The number of operators involved has increased from 19 operators (2004) to 69 (2017) and 72 (2023). These operators carry approximately 63 per cent of tourists visiting the Reef.

Most tourism programs involve education and interpretation activities, aimed at increasing appreciation and understanding of the natural environment and sustainable practices that support the Reef. In 2020, the Reef Authority conducted a 'roadshow' visiting tourism operators throughout the Marine Park and offering an opportunity for managers to build their understanding of the changing values of the Reef relevant to commercial marine tourism and for operators to raise any concerns with the Reef Authority.

The Master Reef Guides program is delivered by the Reef Authority, AMPTO and Tourism and Events Queensland. It consists of a week-long intensive training program with participants receiving the latest Reef information from experts, including Traditional Owners and learning techniques to interpret the World Heritage Area to visitors. They impart up-to-date scientific and management information about the Reef and its values and explain what people can do to support the Reef. There are currently 123 Master Reef Guides located across the Marine Park.

There are a variety of monitoring programs relevant to the commercial marine tourism industry. The Eye on the Reef Program is a Reef monitoring, assessment and capacity-building program run by the Reef Authority for tourism industry staff and the wider community. Anyone who visits the Reef can collect information about Reef health. The Eye on the Reef app encourages anyone with a GPS-enabled mobile phone to participate as a citizen scientist and contribute GPS-tagged observations including photos to assist in providing data that will assist in management. In 2021-22, 3226 sightings were submitted by 321 people. The app provides access to zoning information and Marine Park rules. It shows users what zone they are in and what is allowed.

The Tourism Industry Activation and Reef Protection Initiative (2021-23) was part of the COVID-19 Relief and Recovery Fund, which enabled 17 marine tourism operators to undertake work on reef health and impact monitoring, crown of thorns starfish control, planting coral fragments and to facilitate on-country visits for Traditional Owners, and other work. The Tourism Reef Protection Initiative (Australian Government $1.2 billion investment) builds on existing programs to engage marine tourism operators to protect high-value tourism sites through to 30 June 2024. Twenty-six tourism operators were selected to deliver these services. In 2021-22 the Reef Authority received about 5,500 Reef Health Impact Surveys and 232 rapid monitoring surveys (GBRMPA 2022). Tourism operators undertake weekly observations of specific sites, providing early warning data – 517 monitoring surveys were submitted in 2021-22 (GBRMPA 2022). About 70 per cent of visitors and operators engage in reef monitoring (Workshop participant 2023). A recognised gap is the need to regularly update evidence-based information relevant to the commercial marine tourism industry to help inform industry planning and decision making (Interviewee 2023).

The Reef Authority also engages with socio-economic monitoring (particularly SELTMP) including monitoring of changes in community attitudes towards the Reef and perceived threats to its values. There are gaps in Indigenous heritage information relating to commercial marine tourism. Indigenous Reef tourism operations are limited and lack visibility (McLean et al. 2020). Cultural protocols and data sharing agreements are being developed and training programs and Master Guides programs are helping to improve the integration of Indigenous heritage information within tourism operations.

The Reef Authority delivers in-water training days every year in Port Douglas, Cairns and the Whitsundays to ensure participants remain qualified and to maximise the quality of data collection under the Eye on the Reef program.

Through the Reef Trust Partnership, the Great Barrier Reef Foundation is developing and delivering a Reef Restoration and Adaptation Program to build the Reef's ability to recover from a range of threats. This includes: 1. Cooling and shading to protect the Reef from the impacts of climate change; 2. Assisting coral species to evolve and adapt to the changing environment; 3. Supporting natural restoration of damaged and degrading reefs. The Moving Corals Program utilises tourism operators in collaboration with scientists to restore local reefs that were tourism hot spots and which have been damaged by cyclones or coral bleaching. The Coral Nurture Program is a partnership between researchers and tour operators that involves collecting, propagating, growing and planting coral to replenish reef sites and enhance reef resilience. Over 95 per cent of high value tourism reefs are also included as priority reefs for the Crown of thorns

Starfish Control Program, which assists in maintaining the value of reefs heavily used by commercial marine tourism operators.

Reef managers also understand that commercial marine tourism is the largest Reef-dependent industry within the Region, contributing significantly to the economy, providing access for more than two million tourists each year and supporting employment. The industry is based on the Reef's reputation as the world's largest and best-known coral reef. The industry has a nature-based focus and high standard tourism operations and takes place within a protected area environment. On behalf of the Reef Authority, the industry collects an environmental management charge (EMC) from tourists. These funds directly contribute to management of the Marine Park. A waiver on the EMC was in place from 1 June 2020 to 30 June 2023 to support the industry through the COVID-19 pandemic (refer below).

Reef tourism was heavily impacted during the pandemic due to decreased tourist numbers, particularly international tourists, shortages in skilled staff and high fuel costs. Yearly visitation to the Marine Park decreased by around 41 per cent from 2012 to 2020. The Reef Authority reported 2.1 million visitors in 2019 (Figure 9), dropping to about 0.7 million (2020) and increasing to about 1 million in 2022 (no data after 2022). There has been a slow return of visitors, with a 47 per cent increase in numbers from 2020 to 2022.

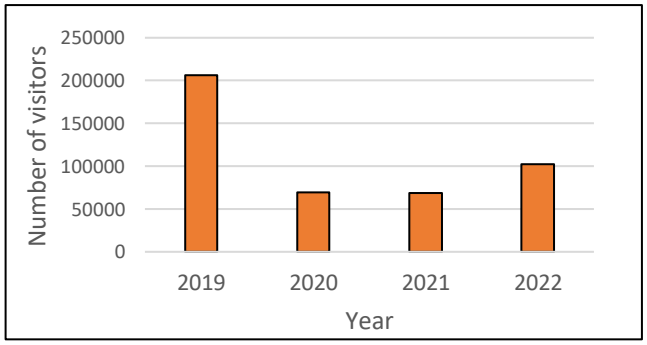


Figure 9: Tourism visitation, Great Barrier Reef, 2019-2022 Source: GBRMPA (2022)

It is expected to take several years before visitation to the Reef returns to the levels experienced before the pandemic. In response to the pandemic, the Australian Government contributed significant funds to support frontline jobs in the Reef tourism industry and simultaneously help to conserve high-value tourism sites by providing $3.2 million in 2021 and $253 million in 2022.

Human resourcing within the Reef Authority has improved but there have been challenges with recruitment since the pandemic (Workshop participant 2023). There are high skill levels in relation to marine tourism management and impact assessment. In particular, the RJFMP staff,

Human resourcing

"We don't have staff on-ground…human resourcing across the industry is a problem".

Interviewee 2023

responsible for on-water compliance, comprise a highly skilled and motivated workforce. However, skills gaps exist in relation to underwater cultural heritage and addressing joint governance arrangements that will help to improve management outcomes, especially in terms of risks from tourism activities to cultural heritage. The commercial marine tourism industry has also experienced human resourcing problems with difficulties in attracting staff to the commercial marine tourism industry, training staff and retaining them in the industry (Interviewee 2023). These gaps can impact the industry's ability to operate to a high environmental standard and undertake site stewardship. While demand for commercial marine tourism is returning, many operations have restricted their client numbers due to staff limitations (Interviewee 2023). Challenges remain in relation to enhanced engagement of Indigenous people in the commercial marine tourism industry.

Overall, the impact of commercial marine tourism on the Reef is restricted in extent, low in severity and there are well-resourced planning and management systems in place to support sustainable tourism outcomes. The Outputs relating to commercial marine tourism are largely on track and will help to improve some Reef values, such as recreation, education, awareness, research, cultural and community benefits.

In terms of Outcomes, it is difficult to determine the economic sustainability of commercial marine tourism into the future as this relates to international competitiveness, the level of demand, availability of well-trained staff, all of which are dependent on a healthy and sustainable Reef environment, which is under threat from multiple and cumulative impacts (Interviewee 2023). The industry is concerned about the impacts of climate change, degradation of reef sites, poor recovery of bleached sites and loss of marketing appeal as a high-quality reef destination (Workshop participants 2023, Interviewee 2023). The commercial marine tourism industry is also an 'asset heavy business', subject to high costs (fuel, infrastructure) and is 'under pressure to reduce its carbon footprint. These factors reduce the economic sustainability of the industry' (Interviewee 2023). There are calls from the industry for a transition plan to assist the industry adopt a renewables-based future.

Use of the Reef is generally socially sustainable. The Reef community, locally and internationally place great value on knowing that the Reef is well managed, its values are being protected and that these values will be in place for future generations. These values have been estimated at $24 billion (AIMS 2022). Gaps remain in relation to Indigenous tourism and the failure to 'create a role for Indigenous governance in the industry – a voice' (Henrietta Marrie cited in Mclean et al. 2020:i).

Key challenges remain in relation to: the review of dated policies to ensure they meet the future needs of the Reef in relation to tourism activities; moving planning decision making from a case-by-case approach within the permissions system (this will require better spatial information and data, improved policy and plans and enhanced coordination and integration among relevant planning and management organisations); developing shared skill sets among relevant partners, within research, planning and management; addressing sewage and wastewater disposal; identifying impacts on reef ecosystems from groundings; and addressing marine debris impacts from tourism including improved education and awareness programs that target tourists. The industry is very concerned about the impacts of climate change on its economic sustainability into the future, especially as this relates to ongoing degradation of reef sites, poor recovery of bleached sites and loss of marketing appeal as a high-quality reef destination. International focus on possible listing of the Reef as 'in danger' may have implications for visitation and the viability of the commercial marine tourism industry.

There are challenges in ensuring effective consultation, engagement and benefit sharing arrangements with Traditional Owner groups, especially within TUMRA areas; ensuring effective incorporation of Indigenous cultural heritage values in tourism offerings, as appropriate; and developing a strong Indigenous tourism advocacy organisation to promote and market Indigenous tourism on the Reef.

Defence activities

This assessment has considered the management of activities undertaken by the Australian Department of Defence (Defence) in the Region, including the management associated with major exercises involving allied military forces, such as the bi-annual Talisman Sabre exercises. Defence sites within the Region consist of the Shoalwater Bay, Cowley Beach and Halifax Training Areas and HMAS Cairns, each of which includes elements within the boundaries of the World Heritage Area; and the Townsville Field Training Area, RAAF Townsville and the Ross Island and Lavarack Barracks, each of which are within the Reef catchment.

Similar conclusions have been drawn to the 2009, 2014 and 2019 Outlook Reports, reflecting the maturity of the Defence management system and relationship between Defence and the Reef Authority. Defence continues to be *effective* across Context, Processes, Outputs and Outcomes, with a rating of *mostly effective* for Planning and Inputs (Table 12).

Table 12: Assessment results for Defence

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	E	↔	E	↔	E	↔	E
Planning	ME	↓	E	↔	E	↘	E
Inputs	ME	↓	E	↑	ME	↓	E
Processes	E	↔	E	↔	E	↔	E
Outputs	E	↔	E	↔	E	↔	E
Outcomes	E	↔	E	↔	E	↔	E

E Effective ME Mostly Effective PE Partially Effective I Ineffective

↑ Trend has been an upwards change in grade
↔ Grade has remained stable with no major trends
↘ Trend is decreasing but has not caused a downwards grade change
↓ Trend has been a downwards change in grade

Much of the Defence planning and management system is not specific to the Region and rather utilises a whole-of-system approach at a national level (e.g. for setting objectives and targets). This in part reflects the findings of the 2014 strategic environmental assessment of Defence activities in the Region (PGM & Ecological Australia 2014) which recognised that risks specific to the Region were adequately covered under this common national system.

The Defence planning and management system is mature and includes both a nation-wide management framework and domain-specific environmental management plans together with site- and activity-specific instruments including Standing Orders, Environmental Assessment Reports and Environmental Clearance Certificates. This system has been in place for many years and has been operating effectively. The planning system is undertaken subject to Commonwealth regulatory requirements for environmental protection and assessment, including the EPBC Act, which requires environmental assessment of all activities of Commonwealth agencies, and the *Environment Protection (Sea Dumping) Act 1981* (Sea Dumping Act) and *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*, which govern placement of material at sea and shipboard pollution.

Defence also has a Memorandum of Understanding (MoU) with the Reef Authority which further strengthens the local management system through information sharing and collaboration. This provides a strong advisory role to the Reef Authority by which they contribute to Defence decision-making regarding activities within the Region. It was confirmed in stakeholder workshops that the current MoU (2020-2022) was under review at the time of assessment and will continue into the future adopting a similar model for collaboration. Representatives of Defence and the Reef Authority have advised that that the new MoU will include a commitment to revisiting the current strategic environmental assessment and therefore will provide updated planning considerations for the Region.

As is common internationally, the environmental context of Defence activities is principally self-regulated, although subject to broader environmental commitments under the EPBC Act and other legislation. Defence continues to demonstrate a strong commitment to this self-regulation, adopting best practice standards. This self-regulation approach is modified by the commitment to shared governance with the Reef Authority, as articulated through the MoU. While the Reef Authority principally has an advisory role under the MoU, this approach creates an additional level of oversight of Defence activities in the Region comparative to other parts of the nation, providing for improved governance and integration of localised knowledge into decision-making.

Defence engages with other agencies (e.g. DES, DCCEEW, QPWS) on an ad hoc basis, including in relation to activities such as *Talisman Sabre*, and on a regular basis for the Shoalwater Bay Training Area (SWBTA). The engagement for SWBTA also includes an Environmental Advisory Committee, the Traditional Owners and Indigenous Land Use Agreement (ILUA) holders for the area, and regional communities. A 2014 evaluation of this engagement, however, identified engagement was marginally effective, with recommendations for improvement. It is not certain if these improvements have been implemented (Wu et al. 2014). Due to this finding, several indicators associated with broader stakeholder engagement (PL6, PR2) have been rated lower than 2019, leading to a downward grade for Planning, to *mostly effective*.

There is both adequate resourcing and in-house expertise within Defence to address environmental management requirements, and, as a result of a long partnership, there is a similar level of understanding of the Defence context within the Reef Authority. The grade for Inputs has had a downward change since the 2019 review to *mostly effective*, however. This does not reflect a change in resourcing to either agency but rather a

recognition of the knowledge gaps in offshore Indigenous heritage information available to decision-making.

Environmental impacts associated with day-to-day Defence activities are limited to direct impacts associated with activities within the Training Areas, including the use of live ammunition and conduct of training operations. These are managed through activity specific Environmental Clearance Certificates and Environmental Assessment Reports as well as base Standing Orders, together with nationally developed Maritime, Land and Air Activities Environmental Management Plans. These measures aim to minimise the extent of impacts within the Training Areas from Defence activities and to minimise the potential for longer-term impacts (e.g. ensuring ordnance are tracked and not left in the environment unexploded). Note also that as other uses are typically excluded from Training Areas, Defence activities do not tend to have a significant cumulative effect in the local area. There remain gaps, however, in the understanding of the potential cumulative effective of impacts from Training Areas and impacts from other activities outside of these areas (including impacts of other users).

As part of larger operations, Defence manages the potential environmental impacts of visiting allied forces, including vessels. As Defence activities are not subject to the same regulation as commercial shipping, and as some Defence and allied vessels are ageing, there is a greater risk of marine biosecurity and pollution events during these operations. However, in collaboration with the Reef Authority, Defence implements a management approach aimed at specifically managing these risks. This includes requirements for inbound ships and material to be cleaned and inspected before entering the Region, such inspections at sea or in home ports and ballast water exchanges in offshore waters, and the adoption of standard spill preparedness approaches throughout training exercises.

Historical contamination remains a priority for Defence. This includes the contamination associated with the use of perfluoroalkyl substances (PFAS) across Defence sites, as well as unexploded ordnance (UXO) across Training Areas and other sites.

PFAS has emerged as a contaminated of concern in the past several years and is most commonly associated with firefighting foams used across Defence sites in training and other activities. PFAS contamination includes both contamination of the land on which foams are used as well as the groundwater and any downstream areas where the contamination enters surface water (e.g. drains). Since 2019, addressing PFAS contamination has been a major focus at Defence sites nationally, including both an identification of contamination levels (as per the PFAS Investigation and Management Program), development of management measures to prevent spread and, where

appropriate, initiation of remediation activities. Within the Reef catchment, PFAS contamination has been confirmed for the RAAF Base Townsville, Lavarack Barracks and HMAS Cairns based on detailed site investigations. This contamination has the potential to cause impacts within the Reef through mobilisation of PFAS offsite through surface or ground water. This has led to the development of specific PFAS Management Area Plans for each site, informed by human health and ecological risk assessments. The implementation of these plans is ongoing and Defence currently prioritise management of the existing risk.

UXOs occur across the Region as a result of a legacy training activities in which not all ordnance were tracked, particularly during World War II. In accordance with international conventions, Defence is responsible for the removal and destruction of certain types of UXOs is undertaking ongoing removal activities subject to a risk-based approach. This includes prioritisation of known UXO sites (as indicated through mapping) together with responding to UXO records from private landowners and the policy, in accordance with the Commonwealth Policy on the Management of Land in Australia Affected by Unexploded Ordnance. The extensive nature of legacy UXOs means they remain a long-term challenge for management.

Defence has a high delivery of Outputs under the planning and management system, consisting primarily of ongoing development of Environmental Assessment Reports and Environmental Clearance Certificates, monitoring actions at Training Areas, and delivery under the PFAS Investigation and Management Program. This reflects a strong delivery focus within Defence together with strong resourcing. Defence also achieves good Outcomes within the scope of its activities, reflecting the more limited spatial scope of Defence activities across the Region and the strong level of control Defence has over impacting activities.

Challenges for Defence remain in comprehensively addressing legacy issues, especially for UXOs, and ensuring a balance is maintained between self-regulation of activities and ensuring management accords with the best practice standards specifically required for the Region.

Fishing (commercial and recreational)

Fishing is the principal extractive use that occurs within the Reef. The assessment of the management effectiveness of fishing has focused on both the commercial and recreational fishing sectors as these areas have slight distinctions in management approach. Regardless, both sectors have been considered collectively for the purposes of providing an overall assessment.

The management effectiveness grades (Table 13) for Context, Planning, Inputs, Processes and Outputs have remained *mostly effective* and Outcomes have remained *partially effective*. However, Context and Outcomes grades have experienced a declining trend relating primarily to a gap in the knowledge and management of impacts to species of conservation concern (SOCC) and other protected and/or non-target species and their habitats. This includes lack of validated data regarding what non-target species are being caught by both commercial and recreational fishers, as well as the impacts that recreational fishing in particular is having on benthic habitats (as these areas are less well surveyed than commercial fishing areas). These trends reflect the lack of independent data validation (IDV) of catch for commercial fisheries across most of the assessment period, although trials of IDV technologies were being undertaken in late 2023.

Table 13: Assessment results for Fishing[5]

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grad	Trend	Grade	Trend	Grade	Trend	Grade
Context	ME	↘	ME	↔	ME	↔	ME
Planning	ME	↔	ME	↗	ME	↔	ME
Inputs	ME	↔	ME	↑	PE	↔	PE
Processes	ME	↔	ME	↗	ME	↔	ME
Outputs	ME	↔	ME	↔	ME	↔	ME
Outcomes	PE	↘	PE	↔	PE	↔	PE

E Effective ME Mostly Effective PE Partially Effective I Ineffective

↑ Trend has been an upwards change in grade

↗ Trend is increasing but has not caused an upward change in grade

↔ Grade has remained stable, with no major trends

↘ Trend is decreasing but has not caused a downward change in grade

[5] *Note 2019*: The grade for Planning for Fishing published in Appendix 2 of the Management Effectiveness Report 2019 was *effective*. However, based on updated 2019 indicator ratings and grades provided by the 2019 assessors (Appendix 6), the grade should have been *mostly effective* and the trend from 2014 to 2019 should have been an increasing arrow and not an upward arrow. Table 13 shows the corrected grade and trend.

Similarly, the trend (2014-2019) for Processes published in Appendix 2 was a stable arrow but should have been an increasing arrow. Table 13 shows the corrected trend.

Commercial fisheries are distinguished based on the equipment used and/or target species. The key commercial fisheries within the Region include:

- East Coast Otter Trawl Fishery
- East Coast Coral Reef Line Fishery
- East Coast Inshore Finfish Fishery
- Tropical Rock Lobster Fishery
- Aquarium fish Fishery
- Sea Cucumber Fishery
- Coral Fishery
- Trochus Fishery
- Collection fisheries for specimen shells and bait.

These fisheries are regulated primarily through a combination of licences (and associated quota allocations), management plans/strategies, as well as zoning. The setting of quotas and rules on fishing activities is informed by a range of fishery and species-based assessments, including ecological risk assessments, stock assessments and harvest strategies. Additionally, for fisheries involved with overseas export of product, assessments are required under the EPBC Act. Controls for commercial fisheries are both input based, aiming to control fishing effort, gear and location, together with reporting requirements, and output based, with many fisheries having individual transferrable quotas for species or prescribed commercial catch limits.

Recreational fisheries primarily target coral trout and other cod, emperor, tropical snapper, barramundi, bream, mackerel, whiting, crabs, tropical rock lobster and bait fish. Recreational fishing is controlled primarily through output controls, such as bag and size limits but also includes restrictions on the types and number of fishing apparatus that can be used, and zoning controls on where fishing can occur. These controls are also informed through fishery or species-based assessments.

Over the past several years, Fishing has been undergoing a major management reform as initiated through the Queensland Sustainable Fisheries Strategy 2017-2027, which itself was a response to previous Reef 2050 Plan and Outlook Reports. As a result, there were improvements in management effectiveness between the 2014 and 2019 Outlook Reports with regards to Inputs. However, there is ongoing lag time between its initial introduction and the achievement of improved management outcomes. Additionally, in implementing the strategy, there has been an increased understanding of risks associated with fishing activities in the Region (e.g. greater understanding of

the status of some fish stocks). For example, 2021 stock assessments identified the Spanish mackerel to be severely depleted when previously it had been identified as sustainable.

Further reforms are being implemented in 2023 in association with the joint commitment of the Queensland and Commonwealth governments to phase out gill netting for the Region. By the end of 2023, it is intended to create a gill net-free zone across the northern third of the Reef, with hammerhead sharks also becoming a no-take species across all of Queensland waters. This will include the buy-out and removal of all licences for the N2 and N4 net fisheries and selected licences for the N1 net fishery by December 2023. This will be enacted through the *Fisheries and Other Legislation (Structural Reform) Amendment Regulation 2023*, which amends regulations under the *Fisheries Act 1994* from 1 January 2024. By 2027, the entire Region will become a net-free zone. These changes are anticipated to significantly reduce bycatch of SOCCs/protected species across the Reef.

While Planning has remained *mostly effective*, it was observed there was relative decline associated with indicators related to objectives, actions and monitoring. While these areas are well covered under the reformed planning system for direct fisheries management (e.g. increased frequency of stock assessment, ecological risk assessments and harvest strategies) and will be implemented for some elements of SOCCs/protected species management (e.g. IDV technologies), broader contextual impacts from fisheries are not always well captured in the planning system. For example, the planning system has targets associated with development of ecological risk assessments but no targets aimed at rehabilitating habitats threatened by fisheries. Thus, while there has not been a substantive change in planning systems, there is now increased awareness of these broader risks.

In accordance with the Offshore Constitutional Settlement, the Queensland Department of Agriculture and Fisheries (DAF) has a lead role under the *Fisheries Act 1994* in managing commercial and recreational fishing in Queensland waters, including within the Reef. This includes the direct management of fisheries through licensing and development of management arrangements, as well as enforcement. In parallel, the Reef Authority supports fisheries management through area-based controls, such as the designation of protected areas through the Zoning Plan. This includes broad zones in which fishing activities require a further Marine Park Permit or where no fishing activities can occur at all, together with special areas subject to additional rules. Additionally, under the EPBC Act, the DCCEEW is responsible for undertaking assessments relating to impacts on protected species under Part 13 and the environmental performance of export fisheries under Part 13A. This includes

implementing requirements under international conventions, including the Convention for the International Trade of Endangered Species (CITES).

This multi-interest approach reduces the potential for overlap between different agencies and jurisdictions. However, it also creates potential inconsistencies, especially when balancing commercial interests in fisheries and the protection of key species and habitats. In particular, all three agencies potentially have an interest in the management of physical fishing activities but with three different regulatory interests (e.g. controlling fish stocks, managing habitat, protecting SOCCs and environmental performance of fisheries). This has historically led to some inconsistencies between fishery-based controls (e.g. harvest strategies) and the requirements coming from EPBC Act assessments. These inconsistencies can generally be managed at an operational level but do rely on effective officer-to-officer relationships.

Despite this, managers across all agencies have a good understanding of values, impacts and threats to the Region related to fishing. Compliance bodies within DAF and the Reef Authority, such as the Queensland Fisheries and Boating Patrol and RJFMP, have increasing maturity in the direct management of Fishing in the Region. This has led to improved management of Fishing, including greater capacity to identify and respond to changes in fishery stocks. There remain gaps in the understanding of potential impacts of climate change on fisheries distribution. There are also broader knowledge gaps related to day-to-day interactions of fisheries with bycatch and non-target species, some marine habitats and ecological processes, although this has improved with increased emphasis and roll-out of ecological risk assessments.

Fishing has direct impacts on target species where take numbers reach unsustainable levels. Traditionally, to avoid stock collapses, take numbers have been set to ensure retention of 40 per cent of the available biomass (i.e. up to 60 per cent of the biomass can be taken). Through the advent of the Sustainable Fisheries Strategy, this has now been set at 60 per cent retention for fishing activities in the Region, which represents a more viable economic outcome (proxy for Maximum Economic Yield) and has the additional benefit of accounting for the higher sensitivity and ecological importance of the Reef. Additionally, the Strategy has led to an increased schedule of stock assessments to understand the current biomass of different species. However, these more regular assessments have identified that four species are considered to be depleted (Ballot's saucer scallop, pearl perch, snapper, and Spanish mackerel), comparative to only one at the time of the Outlook Report 2019. Thus, while the Sustainable Fisheries Strategy has aimed to establish improved outcomes for fisheries, the initial implementation has indicated the risks to fisheries were greater than originally considered. In response, controls have been implemented in accordance

with the relevant harvest strategy decision rules and also broader management interventions under the *Fisheries Act 1994* to align these species to their intended target of achieving 60 per cent unfished biomass.

The current status of harvest strategies and ecological risk assessments under the Sustainable Fisheries Strategy (Table 14) indicate almost all fisheries have up to date strategies and assessments. Stock assessments for individual species have also been conducted, covering the principal species targeted in commercial and recreational fisheries.

Table 14: Status of harvest strategies and ecological risk assessments for commercial and recreational fisheries in the Region

Fishery / species	Commercial	Recreational	Harvest strategy	Ecological risk assessment
Blue swimmer crab fishery	✓	✓	2021	2020
Mud crab fishery	✓	✓	2021	2020
Spanner crab fishery	✓	✓	2020	2023
Coral fishery	✓		2021	2022
Aquarium fish fishery	✓		2021	2023
East Coast inshore finfish fishery	✓	✓*	2021	2021
East Coast Spanish mackerel fishery	✓	✓	2023	2019
East Coast coral reef line fishery	✓	✓*	2020	2021
Sea cucumber fishery	✓		2021	2021
Northern trawl fishery	✓		2021	2019
Central trawl fishery	✓		2021	2019
Southern inshore trawl fishery	✓		2021	2019
Tropical rock lobster fishery	✓	✓	2021	-
Trochus fishery	✓		-	2012

*Finfish species commonly targeted for recreational fishing are included in the East Coast inshore finfish fishery (mackerel, barramundi, snapper, whiting) or the East Coast coral reef line fishery (emperor, coral trout, cod).

Direct catch poses a risk to a wide range of non-target species that may be included in the catch or injured during the catch process (i.e. bycatch). While commercial fishers are required to record interactions with SOCCs, including any bycatch, some

independent research indicates that these interactions may be severely underreported. For example, in 2010, 47 seasnake interactions were recorded but DAF (Courtney et al. 2005) indicate numbers may be closer to 100,000. As a result, the extent of risks posed to SOCCs and other non-target species is not fully understood. Additionally, there is no requirement to report impacts to SOCCs for recreational fishers due to difficulties in enforcement. Under the Reef 2050 Plan, there are a suite of actions to trial, develop and implement robust systems of IDV in high-risk commercial fisheries, including independent verification of levels of interaction with SOCCs. These actions are in the early stages of implementation, including trialling of technology, with full implementation expected in the next reporting period.

Recreational fishing effort is monitored through a number of state-wide surveys and reported specifically against key parts of the Region. These surveys include regular boat ramp surveys of returning fishers, collecting details on the number of fish caught and the size of the fish retained, and the surveys provide a key understanding of broader fishing effort. There is also a regular statewide survey to assess recreational fishing harvest. Generally, these surveys indicate a high concentration of fishing effort in areas close to major population centres, with increasing effort during holiday periods, often associated with interstate visitors. However, with technological improvements in recreational vessels, anecdotal evidence indicates fishers are travelling into more remote locations and are able to more directly target fish aggregations (e.g. through high-functioning sonar technology).

While not currently proposed for reform, the governance system for recreational fishing contrasts to other states where fishers are required to hold a licence and are thereby subject to greater state regulation. The lack of a licenced-based system in Queensland may represent a weakness in this governance system, especially in the face of increasing fishing pressures in the future. Requirements for the installation of vessel monitoring systems on commercial vessels limits the risk of non-compliance associated with ‘no take’ and restricted zones within the Marine Park. These have been mandatory for all commercial vessels since 2020, leading to improved enforcement management. Recreational fishing in these zones continues to be a common offence in the Marine Park but is being addressed through enhanced compliance action by the RJFMP.

With the introduction of the Sustainable Fisheries Strategy, DAF has established a range of Fishery Working Groups that include representation from community, commercial and regulatory interests, and which provide a key opportunity for stakeholder involvement in fisheries management. The terms of reference cover a range of engagement, including the co-design of fishery programs and initiatives

although Fishery Working Groups are not intended to be decision-making bodies. This has built and improved on previous engagement forums.

Overall funding to DAF has increased in recent years, including significant additional funding in 2022. This includes $28 million from the period 2021-2024, following on from $20 million provided from 2017-2020. This funding has mostly reversed cuts previously experienced in 2012/13 that had impacted the ability to plan for and implement management actions in the Region. This funding together with significant Commonwealth funding for fisheries issues and the ongoing implementation of the Sustainable Fisheries Strategy is expected to improve management into the future.

Despite the high levels of investment in fisheries, Outcomes remain only *partially effective*. In part, this reflects the lag time needed to achieve outcomes under the Sustainable Fisheries Strategy and associated initiatives; many of the fisheries identified as depleted or otherwise unsustainably fished required years of management to return to appropriate stock levels. The timeline of the strategy is 2017 to 2027, with overall achievement of the strategy outcomes intended to continue over coming years. As noted above, the increased number of stock assessments, harvest strategies and ecological risk assessments under the Sustainable Fisheries Strategy also identified that some fisheries were in a worse state than had been expected. While action has been undertaken to manage these fisheries for recovery, this also impacts on the achievement of Outcomes as the status of these fisheries was likely to have been worse in previous years than expected.

For commercial fishing, the main challenge is in the improved understanding of bycatch and associated impacts to SOCCs/protected species, including the roll-out of IDV technology (once trialled) across the commercial fishing fleet. For recreational fishing, the main challenge is in managing impacts to these same species and habitats as well as target species more generally utilising an output-focused regulatory approach.

Ports

There are 12 trading ports within the Great Barrier Reef World Heritage Area, managed by four port authorities that are Queensland Government-owned corporations (Figure 10). Two non-trading ports (Cooktown and Quintell Beach) are located within the Marine Park while the remaining 10 trading ports are located outside the Marine Park (within exclusion areas) but are still within the Region. Of the trading ports, the ports of Townsville, Abbot Point, Mackay, Hay Point and Gladstone are priority ports, primarily based on their operational throughput and associated risk profiles.

The management effectiveness of Ports (Table 15) is assessed as *effective* for Context and Outcomes and *mostly effective* for Planning, Inputs, Processes and Outputs. Element grade trends remain stable although there has been a decrease in Planning from *effective* in 2019 to *mostly effective*. These grades reflect the significant management efforts implemented between 2014 and 2019 in control of dredging and port development arrangements, which have continued during the current assessment period.

Table 15: Assessment results for Ports[6]

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	E	↔	E	↑	ME	NA	NA
Planning	ME	↓	E	↑	ME	NA	NA
Inputs	ME	↔	ME	↗	ME	NA	NA
Processes	ME	↔	ME	↗	ME	NA	NA
Outputs	ME	↔	ME	↑	PE	NA	NA
Outcomes	E	↔	E	↑	ME	NA	NA

E Effective ME Mostly Effective PE Partially Effective I Ineffective

↑ Trend has been an upwards change in grade

↗ Trend is increasing but has not caused an upward change in grade

↔ Grade has remained stable with no major trends

↓ Trend has been a downwards change in grade

NA The topic was not assessed in 2009

Based on the 2019-2020 trade statistics (Table 16) for the 10 trading ports, coal remains the largest export commodity of the Reef ports followed by petroleum exports and bauxite imports. The majority of these exports occur through the ports of Gladstone, Hay Point and Abbot Point. The ports of Gladstone, Townsville, Mackay and Cairns are multi-use ports with a range of different commodity exports and

[6] *Note 2019:* The grades for Outputs and Outcomes for Ports published in Appendix 2 of the Management Effectiveness Report 2019 were *effective* and *mostly effective*, respectively. However, based on updated 2019 indicator ratings and element grades provided by the 2019 assessors (Appendix 6), the grades should have been *mostly effective* for Outputs and *effective* for Outcomes. Table 15 shows the corrected element grades and trends.

2014: If the grading cut-off (or rounding) approach adopted for this 2024 Management Effectiveness Report was used (refer Footnote 3) for the published ratings in 2014 for Ports (Hockings et al. 2014, Appendix 4), the grade for Processes would be *partially effective* rather than *mostly effective*. This would change the trend from 2014 to 2019 to an upwards arrow.

imports. Hay Point and Abbot Point specialise in coal, Mourilyan and Lucinda in sugar and molasses, and Cape Flattery in silica sand. The vessel movements associated with the Reef ports makes up approximately half of the total commercial shipping movements that occur through the Region.



Figure 10: Location of ports and port authorities in Great Barrier Reef Region Source: Department of Transport and Main Roads (2023)

Table 16: 2019-2020 trade statistics for ports located in the Great Barrier Reef Region

Port	Throughput (t)	Commodities		Vessel
		Export	Import	movements
Gladstone	121,647,259	Coal, petroleum products, alumina/aluminium, metals and minerals, cement, chemicals, timber and woodchip, general cargo	Bauxite, cement, chemicals, grains and cereals, metals and minerals, petroleum products	1,783
Rockhampton	120,960	Chemicals, meat and livestock products, general cargo	Chemicals, general cargo, petroleum products	78
Hay Point	110,863,443	Coal	General cargo	1,147
Mackay	3,039,630	Sugar, chemicals, metal and livestock products, grains and cereals	Cement, chemicals, metals and minerals, petroleum products	196
Abbot Point	31,882,050	Coal	-	395
Townsville	7,337,852	Sugar, metals and minerals, chemicals, molasses, meat and livestock products, grain and cereals, general cargo	Cement, chemicals, coal, general cargo, grain and cereals, metals and minerals, molasses, petroleum products	628
Lucinda	588,417	Sugar	-	13
Mourilyan	618,175	Sugar, molasses	-	24
Cairns	933,905	Petroleum products, sugar, molasses, general cargo	Chemicals, general cargo, petroleum products	778
Cape Flattery	2,694,652	Silica sand	-	51
Total	**279,726,343**	-	-	**5,093**

Source: TMR (2020)

The management and planning arrangements for Ports cross a range of key management issues, consisting of:

- Master Plans (for Priority Ports) and Land Use Plans
- Long-term maintenance dredging management plans (LMDMPs) and associated frameworks, such as dredging environmental management plans, environmental monitoring programs, sediment testing, and sustainable sediment management arrangements
- Queensland Coastal Contingency Action Plan, nominating port authorities as responsible for first-strike marine pollution incident response
- Port procedures
- Marine biosecurity arrangements, including ballast water exchange requirements
- Permit requirements associated with specific activities.

Management of Ports is primarily led by the individual port authorities, with oversight by the Queensland DTMR. Within individual port areas, port authorities are primarily responsible for the management of vessel loading/unloading and movements and the development and maintenance of port infrastructure, including dredging and placement of dredged material. These activities carry with them a range of environmental risks, including vessel collisions, marine pollution and debris, vessel strike, light pollution, underwater noise and vibration, habitat loss and disturbance, water quality changes (primarily from dredging), and marine biosecurity. Some of these activities are managed exclusively by the port authorities while others have contributions from other state agencies such as MSQ (a branch of DTMR, responsible for maritime safety and pollution) and DAF (responsible for management of marine pests once introduced to coastal waters), and/or are overseen through several permission systems depending on the activity.

The current balance of management responsibilities of ports is appropriate, with port authorities having direct responsibility and other agencies providing oversight. However, there remains some duplication of jurisdiction between Queensland and Commonwealth government agencies, especially in relation to environmental assessment and permitting for port activities. Additional to providing direct environmental management, port authorities also contribute significantly to the knowledge of the Region within these port areas through both long-term monitoring programs and project-specific assessments for Marine Park Permits, Sea Dumping Permits and permits under other Commonwealth and State regimes.

The DTMR has contributed to the management of Ports through setting and maintaining benchmarks for dredging through the Maintenance Dredging Strategy. The Department is facilitating master planning processes for the Priority Ports, with two Master Plans (Gladstone and Townsville) in place and two draft Master Plans (Abbot Point and Mackay/Hay Point) due to be finalised.

The Reef Authority has regulatory oversight of port-related activities that occur within the Marine Park, such as the placement of dredged material at offshore placement sites. While the Reef Authority does not have oversight of activities outside of the Marine Park, there has been a MoU in place between the Reef Authority and Queensland Ports Association since 2009, which provides for a cooperative and communicative approach when it comes to Reef-related policy and regulatory matters. The Reef Authority is also often a member of the Technical Advisory and Consultative Committees for individual port authorities which provide ongoing engagement on port dredging and development matters.

Port authorities and agencies continue to implement the significant reforms that occurred from 2014 under the Maintenance Dredging Strategy, *Sustainable Ports Development Act 2015* and Dredging and Dredge Spoil Material Disposal Policy. Key actions from these reforms are embedded into the planning process for Ports and have led to improvements in both inputs and outputs from management.

The decline of Planning from *effective* to *mostly effective* reflects gaps in the current planning system as it relates to the identification and systematic management of underwater noise, vessel strike and marine pest risks within ports. There have been various actions and strategies within these areas across ports and shipping more broadly, such as the Queensland Seaports eDNA Surveillance (Q-SEAS) marine pests program from 2020 and the National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna 2017. However, as these initiatives relate primarily to data collection and identification of mitigation options, they are intended as precursors to more detailed planning arrangements. The risks of underwater noise, vessel strike and marine pests existed in previous assessment periods but were given lesser weight in the context of the prevailing focus on dredging and port development.

The control of marine pests being introduced to Australia is managed primarily through the use of ballast water controls and vessel inspections and is well developed. However, in 2020, the Q-SEAS program was initiated to improve the understanding of the occurrence of marine pests already within ports and broader coastal waters and to inform the development of relevant planning arrangements to address the spread of these pests. Specific marine pest planning arrangements are being introduced from

2024 to build on the Q-SEAS program (DAF, personal communication 2023). Similarly, while there are protocols on underwater noise at an international level, there has been limited focus on underwater noise of shipping and other activities within ports in Australia. This has in part prompted the development of a new national underwater noise strategy but this will not be in place until mid-2024. In lieu of these planning developments, there remains a gap in the systematic planning for these risks within Ports.

Similarly, while vessel strike was prioritised in 2017 through the National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna 2017, the main focus remains on improving collection of data on strikes and understanding options to mitigate these risks. There has not yet been a systematic transition from initial data collection through to broader planning in this area.

Since the Outlook Report 2019, most port authorities are now members of local waterway management partnerships. While ports do not contribute significantly to land-based run-off, port areas are often located in downstream areas of significant catchments, thus these partnerships provide an opportunity for collaborative approaches to address sediment transport.

Outcomes for Ports remain *effective* due to the controls in place to understand and respond to the environment with port areas. In particular, the ongoing implementation of strategies to reduce dredging and at sea placement requirements ensure that key threats within port areas are being addressed and provides increased resilience to the local environment.

As discussed, the challenges for ports are in addressing emerging concerns for marine pests and underwater noise and implement management actions on vessel strikes. Additionally, there are ongoing challenges for ports in managing jurisdictional conflicts associated with multiple levels of permitting for maritime developments, especially for dredging and placement activities.

Recreation (not including fishing)

Recreation is defined by the Recreation Management Strategy 2012 for the Great Barrier Reef Marine Park (RMS) as ‘an independent visit for enjoyment that is not part of a commercial operation’. This includes both local and international tourists. For the purposes of the management effectiveness review, Recreation excludes extractive activities, such as recreational fishing (which is covered under the Fishing topic).

For management purposes responsibility for recreation is spread across numerous Australian and Queensland governments agencies. However, the Reef Authority, QPWS and MSQ hold the primary responsibility. All six management effectiveness elements were graded as *mostly effective* (Table 17). The Context grade declined from *effective* to *mostly effective*, since 2019. The grade for Outputs improved from *partially effective* to *mostly effective*. The grades for Planning, Inputs, Processes and Outcomes remained stable at *mostly effective*.

Table 17: Assessment results for Recreation (not including fishing)[7]

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	ME	↓	E	↔	E	↔	E
Planning	ME	↘	ME	↔	ME	↔	ME
Inputs	ME	↗	ME	↔	ME	↘	ME
Processes	ME	↔	ME	↔	ME	↘	ME
Outputs	ME	↑	PE	↓	ME	↔	ME
Outcomes	ME	↔	ME	↔	ME	↔	ME

E Effective | ME Mostly Effective | PE Partially Effective | I Ineffective

↑ Trend has been an upwards change in grade
↔ Grade has remained stable with no major trends
↘ Trend is decreasing but has not caused a downward change in grade
↓ Trend has been a downwards change in grade

The RMS provides an overarching framework for the coordinated management of recreation across the Region and describes the management tools that are in place for specific activities. The RMS provides information on the risk-based approach to the management of recreation that is adopted by the marine park, as well as the associated major risks and threats to the Reef from recreational use and the associated mitigation measures to reduce these risks. The key risks identified in the risk-based compliance and enforcement plan relevant to recreation include vessels approaching whales, disposal of garbage, island National Park offences, misuse of public moorings

[7] *Note 2014*: If the grading cut-off (or rounding) approach adopted for this 2024 Management Effectiveness Report was used (refer Footnote 3) for the published ratings in 2014 for Recreation (Hockings et al. 2014, Appendix 4), the grade for Inputs would be *partially effective* rather than *mostly effective*. This would change the trends from 2009 to 2014 to a down arrow and from 2014 to 2019 to an up arrow.

and Plan of Management offences (motorised water sports, anchoring in no-anchoring areas, and speed of vessels). Outputs derived for recreation are designed to minimise these identified risks.

The RMS was created as a response to the Outlook Report 2009 and has been reviewed in a broad sense every five years through the Outlook Report management effectiveness review. While these reviews indicated recreation is well managed, they do also highlight that little research has been done around current impacts. The lack of dedicated investigation into recreation and its projected impacts on the Reef means that existing suppositions around its low impact may be incorrect. This idea is reinforced by the RMS, which indicates almost all risks associated with recreation that were identified in 2012 have an upward future trend (RMS, 2012; Table 1).

Some specific locations have more recent management plans in place, such as the Whitsunday POM that was updated for 2017. Updates in this POM include increased areas for motorised water sports, coordinate based boundaries, increased superyacht anchorages and increased protections around key protected species nesting areas. A new Southern POM is also in development. However, it remains to be seen if this new plan will be sufficient to manage the new and emerging risks that are anticipated for this area, such as increased boat traffic from vessels external to Queensland utilising these waterways.

While the general values which attract people to the Reef have been seen to remain relatively constant, the high level of variation regarding visibility of recreation hotspots and the difficulty in displaying this information for easy integration into planning for management remain key issue. This was noted by workshop participants to be of particular concern for recreation management in the Far Northern Territories where new roads make access for recreation more tenable. As monitoring remains sparse for many new boat launch areas the extent of this issue remains unclear.

Insights derived from advisory bodies, such as Local Marine Advisory Committees (LMACs) (that include community representatives), provide some key insights into developing issues for the management of recreation. However, this information is limited and anecdotal and therefore knowledge regarding developing issues is still a key knowledge gap for recreation management.

Several projects have begun since 2019 including mapping of patterns in vessel activity via a partnership between the Reef Authority and CSIRO and three integrated monitoring and reporting (IMR) Reef Trust Partnership (RTP) projects: SEABORNE, PROTECT and Governance. These projects aim to better understand the human

dimensions associated with the Reef. SEABORNE in particular has already begun to produce results through their Extended SEEA-EA framework (De Valck et al. 2023). This work designs a framework to monitor social, economic, environmental, and cultural benefits derived from the Reef. This work will aide in increasing awareness around recreational usage on the Reef by providing a clear process through which managers can assess use. While these projects seem promising in furthering the current understanding of recreation in the Region it is too early to say if they will be sufficient to fill the existing knowledge gaps.

On the whole, Recreation in the Reef is governed predominantly via a combination of legislation, zoning plans, management plans, individual site management and community outreach. Of note since 2019 has been increased legislation around no-anchoring areas. Prior to 2019 only one third of these sites were legislated within the Reef. Since then, new plans have been put in place with 59 per cent of these sites being legislated as of 2022. The Reef Authority and DES continue to progress towards the target of all no-anchoring Areas within the Marine Park being legislated. Of note was the shift in 2020, by the Reef Authority to using a Notifiable Instrument to legislate no-anchoring areas within the Whitsunday Planning Area instead of Plan of Management or Regulation amendment. These programs are expected to prove highly effective in preserving reef values as mitigation of anchoring effects has been found to increase reef resilience to heat related impacts of climate change (Mason et al. 2023).

As far as inputs toward adequate management of recreation in the Reef there is a lack of funding distribution allocated to monitoring and ongoing review of management practices. Current funding is targeted primarily at filling knowledge gaps surrounding human use of the Reef predominantly through funding for the Reef Authority/CSIRO project: Mapping patterns of vessel activity. Significant funding has also been directed to the maintenance and evaluation of moorings to assess their effectiveness in reef protection and preventing anchor damage through the RJFMP. Compliance work via the RJFMP represents another key source for funding on the reef with $35 million from the Australian and Queensland governments and $16 million in funding from other sources. The Field Management Strategy for 2018-2023 includes targets associated with maintaining capital investment and ensuring the maintenance and safety of existing infrastructure. As for personnel, a whole of program increase has recently occurred within the RJFMP which provides much of the on the ground monitoring and compliance work regarding recreation. This should help support future efforts into managing and monitoring recreation on the reef. Given the work remaining in filling existing knowledge gaps described above and in facilitating updated POM's and or overarching RMS documents to facilitate manager understanding of key issues expanded staffing resources are required.

No mechanism currently exists for evaluating the management effectiveness of existing Plans of Management. This is a known gap and efforts are being put forward to alleviate this in future management assessments via inclusion of a Monitoring, Evaluation, Reporting and Improvement (MERI) framework in all future management documents. This new requirement will require greater reporting requirements to track project progress and achievements which can then be used to facilitate future funding decisions and improve overall accountability for public expenditures.

Research activities

Research activities conducted on the Reef are a source of ongoing knowledge upon which to base future management policies and decisions. For the six assessment elements, Context and Outcomes were graded as *effective* while the remaining four elements were graded as *mostly effective* (Table 18). This represents a general decline from 2019, indicative of uncertainty around the adequacy of current Marine Park Permit systems and a need for greater baseline information to inform permitting and research decisions on the Reef.

Table 18: Assessment results for Research

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	E	↔	E	↔	E	↗	E
Planning	ME	↓	E	↑	ME	↓	E
Inputs	ME	↓	E	↑	ME	↓	E
Processes	ME	↓	E	↑	ME	↓	E
Outputs	ME	↓	E	↔	E	↔	E
Outcomes	E	↔	E	↔	E	↔	E

E Effective ME Mostly Effective PE Partially Effective I Ineffective

↑ Trend has been an upwards change in grade
↗ Trend is increasing but has not caused an upwards grade change
↔ Grade has remained stable with no major trends
↓ Trend has been a downwards change in grade

Managers as well as researchers and research organisations on the Reef tend to have a good understanding of impacts associated with research efforts on the Reef. This is generally in line with management documents that consider research as primarily a

low-risk activity. However, a clear gap exists regarding the cumulative impacts of research, particularly in areas with high levels of research activity.

‘An idea persists among researchers that deficits to the Reef as a result of ongoing research may be a necessity and that a few “sacrificial reefs” may be needed given the benefits associated with the findings from the research’ (Interviewee 2023). However, without a clear understanding of the cumulative impacts of research, it is difficult to make a comprehensive cost-benefit analysis for research efforts, and this remains a key area for further investigation. It is important to note that most of the research undertaken on the Reef occurs in very restricted spatial areas, for example, Scientific Research Zones. This raises concerns regarding long-term monitoring data for these areas. If cumulative damage due to research is not adequately tracked, then long-term trends concerning the impacts are not being captured. While impacts of research are thought to be small particularly in relation to the other impacts affecting the reef such as Climate Change or land-based run off, they may still be impacting on long term monitoring results. Further exploration on the cumulative effects of research may be required to allow a more complete understanding of reef trends.

Impacts

“At this point I would say there is no definitive consensus. We don’t know the cumulative impact of research on the biodiversity of reefs. I would expect it to be low, but I wouldn’t be hugely confident in that”.

Interviewee 2023

While the Reef Authority and Queensland government agencies are not primarily research organisations, they maintain solid working relationships with scientific institutions, including through Memorandum of Understandings (MOUs) with universities (James Cook University, University of Sydney, Central Queensland University, University of Queensland and University of Technology Sydney), along with long-standing relationships with CSIRO, AIMS and larger museums such as the Australian Museum, which operates the Lizard Island Research Station. These relationships allow agencies to help focus research on key management issues for the Region and to better distribute findings, via cross organisation training and meetings. Where possible, these relationships also help to facilitate review of research management practices to minimise any adverse impacts of research activities. One relationship that increased in intensity over this period of review was the coordination of citizen science efforts for providing data on Reef health. Key programs to help facilitate this research include Eye on the Reef (EOTR) and The Great Reef Census.

Citizen science

“Programs like the Great Reef Census, which are increasingly supporting the decision-making processes of the Reef Authority should be institutionalized… involving citizen science as part of the data collection system should be routine not a special event.”.

Interviewee 2023

These programs provide GPS-tagged observations to the Reef Authority to assist in real-time management to preserve reef health. One such notable use of data from citizen science programs are the COTS (Crown of thorns starfish) Control Program which uses EOTR data to inform COTS culling efforts. Continued integration of citizen science as a routine process was further emphasized by interviewees as necessary for good management and indicates a clear area for development.

In relation to data management and sharing, researchers (at workshops and interviews) identified the need for a more centralised location for data sharing to increase awareness, availability, and accessibility of what is and has been done regarding research. Increasing the availability and the accessibility of research efforts for managers can then better inform their decision making. Some early steps are being taken such as the Data Management System being built for RIMReP, which serves to harvest data from multiple sources and make it available in a pipeline model to form a common 'data lake' (with managed permissions). This system is designed to help facilitate easier access for managers to research efforts that have occurred on the Reef with a focus on monitoring and modelling research. While promising, it is too early to say if this will be sufficient to provide needed accessibility to managers on research efforts to help inform management decisions.

Identification, setting and communication of research priorities to inform management continue to be highly valuable. The Priority Monitoring Gaps Prospectus (2021, produced under RIMReP) identified 11 priority monitoring gaps that need to be addressed with future research efforts to inform progress under the Reef 2050 Plan. Alongside these documents was the Science and Knowledge Needs for Management produced by the Authority which provides broad scale goals for monitoring and in management of the reef. Subsequently, a suite of projects aligned to these gaps was funded by the Reef Trust Partnership. Continual review and adjustment of priorities is a key to ensuring that priorities remain contemporary and relevant to the threats facing the Reef, particularly in response to climate change, and to allow for appropriate targeting of efforts and funding.

The Reef is known internationally as a premier site in which to conduct scientific studies. Most research occurs at the four major research stations at Lizard Island, Orpheus Island, One Tree Island and Heron Island. A wide range of low intensity research is conducted at other locations. For all permit applications on the Reef, all researchers must submit reports detailing what they collect throughout their permit's duration (i.e. data on the species collected and the location). These reports are often not viewed in relation to one another. To address cumulative impacts, Lizard Island Research Station developed a spatially referenced collections' database to better

understand what is taken, and from where. This information is then considered by managers in determining the appropriateness of locations for future research projects. This contrasts with other stations that did not have a clear process in place to monitor research activities and understand cumulative impacts.

The Reef Authority, in partnership with DES, has been actively adapting the planning system for research in response to the emerging field of intervention/adaptation research. This includes the guideline on Applications for restoration/adaptation projects to improve resilience of habitats in the Great Barrier Reef Marine Park. These guidelines seek to address the emergence of adaptation and intervention activities, including research, on the Reef, such as that being completed by as part of Reef Restoration and Adaptation Program (RRAP). The guidelines help define the risk profile that prospective research efforts may have for the Reef and guide decision makers on how to manage these research efforts. While higher risk programs are rare at this point in time, the publication of these guidelines is an important step in the Reef Authority's efforts to manage risks through the permission system in the face of changing research and uncertainty.

Complimentary to this is the Policy on Great Barrier Reef Interventions implemented by the Reef Authority and DES in 2020. This policy further helps to provide clarity with regard to adaptive management in relation to Reef interventions that, while infrequent at present, are expected to increase in frequency into the future. This document serves as a guide for key management priorities for novel research efforts on the reef including:

- Provides strategic guidance about the agencies' position on Reef interventions and adaptation as a legitimate activity in the Marine Parks. This document also clarifies where these interventions sit regarding the wider management of the Marine Park.
- Provides strategic guidance about the managing agencies approach to consideration of these activities to allow for innovation while minimizing potential risk and uncertainty as much as practical.
- Outlines a general acceptable approach to the research and development of new intervention/adaptation/restoration methods (i.e. staged and risk-based) and how this might transition from research and design to implementation of an intervention practice.
- Clearly identifies how risk scores are determined and which methods are considered not acceptable in the Marine Parks.

- Sets out a clear procedure through which managing authorities consider applications for permits to conduct this type of research.
- Defines the monitoring requirements required for this type of research.
- Providing spatial clarity for intervention research by defining its relationship to the Zoning Plans.
- Emphasizes early interaction with Traditional Owners to identify and advance opportunities for co-design, co-management, and benefits in delivering reef interventions.
- Public participation and awareness of intervention strategies throughout their development is emphasized as a means to help build and maintain public trust and demonstrate best practice probity.

This document seeks to enable innovation while minimizing risks from failures in this emerging area of science, technology, and practice. A review of the policy commenced in mid-2022. A review of the guidelines is set to commence in 2023.

Permitting for research in the Marine Park has also seen some notable improvements since the 2019 management effectiveness review. Efforts include streamlining via the new Joint Streamlining Permissions Steering Committee, initiated in 2019, as well as allowances for the Reef Management System and Permits Online system to allow researchers and education programs to submit their permit activity reports (e.g. take of specimens, equipment installation) through an online database searchable by the Reef Authority. The effectiveness of this database, however, is limited by the difficult search functions and a limited data set (not all researchers will submit through this means). Issues around speed of assessing permit applications may remain from 2019 as resourcing for personnel to assess the permit applications fails to keep up with demand, partially due to difficulties in hiring people who are adequately experienced with complex impact assessment. After hiring, employees can also require six to 12 months of training to fully comprehend the complexities associated with permitting. This represents a clear area for improvement to provide for the increasing complexity of permit applications being assessed.

Shipping

For the purposes of this management effectiveness assessment, Shipping relates to the movement of commercial vessels within the Region, to and from or between ports and transiting shipping channels. It does not include activities associated with ship movements within port areas as this is covered in the context of Ports. It excludes recreational use of vessels as well as vessel movements associated with marine tourism

and fishing activities, each of which are covered in the topics Recreation, Commercial Marine Tourism and Fishing. In this assessment, a ship is considered to be a vessel greater than 50 metres in length. Commercial ships sailing within the Region include bulk carriers, container carriers, vehicle carriers, general cargo ships, tankers, cruise ships and larger superyachts.

The management effectiveness of Shipping is graded as *effective* or *mostly effective* for all elements and these grades have remained stable across all elements since the Outlook Report 2019 (Table 19). This reflects the maturity of management in this topic, although there are new or developing areas of focus. As for Ports, these include the ongoing development of national approaches to managing vessel strike and underwater noise generated by vessels. Additionally, the adoption of sulphur exhaust gas cleaning systems for vessels is also of emerging concern as majority of these testing of the impacts of these systems are not specific to reef environments. There are ongoing concerns regarding adequacy of Inputs as related to the ability to respond to and remediate major grounding events.

Table 19: Assessment results for Shipping[8]

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	E	↔	E	↑	ME	NA	NA
Planning	E	↔	E	↑	ME	NA	NA
Inputs	ME	↔	ME	↔	ME	NA	NA
Processes	E	↔	E	↑	ME	NA	NA
Outputs	ME	↔	ME	↗	ME	NA	NA
Outcomes	E	↔	E	↔	E	NA	NA

E Effective ME Mostly Effective PE Partially Effective I Ineffective

↑ Trend has been an upwards change in grade

↗ Trend is increasing but has not caused an upwards grade change

↔ Grade has remained stable with no major trends

NA The topic was not assessed in 2009

[8] *Note 2019*: The grade for Inputs for Shipping published in Appendix 2 of the Management Effectiveness Report 2019 was *effective*. However, based on updated 2019 indicator ratings and element grades provided by the 2019 assessors (Appendix 6), the grade should have been *mostly effective* and the trend from 2014 to 2019 should have been a stable arrow. Table 19 shows the corrected grade and trend.

There are several major shipping routes through the Region (Figure 11). The entire Region is part of the Great Barrier Reef and Torres Strait Vessel Traffic Service (REEFVTS) and also subject to a range of pilotage requirements (Figure 12). There are approximately 11,000-12,000 commercial ship movements through the area on an annual basis (NESMG 2014; AMSA 2019; AMSA, personal comments 2023), approximately half of which are related to traffic from Great Barrier Reef ports (Figure 12). The remaining vessels are likely in transit from ports outside the Region (e.g. Port of Brisbane) or smaller harbours outside port limits.

Shipping risks within the Region include contingency events, such as vessel collisions, grounding and spills and the strike or disturbance of marine fauna in shipping channels, together with risks associated with invasive marine species as most shipping traffic comes from international waters. A major focus of shipping controls, therefore, is on the reduction of the potential for incidents occurring and/or the rapid response to incidents to reduce their impact. Shipping generally is well regulated in the Region, with a governing framework established under the North East Shipping Management Plan (NESMP) and pollution response framework under the Queensland Coastal Contingency Action Plan (QCCAP), together with the use of Marine Orders to provide day-to-day measures to support management and allow for rapid adoption of arrangements from international levels (e.g. International Maritime Organisation, Convention for Safety of Life at Sea) or to respond to particular emerging areas.

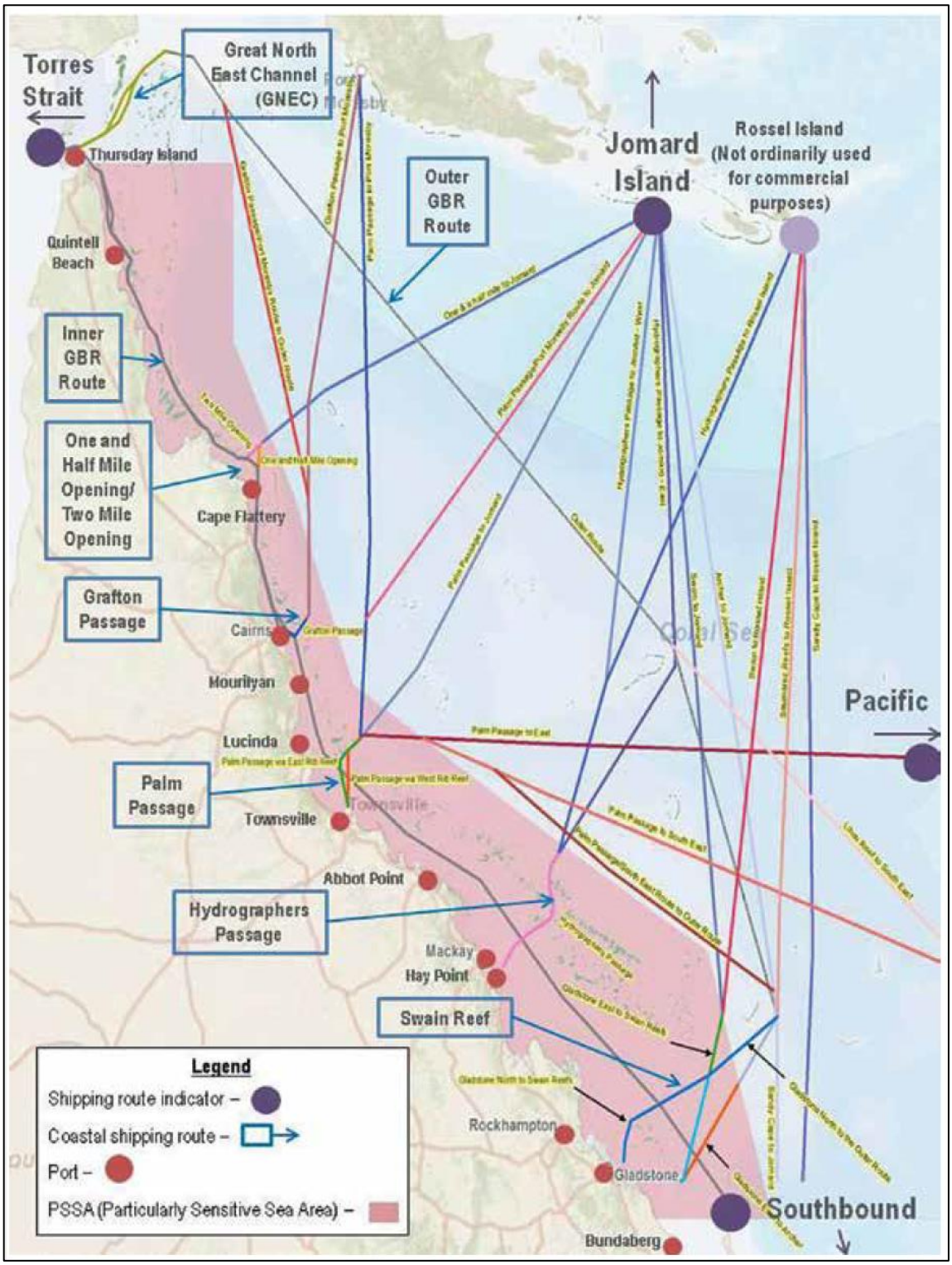


Figure 11: Location of shipping routes within the Region

Source: North East Shipping Management Group (2014)

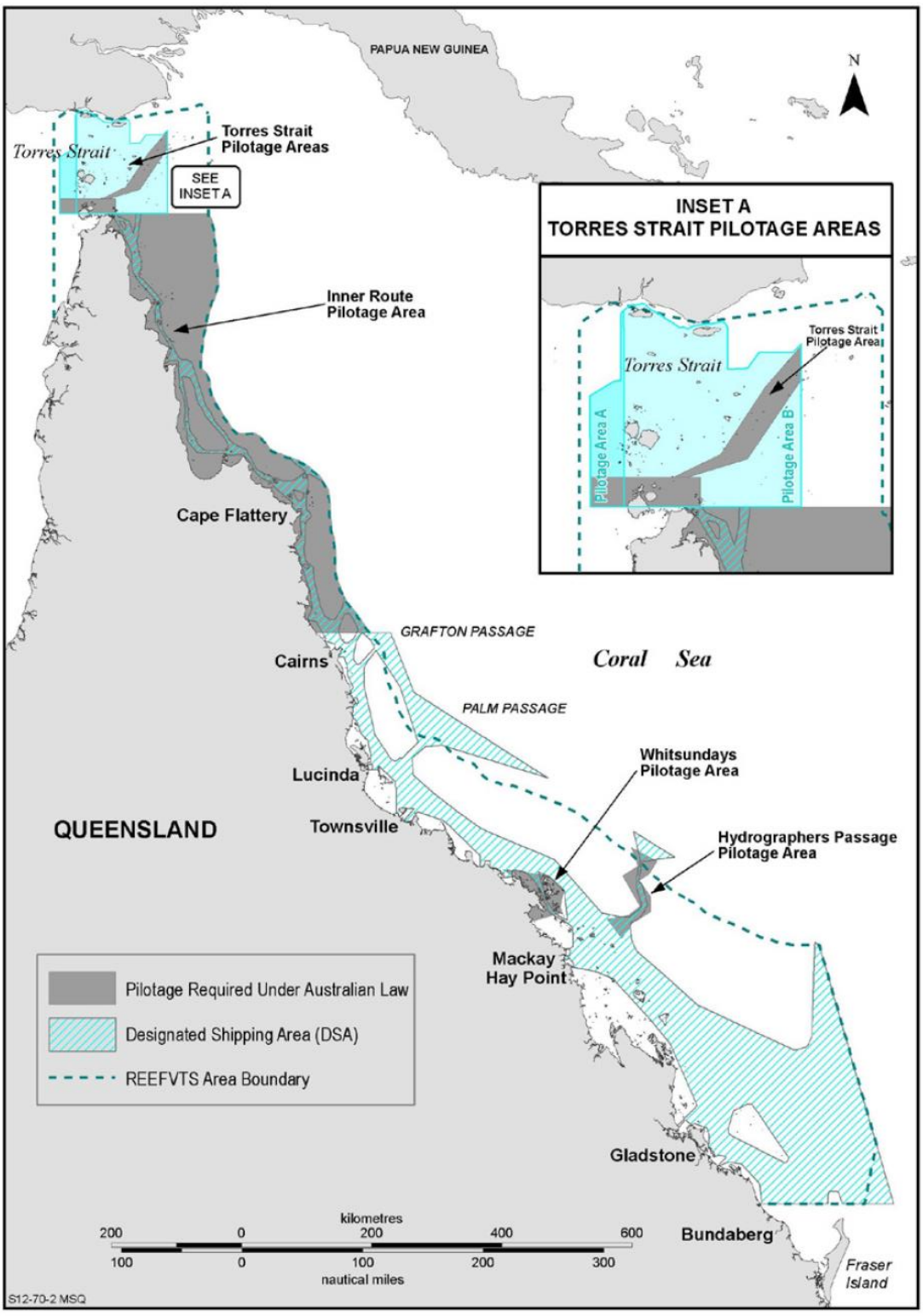


Figure 12: Location of REEFVTS, pilotage and designated shipping areas within the Great Barrier Reef Region

Source: Australian Maritime Safety Authority (2019)

Improvements in planning and processes were implemented in previous reporting periods (e.g. NESMP, establishment of REEFVTS) and have become part of ongoing management and planning. This is implemented through a shared relationship between the AMSA, MSQ and the Reef Authority, with support from port authorities in providing first-strike response in marine pollution events. Improvements have also occurred during the current reporting period, such as the splitting of REEFVTS into north and south.

Various shipping incidents occurred during the reporting period. However, these primarily related to factors outside of the control of managing agencies (e.g. loss of propulsion, crewing conditions) and responses have been effective in mitigating risk. AMSA and MSQ are well equipped in most instances to respond to these incidents, especially as it relates to marine pollution and vessel interactions.

Where vessel groundings occur, there is the potential for significant impact to sensitive habitats within the Reef. Rehabilitation and associated responses to these impacts are primarily the responsibility of the Reef Authority. However, at present, the funding structure for the Reef Authority does not allow for standing resourcing to respond to incidents as they occur. Thus, funding for responses is typically required to be sought from the offending entity (e.g. as in the case of the *Shen Neng 1*). However, this can be a time-consuming process and depends on the adequacy of the commercial resources (e.g. insurance) of the vessel owners.

During the assessment period, the use of sulphur scrubbers for vessel exhaust gas cleaning has been implemented internationally as best practice, part of a transition towards lower emissions in international shipping. These scrubbers require discharge of sulphur compounds into the marine environment. While assessments have been undertaken on the risks of these discharges, including by CSIRO (unpublished report), these were not specific to the context of the Reef and the sensitivities of reef habitats. Workshop participants raised ongoing concerns regarding the potential for unknown impacts as a result of these systems to the Reef, noting its status as a Particularly Sensitive Sea Area and World Heritage Area.

As for Ports, there is also an emerging or developing focus on underwater noise and vessel strike risks. Planning arrangements for biosecurity are more comprehensive for Shipping but management frameworks for vessel strike and underwater noise are both in development and early implementation. Further work is needed to develop these areas further and understand the current risk profile to the Great Barrier Reef.

Outcomes for Shipping remain *effective*, recognising the significant reduction in ship grounding and vessel incidents that has occurred since the introduction of REEFVTS in 2004 and the low levels of environmental impacts across shipping channels. Challenges remain, however, in ensuring effective response to habitat remediation following an incident (e.g. *Shen Neng 1*).

Traditional Use of Marine Resources

> **Ongoing custodianship**
>
> Traditional Owner connection to Sea Country in the Reef Region continues to be practiced and maintained according to traditional customs and spiritual lore, reflecting ongoing stewardship and custodianship.
>
> GBRMPA 2022

The Traditional Use of Marine Resources (Traditional Use) is undertaken by Aboriginal and Torres Strait Islander peoples, who are the Traditional Owners and custodians of the Reef and its catchment. As First Nations people, they hold inherent rights, interests and obligations to protect and care for their Country. There are over 70 Reef Traditional Owner clan groups that have a deep knowledge of the Reef's values extending back for over 60,000 years. Many groups demonstrate continuing connections with the Reef and undertake Traditional Use, which incorporates undertaking activities as part of Aboriginal and Torres Strait Islander people's cultures, customs or traditions and to satisfy personal, domestic or communal needs. These activities may include fishing, collecting (e.g. shellfish), hunting (or harvesting) and looking after cultural and heritage places (GBRMPA 2022).

Overall, the management effectiveness of Traditional Use of Marine Resources is graded as *mostly effective*. Since the Management Effectiveness Report 2019 (Leverington et al. 2019) grades for the elements Inputs and Processes have remained stable, while grades have declined from *effective* to *mostly effective* for Context, Planning, Outputs and Outcomes (Table 20).

Table 20: Assessment results for Traditional Use of Marine Resources[9]

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	ME	↓	E	↔	E	↗	E
Planning	ME	↓	E	↔	E	↑	ME
Inputs	ME	↔	ME	↔	ME	↑	PE
Processes	ME	↔	ME	↔	ME	↗	ME
Outputs	ME	↓	E	↑	ME	↔	ME
Outcomes	ME	↓	E	↔	E	↑	ME

E Effective ME Mostly Effective PE Partially Effective I Ineffective

↑ Trend has been an upwards change in grade
↗ Trend is increasing but has not caused an upwards grade change
↔ Grade and trend have remained stable
↓ Trend has been a downwards change in grade

Knowledge of Traditional Use (e.g. traditional and cultural rules, protocols, practices and activities on Sea Country and the languages associated with these practices) are passed on to younger generations. The *Native Title Act 1993* recognises the pre-existing rights of Aboriginal and Torres Strait Islander peoples in relation to the harvest and use of marine resources for traditional uses within their Land and Sea Country.

[9] *Note 2019*: The grade for Context for Traditional Use of Marine Resources published in Appendix 2 of the Management Effectiveness Report 2019 was *mostly effective*. However, based on updated 2019 ratings and grades provided by the 2019 assessors (Appendix 6), the grade should have been *effective* and the trend from 2014 to 2019 should have been a stable arrow. Table 20 shows the corrected grade and trend.

One of the most effective approaches in managing Traditional Use is the establishment of Traditional Use of Marine Resources Agreements (TUMRAs) (Figure 13). These are statutory agreements under the Great Barrier Reef Marine Park Regulations 2019 and are recognised in the Great Barrier Reef Marine Park Zoning Plan 2003. They are a unique partnership agreement that recognises and supports the Native Title rights and interests of the Traditional Owner groups, who hold an inherent spiritual connection to the Reef.

The Reef is Country…

"The Reef is our Heart and the water is the life-blood that connects us all. She is our Family. The Reef is an extension of Us and we are an extension of Her. The Reef looks after us, feeds and protects us, and keeps us healthy. She's the keeper of our stories, our Lore. Without her we will suffer irreversible effects to our identity."

Heart of the Reef – A Call for Healing

The values of the Reef in relation to Traditional Use are broadly understood by managers (i.e. including the Reef Authority, government agencies and various Traditional Owner groups and organisations). In general, Traditional Owner groups that manage Sea Country within TUMRA areas have a good knowledge of these values.

Reef values relating to Traditional Use

"Every group is different. Some groups are well-established and express their culture and others are learning their way".

Workshop participant 2023

Sea Country values mapping has been undertaken in some accredited TUMRA regions to assist in understanding the cultural values of specific Traditional Owner Sea Country. The first publicly available product is from Mandubarra Traditional Owners (2019-20) (Manduburra Sea Country Cultural Values). The Woppaburra Traditional Owner Heritage Assessment Guidelines (2017) continue to inform assessments by the Reef Authority in relation to the Keppel Islands region and provide detailed information on values related to sacred sites, structures, technology tools, threats and impacts. The Reef Knowledge System is important in providing links to information relevant to Traditional Use and related values.

The condition and trend in the values relevant to Traditional Use are closely linked to the condition of the Reef's natural values and natural heritage values. Traditional Use is 'place based' and incorporates Traditional Owners caring for their Country. In general, within TUMRA areas 'take is well managed and sustainable' (Workshop participant 2023), and is based on cultural lore, traditional ecological knowledge and contemporary science. TUMRAs incorporate specific management strategies for the conservation and sustainable use of key species and habitats/ecosystems (seagrass, coral reefs). This may include restrictions on the take of some species such as dugongs and green turtles. These restrictions can be applied or removed at any time in accordance with changing environmental circumstances, sorry business and other human impacts

Caring for Sea Country

"Social and ecological outcomes cannot be separated".

Workshop participant 2023

(Workshop participant 2023). It should be stressed that some of these restrictions have impacted on Traditional Owners' use of the marine environment and thus their ability to continue important cultural practices. TUMRAs may also address restoring and maintaining waterways and coastal ecosystems; maintenance and protection of significant heritage values (places, knowledge, culture, language); research and monitoring of Sea Country (seagrass, shellfish); leadership and governance (knowledge management, education, information exchange); and some compliance matters.

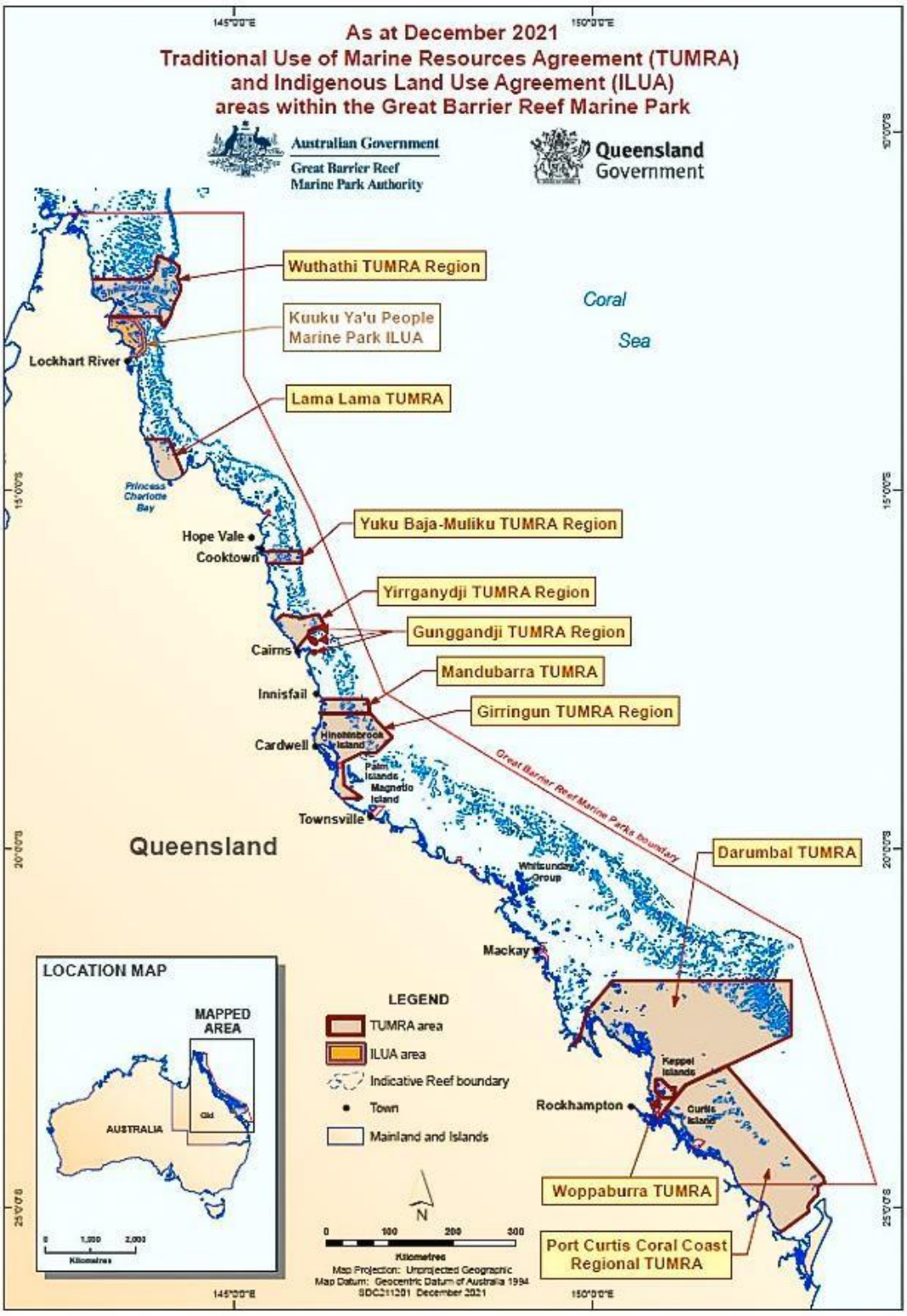


Figure 13: Traditional Use of Marine Resources Agreements, Great Barrier Reef

Source: Great Barrier Reef Marine Park Authority (2023)

The overall impact of Traditional Use on Reef values is minor and localised (Workshop participant 2023) compared to threats such as climate change, marine debris (especially 'ghost nets'), boat strike, pollution, sedimentation and the take of species outside the Region. Condition is assessed by community groups living on Sea Country, by Indigenous rangers and various formal monitoring programs. Information on the status of dugong, turtles, and other marine species is fairly reliable. However, stressors such as climate change (cyclones, floods, higher sea temperature and acidification) and sediment input are not well understood, especially in applied modelling relating to cumulative impacts (Bozec et al. 2022). The Traditional Owner Technical Working Group for the Reef Trust Partnership Integrated Monitoring and Reporting Program was formed in 2020 to guide the implementation of the Strong Peoples-Strong Country framework. Selected Reef Traditional Owner groups will be funded to conduct pilot projects to test ways to monitor and report on the condition of their community and Country, including Traditional Use, according to Traditional Owner values, priorities and aspirations. Indicators are being developed to measure condition and trend.

Traditional harvest – marine turtles

"…is not the primary cause of the dramatic decline in the populations of many species of marine turtles".

Marine Turtle Conservation Strategy 2021-2-31

The Reef planning system operates at several scales (international to local) and incorporates both marine and terrestrial components, with complex layers of legislation, plans, strategies, agreements and conventions that are developed and overseen by various jurisdictions. An effective Reef planning system should be socially inclusive, engaging with Traditional Owners on their own terms and in their own way.

Planning

Traditional Owners *"treat Land and Sea Country as a whole - land, sky, water, substrate and spiritual connections are well embedded and guide cultural heritage".*

Workshop participant 2023

Traditional Owners have always had their own planning systems or lore (often community based) that apply to Indigenous places, use Indigenous knowledge and world views and make decisions using accepted processes, institutions and management. Mainstream planning, in general, has poorly conceptualised its relationships with Traditional Owner groups and has been slow to effectively involve Traditional Owners or consider their rights. However, the Reef planning system accepts, to some extent, the legitimacy of Indigenous planning and is trying to understand its knowledges, processes and institutions and to 'connect' state-based planning with Indigenous planning, especially through TUMRAs, facilitated

Planning support

"We have a fair way to go in terms of meeting Traditional Owners' expectations of how the Reef Authority needs to support planning and management of Sea Country in the Marine Park …We are behind where we should have been'".

Workshop participant 2023

partnerships, collaboration, and moves towards co-design, co-management (e.g. through Plans of Management) and co-governance. However, an interviewee (2023) said, 'Planning is flatlining. All we are doing is the basics. It is not innovative or addressing Traditional Owner perspectives.'

The planning and governance systems for the Reef are closely intertwined in addressing Traditional Use. The Reef Authority manages Traditional Use in partnership with Traditional Owners and the Commonwealth and Queensland governments (QPWS). Specific partners include Indigenous corporations and associations (e.g. including TUMRAs and ILUAs), Native Title related organisations, geographically defined organisational governance (e.g. Girringun Aboriginal Corporation, Cardwell), Aboriginal and Torres Strait Shire Councils within Reef catchments, four Reef Native Title representative bodies, and informal committees, boards and taskforces (e.g. Sea Country Forums).

The structural elements of governance in relation to Traditional Use (Dale et al. 2016) are well developed in terms of vision setting, values mapping and the diversity of legislation, regulations, plans, policies, agreements and the permission system. The Reef 2050 Plan incorporates 23 actions related to Traditional Owners, including Traditional Use (refer Heritage topic). The Reef 2050 Traditional Owner Implementation Plan (2022) is providing support to further understand and agree on a range of governance concepts, including co-management, co-governance, co-design, joint management and clarification of Traditional Owner rights and interests. This signifies a departure from Traditional Owners' reliance on government to include them in government-led initiatives to one where Traditional Owners can lead on programs and projects that are significant to them. However, at the national level there is recognition that Indigenous knowledge systems have not been effectively incorporated into decision-making (Samuel 2020).

Governance

"Aboriginal and Torres Strait Islander people put their culture at the heart of their governance".

Australian Indigenous Governance Institute 2023

EPBC Act

"…the Act has failed to harness the extraordinary value of indigenous knowledge systems…(We need to) enable them to effectively participate in decision-making".

Samuel (2020,p.iii)

The Reef Authority and Queensland Government jointly accredit TUMRAs. The TUMRA program includes 10 accredited agreements (Darumbal, Mandubarra, Girringun region, Woppaburra, Wuthathi, Port Curtis Coral Coast region, Lama Lama, Yuku-Baja-Muliku, Gunggandji, and Yirriganydji) that support 18 Traditional Owner clan groups covering approximately 43 per cent of the Queensland coastline (Figure 13). This is an increase of one agreement since 2019. An Indigenous Land Use Agreement (ILUA) (Kuuku Ya'u) brings the coverage to about 46 per cent of the Queensland coastline and about 22 per cent of the Marine Park area.

TUMRAs

...acknowledge that Traditional Owner planning, carried out by Traditional Owner communities exists beyond 'mainstream state-based planning, as an important form of planning in its own right.

The Reef Authority has established a TUMRA section within the Marine Park Operations Branch that includes staff with TUMRA expertise working to strengthen and expand the TUMRA program. The Reef Authority has commenced new partnerships to develop four new Traditional Owner-led agreements. In 2022, eleven island national parks (Cape York Peninsula Aboriginal land) were transferred to Indigenous ownership through Indigenous Management Agreements, providing strong cultural values protection and a management focus. A new Plan of Management for the Southern region of the Marine Park is being co-designed with four Traditional Owner groups.

In relation to the functional elements of governance (Dale et al. 2016) decision-making powers are distributed among the key players but the Reef Authority plays a central role. Stakeholder engagement in the planning and governance systems relating to Traditional Use 'is moving in the right direction, but we are not there yet. It needs to be simpler and more streamlined' (Workshop participant 2023). Engagement (IAPP 2018) in relation to Traditional Use includes *informing* (e.g. targeted education and stewardship programs) and *consulting* (e.g. providing input on various plans and policies). For example, Traditional Owners are consulted about Traditional Use as members of the Reef Authority's Marine Park Board (one member), Indigenous Reef Advisory Committee (IRAC), Tourism RAC (three members), Reef 2050 Reef Advisory Committee (two members, one male and one female) and LMACs. However, the IRAC members have 'no way to engage directly (with Traditional Owners). There are few resources and little time to address the big issues' (Interviewee 2023). Engagement also includes *involving*. For example, Indigenous rangers and other Traditional Owners work with their own and wider local communities to address Traditional Use. They are also engaged in various partnerships including the RJFMP, RIMReP and Values-Based Management approaches.

There is an increasing focus on *collaboration* and *empowering* forms of engagement. The Gurra Gurra Framework 2020–2026 supports DES to reframe relationships with First Nations peoples by holding Country and people at the centre of policy, programs and service delivery and working in partnership to build a strong and shared future. The Framework aims to enable co-governance and co-stewardship, respect community-led decision-making processes and timeframes, and explore new ways of working through co-design and co-delivery. Initiative 8 in the Framework focuses on 'strong governance' and the need to review existing governance structures to appropriately 'embed shared responsibility for the implementation of the Framework….; and consider potential gaps in existing structures ensuring First Nations people are represented with the governance process' (p.19). Additionally, the 2022 Co-management Principles Policy represents the first clear commitment by the Reef Authority to co-managing in partnership with Traditional Owners, including through decision-making, policy and plan development and management actions. However, an interviewee (2023) noted that 'there needs to be more local structures to address Traditional Owners' concerns and address issues raised by them'.

Co-governance

"Many groups want this but we (government) are struggling internally in delivering a true partnership and to design co-governance that works for everyone".

Workshop participant 2023

In November 2023 an 'Agreement to Partner' between the relevant Ministers from the Commonwealth and Queensland governments and the Reef 2050 Traditional Owner Steering Groups members was signed to 'adopt more holistic and inclusive approaches to the governance and management of the Reef', 'build more effective formal partnerships and grow capacity - to empower Traditional Owners to lead, co-design and co-deliver management policy and programs', and 'deliver the Reef 2050 Traditional Owner Implementation Plan, better coordinate programs across the Reef and Catchment' and others, along with a series of 'partnership principles' that include free, prior and informed consent, power sharing, empowerment and access and benefit sharing.

Human resourcing

"We don't have staff on-ground…human resourcing across the industry is a problem".

Interviewee 2023

"There are constant revolving doors of people in this space and

Co-management

"TUMRAs are a formalised relationship but they are toothless … (and) they don't achieve what people want them to achieve".

Interviewee 2023

Various TUMRAs are also moving towards a co-management approach that is Indigenous-driven. Each TUMRA has a committee to manage the agreement and Traditional Use in their Sea Country, including traditional take, if any, of marine species, e.g. dugongs, turtles, fish, shellfish etc. For example, the Gunggandji TUMRA includes three spatially explicit no-hunting areas around Green Island, Fitzroy Island and Michaelmas Cay and this

is illustrated in a publicly available georeferenced map. The Woppaburra Guidelines map the important cultural values in the Keppel Islands region to help inform permit assessments by the Reef Authority and indicate where uses occur. However, Traditional Owners 'don't have the authority to address hunting (by outsiders). They need to be empowered to manage hunting and undertake enforcement using relevant management tools' (Interviewee 2023). This may require legislative reform.

Traditional Owners note that engagement is fragmented and 'siloed', with 'each agency trying to engage with the same Indigenous organisations, not responding holistically and thus placing burdens on Indigenous peoples' (Workshop participant 2023). An improvement suggested by workshop participants was a move to round tables that focus more on discussion and debate and which meet more frequently. The Commonwealth and State governments have agreed to establish a Reef Traditional Owner Sea Country Alliance (2022) that will address some of these issues (refer Agreement to Partner 2023).

Human resourcing within the Reef Authority has improved but there have been challenges with recruitment since the pandemic (Workshop participant 2023). The Reef Authority has established a discrete TUMRA section with nine Indigenous staff (2023), who have cultural knowledge and experience in working with Traditional Owners. They support Indigenous people to return to country and deliver field management activities. Increasing demand for an expanded TUMRA program places pressure on existing staff to deliver appropriate outcomes in a timely manner. The RJFMP employs over 100 Aboriginal and Torres Islander people who address Traditional Use among other matters.

Program activities within the Reef Authority experienced some delays due to COVID-19 operational restrictions on travel to remote communities, although the Reef Authority continued to support TUMRA groups remotely. There were reductions in field delivery and some activities were deferred.

The Indigenous Rangers' Programs operated by the State and Commonwealth governments enable Indigenous rangers to be on-ground to assess condition and trends, guide management and help to uphold compliance across the Region. Challenges exist concerning the alignment of work that Indigenous rangers undertake on QPWS/Reef Authority related activities and on-ground management related to Traditional Use (Interviewee 2023). The Traditional Owner Partnerships Strategy (2021-22) (RJFMP) aims to increase Traditional Owner involvement in field management activities, including matters related to Traditional Use.

New TUMRAs can take two or more years to develop, much of this time being spent on effectively engaging with the communities. Thus, the process cannot be rushed, and continuing dedicated resources are needed to build and maintain relationships and support aspirant TUMRA groups. Existing TUMRA groups also require continuing, dedicated support and resources and improved management tools to address a range of issues (Interviewee 2023). In addition, there is a clear challenge in ensuring that Traditional Owners are well supported to effectively engage in the wide raft of opportunities that are opening up to their communities, and to avoid feeling overwhelmed and fatigued by the engagement processes.

Opportunities for Traditional Owners to access and manage Sea Country are limited due to a lack of suitable boats and limited resources to conduct protection and rehabilitation activities (Interviewee 2023). Without on-ground management, it is difficult to implement and enforce cultural and legislative rules and responsibilities. There are also differences in capacity between TUMRA and non-TUMRA areas and this has implications for passing on Traditional knowledge, practices and culture and accessing country (Interviewee 2023).

Accessing Country

"Traditional owners…are not equipped to go out on Country. The process is flawed."

Interviewee 2023

Knowledge sharing has improved and includes a diverse array of products e.g. TUMRA newsletters showcase monitoring programs and results; Jawun is an internal knowledge and resource hub accessible by all DES staff and includes information about culture, heritage, legislation, communities, respectful engagement, case studies etc; and the Reef Authority's monthly Sea Country Connections newsletter contains a diversity of information. Traditional Owner groups are learning from each other and sharing traditional ecological knowledge.

Training is an important component in ensuring sustainable Traditional Use and this requires a better understanding of the skill sets that need support within TUMRA communities (Workshop participant 2023). The TUMRA program's mentoring and 'buddy' system between established and developing TUMRA areas has been a significant capacity builder for saltwater Traditional Owners. A two-year specialised Indigenous Ranger program has been developed and delivered. The Sea Country Communications Plan promoted cultural change and cross-cultural training. In relation to building trust, a workshop participant (2023) stated, 'In the past (centralised decision making) has caused trust deficits… (In response) government needs internal capacity in terms of cultural competency and related training' (Workshop participant 2023). Others expressed the need to explore opportunities for Indigenous peoples to build their capacity by engaging and working in a range of related work environments

(e.g. tourism and fishing operations) and for reciprocal arrangements to be developed to enable joint reef ranger patrols (Interviewee 2023).

In terms of sustainability, the Traditional Owner groups have utilised their TUMRAs in many different ways to support their Sea Country management aspirations, including employing coordinators and support officers, mapping cultural sites to improve their protection, providing input and advice on permit referrals (e.g. through the implementation of the Woppaburra Traditional Owner Heritage Assessment Guidelines), undertaking research and monitoring activities and a diverse range of on-country activities, attending local events to raise awareness of their TUMRA and Sea Country management activities, and developing TUMRA-specific communication and education products. The TUMRA program has also supported Aboriginal and Torres Strait Islander peoples to return to country and deliver field management activities, although this is perceived by Traditional Owners as an area that needs continuing resourcing and financing.

Strong and enduring partnerships have been built in developing TUMRAs, ILUAs and Indigenous Management Agreements that incorporate Traditional Use. A Partnerships Framework is being developed to guide the Reef Authority in how to effectively enter into formal partnerships that will be co-designed with shared decision-making and co-benefits. Traditional Owners report that TUMRAs are 'an effective vehicle to enhance partnerships and enable TUMRA groups to access a range of programs and services' (Interviewee 2023). Traditional Owners have a strong interest in the recovery of many species and are essential partners in this work (DES 2021). The various TUMRA groups and the Traditional Owner groups that aspire to establish TUMRAs have developed partnerships with a diverse range of organisations and groups.

Partnerships

"Engagement is a way of the past – partnering is the way we are going and should have been going for a long time."

Workshop participant 2023

Overall, the establishment of TUMRAs has assisted in the management of Traditional Use within Sea Country, including improved understanding of agreement areas and enhanced management of marine resources through incorporation of Traditional knowledge and practices (Workshop participants 2023). Increased funding to develop and implement TUMRAs has brought benefits to Traditional Owners through employment and training and results in 'stronger people and stronger country'.

Challenges include:

- Developing contemporary Indigenous-led plans and customary management approaches and policies that address customary use of biological resources
- Developing access and benefit sharing arrangements that allow responses to be determined locally and aligned with customary laws/lores, capacity and management aspirations (DES 2021)
- Strengthening the available tools (e.g. TUMRAs, compliance programs, enforcement capacity and strategies), which will require adequate resourcing over culturally-appropriate timeframes
- Embedding Traditional Owners in all aspects of Reef monitoring and evaluation using culturally appropriate approaches addressing data management and data sharing challenges
- Enhancing equity, particularly in relation to the engagement of women in decision making
- Addressing the employment of Indigenous peoples to undertake work on Country
- Enhancing regional governance models that include Traditional Owners.

While a dedicated TUMRA team has been established in the Reef Authority, challenges relate to adequate staffing with the appropriate skill sets to facilitate an expansion of well-designed and collaborative agreements. Concerns were expressed at the loss of knowledge and capability within a range of organisations. The focus on partnering (rather than engaging) with Traditional Owners also requires a commitment to training that facilitates greater trust with Traditional Owners and enhances their governance capacities. Resourcing to build improved linkages among TUMRA groups and with other structures and decision-making groups will enhance capacity but remains a challenge.

4. Assessment of managing external factors influencing the Region

Climate change

The Earth's climate is changing due to human activities, and this has resulted in long-term changes to average global temperatures and associated global climate systems and regional weather patterns (IPCC 2023). Climate change is the most pervasive and persistent influence on the Region and remains the greatest threat to the long-term health and viability of the Reef (Cinner et al. 2016, Graham 2014, Graham et al. 2015, GBRMPA 2019, Walpole and Haden 2022, Schleussner et al. 2016). The Reef is highly sensitive to impacts of climate change, such as sea surface temperature extremes and more frequent extreme weather events (Richarson et al. 2018, Stuart-Smith et al. 2018).

The Climate Change topic relates to the pressures placed on the Reef by climate change, and the management responses associated with these pressures. Management and policy responses to climate change fall into two broad categories: mitigation and adaptation. Mitigation policy responses aim to limit the extent of global warming and climate change. Adaptation policy responses aim to assist ecosystems and communities to adjust to the expected regional and local impacts of climate change (IPCC 2023).

Overall, the management effectiveness element grades for Climate Change have slightly improved since the Management Effectiveness Report 2019 (Leverington et al. 2019) (Table 21). Only one element, Planning was graded as *mostly* effective, an improvement from *partially effective* in 2019. Context, Inputs, Processes and Outputs were graded as *partially* effective, with the last three elements increasing in effectiveness since 2019. Outcomes remained *ineffective*, although with an increasing trend.

The effectiveness of global actions to mitigate climate change will be the primary determinant of climate impacts on the Reef. Abating the deterioration of the Reef's ecosystem and heritage values demands significant global action to reduce greenhouse gas emissions to limit future global warming and the associated changes to the global climate and on regional weather patterns. However, committed warming due to historical emissions means that climate change mitigation alone will not be sufficient sustain coral reefs under a climate changed future and solutions for the Reef

must involve a mix of mitigation, restoration, adaptation, and resilience measures (Anthony et al. 2020).

The Paris Agreement was reached under the United Nations Framework Convention on Climate Change in 2015 and provides a framework for all countries to act on climate change post 2020. The Paris Agreement sets an ambitious target to keep global temperature increase to well below 2°C and pursue efforts to keep warming below 1.5°C above pre-industrial levels.

Table 21: Assessment results for Climate Change[10]

	2024	2019-2024	2019	2014-2019	2014[11]	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	PE	↓	ME	↔	ME	↓	E
Planning	ME	↑	PE	↘	PE	↓	ME
Inputs	PE	↗	PE	↓	ME	↘	ME
Processes	PE	↗	PE	↘	PE	↓	ME
Outputs	PE	↑	I	↓	ME	↔	ME
Outcomes	I	↗	I	↘	I	↓	PE

E Effective ME Mostly Effective PE Partially Effective I Ineffective

↑ Trend has been an upwards change in grade
↗ Trend is increasing but has not caused an upwards grade change
↔ Grade and trend have remained stable
↘ Trend is decreasing but has not caused a downward grade change
↓ Trend has been a downwards change in grade

In Australia, the primary responsibility for addressing climate change lies with the Federal Government. In May 2022, Australia submitted an updated Nationally Determined Contribution with increased emission reduction targets for 2030 of 43 per cent below 2005 levels, a 15 per cent increase on its previous 2030 target, and a target

[10] *Note* 2014: If the grading cut-off (or rounding) approach adopted for this 2024 Management Effectiveness Review was used (refer Footnote 3) for the published ratings in 2014 for Climate Change (Hockings et al. 2014, Appendix 4), the grade for Outcomes would be *partially effective* rather than *ineffective*. This would change the trend from 2009 to 2014 to a down arrow and from 2014 to 2019 to a declining arrow.

of net zero by 2050. Following the passage of the *Climate Change Act 2022*, these targets are now enshrined in legislation.

Australia is also leading the International Partnership for Blue Carbon, which is an initiative that seeks to protect, sustainably manage and restore global coastal blue carbon ecosystems contributing to carbon sequestration and climate change mitigation.

The *Climate Change Act 2022* operates as 'umbrella' legislation to implement Australia's net-zero commitments and codifies Australia's net 2030 and 2050 greenhouse gas (GHG) emissions reductions targets under the Paris Agreement. Under the Queensland Climate Action Plan, the Queensland Government set the following targets:

- 50 per cent renewable energy target by 2030
- 30 per cent emission reduction below 2005 levels by 2030
- 75 per cent emission reduction below 2005 levels by 2035
- Net-zero emissions by 2050

The Reef Authority has limited jurisdictional responsibility for directly addressing the drivers of climate change, such as the development of emission reduction and carbon sequestration measures. However, the Reef Authority has contributed significantly to the development of international best practice for managing responses to climate change and extreme weather impacts on Reef ecosystems.

The values of the Reef relevant to climate change are well known by managers. The Reef Authority has a Position Statement on Climate Change that includes description of the values of the Reef and the impact that climate change has on these values (GBRMPA 2019). However, progress in understanding the direct, indirect and cumulative impacts of climate change on the Reef has slowed considerably over the past 10 years since the cessation of the Climate Change Group within the Reef Authority (Workshops 2023).

In the Queensland Climate Adaptation Strategy the Queensland Government recognises the threats climate change poses to the values of the Reef. As part of its climate change response, the Queensland Government is partnering with the Local Government Association of Queensland (LGAQ) to work with local governments to plan for and better manage climate risks and build resilience. This helps to ensure that climate risks are considered in planning and development decisions across

Queensland, and that local governments are well positioned to support climate action within their local communities.

The Reef Authority has developed many partnerships with local communities and stakeholders, but the effectiveness of these partnerships is more easily measured for some initiatives then for other initiatives. Through the Reef Guardian Council program, the Reef Authority is partnering with 19 Councils who are working to address climate change through their operations and community.

One of the key initiatives in the Blueprint for Resilience is 'Accelerating actions to address global climate change' which aims to see the Great Barrier Reef, and coral reefs globally, as a focus of policy discourse, with programs to reduce carbon emissions, and with Reef communities and industries demonstrating leadership in emission reduction efforts and climate change adaptation. A complementary initiative is 'Fostering partnerships for local action and innovation', which aims to see individuals, industries and communities aware of the challenges facing the Reef, participating in efforts to protect it, and inspiring intergenerational change.

Considerable efforts are being made under the Reef 2050 Long-term Sustainability Plan (Reef 2050 Plan) to reduce the impacts of other pressures to help reefs cope with, or recover from, disturbances due to the impacts of climate. Reef 2050 Plan has a work area dedicated to addressing climate change with specific goals and strategic actions outlined for climate change mitigation and adaptation. Additionally, the Reef Restoration and Adaptation Program (RRAP) is a global leader in coral reef restoration research.

Even though considerable progress has been made towards reducing local pressures on the Reef, until global emissions start to decrease the major risk to the Reef ecosystem will continue to be climate change impacts. Under current scenarios these impacts are forecast to become more frequent and severe and eclipse all other pressures affecting the Reef (IPCC 2023, Walpole and Haden 2022).

Even with the recent advances in planning for, and the increased resources dedicated, to climate change, the full breadth of current and future risks of climate change are not being appropriately considered in planning processes. This is partly due to the perception of the static nature of values of the Reef and retrospective monitoring within adaptive management processes. Dynamic and shifting values, properties and indictors within adaptive management systems must now account for dynamic and uncertain future due to climate change (Interviewee 2023). This deficit is amplified by a tendency towards reactionary management in the current system, as one interview

participant reflected "The managing agencies are so focused on reacting to current threats that there hasn't been more of a strategic view of how you tackle climate change over time" (Interviewee 2023).

Despite significant climate change policy progress at national, state and local levels, management of the Reef in regard to climate change is subject to significant challenges (Walpole and Haden 2022). Irreversible impacts from climate change on the Reef's ecological and socio-ecological systems are probable and the exact impacts are undetermined (Australian Academy of Science 2023). Responding to climate change threats to the Reef with the most effective action requires comprehensive knowledge of how climate change will impact the ecosystem, and different species across multiple emission scenarios and timeframes (i.e. near-term, medium-term and long-term timeframes). There are currently gaps in knowledge and understanding under all climate change scenarios, especially high-emission scenarios (Australian Academy of Science 2023). These gaps in understanding extend to knowledge about the efficacy of marine and terrestrial interventions under high emission scenarios, and the trade-offs between different interventions (Australian Academy of Science 2023).

The Reef has a polycentric governance system, which is complex and decentralised and was established when there was only very limited understanding of the impacts of climate change on the Reef. Therefore, this management system may lack the agility required to adapt to rapidly evolving climate change impacts (Morrison et al. 2020).

Coastal development

The Coastal Development topic relates to the management of development and land-use change across the Region and the associated pressures placed on the Reef. The Reef coastal zone is recognised by the Queensland Government as a Region of significant environmental, social, cultural heritage and economic importance, and this sentiment is reflected internationally. The Reef coastal zone covers approximately 120,000km^2 of largely undeveloped coastline, with developed areas being mixed use and supporting a diverse range of development activities, including:

- Urban development
- Industrial development
- Port development
- Tourism development.

Coastal ecosystems adjacent to the Reef provide ecological processes critical to the health of the Reef. Protecting, maintaining and restoring these coastal ecosystems are essential components of halting and reversing declines in inshore ecosystem health and maintaining the Outstanding Universal Value (OUV) of the World Heritage Area.

The management effectiveness for the elements Planning and Outputs (Table 22) were assessed as *mostly effective*. Planning experienced a declining trend since 2019, while Outputs remained stable. All remaining elements were graded as *partially effective,* with downward grade changes for Context, Inputs and Processes and a declining trend for Outcomes.

Table 22: Assessment results for Coastal Development

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	PE	↓	ME	↔	ME	↗	ME
Planning	ME	↘	ME	↑	PE	↗	PE
Inputs	PE	↓	ME	↑	PE	↔	PE
Processes	PE	↓	ME	↑	PE	↔	PE
Outputs	ME	↔	ME	↑	PE	↔	PE
Outcomes	PE	↘	PE	↗	PE	↔	PE

E Effective ME Mostly Effective PE Partially Effective I Ineffective

↑ Trend has been an upwards change in grade
↗ Trend is increasing but has not caused an upwards grade change
↔ Grade has remained stable with no major trends
↘ Trend is decreasing but has not caused a downwards grade change
↓ Trend has been a downwards change in grade

The values for the Reef relevant to coastal development are clearly understood by managers, and the current condition and trend of these values are well known. Values relevant to coastal development are clearly articulated in the Outlook Report 2019, Informing the Outlook for Great Barrier Reef coastal ecosystems document, the Great Barrier Reef Strategic Assessment, and the 2017 Scientific Consensus Statement.

Coastal development activities are managed within a multi-level governance system where multiple actors and stakeholders converge to make decisions that influence on-

ground outcomes. The Reef Authority's Actor Network Mapping project maps existing actors within a network that connects the Reef Authority to the organisations and institutions they engage with for research and management practice. Overall, the stakeholders relevant to coastal development are well known to managers.

The statutory planning system that addresses coastal development is well developed, and the planning framework for Queensland is established under the *Planning Act 2016* (the Planning Act). Ecological sustainability is a core principle of this planning system. The Planning Act and associated legislation aims to establish an integrated, coordinated, and accountable system for land-use planning and development assessment and related matters. The Queensland State Planning Policy provides a policy framework for planning outcomes across Queensland by requiring that state interests are delivered through local government planning schemes and regional plans. The state development assessment provisions guide Queensland assessment of development applications that are likely to affect state interests. This includes consideration of coastal protection as a state interest.

Local governments are key players in the Queensland planning system and are responsible for making the planning instruments that guide development in each local government area. Local planning schemes are primary documents that sets out plans for managing growth, change and development in each local government area. Local governments regulate, through their planning scheme, coastal development activities.

The Reef Guardian Councils' (Figure 14) program is a collaborative stewardship arrangement between 19 coastal local governments within the Reef catchments and the Reef Authority. The vision of the Reef Guardian Council's program is, 'A local government alliance to reduce land-based impacts on the Great Barrier Reef through collaboration, education and targeted action'. Each of the 19 Reef Guardian Councils address coastal development through their Reef Guardian Council Action Plans 2020-2024.



Figure 14: Reef Guardian Councils in the Great Barrier Reef Catchment

Source: Great Barrier Reef Marine Park Authority (2022)

Several interview participants expressed the view that the Reef Guardian Action Plans generally lacked integration with the key local government statutory planning processes and instruments, such as local government planning schemes, that govern land-use and development (Interviews 2023). There was also a general view that more support and resources are needed to build the capacity of local government stakeholders to better integrate matters concerning land-based impacts on the Great Barrier Reef in local planning instruments and processes (Interviews 2023).

Non-statutory planning related to coastal development is under-resourced. As such, regional natural resources management (NRM) planning, water quality improvement planning and implementation, and coastal planning lack the resourcing needed to achieve their full potential. Lack of consistency across jurisdictions and conflicts between planning frameworks are recognised weaknesses in the current planning system in relation to coastal development (Interviews 2023). For example, conflicts between planning frameworks have affected the delivery of water quality improvement actions. Jurisdictional limits of responsibility across territories have created administrative complexity and constrained the ability for managers to address threats and manage outcomes. This has increased uncertainty in achieving effective outcomes.

Poor linkages between major programs (i.e. Queensland Wetland Program) and key management agencies (e.g. Department of Resources, Department of Regional Development, Manufacturing and Water) are also a recognised limitation of the current planning system.

Current resource levels in planning, environmental protection, and environmental assessment are not adequate to address the increasing trend in coastal development. This is partly due to external factors outside the control of management agencies. For example, population growth is approximately 10 years ahead of previous projections and this compounds existing development pressures in addition to existing jurisdictional limitations.

Past developments and land-use practices, primarily agricultural development, have led to degradation of coastal ecosystems and water quality, and very marked declines in inshore biodiversity. Declines in water quality and coral cover suggest that agricultural land management practices associated with coastal development are not environmentally sustainable. Reforms to the *Environmental Protection and Biodiversity Conservation Act 1999* have placed some focus on regional planning, which aims to reduce cumulative impacts on threatened species and ecological communities in areas of High Environmental Value.

A key issue raised by participants in the Coastal Development topic workshops and interviews was the challenges faced within the current planning system to effectively integrate and coordinate land-based planning matters and marine based-based planning matters. Despite Queensland's robust land-use planning framework, integrated management across the terrestrial management domain and the marine management domain is a key challenge for coastal development. Several interview participants expressed that this issue was exacerbated by a lack of understanding by key management bodies (i.e. local governments) of the direct, indirect and cumulative impacts on the Reef that are associated with coastal development; and that more resourcing was needed to better educate and build capacities of key management bodies on these issues.

Coastal development is governed by multi-level and multi-stakeholder decision-making that influences outcomes at landscape scales. Integrated management of terrestrial and marine environments involves the coordination between different governance domains within this system. However, these different management domains often have different priorities and agendas that are, in some cases, competing. There has been limited analysis into existing institutional and governance constraints that limit the integration of key issues related the Reef that manifest at the terrestrial-marine interface of planning and governance.

Piecemeal planning processes have constrained the ability of managing agencies to effectively consider indirect and cumulative impacts on the environment in an integrated and coordinated way. This issue was highlighted for land-based planning and development matters in coastal areas, where managers expressed a lack of capacity and capability to effectively consider the implications of coastal development on Reef values.

The expected impacts of climate change may amplify this challenge. Increased flooding events, bushfires and more intense storms that occur on land may have cascading impacts on the Reef. These cascading impacts have not yet been fully identified nor understood. Integrating these risks into detailed climate change risk assessments for Great Barrier Reef catchment councils may be constrained by the existing disconnect between terrestrial and marine management and their respective governance domains.

Land-based Run-off

The Land-based Run-off topic relates to runoff from activities within Reef catchments, including the run-off associated with agricultural activities within these catchments. The

Reef is recognised globally as ecologically significant with both Outstanding Universal Value and natural heritage value (Carter & Thulstrup 2022). These values are well understood by managers and numerous policies have been put in place to manage key threats such as land-based run-off. With the Reef's combined catchments covering approximately 424,000km^2 (Figure 15) management of land-based run-off is highly complex and requires cooperation and integration among diverse management agencies.

This management effectiveness assessment graded the elements of Context and Planning as *effective*. The elements Inputs, Processes and Outputs decreased from *effective* to *mostly effective* and Outcomes remained *partially effective* (Table 23). The trend for two elements, Context and Outcomes remained stable since 2019 and all others declined.

Table 23: Assessment results for Land-based Run-off[12]

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	E	↔	E	↔	E	↔	E
Planning	E	↘	E	↔	E	↑	ME
Inputs	ME	↓	E	↑	ME	↗	ME
Processes	ME	↓	E	↔	E	↑	PE
Outputs	ME	↓	E	↔	E	↑	PE
Outcomes	PE	↔	PE	↔	PE	↔	PE

E Effective ME Mostly Effective PE Partially Effective I Ineffective

↑ Trend has been an upwards change in grade
↗ Trend is increasing but has not caused an upwards grade change
↔ Grade has remained stable with no major trends
↘ Trend is decreasing but has not cause a downward grade change
↓ Trend has been a downward change in grade

[12] *Note 2014*: The element grade for Outputs for Land-based Run-off was reported in the 2014 management effectiveness report (Hockings et al. 2014, Appendix 4) as *effective* with an upward arrow from 2009 (i.e. from *partially effe*ctive). However, this 2014 Outputs grade was incorrectly reported in the 2019 management effectiveness report as *mostly effective*. Table 23 reflects the 2014 published grade for Outputs (i.e. as *effective*).

Reef values (Table 31) are diverse and include good water quality (refer box right). The primary pollutants of concern regarding land-based run-off are sediments (especially fine sediments), dissolved inorganic nitrogen, particulate nitrogen, particulate phosphorus and pesticides (refer Reef 2050 Water Quality Improvement Plan). Other pollutants such as heavy metals, pharmaceuticals, plastics and micro plastics also affect the Reef but the relative risks are likely to be low with some minor differences between regions. More information is required to adequately track these contaminants and set targets for their control. Thus, currently these pollutants are not included in most planning documentation. source of water contamination to the Reef is primarily from agricultural sources with grazing accounting for approximately 84 per cent of anthropogenic fine sediment and sugarcane farming accounting for 78 per cent of the dissolved inorganic nitrogen transported to the Reef (Figure 16). As agricultural sources are the largest source for land-based run-off, agriculture was a focus in this assessment. However, details on urban and industrial sources can be found in the evidence tables (Appendix 5, Table 45, PL4, PL5 and PR4).

Values

"Good water quality sustains the Outstanding Universal Value of the Great Barrier Reef, builds resilience, improves ecosystem health and benefits communities".

Reef 2050 WQIP (Queensland Government 2017)

Impacts to the Reef as a consequence of poor water quality caused by land-based run-off are generally well understood by managers. Particularly of concern are impacts on inshore reefs where poor water quality can lead to a variety of ecosystem health problems including:

- Reduced diversity (Nalley et al. 2021, Carlson et al. 2019)
- Decreased reproduction (Nalley et al. 2021, Lager et al. 2020)
- Disruption to coral recruitment (Nalley et al. 2021, Lager et al. 2020)
- Increased disease susceptibility (MacNeil et al. 2019)
- Reduced light limits impacting seagrass and corals growth (MacNeil et al. 2019, Mellin et al. 2019)
- Increased nutrient load leading to:
  - Stresses on corals (Gove et al. 2023, Fabricius 2005)
  - Increases in algal growth (Carlson et al. 2019).

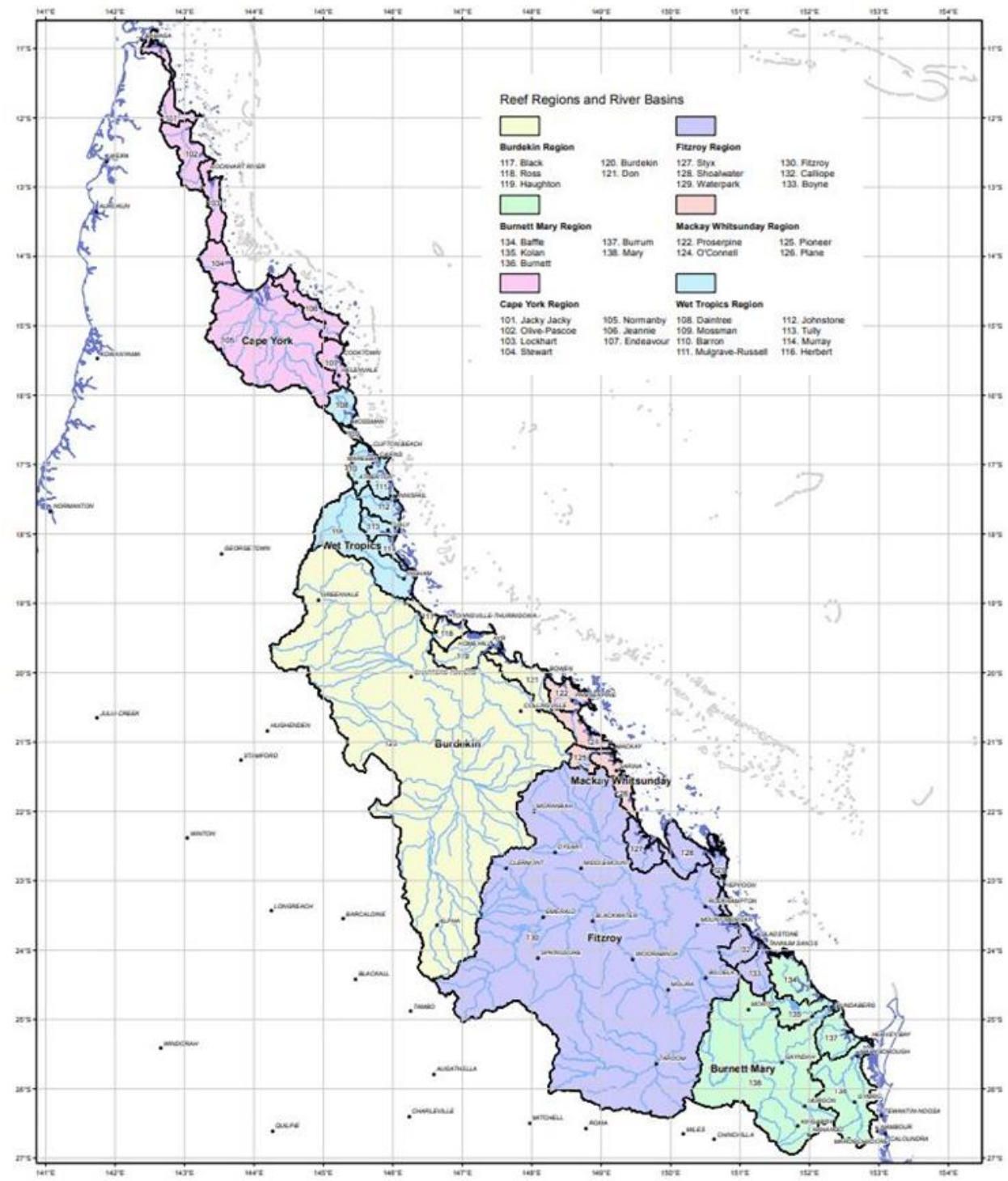


Figure 15: Great Barrier Reef catchment and river basins

Source: Department of Environment and Science (2018)

Some knowledge gaps are detailed in the Reef 2050 Water Quality Research, Development and Innovation Strategy 2017 - 2022 (Innovation Strategy). While work is being undertaken to alleviate gaps, an interviewee (2023) expressed concern about insufficient data to enable managers (i.e. including farmers and graziers and others) to determine whether the plans that they are putting into play will provide the desired benefits to the Reef. This uncertainty persists even with existing systems under the Reef 2050 Plan, nested documents that provide a framework for investment and on-ground projects, and report cards that define progress.

Key challenges to address are: enhancing knowledge and building effective stakeholder engagement to ensure that stakeholders/managers are aware of the links between their on-ground efforts and improvements in Reef health; and expanding existing programs to explore known knowledge gaps defined in the Innovation Strategy. Of particular interest are projects that expand understanding of how current work is providing Reef-wide health benefits, including bioavailable nutrient (primarily nitrogen and phosphorous) impacts and pathways into coastal and marine ecosystems and validation of the predicted water quality benefits (for the Reef) from improved irrigation practices and water use efficiency. Such work should help to expand mangers' understanding of how remediation work is benefiting the Reef as a whole and enable better communication of these benefits to on-ground managers and the public.

Understanding of these impacts and the way in which on-ground practices impact upon the Reef may be less well understood by landowners (refer above), some of whom may fail to see the connection between farming practices (e.g. high input of nitrogen fertilizer in cane growing) and Reef health (Coggan et al. 2021, Vilas et al. 2020). Efforts to increase awareness of these and similar linkages have been expanding, with continued support via partnerships between government and industry (e.g. Best Management Practices and associated support tools NutriCalc™ and Nutrition EDGE courses for grazing etc.). Research entities have also helped to increase the accessibility of information to farmers through initiatives such as the 1622-WQ app, which seeks to provide farmers with local water quality data to help see 'the link between their practices and water quality outcomes' (Vilas et al. 2020).

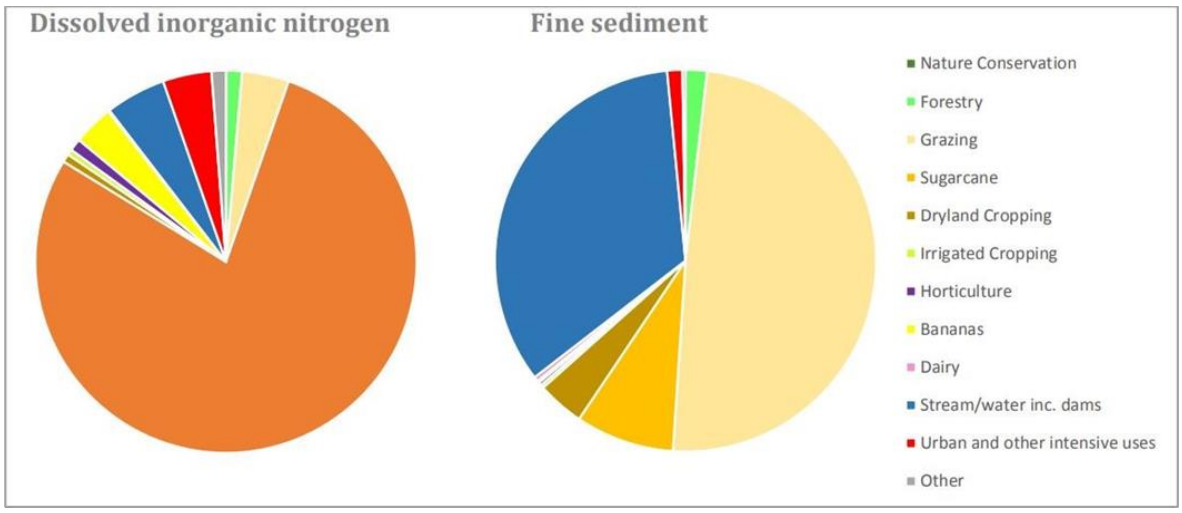


Figure 16: Proportion of dissolved inorganic Nitrogen and fine sediments generated by the type of land use in the Great Barrier Reef catchments

Source: Department of Environment and Science (2017)

Regulatory frameworks for land-based management have continued to expand since 2019. The strengthened Reef Protection Regulations, the *Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Act 2019* introduced by the Queensland Government in September 2019 came into force in December 2019. Using a risk-based approach, the requirements were rolled out over a period of five years from 2019- 2024 (Table 24) and include:

- Setting limits for nutrient and sediment loads in each Reef catchment.
- Applying minimum practice standards for agricultural Environmentally Relevant Activities (ERAs) targeting nutrient and sediment pollution from key industries.
- Requiring advisers to provide advice about agricultural ERAs that is not false or misleading and to keep and produce records upon request.
- Establish a framework for recognising industry best management practices.
- Introduce measures to address additional nutrient and sediment loads from new cropping and industrial land uses to achieve 'no net decline' in Reef water quality from new development.
- Allow for further detailed regulations to be developed in the future to support the use of water quality offsets for ERAs.

The Reef Protection regulations were in response to the 2016 Great Barrier Reef Water Science Taskforce, which recommended staged regulations across all Reef regions as part of a mix of tools. They were made in close consultation with key stakeholders including the agricultural sector, industrial stakeholders, local councils, conservation

groups, natural resource management (NRM) bodies, individual producers, and the general public. This included about 60 consultation sessions across the different Reef regions and opening preliminary drafts for public consultation and later reconsolidation in the Decision regulation impact statement (RIS) for further public review. Continued dissatisfaction seen amongst the agricultural sector remains however post rollout of the regulations. This may be as a result of consultation efforts primarily focusing on consultation and knowledge sharing as compared with more involved engagement efforts to collaborate and empower farmers. Continued knowledge sharing and outreach to alleviate concerns among farmers therefore remains an ongoing management challenge for land-based run-off.

Table 24: Rollout schedule for Reef regulations by industry

Source: Reef Regulation Rollout Timeframe

Region		Agricultural Environmentally Relevant Activity standards			Permit for new or expanding cropping activities
		General record keeping requirements	Farm nitrogen and phosphorus budget (sugarcane only)	All other requirements in the standard	
Sugarcane	Wet Tropics, Burdekin and Mackay Whitsunday	1 December 2019	1 December 2019	1 December 2019	1 June 2021
	Fitzroy and Burnett Mary	1 December 2019	1 December 2022	1 December 2022	1 June 2021
	Cape York	N/A	N/A	N/A	1 June 2021
Grazing	Burdekin	1 December 2019	N/A	1 December 2020	N/A
	Fitzroy	1 December 2019	N/A	1 December 2021	N/A
	Wet Tropics, Mackay Whitsunday and Burnett Mary	1 December 2019	N/A	1 December 2022	N/A
	Cape York	N/A	N/A	N/A	N/A
Bananas	Wet Tropics	1 December 2019	N/A	1 December 2020	1 June 2021
	Burdekin, Mackay, Whitsunday,	1 December 2019	N/A	1 December 2022	1 June 2021

Region		Agricultural Environmentally Relevant Activity standards			Permit for new or expanding cropping activities
		General record keeping requirements	Farm nitrogen and phosphorus budget (sugarcane only)	All other requirements in the standard	
	Fitzroy and Burnett Mary				
	Cape York	N/A	N/A	N/A	1 June 2021
Grains	All regions except Cape York	Proposed 1 December 2024	N/A	Proposed 1 December 2024	1 June 2021
Grains	Cape York	N/A	N/A	N/A	1 June 2021
Horticulture	All regions except Cape York	Proposed 1 December 2024	N/A	Proposed 1 December 2024	1 June 2021
Horticulture	Cape York	N/A	N/A	N/A	1 June 2021

These regulations are considered to provide a sophisticated and scientific approach to managing the issue of agricultural run-off and complement existing voluntary programs and market-based measures (Hamman et al. 2022). However, these minimum standards are acknowledged to be insufficient on their own to reach stated water quality targets. The Modelling improved land management practices (2020) project (Waters et al. 2020) indicated that the best practice levels of management for high-risk areas would not be sufficient to reach agreed targets. This further emphasises the need to support key voluntary and market-based programs to help encourage landowners to obtain, keep and expand on best practice management of their land.

In line with regulatory improvements, efforts to ensure water quality targets remain contemporary and fit-for-purpose have progressed. Reef Water Quality Objectives (WQOs) derived from the end-of-catchment anthropogenic water quality targets set out under the WQIP are a good representation of these efforts. These targets provide clear baselines for end of catchment levels of anthropogenic dissolved inorganic nitrogen (DIN) and anthropogenic fine sediments (FS) for all the major NRM Regions within the Reef catchment. These management targets are currently being reviewed in line with a review of the 2017-2022 WQIP to ensure their ongoing acceptability. The 2017-2022 WQIP is the current plan and will remain in place until a revised plan is finalised.

Key industry partnerships that aim to help in management of Land-based Run-off and pursue best management practices in the Reef include Smartcane, Banana BMP (Freshcare Environmental), Hort 360 and GRASS. They operate as an important intermediary between industry and regulatory actors. As farmers can meet new regulations by participating in one of these programs, they remain an important component in water quality management on the Reef. The Paddock to Reef Integrated Monitoring, Modelling and Reporting Program (Paddock to Reef program) produces the Reef Water Quality Report Cards and aims to represent the effectiveness of programs in achieving 2050 WQIP water quality targets under the Reef 2050 Plan. These Report Cards are an easily navigable overview of the improvements and changes in land management and pollutant loads across the Reef catchments. They identify changes and improvements in farm management practices, catchment condition indicators (ground cover, riparian extent, wetland extent and condition) as well as changes in sediment, nutrients and pesticides entering the Reef. Marine inshore condition is also reported.

Water quality report cards, prepared for all catchments draining to the Reef, serve as important partnerships between government and local communities including Traditional Owners, industry, farmers and fishers, scientists, tourism operators and conservation groups, who have a shared goal for healthy waterways in their regions. The Reef Water Quality Report Card reports on progress towards the water quality targets under the Reef 2050 Plan at the Reef-wide scale and they provide important insights for managers on the continued health of waterways in the Region. However, there is a lag in publication of these results, with the latest being published in 2020. In addition, there are five regional report cards that detail local waterway conditions and report on social, cultural, economic health and stewardship indicators. The regional report cards are intended to focus on regional waterways and reflect regional issues, which means that there can be variability regarding what indicators are included across catchments. This may be contributing to confusion regarding overall reef health and restoration work efficacy (refer above) particularly as the whole of reef report card has not been published since 2020. Thereby highlighting the need for a review and potential update of the whole of Reef report card to provide necessary clarity for managers about overall Reef catchment health.

Investment in Reef water quality initiatives continues to be substantial since 2019. QRWQP and other investors have also funded enhanced extension and regional capability in the 2016-2022 period. This includes work placement programs for graduates and training and capability programs for Reef extension officers within non-government, government and regional-based organisations. Specific support for industry BMP and grazing industry support through the Queensland Government's QRWQP is providing over $20 million to enable industry facilitators to continue to support growers to at least meet, and potentially exceed, industry minimum practice standards across cane, bananas, horticulture and grazing sectors. Issues surrounding long-term funding of water quality management projects remains a point of contention with landowners. For some key projects (e.g. gully remediation associated with the Reef Trust water quality investments) there is a lack of clarity concerning who finances long-term maintenance of projects. Ultimately, a lack of long-term funding cycles was identified as a key impediment to long-term monitoring, reporting and maintenance, with negative impacts on levels of landholder interest and skill levels and capacity (Alluvium Part A 2022, Interviewee 2023). As many water-quality related programs have taken place on private lands, this has sometimes led to projects being overengineered to prevent long-term issues that could cause undue expenses for the program.

Inputs

"Timescale and investment needed to improve water quality is so great that even with the extended investment that we have I can't see there is scope for a step change in water quality management".

Interviewee 2023

Despite the contributions described above, in relation to meeting 2025 targets, funding for land-based run-off is still considered insufficient according to the 2016 Alluvium Report on the costs of achieving the water quality targets for the Reef. This report estimated costs of $8.21 billion to provide sufficient tonnes per year reductions in sediment and DIN, as set out in the 2025 catchment targets[13]. This relates primarily to the cost of remediating sediment in the Fitzroy region, which on its own is estimated to cost $6.46 billion to meet 2025 targets. Current contributions amount to less than half of this, indicating that financial resourcing is insufficient to meet current targets. The efficacy of providing these funds, however, has been questioned by interviewees

[13] Five per cent reduction in anthropogenic end-of catchment fine sediment loads for Cape York; 20 per cent reduction for Mackay Whitsunday and Burnett Mary; 25 per cent reduction in the Fitzroy, and Wet Tropics catchment and 30 per cent reduction for the Burdekin by 2025; a 70 per cent reduction in anthropogenic end of-catchment dissolved inorganic nitrogen (DIN) for Mackay and Whitsunday; 60 per cent for the Wet Tropics and the Burdekin; 55 per cent for the Burnett Mary and Maintain current load for Cape York and Fitzroy by 2025.

(2023) due in part to the legacy issues associated with sediment remediation and the timescales involved in producing the required change.

Nutrient management was regarded by interviewees (2023) as a more achievable goal, with an estimated cost of $390 million ($304 million for the Burdekin Dry Tropics) for meeting 2025 targets. Determining how to direct funding toward its best use is a developing field within reef management. Tools such as Reefonomics, which is a web-based tool, were designed to help with funding decisions for the RWQIP and support investment planning across the Reef's catchments. It generates portfolios of the most cost-effective sub-set of ~100 alternative actions, distributed spatially across the Reef catchments. This platform is in testing phase and not available to the general public. However, its agriculture specific counterpart P2R Projector is available on request to help on-ground projects estimate water quality benefits from proposed projects. Projects like this represent clear progress however more work remains in making these tools as accessible as possible to allow managers to direct funds to maximize reef outcomes.

The Reef has a polycentric governance system. Management of Land-based Run-off requires actors at all scales ranging from intergovernmental bodies and national governments down to individual landowners to engage and enact programs on their lands. Governance structures within land-based management are complicated and numerous, with diverse relationships among the key actors. Distinct power structures and relationships underly all collaboration. There is a hierarchical governance structure (Garcia 2019) incorporating the Commonwealth and Queensland governments and the Reef Authority, who engage with other stakeholders such as NRM groups, local government, industry, and private landowners. This top-down governance may lead to less than equitable relationships between groups, limiting the ability for true collaboration (Garcia 2019, Oza et al. 2020) and without intent, may frame the type of collaboration that takes place (Garcia 2019, Brisbois & de Loë 2015). This has led some landholders feel that the relationship with regulatory bodies is often punitive in nature and negatively impacts on their desire to participate.

Stakeholders

"We want to help but that support isn't there and we get the big stick. The problem is we're not working together. You can't just point the finger".

Farmer Interviewee 2021

These concerns are well understood by Reef management agencies and substantial effort has been expended in projects such as the Major Integrated Projects (refer above), which aim to involve the whole community in a place-based approach to deliver outcomes for the Reef and the community. As more regulatory initiatives are rolled out, however, it remains more important than ever to maintain and expand on

these types of collaborative projects to ensure continued engagement with on the on-ground stakeholders.

The report cards indicate a general reduction in pollutant loads from 2019 based on current trends, although it is not expected that the 2025 targets will be met. Of note are results for DIN, which changed from a grade of very good to moderate at the Reef-wide scale and grades for sediment that changed from very poor to moderate from 2019 to 2020. This improvement to sediment load reductions seems largely due to improved grazing practices such as those seen in the O'Connell catchment and increased riparian fencing in the Mary River catchment leading to reduced erosion and sediment loads. Even considering these successes the Reef Water Quality Report Card indicates a moderate reduction of 0.6 per cent in average annual fine sediment loads during 2019 - 2020 towards the 2025 target at the Reef-wide scale. Should this trajectory be maintained, the proposed reduction of 25 per cent by 2025 cannot be attained indicating that more will need to be done to help facilitate sediment reduction.

For DIN the same general trajectory can be seen even if assuming the greater yearly gain of 4.3 per cent that was noted for 2019. As the primary gains in this area are noted to be from adoption of farming practices that reduce nitrogen surpluses in sugarcane production, the reduction over time may be indicative of lower yearly uptake of BMP systems, as those who would willingly participate have already done so. Reporting for land-based management practice adoption is difficult to assess at this time as the Reef 2050 WQIP agricultural management practice adoption target is under review as part of the review of the WQIP. Results listed for 2019 Report Cards generally indicated poor progress towards the previous management practice target of 90 per cent best practice adoption. However, no new assessments have been released since 2019 due to the review of this target for WQIP.

The State Party Report (DCCEEW 2022) on the state of conservation of the Reef notes in relation to the 2019 regulatory changes, that potential reductions in DIN and fine sediment could see a 48.9 per cent and 18.7 per cent reduction towards the relevant 2025 reduction targets of 60 per cent and 25 per cent. The exact means by which this is meant to occur, however, are not discussed in detail and are generalised to be a result of regulatory requirements motivating previously reluctant farmers to change their practices. These numbers are a conservative estimate with acknowledgment that not all achieved results have been able to be captured in currently available reports.

Overall, significant efforts have been made toward Land-based Run-off remediation since 2019. However, current trends indicate that the Reef continues to be negatively impacted by effects from land-based run-off and estimated improvements are

inadequate to meet prescribed targets. The impact of key governance expansion from what was predominantly a self-governed system for industry-led BMP strategies to one regulated by stricter government mandates coupled with the voluntary, validated agricultural certification systems remains an area of uncertainty.

5. Assessment of managing to protect the Region's values

Biodiversity values

Protection of the biodiversity values on the Reef is at the centre of planning and management actions undertaken by a vast number of managers within the Region. Biodiversity encompasses diversity at four levels - genetic, species, ecosystem and landscape (*Nature Conservation Act 1992*). The management effectiveness grade for five elements in 2024 remained the same as in the Management Effectiveness Report 2019 (Leverington et al. 2019). Grades for Planning, Inputs, Processes and Outputs remained *mostly effective*, while the grade for Outcomes remained *partially effective*. The grade for Context improved from *mostly effective* to *effective* (Table 25). However, trends since 2019 show decline for the elements of Planning and Outcomes, with four Outcome indicators (OC2 to OC5) graded as *ineffective*. These relate to poor protection of values, poor reduction of major risks and threats to the Reef and poor environmental and economic sustainability in relation to use of the Reef (refer to evidence in Table 35).

Table 25: Assessment results for Biodiversity

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	E	↑	ME	↓	E	↔	E
Planning	ME	↘	ME	↔	ME	↔	ME
Inputs	ME	↔	ME	↔	ME	↔	ME
Processes	ME	↔	ME	↔	ME	↔	ME
Outputs	ME	↔	ME	↔	ME	↔	ME
Outcomes	PE	↘	PE	↓	ME	↘	ME

E Effective ME Mostly Effective PE Partially Effective I Ineffective

↑ Trend has been an upwards change in grade
↔ Grade has remained stable with no major trends
↘ Trend is decreasing but has not caused a downwards grade change
↓ Trend has been a downwards change in grade

Biodiversity values (Table 31) are well known by the Reef's managers. These values are described as part of the Reef's OUV and natural heritage values, and as a Matter of National Environmental Significance (MNES), and they are addressed in the *Great Barrier Reef Marine Park Act 1975*, the Great Barrier Reef Marine Park Zoning Plan 2003 and diverse documents related to Reef planning and management (e.g. Reef 2050 Plan).

The Reef is one of the richest and most complex natural ecosystems on Earth. It comprises around 3,000 individual reefs covering 344,400km^2 (AIMS 2022) (Figure 3, Figure 4). Its diverse habitats support tens of thousands of marine and terrestrial species, many of which are of global conservation significance. For example, the Reef supports feeding grounds for one of the world's largest populations of the threatened dugong, is an important area for humpback whale calving, contains six of the world's seven species of marine turtle, with internationally important breeding grounds for green, loggerhead and hawksbill turtles. However, contributors to this assessment noted that 'these values are not static and unchanging…The challenge will become what outcomes and values are we managing for…under climate change and the likelihood that ecosystem function decline appears to be inevitable' (Interviewee 2023).

Monitoring

'…GBR science is weighted towards 7% of the Marine Park and World Heritage Area that is made up of coral reefs. This is followed by seagrass and fish….'

Cited in Australian Academy of Science (2023:34)

The condition and trend of the values relevant to biodiversity (Table 35, CO2) are relatively unknown for the majority of species (Australian Academy of Science 2023, Richards & Day 2018), reflecting the scale of the Reef's ecosystems and the focus of monitoring on a few key habitats and species or groups of species, generally those that are iconic (e.g. coral reefs) (refer box right), commercially important (e.g. seagrass meadows, coral trout), threatened (dugongs, marine turtles), or of conservation or management concern (e.g. crown of thorns starfish, fish). For example, in relation to fish, comprehensive monitoring indicates that several species' stock are overfished with stock biomass at 25 to 30 per cent for snapper and about 20 per cent for pearl perch and significant declines in spawning aggregations for Spanish mackerel (Tanzer 2022). In contrast, although the Reef has breeding populations of 20 seabird species there is little information on many of these (Woodworth et al. 2020) and no Reef-wide assessment of trends. There is improving understanding of the continental shelf (Gribble et al. 2023) with seafloor habitats and associated fauna and flora mapped at over 1500 locations in the World Heritage Area.

The main gaps in knowledge relate to: specific plant and animal groups including invertebrates, inshore and snubfin dolphins, sharks and rays; habitats including the

lagoon floor, shoals, *Halimeda* banks and the continental slope (Australian Academy of Science 2023, Addison et al. 2015); various highly targeted and vulnerable marine taxa (e.g. sea cucumbers and giant clams) (Richards & Day 2018); detecting trends in long-lived sparse species (e.g. marine megafauna); some ecosystem processes and functioning (e.g. groundwater inflows); the effects of multiple or combined stressors (Australian Academy of Science 2023); and understanding the impact of acidification on reef formation, genome sequencing and planktonic/larval movements.

The Queensland State of the Environment Report 2020 (DES 2021) indicates that population recruitment is reduced for many species (e.g. corals, fish, seabirds) and that ecological processes are poorly understood despite their 'deteriorating condition' and impacts on the integrity of the Reef's OUV. The Report states that confidence around condition status is limited for some species and ecosystem processes due to lack of long-term data over a broad area.

However, several Reef monitoring programs provide some information on condition and trend. It is impractical to suggest that an expanded monitoring program that provides comprehensive information on condition and trend will necessarily improve biodiversity outcomes for the Reef. Hence the approach taken by Reef managers is to prioritise the investment of scarce resources into information that can assist with more effective ongoing management (refer monitoring below).

Diverse threats impact on the Region's biodiversity (Table 35, CO3). These include climate change, land-based run-off, coastal development, crown-of-thorns-starfish, marine debris and a range of direct uses (unsustainable fishing practices, ports and shipping) (GBRMPA 2022, WHC/IUCN 2022). The AIMS Long-Term Monitoring Program (2022) provides consistent data on coral cover, coral bleaching, crown of thorns starfish numbers, major fish species and benthic organisms. Since 2014, over 75 per cent of the Marine Park has been exposed to severe impacts from coral bleaching. Mass coral bleaching events (i.e. occurring in both inshore and offshore reefs) are recorded in 1998, 2002, 2016, 2017, 2020 and 2022 (the first ever in a La Niña year), and have affected all regions of the Marine Park. Four severe cyclones since 2014 contributed to a reduction in coral abundance and damage to the structure of the reef. In 2020, most surveyed reefs experienced heat stress accumulation that produced widespread coral bleaching but this was below thresholds where widespread mortality occurs (surveys in 2021 recorded low coral mortality from the 2020 bleaching event).

Hard coral cover 2021

Northern Reef –moderate - increase to 27%
Central Reef - moderate - increase to 26%
Southern Reef - high – increase to 39%

AIMS Long-Term Monitoring Program 2022

AIMS monitoring results for 2021 indicate some hard coral recovery (refer box right) but AIMS (2022) warns that the

> 'increasing frequency and extent of mass bleaching events in recent years poses a significant risk to the state of the reefs in the GBR. Any future disturbances can rapidly reverse the observed recovery'.

Focus on coral...

'...because this is easy to communicate. We know less about cryptic species and rare corals or community composition.'

Workshop participant 2023

There is some evidence of thermally tolerant 'winners' and more sensitive 'losers' and evidence that reefs have shifted in their assemblages, with recovery reliant on an adequate supply of larvae from non-impacted reefs and sufficiently stable substrate for settling larvae (Bozec 2022). However, this process of recovery takes at least a decade for fast-growing corals (e.g. *Acropora*) and far longer for slower growing species (Carter & Thulstrup 2022). It is important to note that 'a habitat with high coral cover does not guarantee functional diversity or community reassembly after disturbance' (Richards & Day 2018) and while there has been some recovery of hard coral cover on the Reef since 2016 this is driven by fast-growing *Acropora* corals that are vulnerable to a range of disturbances (e.g. storms, crown of thorns or disease outbreaks) (Carter & Thulstrup 2022).

Cumulative stressors

'..are challenging to quantify, assess and manage and are little understood in the region.'

'It is relatively easy to attribute coral loss to a range of acute stressors, but more difficult to identify ***the causes of hindered coral recovery.****'*

Bozec et al. 2022

The reefs of the Region continue to be exposed to cumulative stressors and consequential impacts. The prognosis for the future disturbance regime is one of increased and longer lasting marine heatwaves and a greater proportion of severe tropical cyclones. Corals and other calcifying organisms are also expected to be seriously affected by ocean acidification driven by increased levels of CO2 entering the oceans from the atmosphere (AIMS 2022). There has been a 26 per cent increase in acidity producing changes in reef skeletal integrity and impacts on plankton, fish, marine species reproduction and productivity (Carter & Thulstrup 2022). The 2022 Joint WHC/IUCN reactive monitoring mission (21-30 March 2022) noted that the Reef's OUV, including its biodiversity values, were 'considerably impacted by climate change factors and that the resilience of the property to recover from climate change impacts is significantly compromised, in particular due to degraded water quality and fisheries' (Carter & Thulstrup 2022:27).

While the combined impact of coral bleaching, severe cyclones, poor water quality and crown-of-thorns starfish outbreaks, along with other stressors such as unsustainable fishing, marine debris and changes to coastal ecosystems are not well understood (GBRMPA 2022), descriptive qualitative models and spatial mapping tools are starting to address this gap. Recent modelling of coral demographics (Bozec et al. 2022) has quantified the cumulative effects of multiple disturbance and how they drive coral cover at local and regional scales. The research addresses the causes of hindered coral recovery and may assist in the design of surveillance programs to support management and help to identify areas most likely to respond to interventions and sustain improvements to the Reef over the longer term.

Over 90 monitoring programs operate within the Region, including the AIMS Long-Term Monitoring Program (refer above) and the Marine Monitoring Program (provides long-term data on the condition and trend of inshore water quality, coral and seagrass and the land-based run-off pressures). Current monitoring represents about 40 per cent of the environmental regimes of the Reef (Bozec et al. 2020). There has been long-term monitoring of some species including nesting turtles, dugong and wetlands and there is a growing focus on community-based programs such as the Eye on the Reef. Ranger BoT (QUT) and Reefscan (AIMS) have developed a modular suite of automated marine monitoring systems that will increase the area and depth of range of habitats that can be surveyed in the future (Table 35, PL5).

There have been significant improvements in design and updating of monitoring over the reporting period. The Reef 2050 Integrated Monitoring and Reporting Program (RIMReP) is striving to coordinate and integrate Reef-based monitoring and modelling programs to inform resilience-based adaptive management and reporting. A Priority monitoring gaps prospectus (2021) identified 11 priority monitoring gaps. The Reef Trust Partnership (RTP) and RIMReP partners are funding activities to address these and other gaps by focusing on:

- critical Reef monitoring projects ($27.2 million from RTP) including biophysical monitoring (e.g. island habitat, seabirds, dugong, sea cucumber, inshore dolphins, biosecurity) and human dimensions monitoring projects (e.g. SELTMP, Strong Peoples-Strong Country Framework, sustainable use and benefits, governance, Reef stewardship) and Integration Projects (e.g. Reef-wide decision support system)
- early investment ($0.57 million from RTP) including baseline assessment of Reef condition and recovery in the northern Reef
- Reef-wide decision support system ($2.9 million from RTP), and

- Technology Transformation Program ($5 million from RTP), including benthic technology development, mooring systems technology solutions and developing new strategies to access required information. (Please refer Reef Trust Partnership Annual Plan 2022-23).

This focus on targeted taxonomic and ecological research on key knowledge gaps and long-term species monitoring is a positive step to assist in making more informed Reef management decisions. This more integrated approach will require collaboration across Reef managers, research partners, Traditional Owners and other stakeholders and knowledge integration at multiple levels. This is a clear improvement on past approaches and more effective engagement of Traditional Owners is a positive outcome that hopefully will enable the integration of traditional knowledge and western science.

Investment in Reef programs has increased substantially in recent years (Table 1, IN1). The Australian Government is investing $1.2 billion over nine years (to 2029-30) and much of this relates to addressing biodiversity. Previous funding amounted to $2.1 billion from 2014-24. New funding will focus on:

Investment

'The cost of fixing biodiversity is high and the scale is big.'

Workshop participant 2023

- improving water quality
- world-leading reef management (e.g. crown of thorns starfish control program; compliance; and TUMRA expansion, which is funded under the Reef Protection Package)
- reef restoration and adaptation including coastal habitat restoration activities, blue carbon initiatives, restoring critical island habitats and the Reef Restoration and Adaptation Program – a collaborative long-term research and development program to develop, test and risk-assess novel interventions to build Reef resilience. This includes artificially engineering reefs by means of seeding reefs with larvae of corals that show adaptation to warmer water and marine cloud brightening to generate larger and more reflective clouds over the ocean to cool the water underneath, and
- strengthening partnerships and stewardship (mainly Traditional Owner and community led projects).

The planning system plays an important role in protecting Reef biodiversity. However, the challenges facing the Reef are increasing in scale and complexity (refer above). Reef planning spans marine and terrestrial environments, involves multiple jurisdictions, engages diverse stakeholder groups and is based on coordinated planning and decision-making processes. Marine spatial planning for the Reef implements ecosystem-based management focused on integrated, multi-objective

marine plans, which incorporate zoning, enable Traditional use of marine resources, support local economies, address impacts and support research, among others. Terrestrial spatial land-use planning in the regional context focuses on catchment-based planning for natural resource management and traditional land-use planning at the local government level.

Planning is thus complex with a diversity of legislation, plans and policies (Table 35, PL1, PL2) that apply across multiple scales (international to local) and sectors. International frameworks set global standards to which the Reef planning system is responding (e.g. endangered species, wetlands, migratory species and climate change etc). The Commonwealth Government coordinates planning and management through the Reef Authority, which undertakes strategic and statutory planning. State government planning involves diverse approaches to biodiversity conservation, particularly through land use planning in Reef catchments, although local governments are limited to regulating new use and development with little ability to address impacts of historical decisions that may result in depletion of biodiversity. Nineteen Reef Guardian Councils are working to improve outcomes for biodiversity and in particular improve water quality.

Integration

'With a range of different players in the planning system they often have different objectives - the Marine Park Act outlines clear values for the marine park, but fisheries may manage for different objectives and these need to be more aligned'

Workshop participant 2023

The Reef 2050 Plan is the overarching plan addressing most of the key elements required for effective Reef management. However, given the cumulative impacts of climate change and other stressors, this Plan and its associated plans and strategies lack clear pathways to avoid significant negative impacts from climate change on the Reef's OUV (Carter & Thulstrup 2022). The Plan needs 'greater ambition beyond 'business as usual' and requires clear indicators for success and adaptive management' (Carter & Thulstrup 2022).

The Zoning Plan primarily aims to protect biodiversity. It provides spatial control of use and, to a lesser extent, access within the Marine Park, and establishes the framework for extractive use and the need for permits for some uses, such as tourism and fishing. Complementary arrangements are in place in adjacent areas under Queensland jurisdiction. The Zoning Plan relies on effective permitting arrangements and enforcement. Enforcement has improved with the extension of vessel monitoring

Development assessment

'Rather than an integrated system

EPBC Act Review

'The EPBC Act is ineffective. It does not enable the Commonwealth to effectively protect environmental matters that are important for the nation. It is not fit to address current or future environmental challenges.'

Samuel (2020:3)

across the commercial fishing fleet, better targeting of compliance actions based on risk assessment that give priority to impacts on protected species, and improved compliance monitoring technology. Samuel (2020) notes in relation to the EPBC Act (refer boxes right) that compliance and enforcement (of provisions under the Act approvals that are made outside of the Marine Park) are ineffective, with significant impacts on the ability to protect the Reef's OUV. This may include illegal discharge or inappropriate management of coastal development activities. However, in general for activities that require a Marine Parks permit, there are extensive compliance and enforcement programs under the Marine Park Act, Fisheries Act and other legislation.

The RJFMP is a partnership between QPWS and the Reef Authority and is responsible for the planning and delivery of in-field activities and field operations with the World Heritage Area. It uses Health Checks as a tool to assess the condition of key park values and is involved in a range of projects including deployment of biosecurity monitoring tools, seabird and island habitat monitoring projects (funded through the Reef Trust Partnership/RIMReP), the 'Sightings' network and Reef rehabilitation projects (2020-25) including installation of reef stars and coral clips to stabilise coral rubble and improve coral growth in areas impacted by bleaching, cyclones and maritime incidents e.g. Green Island (2020) and Bait Reef (2021).

There have been challenges in ensuring effective integration of planning and effective implementation, resourcing and monitoring. Samuel (2020:3) states that Australia's natural environment and iconic places (such as the Reef) are in an overall state of decline and that 'good outcomes for the environment…cannot be achieved under the current laws', especially in addressing climate change and ocean acidification. His review of the EPBC Act concludes that the 'Act is complex and cumbersome and it results in duplication with State and Territory development approval processes' (Samuel 2020:1). It further states that cumulative impacts on MNES are 'not holistically addressed' (Samuel 2020:3). In response, the Commonwealth Government, as part of the Nature Positive Plan (2022) (the Plan) has committed $121 million (Federal budget May 2023) to establishing an independent Environment Protection Australia (EPA) (by 2024), which will issue permits and licenses and undertake compliance and enforcement activities and a further $51.5 million to the establishment of 'Environment Information Australia', which will be accountable for State of the Environment Reporting and implementing a monitoring, evaluation and reporting framework to provide assurance that the system as a whole, including the EPA, is delivering environment and heritage outcomes and achieving the objectives of national environmental law. The Plan also places an increased focus on regional planning as a mechanism to better protect biodiversity from a range of threats.

As expressed by an interview (2023), 'We have lost the regional model and need to get it back'.

The Reef governance structure is polycentric (Dale et al. 2016, Morrison 2019) and in relation to biodiversity consists of several nested sub-systems (Dale et al. 2013, Morrison 2017, Smith et al. 2017, Turner 2022), comprising the Reef Authority (Board and Reef Advisory Committees), other Commonwealth and Queensland government agencies, local government, regional bodies, Traditional Owners, who manage Land and Sea Country, rangers, research and industry sectors (tourism, mining, fishing, agriculture), community groups, Local Marine Advisory Committees, NGOs and others. These groups function as independent but interacting actors. There are varying levels of connections among these sub-systems, and across multiple scales, and each has a level of control over structural elements relating to vision setting, decision-making processes and functional aspects such as the strength of the connections among the actors, use of various knowledges and capacity to implement policy/actions and monitor effectiveness (Dale et al. 2016).

Sphere of control

'As an actor in the system I see it as well governed, but the broader system is not working.'

Workshop participant 2023

'There is an outward presentation of good governance, but an inward realisation that this is not the case'

Interviewee 2023

Regime effectiveness (Morrison 2017) in relation to biodiversity, refers to the ability of the Reef Authority and related actors and instruments to achieve biodiversity goals and respond to emergent problems such as climate change. The results of this Biodiversity assessment indicate that despite a raft of planning documents, significant Inputs and a comprehensive range of Outputs, the Outcomes are assessed as partially effective and in decline (Table 35) (refer boxes right). Decision makers may need to enhance risk-based approaches to management and consider new questions in relation to biodiversity, as detailed by Chubb (2023), e.g. which regions, reefs, corals, species, ecosystems will be the focus; and how is biodiversity impacted across the Reef and when and where should interventions take place. The Australian Academy of Science (2023:33) states that the system 'is not built with the agility required to adapt to rapidly evolving climate impacts'. Current work programs (at least 58) (Chubb 2023) are not currently at the required scale, coherence or responsiveness to the emerging threats to biodiversity. The current stressors on the Reef indicate the need for substantive review and consideration of more 'transformative'

Transformational governance

'Securing biodiversity and ecosystems for future generations requires new governance frameworks, or transformational changes… and fresh approaches to ecosystem management.'

Hughes et al. 2017

governance arrangements. The RIMReP identified Reef governance as a critical monitoring gap and in response a governance monitoring program is being developed (2022-23) to identify indicators to assess governance effectiveness in relation to Reef 2050 Plan objectives.

The Intergovernmental Agreement for the Reef sets a framework for joint coordination of planning and management across jurisdictions and incorporates complementary zoning, joint permitting, plans of management and consistent management of the RJFMP, fisheries and the Reef 2050 Plan. The effectiveness of the governance and planning system for the Reef depends in part on the integration of planning and related plans within the system and the linkages among the key actors within the system. Coordination among jurisdictions is complex and not always effective. For example, while there are cooperative approaches between levels of government, there is little formal integration with local governments, which are responsible for outcomes relating to land-use planning and development assessment within Reef catchments. Similarly, major development project assessment can be poorly coordinated between the Commonwealth and Queensland governments, focusing on individual projects rather than effectively assessing cumulative impacts (e.g. in relation to carbon emissions and climate change impacts).

Connections

'There are lots of players doing their own thing. They are not always lined up.'

Workshop participant 2023

Responsiveness

'Governance is not nimble enough to respond to its commitments.'

Workshop participant 2023

Disaggregated governance

'The system is disaggregating and opportunities for collectively planning and aligning priorities is disaggregated. I feel lost as do lots of others in the governance system.'

Interviewee 2023

Reef rehabilitation

'Lots of players and frustration in terms of getting something done.'

Workshop participant 2023

In terms of engagement, the governance system incorporates many stakeholders (refer above) and an increasing diversity of partnerships that focus, among other things, on:

- Policy and planning across jurisdictions and sectors, including co-design, alignment and high-level program coordination and including all levels of government, advisory committees and local community groups.
- Knowledge and reporting with diverse groups e.g. the NESP Tropical Water Quality Hub connects Reef agencies, scientists, Indigenous peoples and

communities. There is a growing emphasis on regional reporting with various partners.

- Integrated delivery that includes various industry sectors, local governments (e.g. Reef Guardian Councils and schools) and Traditional Owners.

In terms of the type of engagement, relationships are strongest between the Reef Authority and Commonwealth and Queensland governments. Stakeholder engagement in relation to Biodiversity is often at the lower end of the engagement spectrum (IAPP 2018, based on Arnstein 1969) (refer Table 35, PL6, PR1), with stakeholders being 'informed' and 'consulted' rather than 'empowered' to fully engage in decision making. However, greater efforts have been made, in this reporting period, to engage with Traditional Owner and include Traditional Owner knowledge. This relates to an expanded TUMRA program, incorporation of Values Based Mapping, the employment and training of Indigenous Rangers and strengthened communications between managers and Indigenous peoples. However, the pandemic impacted the ability of rangers to access remote communities and undertake on-Country work and there have been calls (Samuel 2020) for greater Indigenous participation using 'a collaborative approach founded in Traditional Knowledges' (Australian Academy of Science 2023:34). There are also strong and growing connections between research and decision making and a range of actors (e.g. Actor Network Mapping project, National Environmental Science Program and Reef 2050 Integrated Monitoring and Reporting Program).

Partnering challenges

'Aligning the goals of government and related agencies with those of partner organisations may require consideration of partner goals and roles to enhance outcomes for biodiversity and improve mutuality.'

Interviewee 2023

Governance challenges

'Vested interests, entrenched priorities and social inertia are enormous barriers to change.'

Morrison 2019

In conclusion, the Reef's multiscale governance is fragmented and experiencing difficulty in improving Reef biodiversity and health. Challenges relate to jurisdictional coordination and legitimacy, complexity, scale and funding (Hughes et al. 2017) as well as 'restrictions in connections between Reef policy, regional planning and the circular economy and ensuring that Reef decisions are made not in isolation, but in collaboration with diverse stakeholders and partners' (Interviewee 2023). Morrison (2019) emphasises the need for the governance system to address the causes of ecosystem decline rather than trying to restore a particular reef or region to some idealised 'prior state'. She recognises the need to make many changes at once and to work with a much broader range of social actors (e.g. farmers, fishers, mining companies, energy providers, property developers, individual citizens etc).

Information sharing has improved. RIMREP's centrepiece is the interactive Reef Knowledge System that provides up-to-date information about the Reef to guide effective management decisions, including Reef health and Reef snapshot. A Data Management System is under development (initial build phase 2022-23 to 2023-24), with current activities focused on developing digital infrastructure to collect data and metadata from data providers. New developments in citizen science on the Reef help to engage community members to collect information to better understand and protect the Reef. For example, the Sightings Network uses a smartphone app that enables any user to report interesting/unusual sightings (3226 sightings were submitted by 321 people in 2021-22) (GBRMPA 2022). However, the Australian Academy of Science (2023:29) highlights the need for researchers and managers to be 'honest brokers' and present the reality of the Reef's future in the face of climate impacts - '…although consistent and clear government messaging is needed, the government is not necessarily a trusted voice in many public spaces. Embedding key messages into grassroots communications is needed for efficacy'.

Resourcing

'We have good understanding of biodiversity and enough plans, but we don't have sufficient finances and staff resources to implement all of this'.

Workshop participant 2023

While funding for biodiversity may be increasing, human resourcing remains a problem in several areas, including Traditional Owner engagement and on-ground management. Staff turnover, loss of institutional knowledge, difficulty in filling vacant positions and lack of 'inhouse skill sets for making decisions in circumstances of high uncertainty' (Interviewee 2024) remain problematic for the Reef Authority and other agencies (Australian Public Service Commission 2022).

In response to the EPBC Act review (Samuel 2020), new National Environmental Standards are being developed for MNES, compliance and enforcement, and data and information. They will define clear limits of acceptable impacts, while allowing flexibility for development and aim to enable better integration across jurisdictions.

While significant strides have been made over the reporting period, Outcomes for Biodiversity remain *partially effective*. For example, there is a growing field of research into coral restoration and adaptation on the Reef with about 19 in water coral reef restoration projects (since 2017) that show 'positive signs that coral restoration can be a valuable tool to improve resilience at local scales' (McLeod et al. 2022:1). However, given the extent of the Reef, 'no existing techniques could possibly be scaled up to cover even a fraction of this area' (McLeod et al. 2022:15). Queensland's

State of the Environment Report 2020 (2021) provides detailed information on the condition of many ecological processes and concludes that the 'deteriorating condition of many ecological processes has affected the integrity of the Reef's Outstanding Universal Value. Ecological processes are expected to continue to decline due to climate change impacts and inshore land-based run-off'. It is also unclear whether the current plans, actions and investments will be sufficient to protect biodiversity in the face of significant threats, primarily related to the impacts of climate change. The Joint World Heritage Commission/IUCN mission (2022) stated that the plans and strategies referred to in the Reef 2050 Plan did not provide any clear pathway to avoid significant negative impacts on the Reef's OUV.

Several challenges remain, including: identifying realistic values and outcomes for the Reef under a climate changed future and the likelihood that ecosystem function decline appears to be inevitable; managing for coral resilience and understanding how multiple stressors affect different demographic processes and reef recovery; better integration of planning, funding and regulatory decisions across jurisdictions; delivering solutions at several levels - Reef-wide, regional and local to better reflect complex interactions, processes and relationships of diverse species, habitats and bioregions; engaging in co-management and co-governance arrangements with Traditional Owners to manage biodiversity; prioritising actions and continuing to improve methods for understanding and responding to cumulative impacts; establishing effective review processes to assess the planning systems and related plans to ensure that they are delivering on outcomes for Reef biodiversity, including effectively addressing climate change at all levels of planning from national to local levels and other potential impacts; understanding how permitted uses are cumulatively impacting biodiversity values; and enhancing communication among all players (e.g. scientists to farmers and graziers and many others).

Heritage values

For the purposes of the Outlook Report, the heritage values of the Region, as defined in the *Great Barrier Reef Marine Park Act 1975*, include: Commonwealth Heritage List values (four light stations at Lady Elliot Island, Dent Island and Low Island and North Reef and one island, namely Low Islet); Indigenous heritage values; National Heritage values; World Heritage values; and 'other heritage values' that include a place's natural and cultural environment having aesthetic, historic, scientific or social significance, or other significance. In this assessment, Heritage encompasses all the above-mentioned heritage values. Natural Heritage values were considered under the assessment of biodiversity protection (refer Section 5). While the topics of Historic heritage (Table 43), and Indigenous heritage (Table 44) were assessed separately, in this section an overall assessment for Heritage is provided. Traditional Use of Marine Resources is considered separately (refer section 3).

Reef Values

"The Reef is Country. The Reef is our Heart and the water is the life-blood that connects us all. She is our Family. The Reef is an extension of Us and we are an extension of Her. The Reef looks after us, feeds and protects us, and keeps us healthy. She's the keeper of our stories, our Lore. Without her we will suffer irreversible effects to our identity".

Heart of the Reef – A Call for Healing

Grades for the elements Context, Planning, Processes and Outputs for Heritage have remained *mostly effective* (Table 26) since 2019. Inputs have remained *partially effective*, while Outcomes have declined from *mostly effective* in 2019 to *partially effective* in 2024.

Table 26: Assessment results for Heritage[14]

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	ME	↘	ME	↔	ME	↓	E
Planning	ME	↔	ME	↔	ME	↓	E
Inputs	PE	↔	PE	↓	ME	↔	ME
Processes	ME	↔	ME	↔	ME	↘	ME
Outputs	ME	↔	ME	↔	ME	↘	ME
Outcomes	PE	↓	ME	↔	ME	↘	ME

E Effective | ME Mostly Effective | PE Partially Effective | I Ineffective

↔ Grade has remained stable with no major trends

↘ Trend is decreasing but has not caused a downwards grade change

↓ Trend has been a downwards change in grade

Indigenous heritage as defined in the Aboriginal and Torres Strait Islander Heritage Strategy (Heritage Strategy) (2019:12) 'includes everything in Sea Country, including natural values, Indigenous values, tangible and intangible expressions of Traditional Owners' relationships with Country, people, beliefs, knowledge, law, language, symbols, ways of living, sea land and objects, all arising from Indigenous spirituality' Indigenous heritage is interlinked with the condition of the Reef's natural components.

Indigenous heritage

Traditional Owners view Indigenous heritage as "*everything in Sea Country*".

Aboriginal and Torres Strait Islander Heritage Strategy for the Reef (2019:12)

Cultural landscapes, seascapes, sites (e.g. sacred, ceremonial and rock art sites) and places (e.g. burial grounds, story places, places important for cultural traditions), structures (middens, fish traps, eel traps), technology, tools and archaeology are important to Aboriginal and Torres Strait Islander peoples and are intertwined with the more intangible elements of culture such as cultural practices, observances, customs, lore, stories, songlines, totems and languages. Reef Sea Country is a cultural

[14] *Note 2019*: The grade for Inputs for Heritage published in Appendix 2 of the Management Effectiveness Report 2019 was *mostly effective*. However, based on updated 2019 ratings and grades provided by the 2019 assessors (Appendix 6), the grade should have been *partially effective* and the trend from 2014 to 2019 should have been a down arrow. Table 26 shows the corrected grade and trend.

landscape and these significant places provide a strong connection to traditional clan areas and form part of Australia's heritage.

There has been increased recognition of Indigenous heritage in the management of the Region. Indigenous heritage is included as a value in all documents produced by the Reef Authority and QPWS and in the Great Barrier Reef Intergovernmental Agreement.

Much Indigenous heritage knowledge is retained by Traditional Owners and shared within their family groups and may not be disclosed to others. This includes information on the physical location and values associated with cultural heritage sites, places of special cultural importance and Indigenous structures, technology, tools and archaeology, some of which are deteriorating. Initiatives such as TUMRAs and Indigenous Land and Sea Ranger programs assist Traditional Owners to access their Sea Country and to pass on knowledge from the Elders to the younger generations. However, the loss of Indigenous knowledge and related languages is a major risk to the heritage of the Reef (Workshop participant 2023).

Documentation, monitoring and reporting frameworks and knowledge sharing concerning Indigenous heritage have shown significant strides in this reporting period:

- RIMReP includes Traditional Owners as part of the program's governance. The inclusion of Indigenous knowledge, in conjunction with scientific input, across all core areas of RIMReP is vital in developing holistic responses to complex issues relating to the Region. The Strong Peoples-Strong Country Framework is intended to monitor Indigenous heritage as part of RIMReP, which supports understanding of progress in relation to Reef 2050 planning. CSIRO supported the RIMReP Indigenous Heritage Expert Group to develop the framework including a broad set of Traditional Owner identified indicators to monitor the condition and status of Indigenous heritage. The framework is being piloted with support from Reef Trust and the Great Barrier Reef Foundation. The Reef Knowledge System provides interactive up-to-date information about the Reef to guide management decisions. Its Land and Sea Country page includes maps and a wide range of information about planning, strategy, and research and monitoring relevant to Indigenous heritage. The Data Management System is being developed to assist Reef managers access monitoring data for the Reef. The scoping phase (2020-21) identified the data and infrastructure requirements. The design and build are due for completion in 2024. Other relevant monitoring projects include SEABORNE, PROTECT and GOVERNANCE (2021-24).

- The Cultural Knowledge Management System (in development) aims to allow the Reef Authority and Traditional Owners (with password access) to store culturally sensitive information relevant to different Traditional Owner groups (e.g. story lines, voice recordings and sensitive locations). Operationalisation is dependent on the development of a Cultural Protocol and Data Sharing Agreement to ensure the right permission systems are in place to hold and protect culturally sensitive material.
- The Toolkit for safeguarding Indigenous heritage and knowledge (2020) is designed to be used as a guidance tool for RIMReP and recognises the rights of Indigenous peoples to protect/ safeguard/ manage their heritage and respects their rights in traditional knowledge and traditional cultural expression. It provides a framework for making formalised arrangements through the Protocol, Guidelines, and an 'Indigenous Knowledge Sharing Agreement Template', and articulates best practice principles and objectives for parties engaging with Reef Traditional Owners.
- The Permissions Cultural Heritage Referral project is improving the Reef Authority's ability to include Traditional Owner cultural knowledge in permit decisions. Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi) are involved to date and provide comments, in a formal and structured way, on location-specific permit applications. This process helps to manage and mitigate risks to Indigenous heritage, where applicable.
- Sea Country values mapping projects facilitate planning or product development including identification of saltwater heritage values and sites, threats to cultural heritage values, cultural landscapes, and cultural species. These are built upon Traditional lore, customs and cultural authority governance systems led by saltwater Traditional Owner groups (e.g. Mandubarra).

There is growing information recorded and/or known about the location, condition and trend of Indigenous heritage values (however, many values are not documented in written form and may not be shared with others). The Aboriginal and Torres Strait Islander Heritage Strategy indicates that many Indigenous heritage values of the Region are in poor condition:

Condition and trend

"Many cultural practices remain strong, whilst other Indigenous heritage values have deteriorated with changes in the environment and impacts on heritage".

Aboriginal and Torres Strait Islander Heritage Strategy for the Reef (2019:8)

- Sacred sites, sites of particular significances, places important for cultural tradition (Poor and Deteriorating) are under pressure, especially in coastal systems and on islands, from development and exposure to severe weather events.

- Story, language, songlines and totems (Poor and Deteriorating) with some species of cultural significance, such as whales, dugongs, turtles, rays, sharks and dolphins, and other coastal resources, under pressure.
- Indigenous structures (e.g. fish traps), technology, tools and archaeology (e.g. burial grounds, middens, scar trees) (Poor and Deteriorating). Many of these elements are located in inter-tidal areas and are vulnerable to coastal development, human interference, shipping (wash of cruise ships) and climate change and severe weather, including sea level rise and erosion.

Traditional Owners' connections to place may be affected by loss of species (e.g. fish, discarded species, turtle, dugong, lower order predators and lower trophic orders such as oysters and crabs) and illegal take resulting in a break with cultural practice, lore and customs and interference with sites of cultural significance. Low species population numbers can limit the number of animals available for hunting and also their location. Some species are affected by vessel strike (e.g. turtles, dugongs and whales) and many of these are totem animals and part of cultural practice, observances, tradition, stores and songlines. Modification of terrestrial habitats also affects cultural and heritage values (e.g. timber for making tools is disappearing, and coastal pandanus for making baskets and matting is decreasing). Coastal burial sites may be under threat from erosion and sea level rise. As well, Traditional Owners inhabited what is now the sea floor of the Reef and disturbances to the sea floor may impact Traditional cultural and heritage values (e.g. sea burial sites, sacred sites and sites of cultural significance) (GBRMPA 2014).

Several projects and actions are in place to minimise the impacts on threats to Indigenous heritage including the RJFMP Restoration of Reef Islands Project (2020-25), which aims to identify and protect cultural values and incorporate training to protect and manage Reef island ecosystems. The project brings together science, research, mapping and Traditional Owner knowledge.

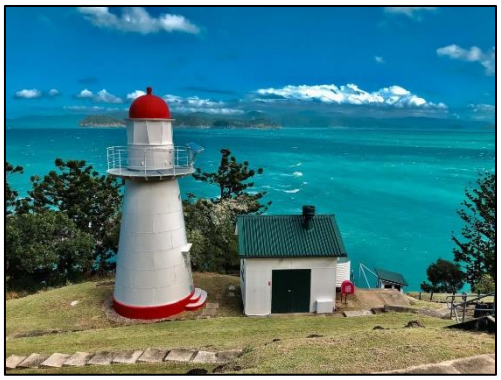


Photo 1: Lady Elliot Lightstation is a Commonwealth Heritage Listed place

Source: Great Barrier Reef Marine Park Authority (2022)

Knowledge of Historic heritage is uneven, with very good understanding of Commonwealth listed heritage places that comprise four light stations at Lady Elliot Island (Photo 1), Dent Island and Low Island and North Reef and one island, namely Low Islet. Heritage

management plans are under review for Lady Elliot Island Lightstation (2012) and Dent Island Lightstation (2013). A draft plan for Low Islet Lightstation and Low Isles is being prepared. However, there may be confusion among many stakeholders concerning what is included in Historic Heritage management - 'A few sites appear to be included and many are not and the reasons are little understood' (Workshop participant 2023).

There are over 800 historic aircraft and shipwrecks in the Reef and most of these are 'not managed or considered' (Workshop participant 2023). There is a good understanding of priority shipwrecks. The Australian Government's Underwater Cultural Heritage Act 2018 (UCH Act) and the *Queensland Heritage Act 1992* provide protection for all underwater cultural heritage older than 75 years. The Australian Government has begun a formal process to consider ratifying the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage. If ratified this will support the better protection of underwater cultural heritage. Under the UCH Act protective zones have been identified for six shipwrecks HMS Pandora (1791), Mermaid (1829), Foam (1893), SS Yongala (1911), Gothenburg (1872) and QGSS Llewellyn (1919) (Figure 17) and conservation plans have been drafted (to be finalised in 2023). The condition and trend of these shipwrecks is thought to be good but declining. Only about 40 of possibly over 800 shipwrecks have been mapped. Much underwater cultural heritage including many shipwrecks are little known. Only 15 per cent of all wrecks within the Reef are accurately located (refer Appendix 5 for full description of Commonwealth heritage places).

There are thought to be over 100 aircraft wrecks. Special Management Areas (SMAs) continue to protect two Catalina aeroplane wrecks dating from World War II. There are no SMAs relating to Indigenous sites. The UCH Act extends protections currently conferred to historic shipwrecks in Australian waters to historic aircraft wrecks and other forms of underwater cultural heritage in Commonwealth waters. Workshop participants (2023) noted that 'Information on historic heritage is not comprehensive, with much underwater cultural heritage lacking mapping and detailed analysis' (Workshop participant 2023).

The Great Barrier Reef Marine Park Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25 outlines a strategic approach to identifying, protecting and managing the heritage values of Commonwealth heritage places within the Marine Park on behalf of the Commonwealth. The heritage values of the Reef are being documented and included in: a Reef Authority internal heritage register that includes an inventory with heritage

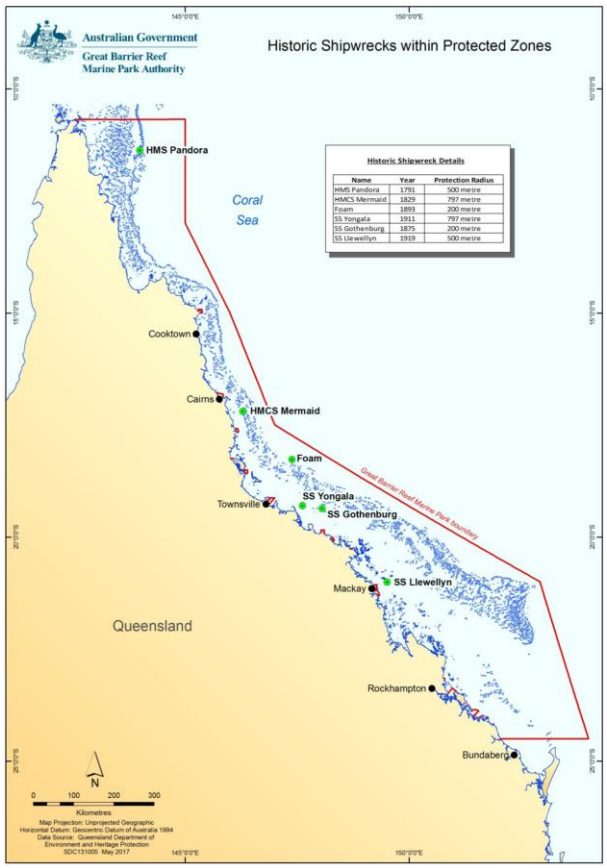
Documenting values

"There may be over 500 islands with Historic heritage values but 'there is little information on these sites".

Workshop participant, 2023

information for islands and reefs; a database for Commonwealth Islands; and a list of historic shipwrecks, aircraft wrecks and maritime heritage sites. (Workshop participant 2023).

Managers are aware of the key impacts on Historic heritage, which are from major weather events (cyclones), erosion of coastlines/islands that may destabilise lightstations or expose previously buried wrecks, tourism activities, boating and changing water chemistry. The direct and indirect threats are generally minor and/or localised. Climate change is a major threat to underwater cultural heritage, with impacts likely to be different for each wreck. For wrecks such as *Foam*, which is in shallow water there is less understanding of potential impacts. Other threats include dredging and looting (GBRMPA 2021). Cumulative impacts are less well understood.



Historic heritage gaps

"There may be gaps in heritage registers that place both terrestrial and underwater cultural heritage within the Reef Region at risk. This includes submerged Indigenous heritage and cultural landscapes".

Workshop participant, 2023

Underwater cultural heritage

"Underwater cultural heritage assessments require resourcing to enable monitoring of these sites and effective management. These sites are less on display and less effort is directed to their management".

Workshop participant, 2023

Figure 17: Historic shipwrecks within protected zones within the Great Barrier Reef Marine Park

Source: Great Barrier Reef Marine Park Authority 2017

Planning has an important role to play in assisting Traditional Owners secure a future that acknowledges their complex and continuing relationships with land and Sea Country. The Reef planning system for Indigenous heritage matters operates at several scales and comprises complex layers of legislation, plans (strategic, zoning, management), strategies, agreements (TUMRAs, ILUAs) and conventions relating to heritage. These documents are addressing, to various extents, the central role and rights of Indigenous peoples and their heritage.

Planning

"There is no one planning system that reflects all Traditional Owner groups – there are lots of clan groups with different ways of organising themselves….and this takes place over a very large area".

Workshop participant, 2023

The Reef 2050 Plan (2021-25) has a focus on acknowledging Traditional Owners' aspirations for protecting the Reef and its cultural heritage and aims for increased participation, voice and capacity in governance processes. The Aboriginal and Torres Strait Islander Heritage Strategy (2019) identifies a range of influences on Indigenous heritage and aims to improve the condition of Indigenous heritage values in the Marine Park. It sets out a vision, outcomes, objectives and guiding principles that reflect national and international best practice and actions which operationalise these principles across the Marine Park. The Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25 (2022) identifies relevant aspects of Indigenous heritage values. Each heritage listing recognises different values in the Marine Park and includes obligations for the identification, protection, monitoring and reporting of heritage. Plans of Management (e.g. Whitsundays) are beginning to address the three types of heritage values (natural, Indigenous and historic) and to incorporate co-management approaches. The QPWS values-based planning framework also recognises Indigenous cultural values as a significant focus of national park planning.

Traditional Owner communities are 'reworking' the planning system to achieve their aspirations, including through various agreements such as Indigenous Land use Agreements and TUMRAs (refer Section 3), which incorporate implementing co-management and co-governance. Ten TUMRAs are in place covering about 43 per cent of the coastline or 22 per cent of the Reef area.

Several guidelines and policies have been developed to improve protection of Indigenous and Historic heritage values and provide greater consistency:

- Traditional Owner Heritage Assessment Guidelines identify several hazards (e.g. artificial light, changes in human use, hydrodynamics, ecological processes, noise, nutrients, sea temperature etc) and include a risk assessment of potential impacts on Indigenous heritage values. These impacts are

considered before any permissions are granted and applicants are encouraged to contact Traditional Owners directly.

- Improvements in the permissions system include:
  - When an application assessment approach requires public comment (e.g. Environmental Impact Statement), specific consultation with the relevant Traditional Owners is explicitly included in the Terms of Reference.
  - The Permissions Cultural Heritage Referral project is improving the Reef Authority's ability to include Traditional Owner cultural knowledge in permit decisions. Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wulthathi) are involved to date and provide comments on location-specific permit applications. This process helps to manage and mitigate risks to Indigenous heritage, where applicable.
  - Permission system guidelines provide information to Marine Parks permission applicants with information about Indigenous heritage values. The Woppaburra Traditional Owner Heritage Assessment Guidelines also provide applicants with contact details of Traditional Owners they should consult with if they intend to conduct permitted activities in the Woppaburra TUMRA area.
- Historic heritage assessment guidelines consider three components of the Region: World War II features and sites, historic voyages and shipwrecks, and other places of historic significance.

There have been significant strides made in governance arrangements and engagement since 2019, although gaps remain. The Reef Authority's Actor Network Mapping project maps working agreements between the Reef Authority, partners, stakeholders and communities of practice to identify and address gaps in existing partnerships to better inform management decision-making processes. The Reef 2050 Traditional Owner Implementation Plan (2022) is providing support to further understand and agree on a range of governance concepts, including co-management, co-governance, co-design, joint management and clarification of Traditional Owner rights and interests. This signifies a departure from Traditional Owners' reliance on government to include them in government-led initiatives to one where Traditional Owners are leading on programs and projects that are significant to them (e.g. TUMRAs) (refer Table 50 in Appendix 5).

Sound governance

"…we are not doing it. Some aspects of governance are working, such as administration and operational matters and some are not such as effective consideration of indigenous heritage in the permissions system".

Workshop participant, 2023

In November 2023 an 'Agreement to Partner' between the relevant Ministers from the Commonwealth and Queensland governments and the Reef 2050 Traditional Owner Steering Groups members was signed to 'adopt more holistic and inclusive approaches to the governance and management of the Reef', 'build more effective formal partnerships and grow capacity - to empower Traditional Owners to lead, co-design and co-deliver management policy and programs', and 'deliver the Reef 2050 Traditional Owner Implementation Plan, better coordinate programs across the Reef and Catchment' and others, along with a series of 'partnership principles' that include free, prior and informed consent, power sharing, empowerment and access and benefit sharing.

In addition, the Gurra Gurra Framework 2020–2026 supports the Department of Environment and Science (DES) to reframe relationships with First Nations peoples by holding Country and people at the centre, including policy, programs, and service delivery and to work in partnership to build a strong and shared future. This involves working in partnership from the earliest stages through to implementation and evaluation, defining outcomes and benefits and empowering First Nations leadership, including enabling co-governance. Initiative 8 in the Framework focuses on strong governance and progress has been made in reviewing existing governance structures to 'appropriately embed shared responsibilities for the implementation of the Framework'.

The First Nations Heritage Protection Alliance (2021) (comprising Aboriginal Land Councils, Native Title Representative Bodies and Aboriginal and Torres Strait Islander Community Controlled Organisations) is working to reform protections that preserve cultural treasures for future generations and to co-design partnerships with the Alliance communities to reform cultural heritage laws, including the review and restructure of process, procedure and protocols for First Nations cultural heritage protections (Stage 1 concluded in June 2022; Stage 2 is testing and exploring options for reform with stakeholders at the regional level). The Commonwealth and the State governments have agreed to fund the establishment of an Indigenous Coordination Taskforce and Reef Traditional Owner Sea Country Alliance (2021-2) to support existing traditional decision-making structures, and involvement in funding for Traditional Owner engagement (refer Agreement to Partner 2023).

The Reef Authority has adopted an Engagement and Participation Framework that incorporates best practices in engagement, collaboration and partnerships, including with Traditional Owners and matters related to Indigenous and Historic heritage. Effective (IAPP 2018) engagement can incorporate *informing, consulting, involving, collaborating and co-governance*. Engagement in relation to Heritage often consists of

informing (e.g. Reef Knowledge System, Great Barrier Reef Aquarium, targeted education) and *consulting* (e.g. obtaining feedback on issues) and may include *involving* (e.g. Eye on the Reef, groups involved in maintaining lightstations and undertaking various restoration tasks). Engagement less frequently incorporates *collaborating and empowering*, although Traditional Owners are included in several boards and committees and with their own communities and wider local communities including:

- Indigenous Reef Advisory Committee membership is based on expertise in Indigenous land and sea management, conservation and cultural heritage management and advises on ways to facilitate partnerships, enhance engagement and build the capacity of Traditional Owners to manage marine resources and heritage. Membership was expanded to include a male and a female Reef Traditional Owner, along with a proxy member for each.
- Marine Park Board – contributes to policy setting and management direction for the Marine Park.
- Others including the Tourism Reef Advisory Committee, Reef 2050 Reef Advisory Committee, Local Marine Advisory Committees, RIMReP Executive and Operations groups.

Partnerships are a growing strength. The Traditional Owner Partnerships Strategy (2022-27) aims to strengthen and enrich partnerships. The Reef Foundation's international partnerships and building of a co-design action framework aims to embed co-design principles, practices and learnings into the delivery of partnership programs. There are strong partnerships with the Reef Authority in developing and expanding TUMRAs and in building community partnerships at a local scale. The Reef Authority collaborated with Manburra Traditional Owners to incorporate cultural values in the John Brewer Reef Site Plan. There are strong partnerships through the Reef Joint Field Management Program and sectoral partnerships including with the tourism industry (refer Table 38 in Appendix 5).

Planning for Historic heritage also operates at multiple scales from international to local (refer Table 43 in Appendix 5). At the national level the EPBC Act provides for significant historic heritage to be listed on World Heritage, National Heritage or Commonwealth Heritage lists. Historic heritage at the State level is protected by inclusion in state heritage registers (managed by DES) and planning schemes are required to consider heritage. At the regional and local level, local governments create and administer registers for places of local importance, and heritage can be included in local statutory planning instruments with heritage-specific provisions such as codes and overlays. However, many places and objects of historic heritage significance are unlisted (Australian Government 2021), with the planning system struggling to provide adequate protection. Further, as many Heritage values relate to coastal areas (e.g. burial ground, middens), coastal planning, particularly by local governments is important in identifying and protecting these sites. Several gaps in these planning frameworks are evident (e.g. Planning Act 2016 and related planning schemes) – 'many sites with historic heritage values have little protection' (Workshop participants 2023).

EPBC Act Review

"…National-level protection of cultural heritage of Indigenous Australians is a long way out of step with community expectations. As a nation, we must do better".

Samuel, 2020, p.iii

Historic heritage governance

There is confusion among many stakeholders concerning what is included in historic heritage management. A few sites appear to be included and many are not and the reasons are little understood".

Workshop participant, 2023

As with Indigenous heritage, the governance of Historic heritage is complex and there has been little effective monitoring to assess the overall governance system. In general, the structural elements of Historic heritage governance are adequate with appropriate vision-setting and strategy development. However, there are gaps in plan review, implementation and comprehensive monitoring and evaluation. In relation to the functional elements of governance, there is evidence of collaboration among the key actors, incorporation of various knowledges, a focus on compliance and enforcement and on-ground management.

The local community have limited engagement with Historic heritage, although the Reef Authority works with partners engaged in heritage, including lighthouse enthusiasts and scuba divers looking for shipwrecks. Several platforms help to enhance knowledge of Heritage, including the Reef Knowledge System and various Reef Authority web pages (Maritime Cultural Heritage). As part of RIMReP, the SELTMP incorporates survey questions to improve knowledge of the wider community's perceptions and understanding of the Region's Historic heritage.

The RJFMP addresses specific targets, performance indicators and activities that promote partnerships in Heritage management. The program focuses on the implementation and field delivery of agreements, mentoring, training and empowering of Land and Sea Rangers and Indigenous Compliance Officers and delivers compliance and maintenance services to Historic heritage structures and sites. It is responsible for protecting both Indigenous and Historic heritage values on island national parks and Commonwealth islands, including story places and other locations of ceremonial and spiritual significance.

Improvements in the employment of Indigenous people across the Region are evident, including as core staff with the Reef Authority and QPWS (RJFMP) and as Indigenous Rangers funded by Queensland and Australian Government programs. Traditional Owners also play a vital role in managing their Sea Country through their own organisations.

Staffing and financial resourcing of Historic heritage restrict the ability to survey, assess and manage all sites of potential historic importance. Resourcing for Commonwealth listed places remains good, these places being jointly managed by the Reef Authority and QPWS through the RJFMP. However, there is no Maritime Cultural Heritage position at the Reef Authority and several 'other' positions remain vacant within the Reef Authority due to an inability to recruit and retain new staff. There has been a high turn-over in staff, with loss of corporate knowledge of Historic heritage. However, expert advice is available through the Advisory Committees and from maritime and other heritage experts at DES and DCCEEW.

Training outcomes are improving. Cultural competency training is being undertaken by all Authority staff (2022-23). The TUMRA program's 'mentoring and buddy system' aligns established TUMRA areas with newly developing ones and has been a significant capacity builder for saltwater Traditional Owners (Workshop participant 2023). A range of TUMRA programs offer many pathways for skills' development and certification. The Reef Guardian Councils Program includes networking and professional development to share knowledge, best practices and information to assist local government partners to better manage impacts on Indigenous and historic heritage values. Other programs include Eyes and Ears Compliance training and some training in maritime heritage conservation.

Permissions

"…are a confusing space for Traditional Owners…, who recognise connections to country across land and sea, rather than hard boundaries used by government".

Workshop participant, 2023

Cross jurisdictional matters in relation to Heritage are generally well coordinated despite being very complex. The Reef 2050 Traditional Owner Implementation Plan provides an operational platform to strategically coordinate and advance the delivery of actions to achieve Traditional Owner aspirations in relation to heritage matters. The Reef Authority and QPWS coordinate various aspects of their work and approaches in relation to heritage through the RJFMP. Joint Marine Parks permits are assessed on matching criteria and the cultural referral program informs both State and Commonwealth Marine Parks permit assessments and decisions to ensure potential impacts to cultural heritage are consistently considered (does not cover Queensland islands).

Outcomes for Heritage are graded as *partially effective* and in decline (Table 26). For example, many Indigenous heritage values are in poor condition and deteriorating (e.g. sacred sites, sites of particular significance, places important for cultural tradition, story, language, songlines and totems, Indigenous structures, technology, tools and archaeology) and similarly for many historic heritage sites, especially underwater cultural heritage. As managers lack comprehensive understanding of impacts on heritage values and their spatial extent, effective management outcomes are difficult to achieve (Workshop participant 2023).

The future?

Traditional Owners with connections to the region maintain their cultural practices and customs. However, because Indigenous heritage values are closely tied to Land and Sea Country, values have deteriorated with the deterioration of the environment.

Data management

"Traditional Owner data is not well described. There is no systematic data sharing system and information is protected. Appropriate mechanisms will help to ensure that people manage their own data or knowledge including consideration of how others interact with that information…Resourcing to address data issues is challenging".

Workshop participant 2023

Loss of Indigenous Knowledge

"Heritage is intrinsically linked with the people to whom it belongs. Without the systematic passing on of cultural knowledge… heritage is at risk of …(being) lost forever".

Aboriginal and Torres Strait Islander Heritage Strategy for the Reef (2019:20)

Key challenges for Heritage include: delivering a Reef-wide approach to engagement that incorporates Traditional Owners as 'real partners'; better application of relevant international and national principles relating to Heritage across all areas of Reef planning and management and including ratification of relevant conventions relating to underwater cultural heritage; systematically identifying the location of heritage places (and values) especially around developed areas and on islands and ensuring that this information is considered during assessment and planning processes; achieving a more comprehensive understanding of impacts to heritage values and their spatial

extent, including potential impacts from tourism, development and incremental damage; review and updating of relevant legislation (e.g. *Planning Act 2016* and *Heritage Act 1992*) to strengthen outcomes for Heritage; addressing overlaps and inconsistencies among planning tools and enhancing integration of Heritage matters into local government planning mechanisms, across agencies and across terrestrial and marine planning systems; enhancing information and monitoring relating to Historic heritage (shipwrecks, plane wrecks and other relics); improving digital spatial data/tools to assist assessments of Historic heritage; improving information and data management and data sharing; expanding protection of sites of heritage value; enhancing the provision of on-ground management capacity and opportunities for Traditional Owners (e.g. ability to access marine areas and sufficient resourcing to protect and rehabilitate heritage), including enhancing the efficiency and effectiveness of delivery mechanisms; enhancing the knowledge of Indigenous heritage by all Reef managers and users; achieving strong governance that is based on co-governance arrangements; continuing education and awareness programs to minimise risks to heritage.

Community benefits of the environment

The terrestrial (Great Barrier Reef Catchment Area) and marine (the Reef) ecosystems provide numerous benefits to humans through the generation and use of ecosystem services. The Reef also holds important cultural values for residents, tourists, commercial fishers, tourism operators and Australians more broadly (i.e. aesthetic, heritage, lifestyle and biodiversity values). The broader Australian community perceives the Reef to be a significant contributor to national identity.

The topic Community Benefits of the Environment encompasses socio-economic and socio-cultural attributes of the Reef. Many of these attributes are values-based and include benefits such as employment, income, understanding, appreciation, enjoyment, personal connection, health benefits and access to Reef resources.

Community benefits are supported under the *Great Barrier Reef Marine Park Act 1975* (refer Section 2) and are addressed in many of the policy and decision-making guidelines for the Reef. The Reef 2050 Plan aims to develop a shared understanding of the community benefits derived from the Reef, and principles for decision making including basing decisions on best available science, including community knowledge.

There have been some changes to the rating of management effectiveness for Community Benefits since the Management Effectiveness Report 2019 (Leverington et al. 2019). Ratings for effectiveness have remained as *mostly effective* for Context,

Planning, Processes, Outputs and Outcomes. However, Inputs have declined from *mostly effective* to *partially effective* (Table 27).

Table 27: Assessment results for Community Benefits

	2024	2019-2024	2019	2014-2019	2014	2009-2014	2009
Element	Grade	Trend	Grade	Trend	Grade	Trend	Grade
Context	ME	↘	ME	↗	ME	NA	NA
Planning	ME	↔	ME	↗	ME	NA	NA
Inputs	PE	↓	ME	↑	PE	NA	NA
Processes	ME	↘	ME	↑	PE	NA	NA
Outputs	ME	↔	ME	↔	ME	NA	NA
Outcomes	ME	↔	ME	↔	ME	NA	NA

E Effective ME Mostly Effective PE Partially Effective I Ineffective

↑ Trend has been an upwards change in grade
↗ Trend is increasing but has not caused an upwards grade change
↔ Grade has remained stable with no major trends
↘ Trend is decreasing but has not caused a downwards grade change
↓ Trend has been a downwards change in grad
NA The topic was not assessed in 2009

The values for the Reef relevant to Community benefits are clearly understood by managers, and are clearly articulated in the Outlook Report 2019 and the Great Barrier Reef Strategic Assessment. High-level understanding of Community benefits is reflected in that statement of purpose of the Reef Authority's Corporate Plan (2022:8):

> The long-term protection, ecologically sustainable use, understanding and enjoyment of the Great Barrier Reef for all Australians and the international community through the care and development of the Marine Park.

Recognition that the most significant threats to the long-term health of the Reef are outside the Reef Authority's jurisdiction (e.g. climate change, land-based run-off) has encouraged managing agencies to increase efforts to work with, and influence, the broader community. More effective engagement with the wider community requires a better understanding of the diverse values and benefits of the Reef to the community and their perceptions about the Reef and its associated threats within the community.

The condition and trend of values relevant to Community benefits are well understood by managers and since 2019 there have a been several new initiatives to assess values-based attributes of the Reef. Currently these initiatives are at different stages of implementation, with some information gathering initiatives already carried out and others still under-development. For example, the regional Report Card Partnership Human Dimensions collected information on community perceptions of the current condition of the Reef and waterway values in 2021. Indigenous cultural heritage assessments have also been carried out by the Gladstone Healthy Harbour Partnership and Mackay Whitsunday Isaac Healthy Rivers to Reef partnership. Several monitoring projects that are directly related to Community benefits of the environment and measure sustainable use, stewardship, governance, and human use of the Reef are currently underway (2021-2024).

Results from 2022 market research state that four in 10 Australians have changed their habits due to concern regarding climate change and reef pollution. Those who have changed habits to reduce their impact on the environment have done both 'less' and 'more': Less plastic and waste and more recycling and better products. Nearly all stakeholders have changed their habits, with an increase observed for most behaviours since 2020.

The Great Barrier Reef Aquarium provides an avenue to enhance community understanding of the Reef. Over 186,000 people visited the Aquarium between January 2019 and February 2021. The Aquarium closed during 2020 due to COVID-19 restrictions and is currently closed for redevelopment. The Aquarium offers high-quality products and promotes the values of the Reef, the threats its facing and the role people can play in protecting it. The products on offer have consistently met visitor expectations.

The Reef Education team are delivering educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its stainable future and to encourage participation by taking action to address threats to the Reef. The Great Barrier Reef Aquarium continues to engage with the public and promote educational messages through social media channels and local community events.

Positive community attitudes gained through the community engagement programs can reduce risks of negative decisions being made by the Reef's diverse users. This assists in reducing the major threats to the Reef.

There has been significant investment in developing systematic monitoring programs to track trends over time for community benefits, however full implementation and on-

going monitoring are not included in these projects. The Social and Economic Long Term Monitoring Program (SELTMP) gathers long-term data about Reef users, communities and industries, and their changing relationship with the Reef over time. SELTMP provides decision-makers the needed information on human use and dependency, wellbeing, and cultural context to ensure management decision reflect the needs of the people who interact with the Reef. The Sustainable Use and Benefits Monitoring Project (SEABORNE) considers who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values. The Integrated Reef Stewardship Monitoring Project (PROTECT) monitors how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes.

Monitoring community benefits through the lens of climate change is a key challenge. Irreversible impacts from climate change on the Reef's socio-ecological systems are probable and represent a significant challenge for understanding and managing community benefits of the Reef now and in the future (Australian Academy of Science 2023). The exact form of these impacts on community benefits is still largely unknown, particularly under high emission scenarios where there are significant gaps in existing knowledge regarding disruptions to the Reef and the cascading impacts on socio-ecological systems and community benefits. Yet, under high emission scenarios impacts on community benefits are expected to become much more pronounced and have strong potential to significantly disrupt lives and livelihoods (Australian Academy of Science 2023).

6. Assessment of topics and elements within the management effectiveness framework

This section is based on the results of the management effectiveness assessment (Table 28) and addresses effectiveness in relation to the topics overall and according to the six elements (i.e. Context, Planning, Inputs, Processes, Outputs and Outcomes). Table 28 displays a trend comparison to the results from the Management Effectiveness Report 2019 (Leverington et al. 2019). Key strengths, weaknesses and opportunities for management of the Region are outlined.

Topic assessment summary

This assessment examined management effectiveness across 14 topics. For each topic, all 49 indicator ratings were totalled and adjusted to a value out of 40. The grading scale used to assess individual elements (Table 8) was applied to indicate an overall grade for each topic (Figure 18). The management effectiveness of two topics (i.e. Shipping and Defence) was graded as *effective*, while the majority of topics (10) were graded as *mostly effective*. Only Coastal Development and Climate Change were graded as *partially effective*.

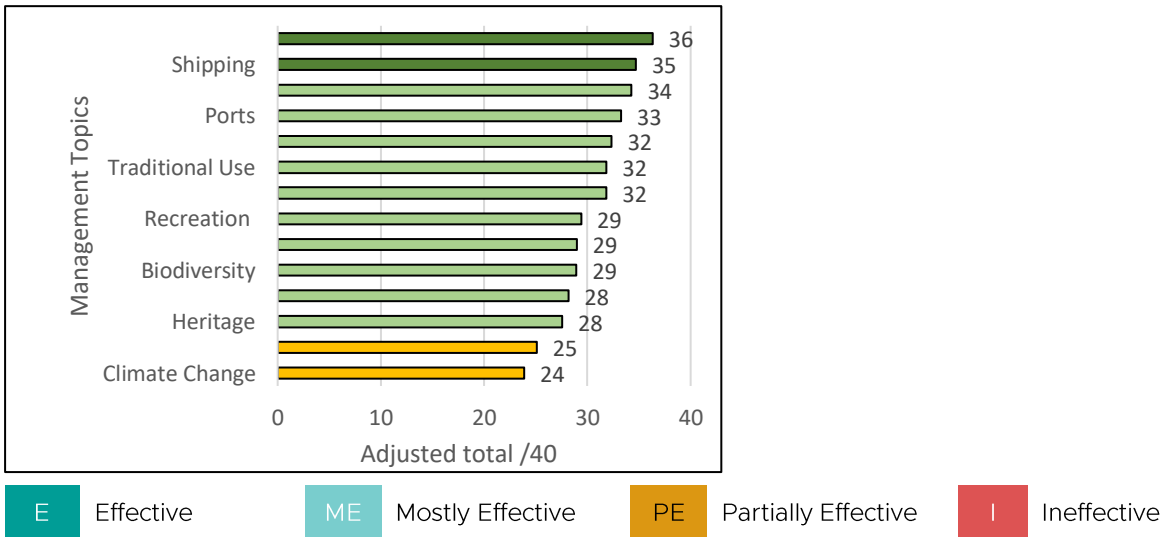


Figure 18: Overall management effectiveness across topics, 2024

Table 28 groups topics into three management categories: direct use; external factors; and protecting Reef values. Ninety-eight per cent of elements within the direct use

category were graded as either *effective* (29 per cent) or *mostly effective* (69 per cent) (Figure 19), reflecting the substantial efforts directed to effective planning, good knowledge input and substantial on-ground management. Seventy-eight percent of elements related to protecting

Table 28: Assessment results for elements of the management cycle

		Context		Planning		Inputs		Processes		Outputs		Outcomes	
	Topic	Grade	Trend	Grade	Trend	Grade	Trend	Grade	Trend	Grade	Trend	Grade	Trend
Managing direct use of the Region	Commercial marine tourism	E	↔	ME	↘	ME	↘	ME	↔	E	↔	ME	↓
	Defence activities	E	↔	ME	↓	ME	↓	E	↔	E	↔	E	↔
	Fishing	ME	↘	ME	↔	ME	↔	ME	↔	ME	↔	PE	↘
	Ports	E	↔	ME	↓	ME	↔	ME	↔	ME	↔	E	↔
	Recreation	ME	↓	ME	↘	ME	↗	ME	↔	ME	↑	ME	↔
	Research activities	E	↔	ME	↓	ME	↓	ME	↓	ME	↓	E	↔
	Shipping	E	↔	E	↔	ME	↔	E	↔	ME	↔	E	↔
	Traditional use of marine resources	ME	↓	ME	↓	ME	↔	ME	↔	ME	↓	ME	↓
Managing external factors influencing the Region	Climate change	PE	↓	ME	↑	PE	↗	PE	↗	PE	↑	I	↗
	Coastal development	PE	↓	ME	↘	PE	↓	PE	↓	ME	↔	PE	↘
	Land-based Run-off	E	↔	E	↘	ME	↓	ME	↓	ME	↓	PE	↔
Managing to protect the Region's values	Biodiversity values	E	↑	ME	↘	ME	↔	ME	↔	ME	↔	PE	↘
	Heritage values	ME	↘	ME	↔	PE	↔	ME	↔	ME	↔	PE	↓
	Community benefits of the environment	ME	↘	ME	↔	PE	↓	ME	↘	ME	↔	ME	↔

E Effective ME Mostly Effective PE Partially Effective I Ineffective

Trends are indicated by arrows:

↑ Trend since 2019 has been an upwards change in grade

↗ Trend since 2019 is increasing but has not caused an upwards grade change

↔ Grade has remained stable compared to 2019, with no major trends

↘ Trend since 2019 is decreasing but has not caused a downwards grade change

↓ Trend since 2019 has been a downwards change in grade

the Reef's values were graded as either *effective* (6 per cent) or *mostly effective* (72 per cent), reflecting substantial efforts to address a range of biodiversity and heritage values and improve community benefits. In relation to the management of external factors half (50 per cent) of elements were graded as *partially effective* and six per cent as *ineffective.* This related to the difficulties in addressing the impacts of Climate Change, Coastal Development and Land-based Run-off.

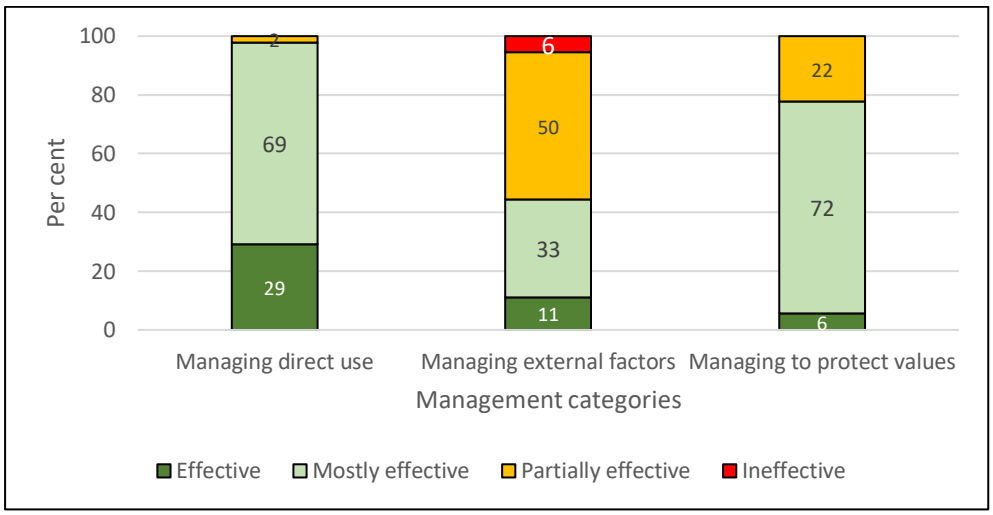


Figure 19: Management effectiveness in relation to management categories, 2024

Element assessment

The assessment of management effectiveness for the Reef was undertaken by evaluating a suite of indicators across six elements: Context, Planning, Inputs, Process, Outputs and Outcomes (Figure 20). Context had the highest number of management topics (7) graded as *effective* followed by Outcomes (4). In general most elements had high numbers of topics graded as *effective* and *partially effective*. Outcomes had the most topics assessed as being *partially effective* (5), and one topic that was graded as *ineffective* (Climate Change).

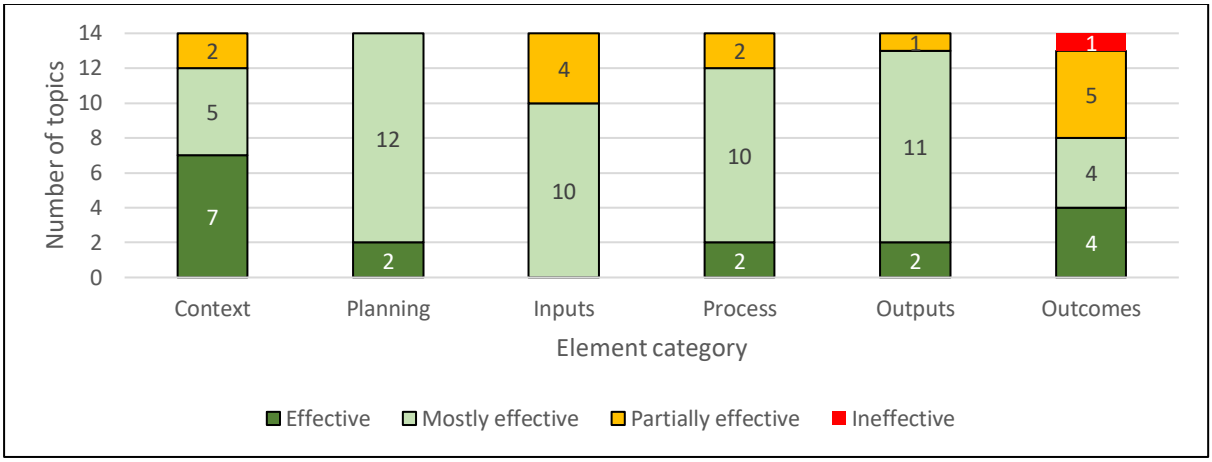


Figure 20: Management effectiveness of topics in relation to the elements of Context, Planning, Inputs, Processes, Outputs and Outcomes, 2024

Context

The Context element of the management effectiveness framework assessed five indicators including the level of *understanding* that all relevant managers have of the Reef's values, impacts (direct, indirect and cumulative) and broader national and international level influences, and the extent to which managers *know* the current condition and trend of values and the relevant stakeholders.

Context was the strongest management effectiveness element (Table 33) with an overall grade of *mostly effective*, including seven topics assessed as *effective* and five as *mostly effective* (Figure 20). The exceptions were Climate Change and Coastal Development, which were graded as *partially effective*. Declining trends for Context were reported for Fishing, Heritage and Community Benefits, with downward grade changes recorded for Climate Change, Recreation, Traditional Use and Coastal Development. Only Biodiversity experienced an upward grade change, in part due to the increased investment into better understanding values, condition and trends in the face of significant threats, including climate change.

Generally, managers have a good and improving understanding of values relevant to each topic (although this is weakest for Heritage and Coastal Development). For example, there are gaps in Heritage knowledge especially in relation to underwater cultural heritage and on islands.

While condition and trends, and threats and direct impacts related to each topic were generally known by managers, there are knowledge gaps across all topics in relation to the cumulative and consequential impacts, particularly for Climate Change, Coastal

Development and Fishing. For example, the individual and cumulative impacts of recent cyclone disturbances have negatively affected Reef values but are not fully understood; yet these disturbances, and other extreme weather events, are expected to intensify in the future due to climate change.

Managers have a broad knowledge of key stakeholders, although there are gaps in engagement with Traditional Owner communities, especially in non-TUMRA regions. Managers also have a broad understanding of national and international influences.

Key challenges relate to the potentially changing nature of the Reef's values in the face of climate change and other threats and stressors and the need to identify 'realistic ecological, social and cultural outcomes under climate change and the likelihood that ecosystem function decline appears to be inevitable' (Interviewee 2023). The Australian Academy of Science (2023:34) states that there are many 'unknowns' (e.g. Reef functions, stressors etc) and that central to addressing these issues is knowing what 'are the key GBR values and what needs protection' and prioritisation under a climate changed future. This may include guiding transition to novel ecosystems with different values from the previous state (Bay et al. 2023).

Several key knowledge gaps remain in relation to condition and trend and impacts, including 'understanding of the consequences of losing Reef biodiversity, including impacts on ecosystem services related to fisheries, coastal protection, recreational values and the like. 'Managers have little understanding of this and are unable to make sophisticated decisions about how to manage and mitigate this' (Interviewee 2023). A focus on reacting and managing current threats has limited the capacity for managing agencies to develop a strategic view of how to manage climate change impacts over time. The challenges relate to improving understanding of Heritage values, especially Indigenous and underwater cultural heritage, and the impacts on these as a result of increasing threats and stresses; and stimulating culturally appropriate Reef tourism development for Indigenous operators that will promote local culture and protect heritage.

Planning

The Planning element of the management effectiveness framework assessed nine indicators and considered aspects such as the overall effectiveness of the planning system (e.g. including all relevant regulation, plans, policies guidelines etc), clear identification of actions, measurable objectives, certainty regarding use, adequate

monitoring, effective stakeholder engagement, policy sufficiency and planning consistency across jurisdictions.

Planning overall was graded as *mostly effective,* with two topics graded as *effective* (Land-based Run-off and Shipping) and the remainder (11 topics) graded as *mostly effective*. Declining trends were reported for Coastal Development, Land-based Run-off, Commercial Marine Tourism, Recreation and Biodiversity; while Defence, Ports, Traditional Use and Research experienced a downward grade change. The only topic to see an upward grade change was Climate Change.

The planning system is crucial in protecting the Reef's values and supporting the many users, including the community, who rely on these values. The challenges facing the Reef are increasing in scale and complexity. Reef planning is spatially complex as it spans marine and terrestrial environments and requires effective coordination of actors and systems.

There is evidence of topic-specific legislation, plans and policies that apply across multiple scales (international to local) and sectors. International frameworks set global standards to which the Reef planning system is responding. The Commonwealth Government coordinates much planning and management through the Reef Authority, which undertakes strategic and statutory planning. State government planning is multi-sectoral and involves diverse approaches particularly statutory planning, vegetation planning and management, coastal planning, protected area planning, catchment-based planning for NRM and sectoral planning related to tourism, mining, agriculture, ports and others. Traditional land use planning in Reef catchments is a key responsibility of local governments. There are ongoing challenges in ensuring effective integration of planning documents across topics and effective implementation, resourcing and monitoring.

The Reef 2050 Plan is the overarching plan addressing most of the key elements required for effective Reef management and the Intergovernmental Agreement sets a framework for joint coordination of planning and management. However, given the cumulative impacts of climate change and other stressors, the Reef 2050 Plan and its associated plans and strategies require stronger pathways to avoid significant negative impacts from climate change on the Reef's OUV (Carter & Thulstrup 2022). This is relevant to declining trends across several topics (e.g. Coastal Development, Commercial Marine Tourism, Biodiversity), where the existing planning systems are potentially limited in their ability to address diverse threats.

Planning for climate change

"…We don't have a planning process or system that is fit for purpose in addressing climate change".

Interviewee 2023

Strategic vision - climate change

"…The Reef Authority is focussed on reacting to current threats in its tactical work. It hasn't developed a more strategic view on how to tackle climate change impacts over time".

Interviewee 2023

Differing objectives

"…the different players in the system often have different objectives and this complicates planning and management".

Workshop participant, 2023

The currency and adequacy of planning instruments vary significantly. However, the Reef Authority's Policy and Planning Strategic Roadmap aims to deliver a proactive and risk-based approach to policy, planning and regulation, by rationalising all external facing policies relating to management and protection of Marine Park values. An expected outcome is management tools that are understood, fit-for-purpose, flexible, responsive and aligned. For example, the Commercial Marine Tourism Industry has a diversity of planning documents but operators cite the 'lack of a comprehensive, visible set of planning tools that are operational' (Interviewee 2023), as well as dated planning documents some of which are not 'fit for purpose'. In this industry there are calls for: planning to be more 'future focussed', 'more agile, adaptable, flexible and responsive'; operators in the industry to gain a more comprehensive understanding of the planning system; and enhanced coordination and integration of relevant managing organisations.

The key Planning challenges lie in establishing effective monitoring and review processes to assess the various planning systems and related plans that are in place to ensure that they are delivering on outcomes for the Reef, including effectively addressing climate change and other threats to the Reef at all levels of planning from national to local. This includes clear indicators for success and adaptive management (Carter & Thulstrup 2022).

There are challenges in improving the alignment and integration of plans and processes across jurisdictions. This relates to the diverse stakeholders, including users, who are involved in the Reef planning system and their potentially differing objectives (i.e. from the Reef Authority, other government agencies and sectoral groups). Workshop participants (2023) expressed the need for 'more aligned' planning.

Concerns were raised about the challenges in better aligning terrestrial and marine planning systems. Piecemeal planning processes have constrained the ability of managing agencies to effectively consider indirect and cumulative impacts on the

environment in an integrated and coordinated way. This issue was highlighted for land-based planning and development matters in coastal areas, where managers expressed a lack of capacity and capability to effectively consider the implications of coastal development on Reef values.

Other planning challenges included: ensuring heritage information is effectively considered during assessment and planning processes particularly at the local level; addressing overlaps and inconsistencies among planning tools; the lack of consideration of current and future risks of climate change in planning processes; and tracking, monitoring and evaluating climate change adaptation initiatives over time.

The ongoing review and updating of legislation, plans, policies and related documents is challenging due to the breadth of topics and issues that are addressed. This assessment identified potential gaps in a range of legislation related to heritage matters, land use planning and commercial marine tourism. In relation to Heritage, challenges were identified in terms of improving the application of relevant international and national principles relating to Heritage across all areas of Reef planning and management and including the ratification of relevant conventions (e.g. underwater cultural heritage). The Australian Academy of Science (2023) also noted that there was a lack of clarity concerning the laws and regulations that support the development of Reef interventions at scale (i.e. particularly in relation to the impacts of climate change and other stressors).

There were also calls for a renewed focus on regional planning (Samuel 2020, Chubb 2023, Interviewees and workshop participants 2023), with collation, analysis and interpretation of supporting knowledge at appropriate scales (i.e. Reef-wide, regional and local). Some of this is being addressed through the Nature Positive Plan (2022) and may require co-design with local communities. Chubb (2023:3) also raises the idea of 'Regional Management Zones' extending from catchments to deep water, including the hinterland, coast, inshore and offshore areas.

In relation to Traditional Owner planning matters, major challenges lie in developing contemporary Indigenous-led plans and customary management approaches and policies that address customary use of biological resources, and access and benefit sharing arrangements that allow responses to be determined locally and aligned with customary laws/lores, capacity and management aspirations (GBRMPA 2021).

Inputs

The Inputs element of the management effectiveness framework assessed eight indicators and considered the adequacy of financing, human resourcing and skills within all managing organisations and the availability of information (biophysical, socio-economic, Indigenous Heritage and Historic Heritage) and non-government input.

Inputs was graded as *mostly effective* overall. Ten topics were graded as *mostly effective* and four rated *partially effective* (Climate Change, Coastal Development, Heritage and Community Benefits). While many topics were stable since 2019, there was a declining trend for Commercial Marine Tourism and downward grade changes for Coastal Development, Land-based Run-off, Community Benefits, Defence and Research, and an improving trend for Climate Change and Recreation.

Funding in general, has increased across most topics, with marked improvements in the funding for water quality improvement, Reef management and conservation, Reef Restoration and Adaptation and strengthening partnerships and stewardship. Innovative funding strategies are being developed, including the Reef Recovery 2030 fundraising campaign (Reef Trust Partnership) that aims to attract private investment in Reef protection efforts. Funding was *partially effective* for Heritage, both historic and Indigenous and for Traditional Use of Marine Resources and Commercial Marine Tourism and *ineffective* for Shipping.

The adequacy of human resourcing within all managing organisations was the weakest of all topics and was partly impacted by COVID-19. Government departments, agencies, local governments and several sectors (e.g. Commercial Marine Tourism and Shipping) experienced difficulty in attracting and retaining staff. At the time of reporting, there were a large number of vacancies mostly reflecting a more competitive employment market (Australian Public Service Commission 2022). Several topics reported difficulty in attracting staff with the 'right skills'.

While the Reef Authority may be generally well resourced to address Reef management issues, many other managers are not. For example, Traditional Owners are not sufficiently well resourced to enable effective engagement and participation in a range of programs, especially in relation to their TUMRAs. Also, while local governments are well supported through the Reef Guardian program to develop Action Plans, more resourcing is needed to better support the integration of measures that mitigate development impacts on Reef values within their statutory planning instruments.

Data inputs are graded overall as *mostly effective,* with the strongest areas being biophysical and socio-economic information (IN4 and IN5). Indigenous Heritage (IN6) and Historic Heritage (IN7) information experienced data gaps. The Australian Academy of Science (2023:34) calls for greater Indigenous participation 'to address the decline of GBR values in a more profound and connected way, using a collaborative approach founded in Traditional Knowledges'. The Samuel (2020) review stated, 'Better data and information are needed to set clear outcomes, effectively plan and invest'. Challenges were specifically identified in relation to improving digital spatial data and tools to assist in Historic heritage assessments and the need to improve information and data management and sharing.

The strongest Input area was non-government involvement, including volunteers (IN8), which was graded as *effective* or *mostly effective* across almost all topics. This reflects the strong level of community engagement across many topics and the interest that the community has in supporting Reef research, planning and management.

Key challenges are: the scale of the Reef Region and the cost of addressing key threatening processes, particularly in relation to biodiversity and climate change; understanding human resourcing issues and the skill sets that are required within all managing agencies and effectively addressing these issues; enhancing the provision of on-ground management capacity and opportunities for Traditional Owners particularly in relation to Heritage and Traditional Use (e.g. the ability to access marine areas and sufficient resourcing to protect and rehabilitate heritage); and ensuring adequate resourcing is available to respond to major incidents for the Shipping sector.

Processes

The Processes element of the management effectiveness framework assessed 14 indicators and considered how management actions were implemented, including consideration of: the soundness of the governance systems; the effectiveness of stakeholder engagement, performance monitoring, conflict resolution processes, consideration of impacts, and application of information (biophysical, socio-economic, and Indigenous and historic heritage); identification and meeting of standards; and benchmarking targets.

The Processes element overall was graded as *mostly effective*. Two topics were rated as *effective* (Defence and Shipping), 10 topics were graded as *mostly effective* and two topics were graded as *partially effective* (Climate Change and Coastal Development). Many topics remained stable since 2019 but there was a declining trend for Community

Benefits and downward grade changes for Coastal Development, Land-based Run-off and Research. There was an improving trend for Climate Change.

Stakeholder engagement, including the engagement of local communities was rated across topics as *mostly effective. (Note*: a comprehensive assessment of engagement is outlined in section 7, Engagement). Stakeholder engagement in the Reef focuses on informing, consulting and involving, with less emphasis on collaboration and empowering (IAPP 2018).

Governance performance monitoring and the identification of targets for benchmarking are areas for improvement The Reef 2050 Plan recognises the importance of good governance and requires that 'governance arrangements are transparent and accountable' (p.36). The Reef is generally regarded as one of the most successful environmental governance systems in the world (Morrison 2017). The Reef's governance system incorporates multiple governing authorities, diverse stakeholders and partners and complex cross-scale and cross-sectoral dynamics (Turner 2022). Diverse actors play different roles in decision making. However, the Reef governance system is struggling to improve Outcomes across several topics.

The Reef has a polycentric system of governance that is composed of structural and functional elements. The structural elements define formal and the organisational components that make up the system, such as the legal framework, managing agencies and policies, and procedures that govern the operation of the system. The functional elements refer to the practical aspects of how the governance system operates, such as the processes and practices that shape how decisions are made, how resources are allocated and how services are delivered.

The structural elements of governance are well-developed, with a diverse array of legislation, plans, policies and programs across topics and comprehensive vision setting, monitoring and evaluation. Key deficiencies are in relation to the updating of regulatory and other policy mechanisms (refer section 7, Environmental regulation). In relation to the functional elements of the Reef's governance system there was a recognition amongst the key Reef actors that stronger collaboration between different domains of management is required. This is partly due to the large aerial extent of the Reef Region and the scale of the matters that need to be addressed.

The effectiveness of the governance system for the Reef depends in part on the integration of planning and related plans within the system and the linkages among the key actors within the system. However, coordination among jurisdictions is complex and not always effective. For example, while there are cooperative approaches

between levels of government, there are gaps in the effective engagement of local governments, which are responsible for outcomes relating to land-use planning and development assessment within Reef catchments. Similarly, major development project assessment can be poorly coordinated between the Australian and Queensland governments, focusing on individual projects rather than effectively assessing cumulative impacts (e.g. in relation to carbon emissions and climate change impacts). The commercial marine tourism industry reported 'siloed' approaches with limited knowledge sharing and collaboration among partners. The governance system was said to be 'ageing and in need of updating', including consideration of enhanced engagement of the Tourism Reef Advisory Committee (interviewee 2023).

Several researchers (Australian Academy of Science 2023, Bay et al. 2023, Morrison 2017, 2019, 2020, Dale et al. 2016) identify the need for new approaches to governance, in particular, to enhance the ability of managers to adapt rapidly to evolving impacts. Turner et al. (2022) call for a more transformative governance agenda through adjustments to day-to-day management, and more substantial institutional redesign or rethinking of principles and values underpinning governance goals. The Reef Foundation is funding the development of a governance monitoring program for the Reef, including an assessment of key governance indicators to assess governance effectiveness in relation to Reef 2050 Plan objectives. Governance was also identified as a critical monitoring gap in the RIMReP.

The 'best available' information is generally applied in decision-making. However, consideration should be given to improving current modelling, monitoring and integration of existing datasets to support improved decision making (Australian Academy of Science 2023). As cumulative and consequential impacts are often not well understood, the consideration of the full spectrum of relevant impacts within Processes is weak (PR8). The commercial marine tourism industry cites gaps in knowledge related to the volume and frequency of users at particular locations and hence the difficulties in assessing the impacts of tourism activities.

The key challenges include: addressing the calls for improved governance to enhance decision-making processes, engagement and communication, including co-governance arrangements; addressing the methods or agreed processes to make decisions in times of high uncertainty; inclusive engagement and enhancing pathways for integrating Traditional Knowledges; enhancing on-ground management capacity and opportunities for Traditional Owners to access Country and to engage in various sectors including Indigenous-lead commercial marine tourism; reducing 'siloed' decision making (Australian Academy of Science 2023); enhancing system flexibility

and ensuring consistency with ancillary organisations and policies; and better application of relevant international and national principles (e.g. relating to Climate change and Heritage and including ratification of relevant conventions in relation to cultural heritage).

Outputs

The Outputs element of the management effectiveness framework assessed six indicators and considered the products and services that were produced, their timeliness and achievement of objectives, knowledge management systems and knowledge sharing.

Overall, Outputs was graded as *mostly effective*. Two topics were graded as *effective* (Commercial Marine Tourism and Defence) and 11 topics were graded as *mostly effective.* Climate Change was graded as *partially effective*. The trends in relation to Outputs since 2019 have remained stable for the majority of topics, although there were upward grade changes for Climate Change and Recreation and downward grade changes for Land-based Run-off, Traditional Use and Research. Declines were mostly the result of resourcing issues during the period of COVID-19 restrictions, which impacted the outputs that were delivered, while improvements reflected improvements in the planning system for Climate Change.

The delivery of Outputs (OP4) was generally strong across all topics especially in terms of delivering products and related actions. This reflects a delivery-based approach for many agencies together with good work programs under plans such as the Reef 2050 Plan. The weakness for Outputs relates to the achievement of results against stated objectives (OP3). This reflects the absence of clear objectives for many topics or the potential misalignment of some outputs with expected objectives.

Key challenges include: improving spatial tools and integration and access to knowledge systems across managing agencies; and greater alignment of communication strategies among organisations that research and manage the Reef to facilitate greater public understanding of Reef issues (e.g. the Australian Academy of Science (2023) calls for researchers to be ‘honest brokers’ and present all lines of evidence and communicate the reality of the Reef’s future in the face of climate impacts).

Outcomes

The Outcomes element of the management effectiveness framework assessed seven indicators and considered whether management efforts were achieving the desired outcomes, protecting the Reef's values, reducing major risks and threats, whether use of the Reef is sustainable (environmentally, economically and socially), and the effectiveness of partnerships.

The achievement of Outcomes was the weakest management effectiveness element, although results were highly variable across topics. Overall the Outcomes element was graded as *mostly effective*. However, the Outcomes for five topics were graded as *partially effective* (Biodiversity, Coastal Development, Fishing, Heritage and Land-based Run-off) and Climate Change was graded as *ineffective*. This is the highest number of *partially effective* and *ineffective* grades across all elements (e.g. Inputs had four topics graded as *partially effective*, Processes two, Context two and Outputs one). Four topics had their Outcomes graded as *mostly effective* (Commercial Marine Tourism, Community Benefits, Recreation and Traditional Use) and four were *effective* (Defence, Research, Ports and Shipping), all of these being direct uses of the Reef. No topics had an upward grade change, although Climate Change had an increasing trend from 2019. Three topics had a declining trend (Coastal Development, Fishing and Biodiversity) while three had a downward change in grade (Heritage, Commercial Marine Tourism, Traditional Use).

Outcomes - threats

"Threats are being reduced but is this fast enough and well enough to reach the outcomes stated in various plans? This is questionable".

Workshop participant, 2023

The relatively poor achievement of Outcomes across several topics partly reflects a range of external influences on the Reef (e.g. bleaching events, climate change stressors) but also reflects an increased understanding of the extent of existing impacts (e.g. depletion of fished species' stocks). Outcomes for Climate Change and Biodiversity were poor across a number of indicators, including the protection of values, reduction of threats and environmental, economic and social sustainability. These trends are highlighted in a range of research (e.g. Bay et al. 2023, McLeod et al. 2022, Bozec et al. 2022, Cheung et al. 2021), Queensland's State of the Environment Report (2020) and Joint WHC/IUNC mission assessments since 2022, which state that the Reef's OUV is significantly impacted by climate change factors and that its resilience to recover from climate change impacts has been weakened in part due to degraded

Outcomes - values

"We have not seen the worst of the changes that are occurring... In the context of the future, we are miles off ensuring that the values of the Reef are protected".

Workshop participant, 2023

water quality and a range of other stressors. However, the 2023 decision of the WHC to not list the World Heritage Area as in Danger reflects improved knowledge of the Reef and its catchment, expanded monitoring programs, research to inform planning and management, and programs, including extensive on-ground work that address many of the threats to the Reef.

Outcomes for Heritage were also graded as *partially effective* and in decline, reflecting the poor and deteriorating condition of many Indigenous heritage values and many historic heritage sites, especially underwater cultural heritage.

There was evidence of effective partnerships (OC7) across most topics (refer 1797, Engagement). Partnerships are increasing in number and diversity and in general are moving to greater involvement of a range of sectors.

Key challenges relate to: redefining the future outcomes and values that will be managed and which better reflect the challenges related to climate change and other threats and the likelihood that ecosystem function decline appears to be inevitable (Interviewee 2023, Yan & Bellwood 2023); more effectively incorporating Traditional knowledges into planning and decision making to better respond to a range of threats and cumulative impacts; engaging with communities to better understand the values, regions and functions that are most important for preservation in a climate changed future (Australian Academy of Science 2023); structural industry adjustment to address major challenges facing the Reef (Interviewee 2023) and to help industries transition to a renewables-based future (e.g. commercial marine tourism); selecting the most appropriate management interventions and strategies that enhance Reef resilience and function and progressing relevant research to enable interventions at scale; and ensuring that governance of the Reef at all levels is working to improve Reef outcomes.

Overall Summary

A summary of overall performance across the six elements of the management effectiveness framework (Table 29) is based on consideration of performance in each of the management topics. The grades are based on the grading statements in Appendix 1. Across all six grades, the management of the Reef is considered *mostly* effective, with all elements except Context remaining stable since 2019.

Table 29: Summary for the six elements of the management effectiveness framework, averaged over the 14 topics, 2024[15]

Element	Grade	Trend 2019-24	Justification of grade
Context	ME	↓	Context is the strongest performing element. Understanding of values and broad national and international influences was good and improved for most topics. Condition and trends were generally known, although threats and their impacts were less well known, including weaknesses in understanding of cumulative and consequential impacts. Stakeholders are generally well known, although there were gaps in engagement of Traditional Owners. Key challenges relate to the changing nature of the Reef's values in the face of several threats and 'unknowns'.
Planning	ME	↔	Sound planning systems are in place for most topics, although there was some lack of understanding of these systems. Declining grades reflected the ageing of the planning systems and several plans and approaches, ineffective monitoring, poor alignment, especially in relation to terrestrial and marine planning systems, gaps in Indigenous led plans and customary management approaches, the emergence of new focus areas and the lack of adaptability of existing planning to accommodate new issues (e.g. addressing topics, however, declining grades reflected the aging of the planning system, the emergence of new focus areas and the lack of adaptability of existing planning system to accommodate new issues. In particular, this was for topics such as climate change and coastal development). There are opportunities for improvement in setting objectives and developing relevant policy.
Input	ME	↔	Financial and resourcing inputs increased. Gaps included constraints in filling vacancies, data limitations (e.g. Heritage), financing the costs in addressing threats, enhancing on-ground management, especially of Traditional Owners and facilitating transitions to renewables-based futures.
Processes	ME	↔	Governance systems are adequate in relation to plans and approaches but need more effective stakeholder engagement, especially in relation to Traditional Owners, greater collaboration and incorporation of various knowledges, and improved approaches to addressing threats and uncertainty.
Outputs	ME	↔	Programs are mostly progressing effectively and deliver relevant products and outputs. However, there is some disconnect between program outputs and objective-setting.
Outcomes	ME	↔	Outcomes are the weakest performing element, with most direct use areas performing well but external factors and overall values performing poorly. The Reef's OUV is being negatively impacted by climate change and related stressors. Effective partnerships are a key strength.

Trends:
↔ Grade has remained stable with no major trends
↓ Trend has been a downwards change in grade

ME Mostly Effective

[15] *Note*: The overall grade for Context in 2019 was incorrectly reported as *effective* in the 2019 Management Effectiveness Report. This has been corrected to a grade of *mostly effective*.

7. Assessment of management approaches

In protecting and managing the Region, three main management approaches are used:

Environmental regulation — management tools such as regulations, zoning plans, management plans, permits and licences, and compliance are used to establish the statutory arrangements and environmental standards necessary to protect and manage the Reef.

Engagement — managing agencies work with Traditional Owners, the community, business, industry and local government to influence best practice and encourage actions that will help secure the future health of the Reef.

Knowledge, integration and innovation — management is based on the best available science as well as drawing on traditional ecological knowledge and information from the wider community and is informed by the results of ongoing monitoring.

The effectiveness of these management approaches in delivering outcomes for each of the 14 topics was assessed using the information assembled to justify the management effectiveness ratings.

Environmental regulation

Statutory instruments for the Region include Acts and regulations, zoning plans (both State and Commonwealth), plans of management, permits, fees and charges and compliance and enforcement programs.

Jacobs (2014) identified that the institutional and legal arrangements for the Reef were generally appropriate. However, following the 2019 Outlook Report, in recognition of key gaps in agriculture and climate change, there has been regulatory reform including the introduction of Reef protection provisions under the *Environmental*

Protection of Australia's environment and iconic places

"The EPBC Act is ineffective. It does not enable the Commonwealth to effectively protect environmental matters that are important for the nation. It is not fit to address current or future environmental challenges."

Independent Review of the EPBC Act (Samuel 2020, 1)

Protection Regulation 2019 (Qld) ('Reef Regulations') and the introduction of the *Climate Change Act 2022* (Cth), together with ongoing adjustments to specific fisheries using tools under the *Fisheries Act 1994* and regulations. Despite these reforms, across several topics, there were numerous examples of regulatory mechanisms that needed review and updating to enhance more effective management. As noted by the Australian Academy of Science (2023:33), 'Policy is taking time to catch up' to a rapidly changing reef environment.

In 2020, the findings of Independent Review of the EPBC Act (Samuel 2020) identified that, while benefits were achieved by the Act, the focus on matters of national environmental significance and adoption of a project-by-project consideration of environmental outcomes meant that holistic outcomes for environment and heritage cannot be achieved. This also undermines the ability to address the system-wide threats faced by the natural environment and iconic places. However, the review also recognised that the separate listing of the Marine Park as a matter of national environmental significance contributed to more clear and adequate environmental assessment outcomes for the Region.

A reform agenda based on the review findings is currently being implemented. The Nature Positive Plan: better for the environment, better for business (DCCEEW 2022) will develop new National Environmental Standards for the long-term protection and conservation of environment and heritage matters, as well as requiring achievement of net benefit for new projects assessed under the Act.

Great Barrier Reef Marine Park

"The Great Barrier Reef Marine Park's inclusion as a separate matter of national environmental significance ensures the assessment and approval processes of the EPBC Act are more clearly and completely applied to the Great Barrier Reef Marine Park itself… "."

Independent Review of the EPBC Act (Samuel 2020, 220)

There are some inconsistencies in regulation across Commonwealth and Queensland government jurisdictions. This arises primarily where there is misalignment between the regulatory focus of different governments. For example, in regulating fisheries, inconsistencies arise among the Queensland Department of Agriculture and Fisheries (with a focus on sustainable catch loads), the Reef Authority (with a focus on direct use impacts to the Reef ecosystem), and the Commonwealth Department of Climate Change, Energy, the Environment and Water (with a focus on protected species and the environmental performance of fisheries). However, in many areas there have been joint approaches, such as joint permitting and enforcement provisions between the Reef Authority and QPWS, or through clear demarcation of responsibility, such as maritime and navigational safety and response arrangements between the Australian Maritime Safety Authority and Maritime Safety Queensland.

The Zoning Plan provides spatial management for activities that require a permit (i.e. outlining where an activity can be conducted with permission) and also provides a useful basis for the spatial management of activities not requiring permits, such as recreational boating and fishing and shipping, and some commercial fishing activities. The use of higher protected zones (e.g. green and yellow zones) has positive outcomes for the conservation of fish species (Hall et al. 2021). However, zoning should be applied in combination with other tools, such as the implementation of effective permission assessments and site-specific plans of management (Day et al. 2018). Note that the Zoning Plan has little influence over impacts not related to direct use, such as climate change and land-based run-off, although there is some indication that minimising direct use impacts increases the resilience to such impacts (e.g. Gove et al. 2023, McLeod et al. 2019).

Plans of Management that currently support the Zoning Plan are in place for the Whitsundays (2017), Cairns (2008), Hinchinbrook (2004) and Shoalwater Bay (1997). None of these plans were updated in the current assessment period.

Compliance systems are increasingly sophisticated, especially regarding the tracking of vessels and vessel activities. However, at present there is no mandatory requirement for IDV on commercial fishing vessels, which limits the ability to fully monitor compliance of fishing practices, especially impacts to species of conservation concern. Similarly, there is limited ability to monitor compliance of recreational fishing practices or blackwater pump-out on recreational vessels due to the lack of mandatory reporting systems.

Funding allocated to the RJFMP in 2018 has improved the ability of the Reef Authority and QPWS to monitor and respond to compliance matters. There is also a high level of resourcing and technical skill associated with commercial vessel inspections that allow for proactive management of potential vessel incidents. This works on informal joint management approaches between the Reef Authority and Australian Maritime Safety Authority.

Various non-statutory mechanisms are in place, including policies, strategies, position statements, guidelines and management plans. A number of mechanisms were developed in the lead up to Outlook Report 2019 (e.g. Maintenance Dredging Strategy, Sustainable Fisheries Strategy) and implemented across the previous assessment period. Many of these policies and strategies may benefit from more outcome-oriented targets, with clear objectives, actions and milestones, as well as ongoing reporting and evaluation.

The Reef 2050 Plan has overtaken some of these strategies as an overarching plan for the Region but opportunities for further interaction and consistency remain. However,

the process of developing these instruments needs to be more adaptable and responsive as new evidence emerges. This is of particular note in the face of climate change, as indicated by the Reef 2050 Independent Expert Panel:

> 'The present suite of policies for GBR management has served its purpose, yielding generally positive outcomes albeit with some weaknesses… however, …the current policy framework and funding to support new knowledge and ultimately its transformation is not flexible enough to cope with the rapidity of global warming…' (Chubb 2023:2).

Engagement

Key Reef stakeholders are well known to managers. They consist of government institutions and agencies at all levels, Reef Advisory Committees, Scientific Expert Panels and non-institutional actors that include Traditional Owners, various industry sectors, environmental NGOs, public interest groups, research institutions and universities, Reef users, the community and individual citizens, political parties, the media and others. The Reef Authority's Actor Network Mapping project is improving the identification of relevant Reef actors.

In terms of the type of engagement, relationships are strongest between the Reef Authority and Commonwealth and Queensland governments. However, while external institutions (e.g. WHC/IUCN) have had a significant impact on policy, inputs, planning and management in relation to the Reef, improved governance and engagement models are needed into the future. Stakeholder engagement (IAPP 2018) has focussed on 'informing' (e.g. education and stewardship programs, Great Barrier Reef Aquarium, Reef Knowledge System), 'consulting' (e.g. Reef Authority Board, Advisory Committees and LMACs, information collection) and 'involving' stakeholders (e.g. RJFMP partners, trained community volunteers, Indigenous rangers, Master Reef Guides, High Standard Tourism Program, Reef Guardians, Eye on the Reef and others). There is less evidence of 'collaborating' and 'empowering' engagement. A key barrier identified by the Australian Academy of Science (2023:33) is 'inclusive engagement processes that fully encompass co-design, co-development and co-delivery, including FPIC (free, prior and informed consent) from Traditional Custodians'. However, greater efforts have been made in this reporting period to: engage with Traditional Owners, especially through the expanded TUMRA program that includes greater engagement by Traditional Owners in management and on-Country work; policy commitments to co-management with Aboriginal and Torres Strait Islander Peoples by the Reef Authority and DES; the incorporation of Values

Based Mapping; the employment and training of Indigenous Rangers; and strengthened communications between managers and Indigenous peoples. There are also strong and growing connections between research and decision making and a range of actors (e.g. Actor Network Mapping project, National Environmental Science Program and Reef 2050 Integrated Monitoring and Reporting Program.

Partnerships, which represent discernible, formalised and regularised relationships between organisations, are viewed, across topics, as necessary to improve Reef outcomes. Over time these partnerships have increased in number and diversity and are underpinned by increasingly complex arrangements, including the nesting of partnerships, particularly in relation to land-based issues (e.g. NRM arrangements with regional bodies, local governments and NGOs). Investment and brokerage have diversified (e.g. Reef Trust Partnership Grant Agreement), where the Great Barrier Reef Foundation and State Government operate as investors and program managers. The key types of partnerships (Taylor, pers comm. 2023) include: knowledge-based reporting; integrated delivery; policy and planning; and working with Traditional Owners.

Knowledge-based reporting includes products that help to raise awareness among partners and the public. Examples include report cards, the Outlook Report and other reports containing information on condition and trend of Reef values, and data collected through monitoring programs (such as Eye on the Reef) and used in tools (such as dashboards) on the Reef Knowledge System and other digital platforms. Effective partnerships supporting knowledge-based reporting include the NESP, Master Reef Guides and the RJFMP's Trial of Restoration Activities (e.g. Project Reefresh: Bait Reef rehabilitation).

Integrated delivery partnerships are both formal and ad hoc and include engagement with various sectors (e.g. the Reef Authority engages with tourism operators to undertake stewardship activities and there are growing links with schools locally, nationally and globally through the Reef Guardian Schools); engagement in local issues (e.g. through community groups and NGOs); and regional delivery (e.g. with NRM groups under the Reef 2050 WQIP). For example, broader engagement with communities and local stakeholders occurs across a range of working groups and committees established by different government agencies.

Collaborative arrangements between government agencies include: (a) Joint permission system for Marine Park Permits managed by the Reef Authority and QPWS (within DES); (b) the RJFMP that is based on cooperative engagement between the Commonwealth and Queensland governments for joint funding and management of

compliance and enforcement activities within the Marine Park; (c) MoUs between the Reef Authority and Defence to support the environmental oversight of Defence activities, and between AMSA and MSQ regarding responsibilities for management of maritime safety, marine pollution and incident response, as well as the appointment of port authorities under the QCCAP to provide first strike response to marine pollution; and (d) inclusion of port authorities on local waterway and harbour partnerships.

Partnerships and collaboration among management agencies and research organisations (e.g. CSIRO, AIMS, JCU and many others) have remained relatively strong since 2019 (e.g. the RIMReP partnership and COTS Control Innovation Program). Key funding initiatives continue including the DCCEEW-led partnership between the Reef Trust and the Great Barrier Reef Foundation and the Australian government's National Environmental Science Program, which helps support the coordination of collaboration with researchers working on key environmental and social issues facing the Reef. A change in the landscape for research collaborations was the defunding of the Australian Research Council (ARC) Centre of Excellence for Coral Reef Studies in 2021-2022.

The effectiveness of working groups and committees differs across management areas. Generally, there is a high level of engagement in direct use areas, such as through Fishery Working Groups maintained by DAF on fisheries matters, and Independent Technical Advisory Committees (ITACs) maintained by port authorities on dredging and placement. In other areas, the understanding of and engagement with stakeholders is weaker (e.g. commercial marine tourism). However, this has been recognised by the Reef Authority and is being addressed, in part, through initiatives associated with Network Actor Mapping and mapping of governance arrangements.

Policy and planning partnerships are underpinned by the Great Barrier Reef Intergovernmental Agreement that was originally agreed between the Commonwealth and Queensland governments to formalise the jurisdiction of both governments and associated agencies within the Region. This was updated in 2015 to align with the Reef 2050 Plan and respond to contemporary issues and challenges to the Reef. Within this context, the Reef 2050 Plan provides an agreed action framework for the Region that is implemented jointly by both governments and associated agencies. Other examples include: Reef Advisory Committees that involve a partnership approach to management involving a range of partners; local governments that are responsible for local planning and development decisions and providing public services that address a range of Reef related matters (e.g. Reef Guardian Councils); and collaborations between the Reef Authority and other agencies to address land-based run-off, fisheries management and incident response.

Working with Traditional Owners. The Reef Authority partners with Traditional Owners to advance their interests and Reef health. This includes engagement in various programs, including the TUMRA program, the Indigenous Reef Advisory Committee (IRAC), which provides advice to the Reef Authority Board, and other Reef management initiatives.

An effective partnership approach should enable incorporation of diverse skills and resources, including funding, improve mutual understanding, build trust, develop complementary data sources and enable joint planning and action (Interviewee 2023). A key challenge in relation to engagement in Reef management is in developing '…deep, meaningful, respectful and consistent engagement with each community…(that) is tailored to their specific characteristics … and (provides) real empowerment' (Chubb 2023:3). This relies on more equitable power sharing and in particular enhanced understanding of partner goals and roles to improve mutuality, and on trusting relationships that are built on 'truth telling' (Chubb 2023) about a range of issues, including climate change impacts and risk assessments.

Other challenges include: appropriate resourcing of effective engagement and partnering with Traditional Owners; ensuring the most effective engagement of all Reef Advisory Committees in planning and decision making; enhancing the engagement of local governments in diverse decision-making processes; developing greater cross-sectoral and cross-scale collaboration and partnerships among stakeholders and reduced reliance on 'siloed' decision making; ensuring adequate resourcing within the Reef Authority to provide a centralised point of distribution, data management and coordination of collaboration; addressing staff shortages within the Reef Authority (e.g. cultural heritage officers) and related agencies.

Knowledge, innovation and integration

Knowledge, research and monitoring

Ongoing research and monitoring are critical in a time of rapid change and as a means to address diverse impacts on the Reef from multiple and often cumulative stressors. Information on research and monitoring is well documented in the Outlook Report process, updated Science and Knowledge Needs for Management (2021), ongoing work with renewing the Scientific Consensus Statement, and through the Marine and Coastal Hub of the National Environmental Science Program. The continual revision of these documents provides an up-to-date knowledge source for both policy makers and diverse stakeholder groups, including the general public. These processes and others have identified key knowledge gaps (e.g. Priority Monitoring Gaps prospectus,

2021). Programs and projects (e.g. Priority projects) have been developed to fill these knowledge gaps (e.g. monitoring of fish, inshore dolphin, sea cucumber, seabirds, and biosecurity among others). Greater adaptability and flexibility in relation to research and monitoring will be needed as research efforts are directed towards building Reef resilience in relation to a range of possible scenarios that address the predicted impacts of climate change and other threats.

In relation to biodiversity, a critical component of the Reef's OUV and natural heritage value, there are over 90 monitoring programs operating within the Reef Region (e.g. AIMS long term monitoring program, Marine Monitoring Program) but condition and trend are unknown for the majority of species. Existing monitoring represents about 40 per cent of the environmental regimes of the Reef (Mellin et al. 2020) and is weighted towards about seven percent of the Marine Park and World Heritage Area, an area that is made up mainly of coral reefs (Australian Academy of Science 2023). There are substantive critical knowledge gaps, particularly in relation to ecosystem function and processes (Australian Academy of Science 2023), population recruitment, various species, groups of species and habitats. Cumulative impacts are challenging to quantify, assess and manage and are little understood in the Region. However, these impacts are beginning to be better understood through descriptive qualitative models (e.g. Bozec et al. 2022) and spatial mapping tools.

Various Reef rehabilitation projects (RJFMP) are in place. There are about 19 in-water coral reef restoration projects (since 2017) and a growing field of research into coral restoration and adaptation, including the Reef Restoration and Adaptation Program (RRAP), which is a collaborative long-term research and development program. It aims to develop, test and risk-assess novel interventions to help build the resilience of the Reef under a changing climate. This program is new and issues remain around understanding the feasibility for scaling up many of the proposed interventions that are currently being trialled at a local scale, as well as assessments of cost-effectiveness and socio-economic impacts (McLeod et al. 2022).

The Social and Economic Long-Term Monitoring Program (SELTMP) has continued as a means of monitoring the socio-economic impacts on the Reef over time. While SELTMP changed its methodology during the COVID-19 pandemic due to its limited ability to conduct public polling, it has continued via online forms and has expanded its scope to include catchment level impacts. Priority projects relevant to socio-economic issues have been identified (e.g. sustainable use and benefits, stewardship, governance and implementing the Strong People Strong Country framework). Overall, this research and related interventions represent key efforts

toward long-term monitoring and the benefits this provides to addressing key biophysical and social knowledge gaps.

Outcomes are limited in relation to broad stakeholder understanding of the benefits/costs and ethics of a range of Reef interventions (or inaction) and there is a lack of fully open and inclusive dialogue that comprehensively explores Reef matters, particularly impacts and future Reef resilience and related social and economic sustainability (Bay et al. 2023, Australian Academy of Science 2023).

RIMReP, as a monitoring framework for the Reef 2050 Plan, has been in implementation phase since 2019. Work has been ongoing in the development of a data management system, providing oversight and coordination of monitoring gap projects, and the development of the Reef Knowledge System that provides a centralised system for presenting RIMReP, its core monitoring programs, data insight tools and links to a wide variety of Reef 2050 data and information. This represents a key step toward accomplishing priority Reef 2050 Plan goals.

Key research partnerships such as those with CSIRO, AIMS and universities as well as with less formalised citizen science programs (e.g. Eye on the Reef program, Reef Guardian Schools, Reef Guardian Councils, turtle volunteers and many others) will play important roles in addressing key knowledge gaps. For example, Ranger BoT (QUT) and Reefscan (AIMS) incorporate a modular suite of automated marine monitoring systems that will translate field data into comprehensive information about the state and health of critical marine ecosystems by employing autonomous surface and sub-surface high resolution benthic survey technologies to survey reef habitats and detect crown-of-thorns starfish and to inform seagrass, and reef health monitoring, island pest programs and incident response. This will increase the area and depth range of coral reefs and other habitats (e.g. seagrass) that can be surveyed.

Monitoring of Reef governance systems are in their infancy, with an immature understanding about what constitutes governance and how it can enhance decision making (Interviewees, 2023). Governance was identified as a critical monitoring gap in the RIMReP and has been identified as requiring substantive change in order to address a range of major threats to the Reef, in particular climate change and other impacts that occur at multiple scales (Dale et al. 2013, 2016, Craik et al. 2017, Morrison et al. 20217, 2019, 2020, Turner 2022). In response the Reef Trust Partnership is funding the development of a governance monitoring program for the Reef, including an assessment of key governance indicators to assess governance effectiveness in relation to Reef 2050 Plan objectives (2022-23).

Key challenges remain: in incorporating a wide range of diverse knowledge sets across multiple sectors, in particular Traditional Knowledges (Australian Academy of Science 2023); monitoring of Traditional Owner reef use and well-being; consolidating data from Reef-related projects; expanding monitoring and modelling in response to a climate-changed future in order to support decision making (Australian Academy of Science 2023); and effectively communicating findings to all stakeholders, in particular the general public.

Reporting and evaluation

The five-yearly Great Barrier Reef Outlook Report process provides a comprehensive, regular basis for evaluation and reporting on management of the Reef. The Reef 2050 Plan provides an overarching strategy for the management of the Region and includes clear monitoring and reporting requirements. Following a 2020 review, the Reef 2050 Plan was updated for the period 2021-2025 after which it will be reviewed. The RIMReP also provides support for an improved framework for reporting on management actions under the Reef 2050 Plan and has been implemented in the current reporting period.

Reef Trust investments are delivered by various partners who report on project performance every six months through the online monitoring, evaluation, reporting and improvement tool (MERIT). Reef Water Quality Report Cards through the Paddock to Reef Program provide a useful evaluation of water quality management outcomes within the Reef, although there can be a lag time of a few years between data collection and reporting. Regional Report Cards are released annually and report on condition from freshwater to marine zones.

Annual Reef inshore water quality, coral and seagrass monitoring is also undertaken by AIMS and university partners as part of the Marine Monitoring Program on behalf of the Reef Authority to provide a broader understanding of the health of the Region. AIMS reports annually on the results from its Long-term Monitoring Program, which provides valuable data on Reef health. Indicators for Reef health are set under the Reef 2050 Objectives and Goals 2021-2025 (and include a range of indicators related to coral reef habitats, seagrass, natural wetlands, islands and a range of important fauna (e.g. protected species, seabirds, bioculturally important fish and invertebrate species).

Resourcing of management arrangements

The development of the Reef 2050 Plan has led to significant increases in funding of actions associated with management of the Region, including for both Commonwealth and Queensland government agencies. These are focused primarily on targeting particular actions identified within the Reef 2050 Plan. Additional resources have also been received over the past several years to develop the RJFMP that provides a key compliance focus for the Reef Authority and QPWS within the Region, as well as delivering conservation actions, checking for change, responding to incidents and welcoming people (as documented in the RJFMP Annual Business Plan).

Resourcing has improved or stabilised across the current reporting period. There have been substantive increases in funding for various Reef projects and associated research. In terms of staffing and skills, recent market demands have significantly impacted the ability to recruit new staff in 2022-2023, with some key positions remaining vacant at the time of reporting.

The challenges facing the Reef are substantial and investment into improved planning and governance and multi-scaled approaches (Reef-wide, regional and local) may require a wider discussion of the type of investments that will be needed into the future to address the diverse range of impacts outlined in this Report.

8. Conclusion

Key findings

The management effectiveness review found that the Region continues to be managed effectively in most areas of activity. Of the 84 elements assessed (i.e. six elements across 14 topics), 17 were found to be *effective* and 52 *mostly effective*, representing 82 per cent of all elements (Figure 21). The management effectiveness of 14 elements was identified as *partially effective* and one element was rated as *ineffective* (i.e. Climate Change).

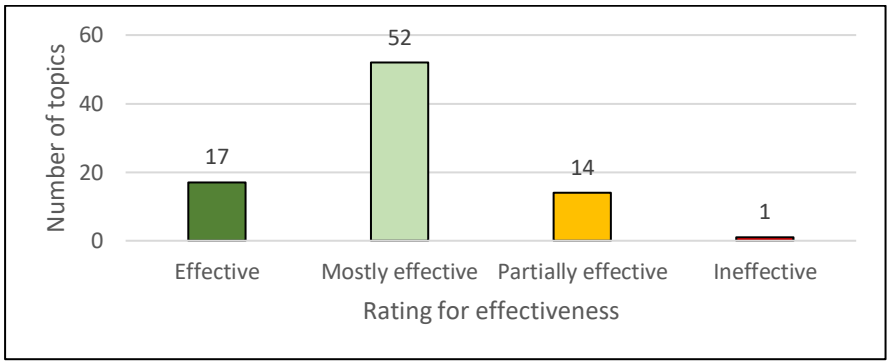


Figure 21: Number of management effectiveness grades across all topics, 2024

In relation to trends (Figure 22) almost half of the topic element grades have remained stable (41/84). Most of the stable elements were graded as *effective* or *mostly effective*.

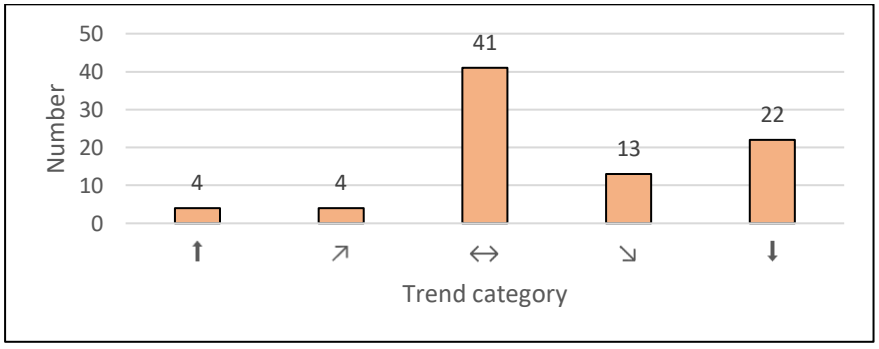


Figure 22: Number of topic element grade trends from 2019 to 2024, by category

Thirteen topic element grades had a downward trend and 22 experienced a decline in grade. The reasons vary across topics but include emerging recognition of gaps in the understanding of impacts and the associated coverage in planning systems and programs, and the extended lag time in achieving key outputs and outcomes. While most declines have been from *effective* to *mostly effective*, indicating that the area has largely effective management, some elements have moved from *mostly effective* to *partially effective*. These include Context, Inputs and Processes for Coastal Development, Context for Climate Change, Inputs for Community Benefits, and Outcomes for Heritage.

Improvements have occurred across the remaining elements, including increased grades (four elements) and upward trends (four elements). These improvements are spread across a range of categories and are topic specific.

Trends were also observed across the three categories of assessment, namely managing direct use of the Region, managing external factors influencing the Region and managing to protect the Region's values. Direct use topics typically had higher management effectiveness element grades than other topics (Table 28). All eight direct use topics were graded as *effective* or *mostly effective* against each element, except for Fishing, which was graded as *partially effective* for Outcomes. Defence and Shipping had four elements graded as *effective*, the highest total across all topics. This reflects the comprehensiveness of much of the management arrangements for these sectors together with resourcing arrangements, albeit with some recognised gaps.

Topics related to managing external factors had a greater number of *partially effective* element grades (e.g. Coastal Development and Climate Change - 4, and Land-based Run-off -1). Of these, Climate Change has seen the most improvement since the Outlook Report 2019, with improvements (i.e. upward grade changes or improving trends) in five elements, representing some improved management of climate change risks to the Reef and significant advances in climate change policy at all levels of government. By contrast, Coastal Development experienced declines (i.e. downward grade changes or declining trends) in five elements. Land-based Run-off also experienced four declining element trends.

The three topics relating to protecting values (i.e. Biodiversity, Heritage and Community Benefits) were *mostly effective*. However, Outcomes were *partially effective* for Biodiversity and Heritage and Processes were *partially effective* for Heritage and Community Benefits. Since 2019 one third of the elements had a stable trend, one experienced an upward grade change, five were in decline and two had a

downward grade change (i.e. Outcomes for Heritage and Processes for Community Benefits).

Overall strengths and weakness in management effectiveness

Detailed information on the grading, justification for grading and evidence in relation to the 49 indicators assessed in every topic are outlined in Appendix 5 (Table 33) and a ranking of the indicator means across all topics is presented in Figure 23.

The strongest result was for indicators related to Context, especially knowing the relevant topic stakeholders (CO5), understanding national and international influences (CO4) and the managers' understanding of the Reef's values relevant to specific topics (CO1). Other high indicator ratings were achieved for non-government inputs (e.g. volunteers) (IN8), the development of effective partnerships (OC7), application of the best available bio-physical information as part of decision-making processes (PR9), engagement of stakeholders in management, and the certainty provided by plans in relation to where uses may occur (PL9).

Relatively good outcomes were achieved for: developing products or services in accordance with stated objectives (OP4); effective engagement of the local community (PR2); the consistency of planning across multiple jurisdictions (PL8); and the clarity of planning actions (PL3).

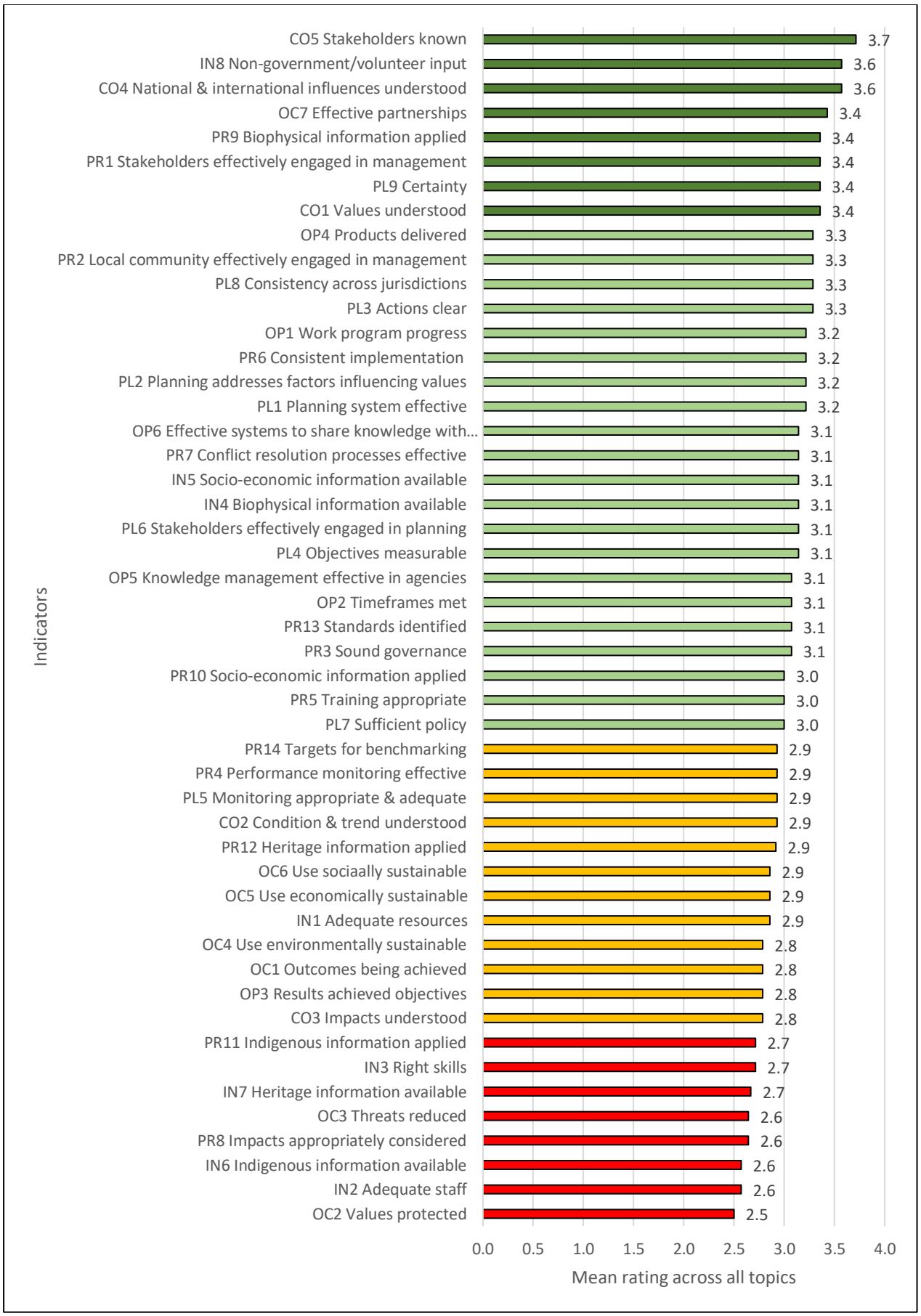

CO5 Stakeholders known 3.7
IN8 Non-government/volunteer input 3.6
CO4 National & international influences understood 3.6
OC7 Effective partnerships 3.4
PR9 Biophysical information applied 3.4
PR1 Stakeholders effectively engaged in management 3.4
PL9 Certainty 3.4
CO1 Values understood 3.4
OP4 Products delivered 3.3
PR2 Local community effectively engaged in management 3.3
PL8 Consistency across jurisdictions 3.3
PL3 Actions clear 3.3
OP1 Work program progress 3.2
PR6 Consistent implementation 3.2
PL2 Planning addresses factors influencing values 3.2
PL1 Planning system effective 3.2
OP6 Effective systems to share knowledge with... 3.1
PR7 Conflict resolution processes effective 3.1
IN5 Socio-economic information available 3.1
IN4 Biophysical information available 3.1
PL6 Stakeholders effectively engaged in planning 3.1
PL4 Objectives measurable 3.1
OP5 Knowledge management effective in agencies 3.1
OP2 Timeframes met 3.1
PR13 Standards identified 3.1
PR3 Sound governance 3.1
PR10 Socio-economic information applied 3.0
PR5 Training appropriate 3.0
PL7 Sufficient policy 3.0
PR14 Targets for benchmarking 2.9
PR4 Performance monitoring effective 2.9
PL5 Monitoring appropriate & adequate 2.9
CO2 Condition & trend understood 2.9
PR12 Heritage information applied 2.9
OC6 Use sociaally sustainable 2.9
OC5 Use economically sustainable 2.9
IN1 Adequate resources 2.9
OC4 Use environmentally sustainable 2.8
OC1 Outcomes being achieved 2.8
OP3 Results achieved objectives 2.8
CO3 Impacts understood 2.8
PR11 Indigenous information applied 2.7
IN3 Right skills 2.7
IN7 Heritage information available 2.7
OC3 Threats reduced 2.6
PR8 Impacts appropriately considered 2.6
IN6 Indigenous information available 2.6
IN2 Adequate staff 2.6
OC2 Values protected 2.5
Indicators
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
Mean rating across all topics

Figure 23: Ranking of indicator mean ratings

The weakest indicator results were in relation to some Outcomes, Inputs and Processes. In particular, the assessment results indicated weaknesses in Outcomes related to protection of Reef values (OC2) and the reduction of threats to these values (OC3). In general, many threats to the Reef were being addressed, including: control of crown-of-thorns starfish, national park island pests, fire and anchor damage; developing species management and recovery plans; integration of research into planning and management; an expansion of Reef protected areas; and extensive on-ground work. However, the 2022 Joint WHC/IUCN mission noted that the Reef's OUV is significantly impacted by climate change factors and that the Reef's resilience to recover from climate change impacts is substantially compromised. Climate change remains the most significant threat to the Reef.

Several Inputs indicators performed relatively poorly, including: human resourcing (IN2) and the availability of the right skill sets (IN3); and the availability of Indigenous heritage (IN6) and historic heritage (IN7) information. Process indicators with poor mean ratings included: the appropriate consideration, in decision making, of cumulative and consequential impacts (PR8) (which is related to the low level of understanding by managers of impacts, CO3), and the application of the best available Indigenous heritage information (PR11). Also at the low end of performance was the achievement of planning objectives (OP3), the level of achievement, by managing agencies, in effectively addressing and moving towards the attainment of the desired outcomes for the Reef (OC1) and the achievement of environmental (OC4) and economic sustainability for the Region (OC5).

Governance (PR3) was a key issue of concern for many workshop participants, interviewees and researchers. Reef Outcomes were declining across several topics and this may indicate a level of 'drift' in the governance system (Morrison 2017) (refer box right). Issues of concern related to centralised and siloed decision making, long time frames from policy changes to delivery and implementation, declining system flexibility and alignment with ancillary organisations and policies, including international policy, especially in relation to climate change (Australian Academy of Science 2023:17).

Reef governance

"Governance requires a more interventionist approach to achieve outcomes for the Reef. This represents a paradigm shift that is currently underway, but not yet achieved…"

Interviewee 2023.

As expressed by the Australian Academy of Science (2023:7):

> 'Currently, there is no single known intervention, operating holistically and at scale, for a sustainable and resilient GBR. There are, however, opportunities to align research and management efforts to create a whole that is greater than the sum of its parts.'

Overall, the results of the assessment suggest a good level of existing knowledge and broad partnerships but with improvements required in the effective delivery of outcomes together with improvements for governances and decision-making processes.

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Appendices

Appendix 1: Grading statements

Table 30: Grading statements for elements in the management cycle

Assessment criteria	Grade	Grading statements
Context – understanding of values, threats, regional/global influences and stakeholders	Effective	Understanding of values, threats, regional/global influences and stakeholders is good for most thematic areas
	Mostly effective	Understanding is generally good but there is some variability across themes or components of the assessment criteria
	Partially effective	Understanding of values, threats, regional and global influences and relevant stakeholders is only fair for most thematic areas
	Ineffective	Understanding of values, threats, regional and global influences and relevant stakeholders is poor for most thematic areas
Planning – adequacy of planning systems and practices	Effective	Planning systems that engage stakeholders are effective for all/most significant issues. There is adequate policy to manage issues that is consistent across jurisdiction.
	Mostly effective	Planning systems that engage stakeholders are effective for many significant issues. Policy and consistency across jurisdictions are generally OK.
	Partially effective	Planning systems that engage stakeholders are deficient for a number of significant issues. Policy and consistency across jurisdictions are a problem for some issues
	Ineffective	Planning systems that engage stakeholders are deficient for many significant issues. Policy and consistency across jurisdictions are a problem for some issues.
Inputs – adequacy of financial, staffing and information resources	Effective	Financial and staffing resources are largely adequate to meet management needs, biophysical, socio-economic, and traditional (Indigenous) knowledge is available to inform management decision making
	Mostly effective	Financial and staffing resources are mostly adequate to meet management needs, biophysical, socio-economic, and traditional (Indigenous) knowledge is mostly available to inform

		management decision making although there may be deficiencies in some areas
	Partially effective	Financial and staffing resources are unable to meet management needs in some important thematic areas, biophysical, socio-economic, and traditional (Indigenous) knowledge is variably available to inform management decision making and there are significant deficiencies in some areas
	Ineffective	Financial and staffing resources are unable to meet management needs in many thematic areas, biophysical, socio-economic, and traditional (Indigenous) knowledge to support decision making is frequently deficient in some areas
Processes – adequacy of management systems and processes	Effective	The majority of management processes are appropriate and effective in addressing the management of the various thematic areas
	Mostly effective	The majority of management processes are appropriate and effective in addressing management although there are deficiencies in relation to a small number of thematic areas or processes
	Partially effective	A minority of critical management processes show significant deficiencies across most thematic areas
	Ineffective	A majority of management processes show significant deficiencies across most thematic areas
Outputs – delivery of products and services and implementation of plans	Effective	Management programs are mostly progressing in accordance with planned programs and are achieving their desired objectives. The agency and community knowledge base is improving.
	Mostly effective	Management programs are mostly progressing in accordance with planned programs and are achieving their desired objectives but there are problems in some thematic areas. The agency and community knowledge base is generally improving.
	Partially effective	Many management programs are not progressing in accordance with planned programs (significant delays or incomplete actions) or actions undertaken are not achieving objectives. The knowledge base is only growing slowly.

	Ineffective	Most management programs are not progressing in accordance with planned programs (significant delays or incomplete actions) or actions undertaken are not achieving objectives. The knowledge base is only growing slowly.
Outcomes – results of management actions in achieving goals, maintaining values	Effective	Desired outcomes are mostly being achieved, values protected and threats abated for most thematic areas, use of the Great Barrier Reef is largely environmentally and economically sustainable with good community engagement, understanding and enjoyment.
	Mostly effective	Desired outcomes are being achieved in many thematic areas, values protected and threats abated for many thematic areas, use of the Great Barrier Reef is largely environmentally and economically sustainable with good community engagement, understanding and enjoyment.
	Partially effective	Desired outcomes, protection of values and abatement of threats are not being achieved at desirable levels in some critical thematic areas with likely eventual flow-on effects across the Great Barrier Reef. Critical aspects of the use of the Great Barrier Reef are not environmentally or economically sustainable.
	Ineffective	Desired outcomes, protection of values and abatement of threats are not being achieved at desirable levels in most thematic areas including critical areas with likely eventual flow-on effects across the Great Barrier Reef. Critical aspects of the use of the Great Barrier Reef are not environmentally or economically sustainable.

Appendix 2: Summary of Great Barrier Reef Region values and threats

Table 31: Key values of the Great Barrier Reef

No.	Values	Description	Source
1	Superlative natural beauty (criterion vii)	Mosaic patterns of reefs, islands and coral cays; vistas of green vegetated islands, spectacular sandy beaches, azure waters, vast mangrove forests, framed by rugged vegetated mountains with lush rainforest gullies. Underwater - world's largest network of living coral reefs (hard and soft corals, thousands of species of reef fish).	UNESCO natural criteria for WHA listing World Heritage Committee (2012); State Party of Australia (1981); IUCN (1981); Lucas et al. (1997).
2	Natural phenomena (outstanding geological, geomorphic or physiographic features) (Criterion viii)	World's largest coral reef ecosystem demonstrating reef development; processes of geological and geomorphological evolution are well represented -linking 600 continental islands with >300 coral cays and about 3,000 reefs	UNESCO natural criteria for WHA listing World Heritage Committee (2012); State Party of Australia (1981); IUCN (1981); Lucas et al. (1997)
3	Outstanding ecological and biological processes (Criterion ix)	Diversity of reef and island morphologies reflects ongoing geomorphic, oceanographic and environmental processes. Complex cross-shelf, longshore and vertical connectivity is influenced by dynamic oceanic currents and ongoing ecological processes (e.g. upwellings, larval dispersal and migration). The unique diversity reflects the maturity of an ecosystem that has evolved over millennia.	UNESCO natural criteria for WHA listing World Heritage Committee (2012); State Party of Australia (1981); IUCN (1981); Lucas et al. (1997)
4	Most important and significant habitats for biological diversity (Criterion vii)	Breeding colonies of seabirds and nesting marine turtles (world's largest green turtle breeding areas), annual coral spawning, migrating whales, spawning aggregations of many fish species.	and important habitats for conservation of biodiversity World Heritage Committee (2012); State Party of Australia (1981); IUCN (1981); Lucas et al. (1997)
5	Contains major stages of the earth's evolutionary history (Criterion viii)	Landscapes moulded over 15,000 years by changing climates, sea levels and the erosive power of wind and water. The area has been exposed and flooded by at least four glacial and interglacial cycles and over the past 18,000 years reefs have grown on the continental shelf.	UNESCO natural criteria for WHA listing World Heritage Committee (2012); State Party of Australia (1981);

No.	Values	Description	Source
			IUCN (1981); Lucas et al. (1997)
6	Outstanding diversity of plants including mangroves and seagrass (Criterion x)	Continental islands support thousands of plant species; coral cays have distinct flora; 37 species of mangroves (54% of world diversity), 15 seagrass species (23% world diversity), with three new species recorded since 2016; deep-water seagrass species one of which is endemic (*Halophila tricostata*); >800 species of benthic algae; large fleshy macroalgae.	World Heritage Committee (2012); State Party of Australia (1981); IUCN (1981); Lucas et al. (1997)
7	Outstanding diversity of invertebrate species, including hard and soft corals (Criterion x)	Over 1200 species of hard and soft corals; 32 invertebrate phyla consisting of >12,000 described species (GBRMPA 2019); >300 species of tunicates, 332 species of bryozoans, 630 species of echinoderms, >6000 species of molluscs; >2,500 sponges, high diversity of flatworms, crustaceans and polychaetes.	GBRMPA (2019)
8	Outstanding diversity of fish, including threatened species (Criterion x)	>1600 species of fish in >130 families; reef associated fish - 1468; 136 species of chondrichthyan fishes - 82 of which are sharks - global hotspot of shark species richness, functional diversity and endemicity.	GBRMPA (2019)
9	Threatened reptiles (Criterion x)	Six of the world's seven species of marine turtle - important nesting and feeding groups for loggerhead, green, hawksbill and flatback turtles, including one of the last significant breeding populations of the hawksbill turtle in the world, largest green turtle breeding population in the world and 70% of the S Pacific population of loggerhead turtle. 16 species of true sea snakes - 14 species maintain permanent breeding populations.	World Heritage Committee (2012); State Party of Australia (1981); IUCN (1981); Lucas et al. (1997); GBRMP (2012); GBRMPA (2019)
10	Bird diversity (Criterion x)	Breeding populations of 20 seabird species. Raine Island - only known breeding site in Australia for critically endangered herald petrel. About 41 (80%) of Australia's shorebird species inhabit GBR Region and adjacent coastline.	GBRMPA (2019)

No.	Values	Description	Source
11	Marine mammals (threatened) (Criterion x)	World's largest populations of dugong; refuge for cetaceans (15 species whales, 18 species dolphins - including Australian snubfin dolphin and Australian humpback dolphin); regionally important habitat for dwarf minke whale; important breeding ground for humpback whale. Longman's beaked whale, one of rarest whales in the world, recorded in GBR. First sighting of a rare Omura's whale in 2016.	GBRMPA (2019)
12	Blue carbon storage	The Reef's oceans and coastal ecosystems (mangroves, tidal marshes and sea grass meadows) play an important role in removing carbon dioxide from the atmosphere.	Great Barrier Reef Foundation (2021)
13	Economic and social	The Reef supports over 64,000 jobs and contributes around $6.4 billion to the Australian economy each year. It has an estimated total economic, social and icon asset value of $56 billion	Great Barrier Reef Foundation (2023)
14	Traditional Owner cultural heritage	Aboriginal and Torres Strait Islander peoples maintain connection to their land and Sea Country. Over 70 Traditional Owner groups have authority for Sea Country in the management of the Reef	GBRMPA (2023)
15	Reef dependent commercial uses (tourism, fishing) and non-commercial (recreation, research)	Many direct use values are associated with the Reef including: tourism and recreation; shipping (over 7000 vessels pass through the Reef; commercial fishing, aquaculture and seafood production; research, education and monitoring; bio-prospecting by pharmaceutical and other industries; defence training; collection.	Rolfe & De Valck (2021)

Table 32: Key threats to the Great Barrier Reef

Threat	Description
Acid sulphate soils	Exposure of acid sulphate soils
Altered ocean currents	Climate change induced altered ocean currents
Altered weather patterns	Climate change effects on weather patterns (e.g. cyclones, wind, rainfall, air temperature), includes both chronic and acute aspects
Artificial light	Artificial lighting, including from resorts, industrial infrastructure, mainland beaches and coastlines, vessels and ships
Atmospheric pollution	Pollution of the atmosphere related to domestic, industrial and business activities in both the Region and adjacent areas. The contribution of gases, such as carbon dioxide to climate change is not included as this is encompassed under threats, such as sea-temperature increase and ocean acidification
Barriers to flow	Artificial barriers to riverine and estuarine flow (e.g. dams, weirs, breakwalls, gates, roads and linear infrastructure)
Behaviours impacting heritage values	Disturbance of, or damage to, the values of intangible Indigenous and historic heritage site through inappropriate presence of people. Examples include: visitation to locations considered dangerous or sensitive in Indigenous culture; access by people of culturally inappropriate gender or seniority; overly high visitor traffic levels at Indigenous sites open to visitation (e.g. creating too much noise); and disrespectful behaviour or activities at Indigenous and historic heritage sites (e.g. burial areas)
Damage to reef structure	Physical damage to reef benthos (reef structure) through actions, such as snorkelling, diving, anchoring and fishing, but not vessel grounding (assessed separately)
Damage to sea floor	Physical damage to non-reef benthos (seafloor) through actions, such as trawling and anchoring
Discarded catch	Immediate or post-release effects (such as death, injury, reduced reproductive success) on discarded species (non-retained catch) as a result

Threat	Description
	of interactions with fishing gear. Does not include species of conservation concern (assessed separately)
Disposal of dredge material	Disposal and resuspension of dredge material
Dredging	Dredging of the seafloor
Exotic species	Introduced exotic species from aquaculture operations, hull fouling, ballast release, biocontrol, translocation of other marine species, and release of aquarium specimens to the Region, plus the introduction of weeds, pests and feral animals to islands. Includes both new introductions and outbreaks of previously introduced exotic species. Does not include considerations covered under the 'genetic modification' threat
Extraction from spawning aggregations	Retained take (extraction) of fish from unidentified or unprotected spawning aggregations
Extraction of herbivores	Retained take (extraction) of herbivores (e.g. some fishes, molluscs, dugongs, green turtles) through commercial and non-commercial uses
Extraction of particle feeders	Retained take (extraction) of particle feeders (filter feeders, detritivores) through commercial and non-commercial uses
Foundational capacity gaps	Lack of capacity of Traditional Owners to exercise their Indigenous heritage (cultural) rights by accessing and managing their land and sea country. Relates to capacity of Traditional Owners and their groups, and is not about loss of knowledge or about access restrictions or conflicting use. Potential impacts include those on the enduring connection Traditional Owners have with their land and sea country and on the maintenance of culture and the transfer of knowledge to younger generations (e.g. reduced opportunities to conduct knowledge transfer)
Fragmentation of cultural knowledge	Loss and fragmentation of knowledge of tangible and intangible heritage values (e.g. as Indigenous Elders age and young people leave their traditional land and sea country, or availability of specialist skills in historic heritage preservation declines)

Threat	Description
Genetic modification	Genetic modification of native species, manipulation of natural genotype frequencies (e.g. through translocations or intentional/unintentional releases of specimens), and products of synthetic biology
Grounding – large vessel	Grounding of large vessels (>50m), including physical damage and the dislodging of antifoulants
Grounding – small vessel	Grounding of small vessels
Illegal activities - other	Illegal activities, such as entering a protected or restricted area, illegal release of industrial discharge, shipping outside of designated shipping areas, and removal or damage of artefacts (e.g.) ship anchors, stone implements), scar trees, middens, fish traps, burial grounds, stone arrangements, art work
Illegal fishing and poaching	Illegal fishing, collecting and poaching
Incidental catch of species of conservation concern	Immediate or post-release effects (such as death, injury, reduced reproductive success) of interactions of species of conservation concern with fishing gear
Incompatible uses	Activities undertaken within the Region that disturb or exclude other users, such as recreational use in areas important for cultural activities
Marine debris	Manufactured material discarded, disposed of or abandoned in the marine and coastal environment (including discarded fishing gear, plastics, and abandoned or damaged equipment and infrastructure)
Modifying coastal habitats	Clearing or modifying wetlands, mangroves and other coastal ecosystems in the Catchment or inshore areas or on islands
Noise pollution	Noise from human activities, both below and above water
Nutrient run-off	Nutrients from diffuse land-based run-off
Ocean acidification	Decreasing pH of the Region's waters

Threat	Description
Outbreak of crown-of-thrown star fish	Outbreak of crown-of-thrown starfish
Outbreak of disease	Outbreak of disease, both naturally occurring and introduced
Outbreak of other species	Outbreak or bloom of naturally occurring species other than crown-of-thorns starfish
Pesticide run-off	Pesticides (including herbicides, insecticides, fungicides) from diffuse land-based run-off
Sea-level rise	Rising sea levels
Sea-temperature increase	Increasing extreme and average sea temperatures
Sediment run-off	Sediments from diffuse land-based run-off
Spill – large chemical	Chemical spill that triggers a national or regional response or is more than 10 tonnes (includes substances, such as sugar)
Spill – large oil	Oil spill that triggers a national or regional response or is more than 10 tonnes (includes all petroleum products)
Spill – small	Chemical or oil spill that does not trigger a national or regional response and is less than 10 tonnes. Includes materials (liquids and solids) used in attempts to restore or protect marine habitats but not materials considered under 'Marine debris'
Terrestrial discharge	Terrestrial point-source discharge (including within ports), such as polluted water, sewage, wastewater and stormwater
Vessel strike	Death or injury to wildlife as a result of being struck by a vessel of any type or size
Vessel wase discharge	Waste discharge from a vessel (including sewage)

Threat	Description
Wildlife disturbance	Disturbance to wildlife (including from snorkelling, diving, fish feeding, walking on islands and beaches, and the presence of boats and drones); not including noise pollution

Source: Great Barrier Reef Outlook Report 2019

Appendix 3 Matrix of results for each topic

Table 33: Indicator ratings and element grades and trends for topics in the 2024 management effectiveness assessment

	Topics	Biodiversity	Climate Change	Coastal Development	Commercial marine tourism	Community benefits	Defence	Fishing	Heritage	Land-based Run-off	Ports	Recreation	Research	Shipping	Traditional Use	Mean	Standard Deviation
CO1	Values	4	3	2	4	4	4	3	2	4	4	3	4	3	3	3.36	0.74
CO2	Condition and trend	3	3	2	3	2	3	2	2	4	3	3	4	4	3	2.93	0.73
CO3	Impacts	3	2	2	3	2	3	2	3	3	3	4	3	3	3	2.79	0.58
CO4	National and international influences	4	2	3	4	3	4	3	4	4	4	3	4	4	4	3.57	0.65
CO5	Stakeholders	4	3	3	4	3	4	4	3	4	4	4	4	4	4	3.71	0.47
CO	**Element total**	18	13	12	18	14	18	14	14	19	18	17	19	18	17		
CO	**Overall grade (/40)**	36	26	24	36	28	36	28	28	38	36	34	38	36	34	33	
CO	**Content grade**	E	PE	PE	E	ME	E	ME	ME	E	E	ME	E	E	ME	ME	
CO	**Trend**	↑	↓	↓	↔	↘	↔	↘	↘	↔	↔	↓	↔	↔	↓	↓	
PL1	Planning system	3	3	3	3	3	4	4	3	4	3	3	3	3	3	3.21	0.43
PL2	PS addresses factors influencing	3	2	2	3	3	3	4	3	4	4	3	4	4	3	3.21	0.70
PL3	Actions clear	3	3	3	3	3	3	3	3	4	4	3	4	3	4	3.29	0.47
PL4	Objectives measurable	3	3	3	3	3	4	3	3	3	3	2	3	4	4	3.14	0.53
PL5	Monitoring	3	2	3	4	3	3	3	2	4	3	3	3	3	2	2.93	0.62
PL6	Stakeholders engaged	3	3	2	3	4	3	3	3	3	4	3	3	4	3	3.14	0.53

	Topics	Biodiversity	Climate Change	Coastal Development	Commercial marine tourism	Community benefits	Defence	Fishing	Heritage	Land-based Run-off	Ports	Recreation	Research	Shipping	Traditional Use	Mean	Standard Deviation
PL7	Sufficient policy	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3.00	0.00
PL8	Consistency jurisdictions	3	3	2	3	3	4	3	3	4	3	3	4	4	4	3.29	0.61
PL9	Certainty	3	2	3	3	3	4	4	3	3	4	3	4	4	4	3.36	0.63
PL	**Element total**	27	24	24	28	28	31	30	26	32	31	26	31	32	30		
PL	**Overall grade (/40)**	30	27	27	31	31	34	33	29	36	34	29	34	36	33	32	
PL	**Planning grade**	ME	ME	ME	ME	ME	ME	ME	ME	E	ME	ME	ME	E	ME	ME	
PL	**Trend**	↘	↑	↘	↘	↔	↓	↔	↔	↘	↓	↘	↓	↔	↓	↔	
IN1	Adequate finances	3	4	3	2	3	4	3	2	3	3	3	4	1	2	2.86	0.86
IN2	Adequate staff	3	3	2	2	2	3	3	3	2	3	2	3	2	3	2.57	0.51
IN3	Right skills	3	2	2	2	2	3	3	3	3	3	3	3	3	3	2.71	0.47
IN4	Biophysical information	3	3	3	3	3	3	3	3	3	3	4	3	4	3	3.14	0.36
IN5	Socioeconomic information	3	3	3	3	3	3	3	2	3	4	3	4	4	3	3.14	0.53
IN6	Indigenous information	2	2	2	3	2	3	2	3	3	3	3	2	3	3	2.57	0.51
IN7	Heritage information	NA	1	2	3	2	4	2	2	NA	4	2	3	4	3	2.67	0.98
IN8	Volunteer inputs	4	3	3	4	3	4	3	3	4	3	4	4	4	4	3.57	0.51
IN	**Element total**	21	21	20	22	20	27	22	21	21	26	24	26	25	24		
IN	**Overall grade (/40)**	30	26	25	28	25	34	28	26	30	33	30	33	31	30	29	
IN	**Inputs grade**	ME	PE	PE	ME	PE	ME	ME	PE	ME	ME	ME	ME	ME	ME	ME	
IN	**Trend**	↔	↗	↓	↘	↓	↓	↔	↔	↓	↔	↗	↓	↔	↔	↔	

	Topics	Biodiversity	Climate Change	Coastal Development	Commercial marine tourism	Community benefits	Defence	Fishing	Heritage	Land-based Run-off	Ports	Recreation	Research	Shipping	Traditional Use	Mean	Standard Deviation
PR1	Stakeholders engaged	3	3	3	3	3	4	3	3	3	4	3	4	4	4	3.36	0.50
PR2	Local community engaged	3	3	3	3	4	3	3	3	3	4	3	3	4	4	3.29	0.47
PR3	Sound governance	3	2	2	3	4	4	2	3	3	4	3	3	4	3	3.07	0.73
PR4	Performance monitoring	4	2	3	3	3	3	3	3	4	3	2	2	3	3	2.93	0.62
PR5	Training	3	3	2	3	3	4	3	3	3	3	3	3	3	3	3.00	0.39
PR6	Consistent implementation	3	2	2	3	3	4	3	3	4	3	4	4	4	3	3.21	0.70
PR7	Conflict resolution	3	3	3	3	3	4	3	2	3	3	3	4	4	3	3.14	0.53
PR8	Impacts considered	2	2	2	3	2	4	2	2	3	3	3	3	3	3	2.64	0.63
PR9	Biophysical info applied	4	3	3	4	2	4	3	3	4	3	4	4	3	3	3.36	0.63
PR10	Socioeconomic info applied	3	2	3	4	2	4	3	2	4	3	2	3	4	3	3.00	0.78
PR11	Indigenous info applied	2	2	2	3	2	4	2	3	3	3	3	3	3	3	2.71	0.61
PR12	Heritage info applied	NA	2	2	4	2	4	3	3	NA	3	3	3	3	3	2.92	0.67
PR13	Standards	3	3	2	3	3	4	3	2	3	3	3	4	4	3	3.07	0.62
PR14	Targets for benchmarking	4	3	3	3	3	2	3	3	4	3	1	3	3	3	2.93	0.73
PR	**Element total**	40	35	35	45	39	52	39	38	44	45	40	46	49	44		
PR	**Overall grade (/40)**	31	25	25	32	28	37	28	27	34	32	29	33	35	31	30	
PR	**Process grade**	ME	PE	PE	ME	ME	E	ME	ME	ME	ME	ME	ME	E	ME	ME	
	Trend	↔	↗	↓	↔	↘	↔	↔	↔	↓	↔	↔	↓	↔	↔	↔	
OP1	Work program progress	3	3	3	3	3	4	3	3	3	3	3	4	4	3	3.21	0.43

	Topics	Biodiversity	Climate Change	Coastal Development	Commercial marine tourism	Community benefits	Defence	Fishing	Heritage	Land-based Run-off	Ports	Recreation	Research	Shipping	Traditional Use	Mean	Standard Deviation
OP2	Timeframes met	3	3	3	3	3	4	3	3	3	3	2	3	4	3	3.07	0.47
OP3	Results achieved objectives	2	2	2	3	3	4	2	3	2	3	3	3	3	4	2.79	0.70
OP4	Products delivered	3	3	3	4	3	4	3	3	3	4	2	4	4	3	3.29	0.61
OP5	Agency knowledge management systems	3	2	3	4	3	4	3	3	4	2	3	3	3	3	3.07	0.62
OP6	Community knowledge management	4	2	3	4	3	4	3	3	4	3	3	3	2	3	3.14	0.66
OP	**Element total**	18	15	17	21	18	24	17	18	19	18	16	20	20	19		
OP	**Overall grade (/40)**	30	25	28	35	30	40	28	30	32	30	27	33	33	32	31	
OP	**Outputs grade**	ME	PE	ME	E	ME	E	ME	ME	ME	ME	ME	ME	ME	ME	ME	
OP	**Trend**	↔	↑	↔	↔	↔	↔	↔	↔	↓	↔	↑	↓	↔	↓	↔	
OC1	Outcomes being achieved	2	1	2	3	3	4	2	3	3	3	2	4	4	3	2.79	0.89
OC2	Values protected	1	1	2	3	3	3	2	2	2	3	3	4	3	3	2.50	0.85
OC3	Threats reduced	1	1	2	3	3	3	2	2	3	4	3	4	3	3	2.64	0.93
OC4	Environmentally sustainable	1	1	2	3	3	4	2	3	2	4	3	4	4	3	2.79	1.05
OC5	Economically sustainable	1	1	2	3	4	4	2	3	2	4	3	4	4	3	2.86	1.10
OC6	Socially sustainable	2	1	2	3	4	4	3	2	2	3	4	3	4	3	2.86	0.95
OC7	Effective partnerships	4	3	3	4	3	4	3	3	3	4	3	3	4	4	3.43	0.51
OC	**Element total**	12	9	15	22	23	26	16	18	17	25	21	26	26	22		
OC	**Overall grade (/40)**	17	13	21	31	33	37	23	26	24	36	30	37	37	31	28	
OC	**Outcomes grade**	PE	I	PE	ME	ME	E	PE	PE	PE	E	ME	E	E	ME	ME	

	Topics	Biodiversity	Climate Change	Coastal Development	Commercial marine tourism	Community benefits	Defence	Fishing	Heritage	Land-based Run-off	Ports	Recreation	Research	Shipping	Traditional Use	Mean	Standard Deviation
OC	Trend	↘	↗	↘	↓	↔	↔	↘	↓	↔	↔	↔	↔	↔	↓	↔	

* *Note:* The indicator rating for Fishing overall was based on the rating for commercial and recreational fishing and the indicator rating for Heritage overall was based on the ratings for Indigenous and historic heritage. The ratings for each indicator in these 'sub-topics' are presented in the evidence tables (Appendix 5).

Appendix 4 Program approaches and management tools

Table 34: Program approaches and management tools

Management tool	Purpose	Current components and activities
Reef 2050 Plan 2021-2025 (CoA, 2021)	This revised Reef 2050 Plan is the result of the Plan's first five-yearly comprehensive review. It was updated to address the findings of the 2019 Great Barrier Reef Outlook Report and ensure it contains the right priorities and actions to support the health and resilience of the Reef.	Reef 2050 Long Term Sustainability Plan 2021-2025 (CoA, 2021) Identifies climate change as "the most pervasive and persistent risk to coral reefs world-wide" Adopts the Blueprint for Resilience.
Great Barrier Reef Outlook Report (2019)	Fulfills requirements of S54 of the Great Barrier Reef Marine Park Act 1975. Its spatial focus is Reef-wide, including the marine environment and related catchment.	Achieving outcomes on the ground continues to be difficult for complex and spatially broad topics (e.g. climate change, land-based run-off, and biodiversity). The integrity of World Heritage Area Outstanding Universal Value is being increasingly challenged. Identified that the overall outlook for the Reef is very poor (Walpole & Hadwen 2022).
Great Barrier Reef Intergovernmental Agreement 2015	Provides a framework for facilitating cooperative management of the complex landscapes of the Reef.	Delivering a joint program of field management, joint action to halt and reverse the decline in water quality and action to improve the resilience of the Reef to climate change. Providing advice on projects assessed under the EPBC Act 1999 Coordinating application of the Qld Marine Parks Act 2004 and Regulations, e.g. joint Marine Park permits
Acts and Regulations	Legislation is relevant at Commonwealth and State levels	• The *Great Barrier Reef Marine Park Act 1975* (Cth) and Regulations govern the protection and management of the Great Barrier Reef Marine Park (objective – '*long term protection and conservation of the environment, biodiversity and heritage values*' of the GBR Region). They provide for the

Management tool	Purpose	Current components and activities
		Zoning Plan and plans of management, and govern permitting decisions. The Act established the Reef Authority as a statutory independent agency. • *Marine Parks Act 2004 (Qld)* and Regulations align with Commonwealth legislation and enable complementary management arrangements. • *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (puts into law Australia's obligations under the World Heritage Convention) and the Environmental Protection Act 1994 (Qld). Strengthened the institutional protection of the Reef through regulation of matters of Australian and international significance; and gave environmental NGOs status to act on behalf of affected communities. • *Native Title Act 1993* (Cth); *Historic Shipwrecks Act 1976* (Cth); *Environment Protection (Sea Dumping) Act 1981* (Cth); *Sea Installations Act 1987* (Cth); *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth), *Australian Maritime Safety Authority Act 1990* (Cth) • *Environmental Protection Act 1994* (Qld), *Vegetation Management Act 1999* (Qld); *Water Act 2000* (Qld); *Wet Tropics World Heritage Protection and Management Act 1983* (Qld); *Local Government Act 2009* (Qld); *Coastal Protection and Management Act 1995* (Qld); *Economic Development Act 2012* (Qld); *Nature Conservation Act 1992* (Qld); *Planning act 2016* (Qld), *State Development and Public Works Organisation Act 1971* (Qld); *Transport Infrastructure Act 1994* (Qld); *Aboriginal Cultural Heritage Act 2003* (Qld); *Torres Strait Islander Cultural*

Management tool	Purpose	Current components and activities
		Heritage Act 2003 (Qld); *Fisheries Act 1994* (Qld); *Maritime Safety Queensland Act 2002* (Qld); *Transport Operations (Marine Pollution) Act 1995* (Qld), *Transport Operations (Marine Safety) Act 1994* (Qld).
Zoning Plan	Provides spatial control of use and access within the Great Barrier Reef Marine Park. Establishes the framework for extractive use and the need for permits for some uses, such as tourism, infrastructure and research.	• Great Barrier Reef Marine Park Zoning Plan 2003 • Zoning plans are developed under Part 5 Division 2 of the Great Barrier Reef Marine Park Act 1975. Complementary arrangements are in place in adjacent areas under Queensland jurisdiction (Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004).
Plans of management	Set out specific arrangements for activities, areas, species or ecological communities. They complement zoning and permitting arrangements. Some components are legally binding. Plans of management are developed under Part VB of the *Great Barrier Reef Marine Park Act 1975*. There is the capacity for the Reef Authority to enter into agreements or arrangements for management of an area, species or ecological community with a community group having a special interest in an area, including some form of native title.	• Whitsundays POM (2020) (seabirds such as black-naped and bridled terns protected by extending the time vessels and aircraft cannot access nesting areas during key nesting periods) (under review) • Cairns Area POM 2008 (revised version currently being considered by the State) • Hinchinbrook POM 2004 • Shoalwater Bay (Dugong) 1997.
Permits and licences (including environmental impact assessment and measures to avoid, mitigate and offset impacts)	Facilitate opportunities for sustainable use of the Marine Park. Permits are issued mainly for tourism, research, harvest fisheries, dredging and infrastructure (for example jetties and marinas) and include detailed risk-based environmental impact assessment (IUCN 2020). Matched in adjacent areas of Queensland jurisdiction, generally providing a joint permit. Fisheries licences are issued	Permits granted under Part 2A of the Great Barrier Reef Marine Park Regulations 1983 and Queensland Marine Parks Regulations 2006.

Management tool	Purpose	Current components and activities
	and managed by the Queensland Government.	
Traditional Owner agreements	Traditional Use of Marine Resources Agreements (TUMRAs) are formal agreements (or community-based plans) describing how Traditional Owner groups work with Australian and Queensland governments to manage traditional activities in Sea Country. They are made in accordance with Part 2B of the Great Barrier Reef Regulations. They do not affect the operation of section 211 of the Native Title Act 1993 and are not intended to extinguish Native Title rights and interests. They are a voluntary statutory agreement. Indigenous Land Use Agreements (ILUAs) are between one or more native title groups and other people or parties about the use and management of land and waters with Australian and Queensland governments to manage traditional activities in Sea Country. They are made in accordance with Part 2B of the Regulations. They do not affect the operation of section 211 of the *Native Title Act 1993* and are not intended to extinguish native title rights and interests.	• 10 accredited TUMRAs support 18 Traditional Owner clan groups, covering approximately 43 per cent of the coastline. An Indigenous Land Use Agreement (Kuuku Ya'u People) brings the total approximate coverage of agreements to 46 per cent. • TUMRAs include Wuthathi; Lama Lama; Yuku Baja-Muliku; Yirrganydji; Gunggandji; Mandubarra; Girringun; Darumbal; Woppaburra; Port Curtis Coral Coast.
Compliance/ Law enforcement	Activities that encourage adherence with legal requirements, both through education and enforcement. Several State and Federal agencies work with the Reef Authority to enhance compliance (e.g. Qld DAF, Dept of Defence - border protection, quarantine and fisheries enforcement etc). Support for Traditional Owner groups with ranger training.	• Joint Field Management Program (between the Reef Authority and QPWS) • Queensland Boating and Fisheries Patrol • Eyes and Ears Incident Reporting program
Site infrastructure	On-ground infrastructure is installed to manage use and protect the values	• No-anchoring areas

Management tool	Purpose	Current components and activities
	of individual sites. Implemented and maintained by the Reef Authority and the Queensland Government through the Reef Joint Field Management Program.	• Public moorings • Reef protection markers • Signs • Transit lanes
Fees and charges	Three main fees and charges apply in the Marine Park: The cost of assessing an application for a permit for commercial activities is partly recovered through payment of a permit application assessment fee. The environmental management charge applies to some commercial activities operating under a permit issued by the Reef Authority. The revenue is applied to Marine Park management. Bonds (usually as a bank guarantee) may be held by the Reef Authority to cover the risks associated with a proposed activity.	Permit application assessment fees are charged for activities of a commercial nature including tourist programs; vessel chartering; construction or maintenance of a facility; operation of a land-based sewage outfall; and the construction and operation of a mooring. Most tourism visitors to the Marine Park pay the environmental management charge. For operations involving the hire of equipment, installation and operation of tourist facilities, and sewage outfalls, quarterly charges are paid by the operator. Bonds are generally secured as part of a deed of agreement between the permittee and the GBRMPA.
Policy (including strategies, policies, position statements, site management arrangements and guidelines)	Developed by the Reef Authority, under section 7(4) *of the Great Barrier Reef Marine Park Act 1975, detailing the way in which the Marine Park Authority intends to manage the Marine Park or perform its other functions*. *Policy documents are not legislative instruments. They are specific arrangements that guide decision makers and the public*.	Selected strategies, policies, site management arrangements, position statements and guidelines. Strategies • Reef 2050 Plan – Implementation Strategy • The 25-Year Strategic Plan for the Great Barrier Reef World Heritage Area • Conserving Nature -a Biodiversity Conservation Strategy for Queensland (2022) • Reef Authority Communication Strategy 2021-2024 (2021). • Reef Authority Roadmap to net zero by 2030 (2022) • The greenhouse gas emissions reduction strategy will set new targets with enabling initiatives that move the Reef Authority towards net zero

Management tool	Purpose	Current components and activities
		emissions in their operations by 2030 (for Scope 1* and 2^) including the development of a plan for net zero for Scope 3# emissions. • Queensland Protected Area Strategy 2020-2030 • Queensland Marine Turtle Conservation Strategy (2021-2031). • Pest control strategies e.g. Crown-of-thorns starfish Strategic Management Framework • Tourism management action strategy (2021) • Queensland Sustainable Fisheries Strategy (2017-2027) • Wetlands in the Reef Catchments. Management Strategy 2016-21 (update expected 2023) • Great Barrier Reef Climate Change Adaptation Strategy and Action Plan 2012–2017 • Great Barrier Reef Heritage Strategy • Great Barrier Reef Blueprint Policies • Great Barrier Reef Interventions Policy (2020) • Dredging and Dredge Spoil Material Disposal Policy (2019) • Cruise Shipping Policy for the Great Barrier Reef Marine Park (2019 • Cumulative impact management policy (2018) • Net benefit policy (2018) • Managing Tourism Permissions to Operate in the Marine Park • Policy on Managing Bareboat Operations in the GBR Marine Park • Marine Tourism Contingency Plan • Dredging coral reef habitats (2016) • Policy on Moorings in the Great Barrier Reef (2014)

Management tool	Purpose	Current components and activities
		• Managing scientific research in the Great Barrier Reef Marine Park • Operational Policy on Whale and Dolphin Conservation in the Marine Park • Sewage discharges from marine outfalls to the Great Barrier Reef Marine Park • Structures Policy • a range of policies that relate to the protection and management of waterbirds and their habitats (refer wetland info) • Reef Authority policies and position statements - Permission System Policy (2017) • The use of Hydrodynamic Numerical Modelling for Dredging Projects in the Great Barrier Reef Marine Park • Policy on Managing Activities that include the Direct Take of a Protected Species from the Great Barrier Reef Marine Park • Fish Aggregation Devices and Artificial Reef Interim Policy • Position Statement: Fishing • Position Statement on the conservation and management of protected species in relation to the Queensland East Coast Inshore Finfish Fishery • Queensland Environmental offsets policy • Planning for priority ports • Traditional use of marine resources • Sustainable Fisheries Strategy 2017-2027 • Fisheries Resources Reallocation Policy • Aboriginal and Torres Strait Islander Peoples commercial Fishing Development Policy • Developmental Fishing Policy

Management tool	Purpose	Current components and activities
		• Queensland Harvest Strategy Policy • Maintenance Dredging Strategy 2016 • AMSA Marine Orders Site management arrangements • Site Specific Management Plans for Raine Island, Moulter Cay and MacLennan Cay; Low Isles, Clump Point, Mission Beach; Michaelmas Cay locality; Upolu Cay Reef; Bauer Bay; South Molle Island; Blue Pearl Bay, Hayman Island; Whitsundays Plan of Management setting 5 site plans; Tongue Bay; Hill Inlet and Whitehaven Beach; Fitzroy Reef; Keppel Bay and islands; Lady Elliot Island Reef; Lady Musgrave Island Reef • John Brewer Reef Site Plan (2021) • Since 2019 eight management statements have been prepared under the Nature Conservation Act 1992; 23 island protected areas have had a values assessments undertaken • Conservation of dugongs • Translocation of species in the Marine Park. Position Statements are used to influence matters outside of the Reef Authority's direct jurisdictional responsibility and include, among others: Fishing (2020); Water quality (2020); Climate change (2019); Coastal ecosystems (2018); Marine debris (2019); protected species Queensland East Coast Inshore Finfish Fishery (2007); sharks and rays in the Queensland East Coast Inshore Finfish Fishery (2007); Others include: Aquaculture within the Marine Park; Conservation of dugongs; Indigenous participation in tourism and its management; management of commercial jet ski operations (Magnetic Island) and many others

Management tool	Purpose	Current components and activities
		Guidelines • National Guidelines for the Survey of Cetaceans, Marine Turtles and the Dugong (2023) • Joint Guide for Current Permit Holders (2021) to help current permit holders navigate permits, understand how to be a responsible permit holder and know the general requirements when operating in the Marine Parks. • Draft Artificial Reef Guidelines and FADs. • Activity impact assessment guidelines e.g. pontoons guidelines (2019). • Environmental Management Plan Guidelines • Improved Assessment and decision Guidelines (2019) (refer PL6) • Applications for Joint Permissions Guideline (2017) (to deliver a consistent and transparent application process that complies with legislation, standards and policy). • Australian National Guidelines for Whale and Dolphin Watching (2017) • Best environmental practices for diving and snorkelling - communicate preferred behaviours and are available for tourists and recreational users to minimise impacts on biodiversity. • The Next Generation Tourism Planning: A Guideline for planners in Queensland (2017) – addresses how to achieve good planning outcomes for tourism in natural environments. • Reef Trust offsets • Coral transplantation • Management of artificial reefs in the Marine Park • EPBC Act referral guidelines for the Outstanding Universal Value of the World Heritage Area

Management tool	Purpose	Current components and activities
		• Guidelines for Hydrodynamic Modelling (of Dredge Spoil) • National Assessment Guidelines for Dredging (2009) • Dugong conservation in the Great Barrier Reef Marine Park (2007) • National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna 2017
Partnerships	Formal arrangements, often executed through a memorandum of understanding or an agreement, to enable a partnership approach to manage the Marine Park. Partnerships may be focused on, among others: (a) knowledge-based/reporting (e.g. report cards and information on condition and trend) (b) integrated delivery, including with industry (tourism, agriculture), research providers, Reef Guardians (local government, schools) or relate to regional delivery (e.g. NRM groups) (c) policy and planning across government and industry and with Traditional Owners	• Great Barrier Reef Intergovernmental Agreement 2009 between the Australian and Queensland governments helps to ensure an integrated and collaborative approach • Reef Water Quality Protection Plan • High Standard Tourism program, Master Reef Guides and Eye on the Reef • Multi-sectoral Reef Advisory Committee (facilitates engagement with industry and broader community) • Independent Expert Panel (provide advice on the Plan) • Traditional Owners - community based land and sea partnerships and agreements (TUMRAs, ILUAS) • Local Marine Advisory Committees - advise Reef Authority on local and regional issues; lead and support various initiatives • Research and scientific community - provide information critical to developing targets, guiding management responses. • MOU with Queensland ports on port activities in and adjacent to the Marine Park • Management agreement with the Department on the implementation of the strategic assessment of defence activities in the Marine Park • Reef-associated industries - shipping, agriculture, mining

Management tool	Purpose	Current components and activities
Stewardship and best practice	Voluntary arrangements with stakeholders that provide the opportunity for contributions to protection and management. Provision of expertise and advice to stakeholders and natural resource management bodies	• High Standard Tourism Program - operators work to protect and present the Reef. Operators must be independently assessed under Ecotourism Australia's ECO Certification Program • The Authority has developed factsheets to assist tourism operators to reduce their emissions and adapt to climate change. • Reef Guardian program with local councils and schools • Marine Monitoring Program • Eye on the Reef monitoring program
Staff capacity, training and development	Strong and extensive research partnerships (CSIRO, AIMS, universities, National Environmental Science Programme, Reef Trust Partnership, Great Barrier Reef Foundation)	• Ranger training programs Master Reef guides training program
Education and community awareness	Programs to inform and motivate members of the community about the Reef and its protection and management, including ways they can contribute. The Reef Authority's external website is a central hub for information about Reef health and management; social media channels are used to communicate and engage with an online community; E-newsletters provide targeted information to subscribers. Targeted education and compliance strategy to give effect to zoning plans with focus on high risk threats. Network of Community Access Points distribute zoning maps and educational material to raise awareness and encourage visitors to follow zoning rules (IUCN 2020). Education occurs through regional networks, LMACs, Reef Guardian	• Community Access Points which distribute zoning maps and educational material • On-board website for tourism operators • Reef Guardian Schools • Great Barrier Reef Aquarium • The Reef Authority's publications including Reef in Brief and fact sheets and websites and social media channels

Management tool	Purpose	Current components and activities
	stewardship programme (and Reef Guardians Schools programme), Reef Aquarium, information services to stakeholders and the community.	
Research and monitoring	Undertaken, commissioned or partnered by the Reef Authority to better inform decisions on protection and management of the Reef.	• AIMS Long-Term Monitoring Program - measures coral health and zoning effectiveness. It integrates with the Marine Monitoring Program - focus on health of inshore corals, seagrass meadows and water quality. • Reef Water Quality Protection Plan - Paddock to Reef monitoring and reporting and annual water quality report cards. • Reef Restoration and Adaptation Program - a collaborative long-term research and development program to develop, test and risk-assess novel interventions to help build Reef resilience under a changing climate. • Aerial survey monitoring of dugong populations (led by JCU); and fish (Qld DAF) • Reef 2050 Integrated Monitoring and Reporting Program includes Sustainable use and benefits, Integrated Reef stewardship and Monitoring collective capacity and implementation projects. • Eye on the Reef monitoring program • Independent research by research institutions and the Great Barrier Reef Foundation • National Environment Science Programme, Tropical Ecosystems Hub
Reporting	Undertaken by the Reef Authority to meet statutory, national and international obligations, and to provide direction for strategic planning.	• Field Management business strategy (annual) • Reef Authority Corporate Plan and annual reports • Great Barrier Reef Outlook Report (five-yearly)

Management tool	Purpose	Current components and activities
		• World Heritage periodic reporting (six-yearly) • Annual reporting under the Reef 2050 Plan

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT			Other sources to those listed on the left		
CO1 The **values** of the Great Barrier Reef relevant to biodiversity are **understood** by managers	4	• The values of the Reef are managed by diverse partners and stakeholders (the Reef Authority, Queensland and Australian government agencies, local governments, industry bodies, Natural Resource Management (NRM) bodies, Traditional Owners, local community and others). • Biodiversity is a critical component of the Reef's Outstanding Universal Value (OUV) and natural heritage value (refer Table 31). • Values are outlined in several key documents: – Great Barrier Reef Marine Park Act 1975 - long-term protection and conservation of the environment, biodiversity and heritage values of the Reef Region (Section 2A). – The Great Barrier Reef Marine Park Zoning Plan 2003 (Zoning Plan) aims to protect and conserve the biodiversity of the Reef ecosystem within a network of highly protected zones, while providing opportunities for the ecologically sustainable use of, and access to, the Reef region. The zoning plan is informed by biogeographic zoning undertaken in association with the Representatives Areas Program (2006).	Reef Strategic Assessment (DCCEEW) Great Barrier Reef Strategic Assessment Report (2014) EPBC Act referral guidelines for the Outstanding Universal Value of the GBRWHA Retrospective Statement of OUV 2012 Marine Park Authority Gazettal Notice - Natural Heritage criteria 2007 Values and attributes table underpinning MNES 1981 World Heritage nomination Reef 2050 Plan Reef 2050 Plan – Implementation Strategy Reef 2050 Progress Update to World Heritage Centre	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Wetlands in the Reef Catchments Management Strategy 2016-21 (2016) promotes an integrated approach to catchment management that considers the multiple values of wetlands in a whole-of-system context. – The Reef Outlook Report (2019) outlines 26 biodiversity values including habitats to support species and populations of species and groups of species. • **Key values include:** (refer CO2 and IN4,5,6) – One of the **richest and most complex natural ecosystems on Earth**, and one of the most significant for biodiversity conservation – The Marine Park was made a Matter of National Environmental Significance (MNES) in 2009 **and included in the National Heritage List in 2007.** Biodiversity (habitats and species) and ecosystem processes underpin several MNES: Natural beauty and aesthetics, ecological and biological processes, habitat for conservation of biodiversity, wholeness and intactness, bioregions, habitats and species and listed threatened species and habitats (see Supporting evidence – values and attributes table underpinning MNES). – **70 biological regions** (30 within the coral reef and 40 in surrounding areas)	Coastal Ecosystems Assessment Framework (2013) Traditional Owner Implementation Plan (2022) Sustainable Regional Development program Reports commissioned by the DCCEEW and Reef Authority during the strategic assessment. Defining the aesthetic values of the Great Barrier Reef World Heritage Area (Johnston et al. 2013) Geological and geomorphological features of outstanding universal value in the Great Barrier Reef World Heritage Area (Geoscience Australia & JCU 2013) Seagrass Watch Flora and fauna of the Great Barrier Reef World Heritage Area		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Diverse habitats** including islands, beaches and coastlines, mangroves and saltmarshes, seagrass meadows, coral reefs (<30m) (contain over 400 species of hard coral and cover about 7% of the Marine Park), deeper reefs (>30m), lagoon floor, shoals, *Halimeda* banks, continental slope and open waters. Other terrestrial habitats include freshwater wetlands, forested floodplains, heath and shrublands, grass and sedgelands, woodlands, forests, rainforests and connecting waterbodies. – The Aquatic Conservation Assessments provide detailed information on the conservation values for riverine and non-riverine wetlands to assist planning and policy actions. Terrestrial values are identified through the Biodiversity Planning Assessments. These are being updated. – These habitats support tens of thousands of **marine and terrestrial species**, many of which are of global conservation significance, e.g. major feeding grounds for one of the world's largest populations of the threatened dugong, an important area for humpback whale calving, six of the world's seven species of marine turtle, with internationally important breeding grounds for green, loggerhead and hawksbill turtles. – Some habitats (e.g. soft bottom communities) and most invertebrate species groups (bryozoans, cryptic habitat-associated species, plankton and others) are less well	Reef 2050 Integrated Monitoring and Reporting Program Permission System Value Guidelines Reef Regional Report Card Partnerships and report cards: Wet Tropics, Dry Tropics, Mackay-Whitsunday-Isaacs, Fitzroy Basin, Gladstone Health Harbour		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		studied. **Knowledge is better for commercially important species and species of conservation or management concern** (marine turtles, crown-of-thorns starfish). – Around 77 species are listed as **migratory species** including marine turtles, crocodiles, whales, dugong, dolphins, sharks, seabirds and shorebirds. – Reef Joint Field Management Program (RJFMP) in collaboration with Birdlife Australia has identified **Key Biodiversity Areas** based upon internationally accepted criteria for seabirds. • Regional Sustainability Planning Project on OUV (Defining the aesthetic values of the Reef WHA) (DCCEEW) (2013) aimed to better define aesthetic values and develop a method for identifying and mapping these values. • The 2017 Scientific Consensus Statement is a synthesis of current knowledge pertaining to the water quality issues (including land-based run-off) in the Reef to inform a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. The Scientific Consensus Statement is being updated, for release in 2024). • **Values Based Park Management Framework** (VBMF) and values assessments have been completed. Twenty-three island protected areas assessed including five that were			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		completed with First Nations partners for Cape York Peninsula Aboriginal Land (CYPAL). • Refer PL2 for a range of relevant documents that address the Reef region's values. Challenges: • "*There is a notion that the values of the Reef are static and unchanging and that the job of the Authority is to preserve and protect these values for all time. The reality is dawning that this is no longer possible. The challenge will become what outcomes and values are we managing for – what are realistic ecological, social and cultural outcomes under climate change and the likelihood that ecosystem function decline appears to be inevitable?*" (Interviewee 2023). • The Australian Academy of Science (2023:34) notes that there are many 'unknowns' (e.g. Reef functions, stressors etc) and that central to addressing these issues is knowing what 'are the key GBR values and what needs protection' and prioritisation under a climate changed future. Similarly Bay et al. (2023:3) state "We can no longer focus on restoring marine ecosystems to their previous composition; we must maximise their function and **value** by adopting new approaches to management and governance', including guiding **transition to novel ecosystems with different values** from the previous state. • Climate Change Vulnerability Assessment predictions of impacts to Reef values have proven to be correct since its			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		publication in 2007. This document would benefit from updating.			
CO2 The current **condition and trend of values** relevant to biodiversity are **known** by managers	3	• Over 90 **monitoring programs** (refer PL5) operate within the Reef region and these provide **diverse information on condition and trend**. – '*About 90 outer reefs and 32 inshore reefs are monitored and trends are reasonably robust. The gap is in reconnaissance data on reefs to know their current condition … This type of data will assist biodiversity management activities*' (Interviewee 12, 2023). – The Outlook Reports provide information on the condition and trend of 26 biodiversity components, every five years (Workshop participant 2023). • **However, condition and trend are relatively unknown for the majority of species,** in part because monitoring has focused on a few key habitats and species or groups of species: iconic (such as coral reefs, seabirds), commercially important (such as seagrass meadows, coral trout); threatened (such as dugongs, marine turtles). – Existing monitoring represents about 40% of the environmental regimes of the Reef (Mellin et al. 2020). – 'GBR science is weighted towards 7% of the Marine Park and World Heritage area that is made up of coral reefs. This is followed by seagrass and fish…' (cited in Australian Academy of Science (2023:34)	Reef 2050 Plan Reef 2050 Plan – Implementation Strategy Great Barrier Reef Outlook Report 2019 Chapter 2 Informing the Outlook for Great Barrier Reef coastal ecosystems The Marine Monitoring Program provides the marine information for the Reef Report Cards. Reef 2050 Integrated Monitoring and Reporting Program Great Barrier Reef Foundation projects RangerBOT Autonomous Underwater Vehicle Rapid survey protocol that provides dynamic information on reef condition to managers of the Great Barrier Reef Reef Coastal Ecosystems Position Statement	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Critical gaps in knowledge** are being identified through a range of science strategies, e.g. Science and Knowledge Needs, NESP and the Priority Monitoring Gaps prospectus (2021), and several projects funded by the Reef Trust Partnership aim to fill critical monitoring gaps (Workshop participant 2023). – **Coral reef species** – biology and ecology generally well understood but information on reef ecosystem function is weighted to hard corals and reef fishes (Wolfe et al. 2019). – **Data on function and processes of ecosystems generally is lacking** (i.e. beyond corals, fish, seagrass and mangroves). This data 'would enable an understanding of when impacts from climate change will become irreversible' (Australian Academy of Science 2023:8) • **World** Heritage Commission/IUCN reports (refer CO4) (e.g. Reactive Monitoring Mission 2022) highlight concerns relating to the OUV of the Reef and highlighted a range of threats and impacts that impact condition (refer CO3). • Queensland's State of the Environment Report (2020) provides detailed information on the condition of many ecological processes and concludes, "The deteriorating condition of many ecological processes has affected the integrity of the Reef's Outstanding Universal Value. **Ecological processes**	Use of unmanned aerial vehicles (UAVs) for mark-resight nesting population estimation of adult female green sea turtles at Raine Island. (Dunstan et al. 2020) ReefScan Trends in seabird populations across the GBR (Woodworth et al. 2020) Reef Water Quality Report Card (2022) RJFMP Restoration of Reef Islands Project Plan RJFMP Great Barrier Reef Green Turtle Research Project Plan New dugong survey report for southern GBR expected April 2023 Science and Knowledge Needs for Management (2021) Reef Knowledge System – Programs and Reporting Eye on the Reef		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		are expected to continue to decline due to climate change impacts and inshore land-based run-off". **Population recruitment is reduced for many species** (e.g. corals, fish, some marine turtles, seabirds due to chronic and acute disturbances). – "**Ecological processes**, including microbial processes, particle feeding, primary production and competition remain **poorly understood**". " Ecological processes are expected to continue to decline due to climate change impacts and inshore land-based run-off". – "**Population recruitment is reduced for many key species**, in particular, corals, fishes and some marine turtles and seabirds, largely due to chronic and acute disturbances" – **Reef building has deteriorated**, largely due to the combined effects of unprecedented declines in coral cover and crustose coralline algae in some areas in response to thermal bleaching events". – **For some species and ecosystem processes** confidence around condition status is limited due to lack of long-term data over a broad area. • **Listed threatened species** in the Reef include: endangered (loggerhead turtle, leatherback turtle, Olive ridley turtle; blue whale; grey-headed albatross, southern giant petrel); critically endangered (grey nurse shark, speartooth shark and herald petrel); and 15 species listed as vulnerable.	Reports - Reef Restoration and Adaptation Program RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System Great Barrier Reef Foundation - Critical Monitoring Gaps Decades of monitoring have informed the stewardship and ecological understanding of Australia's Great Barrier Reef (Emslie et al. 2020). A framework for understanding cumulative impacts, supporting environmental decisions and informing resilience-based management of the Great Barrier Reef World Heritage Area (Anthony et al. 2013)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Species or groups of species in poor condition or vulnerable** include: bony fish (threadfin salmon, grey mackerel, snapper), dugong, inshore dolphins (Australian snubfin, Indo-Pacific humpback, bottlenose), marine turtles, sawfish, sea snakes, seabirds (inshore, coastal foraging, offshore and pelagic foraging), shorebirds, sharks and rays. – Far Northern Inshore **Dolphin** Project (DES) uses quantitative vessel surveys to provide information on the habitat, demographics, behaviour and health of inshore dolphins for Newcastle Bay area of Gudang Yadhaykenu Sea Country. The sightings data populate regional species distribution models to inform spatial conservation management. – Shallow fish surveys are conducted under AIMS LTMP. • There is **little detailed information about the status and trends of many habitat types** within the Reef (for example the lagoon floor, shoals, *Halimeda* banks). • Little information on many seabird species (2020) – the Reef has breeding populations of 20 seabird species; six key biodiversity areas support globally and regionally significant seabird aggregations. – No reef-wide assessment of trends in seabird breeding populations.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– "GBR Seabird Atlas" identifies trends of declining seabird breeding in several seabird species. There are "**troubling trajectories for breeding populations of several seabird species**" across the Reef. Some evidence of declines e.g. Common Noddy, Sooty Tern, Masked Booby and no long-term changes in Greater Crested Tern and Brown Booby. – In general vulnerability is increased when large numbers of a species are concentrated at a small number of key sites. Broad-scale factors including poor breeding during warm water events related to marine heatwaves and El Nino events, and their impact on prey availability may be important drivers of these trends as well as local factors such as coastal development, military activities and non-native species introductions. – RJFMP contracted UQ to analyse seabird data from the WHA over 40 years. The results were presented to RJFMP as a report and also published in Conservation Biology (Woodworth et al. 2020). – For 9 seabird species from 32 islands – probably **declines at 45% of the 86 species**-by-site combinations; increases at 14%. – Probably declines for Common Noddy, Sooty Tern, Masked Booby; no long-term changes for Greater Crested Tern and Brown Booby.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Identified vulnerability when large numbers of some species are concentrated at a small number of key sites. • Little information on **invertebrates** (Workshop participants 2023; Interviewee 14, 2023, Australian Academy of Science (2023:34). • Little information on **sea cucumber species** which are an important commercial fishery and critical gaps in knowledge of their population biology (Overview of the Reef sea cucumber fishery with focus on vulnerable and endangered species, Wolfe & Byrne, 2022). • Improving understanding of the **continental shelf** (Biodiversity of the continental shelf of the WHA) (Gribble et al. 2023) – mapped seafloor habitats and characterised their associated fauna and flora at over 1500 locations in the WHA. New information on inter-reefal communities; development of a bioregional scale understanding of large marine ecosystems, including substratum and biohabitat. • **Cumulative impacts** (climate change, severe weather, land-based runoff etc): **Reefs** continue to be **exposed to cumulative stressors, and the prognosis for the future disturbance regime is one of increased and longer lasting marine heatwaves and a greater proportion of severe tropical cyclones.** There has been a decline in the number of reefs resilient to combined pressures, with the **number of reefs in poor condition increasing** (Carter & Thulstrup 2022)			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and also declines in many groups of species (due to climate change and human activities) (*Note: latest Report Cards are for 2020*): – Inshore marine condition (2020) – **moderate** condition (e.g. Wet Tropics, Burdekin, Fitzroy and Burnett Mary regions) and Cape York and Mackay Whitsundays regions in poor condition overall. – Inshore reefs (2020) – **poor** condition (due to storms and elevated sea temperatures and poor water quality); some signs of recovery in 2020. – Seagrass meadows (2020) – **poor** condition overall across the Region (due to thermal stress in shallower habitats, disturbance from sea level rise and destruction from storm actions); declining resilience (poor ability of plants to reproduce). – Freshwater wetland condition (2020) – **moderate** condition (better in conservation areas); gaps in connectivity; pest animals' impact on the physical integrity of wetlands; slowing decline in extent of wetlands (O.1% since 2017) (due to clearing, draining, infilling). – **Mangroves** – generally **good** condition but impacted by cyclones and sea level rise. – **Lagoon floor** – some areas exposed to prolonged thermal stress and damaging cyclone waves. – **Islands** – many experiencing damage from severe weather and temperature extremes.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Mainland beaches and coastlines** – modifications at some sites through sea level rise and erosion. – **Saltmarsh** - significant loses. – **Variable changes in abundance of reef**-associated predators across the Reef – a large group of sharks and rays are in poor condition (Qld. State of the Environment Report,2020). – **Some species (such as humpback whales and some turtle populations) show continuing recovery from historical declines.** Raine Island Recovery Project (2021-24) aims to re-establish and maintain the island as a viable ecosystem that support viable populations of green turtles and seabirds (in collaboration with Wuthathi and Meriam Nation). RJFMP invested $1.2 million to acquire a lease on Wild Duck Island to better protect the largest flatback turtle nesting site in eastern Australia. • **Turtles** (refer TurtleNet): – A number of marine turtle rookeries along the coast have been identified under the Nest to Ocean Turtle Protection Program for active nest protection and predator control efforts to reduce the threat posed by feral pigs and other predator species. – **Loggerhead turtle** (Endangered), *Caretta caretta* study of the foraging population of the **Capricorn-Bunker** Reefs (May 2022) arose from concerns regarding the severely depleted nesting populations on the coral cays of the southern Reef and a low rate of recruitment of			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		young Loggerhead turtles from the open ocean to coastal benthic foraging in Moreton Bay, the only current index site for monitoring foraging Loggerhead turtles in eastern Australia. (Only sighted at Fitzroy, Wistari and Heron Reefs with the species being most numerous in Wistari and Heron Lagoons; the population continues to be strongly male biased across all age classes with no evidence of a feminising trend among the younger age classes). – **Green turtles** (Vulnerable) – Plentiful across all age classes on all seven of the Capricorn Bunker Reefs examined. – **Rising sand temperatures resulting** in increasing 'feminisation' of green turtle populations (Richards & Day 2018). While the population continues to be strongly female biased across all immature age classes there is no evidence of a strong feminising trend among the younger age classes. – Increasing the Understanding of the Green Turtle Population in Port Curtis, 2016-2019. (Limpus & FitzSimmons 2020). – **Hawksbill turtles** (Vulnerable) – Across all age classes were recorded at low frequency on all seven of the Capricorn Bunker Reefs examined. – **Flatback turtle** (Vulnerable); **Leatherback turtle** (Endangered); **Olive Ridley** turtle (Endangered).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The Flatback turtle, *Natator depressus*, in Queensland: population size and trends (Limpus et al. 2020). • **Coral bleaching** (due to **rising sea temperatures**). Since 2014, over 75% of the Marine Park has been exposed to severe impacts. The first mass bleaching event (i.e. occurring in both inshore and offshore reefs) occurred in 1998, then 2002, 2016, 2017, 2020 and 2022 affecting all regions of the Marine Park (other bleaching events also occurred in 2008 and 2011). In 2016 and 2017, back-to-back mass coral bleaching events, caused by sustained high water temperatures, caused about 50 per cent coral loss Reef wide. Four severe cyclones since 2014 have also attributed to a reduction in coral abundance and damage to the reef structure. The 2022 bleaching event was the first to occur in a La Nina year and this is of 'utmost concern' (IUNC/WHC 2023).The effects of more frequent and intense bleaching on biodiversity are largely unknown and may take years to unfold (AIMS Long Term Monitoring Program). – On the **Northern** Reef, region-wide **hard coral cover was moderate** and had continued to increase to 27% (2021) from the most recent low point in 2017. – On the **central** Reef region-wide **hard coral cover was moderate** and had increased to 26% in 2021. – Region-wide hard coral cover on reefs in the **Southern** Reef **was high** and had increased to 39% in 2021.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– In 2020, most of the surveyed reefs experienced heat stress accumulation that produced **widespread coral bleaching** but was below thresholds where widespread mortality is expected to occur. Consistent with this, surveys in **2021 recorded low coral mortality** from the 2020 bleaching event. – In periods free from acute disturbances, most of the Reef's coral reefs demonstrated resilience through the ability to begin recovery. There is some evidence of thermally tolerant "winners" and more sensitive 'losers" and evidence that reefs have shifted in their assemblages, with recovery reliant on an adequate supply of larvae from non-impacted reefs and sufficiently stable substrate for settling larvae (Bozec 2022). This process takes at least a decade for fast-growing corals (e.g. *Acropora*) and far longer for slower growing species (Carter & Thulstrup 2022). **There is speculation that the current 'recovery' may be evidence of juvenile tolerance to changed conditions and that this may not be sustainable into the future** (Interviewee 2023). • **Rising sea temperatures** (e.g. projected to warm by 1° to 2°C by 2030 and by up to 3° in coming decades) (Bay et al. 2023) - may also result in range shifts for species; reduced foraging success for seabirds resulting in increased nesting failures; and impacts on health and reproduction of fishes (Richards & Day 2018).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Ocean acidification - corals and other calcifying organisms are also expected to be seriously affected by ocean acidification driven by increased levels of CO_2 entering the oceans from the atmosphere. The increase of ocean CO_2 has resulted in a decline of pH of 0.1 from pre-industrial times) taking it to 8.1, or a 26% increase in acidity with changes in reef skeletal integrity (slower growth rates and weaker structure) and impacts on plankton, fish, marine species reproduction and productivity. (*Note:* reef development is thought to cease at pH 7.8) (Carter & Thulstrup 2022). • Crown of thorns starfish data is improving (Interviewee 2023). Refer COTS Control Innovation Program and CO3 evidence. Most vulnerability assessments (for a range of species and ecosystems) have not been updated since 2014. • Projects addressing biodiversity values: – Larval reseeding work – Peter Harrison - research innovation to increase the success of recruitment of coral spawn – Several non-government-funded research projects are underway (funded by the Reef Foundation) to complement and add to the monitoring and understanding of condition and trend of biodiversity. Refer also to Reef Trust Partnership funded projects: Integrated Monitoring and Reporting - Great Barrier Reef Foundation.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Reef Genomics – method to preserve coral persistence through time** - the coral genome from nine key reef-building species has been completed and made publicly available for any researcher to use around the world; will support coral research that relies on understanding the genome and fast track answers to adaptation questions. – Monitoring of the endangered **Capricorn Yellow Chat on Curtis Island** through a collaborative project between QPWS and Central Queensland University. – QPWS Marine are implementing **drone technology for island mapping, turtle and seabird monitoring**, fire management and reef surveys. Further applications and implementation to work programs is underway. – The RJFMP **Restoration of Reef Islands** Project (2020 – 2025; Reef Trust-funded) is assessing the condition of *Pisonia grandis* forests and communities in the northern and far northern Reef with special reference to presence of key threats including urbicola soft scale and its invasive ant mutualists. – **BioCondition** reference site benchmarks are in place for the Capricorn Cays; 59 reference sites in 21 vegetation communities were surveyed. The data will provide BioCondition benchmarks to assess the revegetation progress on Lady Elliot Island. The information will also be available to assess progress in other current and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		future Capricorn Bunker terrestrial revegetation/rehabilitation projects. This will help to assess the response of the vegetation communities to climate change and other future ecosystem disturbances that may occur. – eReefs is delivering Reef water quality information online, enabling anyone to track the effects of storms, cyclones, floods, and other impacts on the Reef. – The RJFMP uses Reef **Health Checks** as a tool to assess the condition of key park values. **Vessel strike on fauna** is also an area of growing interest. NESP project C5 explores ship strike analysis for large marine fauna – particularly cetaceans. To reduce the risk of vessel strikes and the impacts they may have on marine fauna, the Australian government is developing a National Strategy for Mitigating Vessel Strike of Marine Mega-fauna. **Challenges**: • **Key knowledge gaps remain** for many species and habitats that are not comprehensively monitored. Condition is inferred for some of the deeper and less accessible habitats, such as *Halimeda* banks, the continental slope and lagoon floor, because these habitats are not frequently monitored and large knowledge gaps remain. • It is increasingly necessary to target management provisions towards key functional taxa to support ecosystem			

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		functioning and stability in a future ocean (Richards & Day 2018 cited in Wolfe et al. 2019). • Balancing the desire to reduce knowledge gaps on condition and trend against other areas of investment that may provide more substantive outcomes for the Reef – 'we have reasonably good data' (Interviewee 12, 2023) and 'there are gaps, but these are not hurting our understanding' (Workshop participants 2023).			
CO3 **Impacts** (direct, indirect and cumulative) associated with biodiversity are **understood** by managers.	3	• Refer CO2 where monitoring programs are outlined, many of which are identifying a range of threats to habitats, ecosystems and species and PL2 where legislation, plans and other documents outline threats and impacts on biodiversity. Also refer Table 30 where key threats to the Reef and associated impacts are outlined. • '*We have a reasonable understanding of condition and trend, but less understanding of the pressures*' (Workshop participants 2023). • **Major risks and threats** to biodiversity (e.g. climate change, catchment run-off and water quality, coastal development and changes to coastal ecosystems, marine debris and a range of direct uses such as fishing, ports and shipping) are well documented and risk assessment and management procedures are in place to address many major threats (Annual Report 2021-2). – **The continuing inputs of nutrients, sediments and pesticides** and the time lag between reduced inputs and improved ecosystem condition, mean land-based run-	Vulnerability Assessments Climate Change and the Great Barrier Reef: A vulnerability Assessment Marine Monitoring Program Reef 2050 Integrated Monitoring and Reporting Program Australian Ballast Water Management Requirements eReefs COTS Strategic Management Framework Permission System Activity Guidelines	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		off will continue to be a serious risk to the ecosystem (refer Land-based Run-off topic, Table 42 for further information on impacts on biodiversity). – 'Water quality impacts reef and coral *recovery* and we don't know which aspects of water quality are responsible' (Interviewee 12, 2023) – The 2022 Scientific Consensus Statement will be finalised in 2024. It synthesises peer-reviewed scientific evidence pertaining to the **water quality issues** (including land-based run-off) in the Reef and informs a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. Extensive consultation with policy, management, experts and stakeholders was undertaken to identify and prioritise a series of specific questions that frame the scope of the evidence being gathered. The Statement will identify knowledge gaps and limitations in the peer-reviewed scientific evidence, which will inform future iterations of the Reef 2050 Reef Water Quality Research, Development and Innovation Strategy. – Toxicology studies are quantifying the levels of organic and inorganic pollutants within the environment and within sampled animals and there is recent work on **determining the significance of these toxic loads on the health of the species impacted** (refer evidence column). Griffith University (Jason Van De Merwe) in collaboration with DES Threatened Species Operations	Rivers to Reef to Turtles Nest to Ocean Turtle Protection Program NESP Marine Biodiversity Hub C5 quantification of national shipping risk project (David Peel), see also marine vessel activity section in the national State of the Environment Report 2016 National Strategy for Mitigating Vessel Strike of Marine Mega-fauna Great Barrier Reef Blueprint for Resilience Kimberly A. et al. 2021. Combining analytical and in vitro techniques for comprehensive assessments of chemical exposure and effect in green sea turtles (*Chelonia mydas*). *Chemosphere* 274, 129752.		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		field studies has developed successful cell-culture based tests for quantifying the impact of pollutants on a range of marine megafauna species. – **Marine debris and plastic** from all sources are likely to remain a high risk and a 'growing threat' (Bay et al. 2023). If outcomes from current management efforts in the catchment can be accelerated, **future risk is expected to decrease**. Collaborative studies between DES Threatened Species operations and Exeter University are identifying a major threat to all **marine turtle species is the ingestion of microplastic** fragments by small post-hatchling turtles during their dispersal in pelagic ocean currents where they forage on plankton at the surface. – **Coastal development** (from diverse sources including agriculture, urban expansion, industrial development) remains a serious risk to the Reef (Table 37). The combined effect of modifications to coastal ecosystems across the Reef catchments is widespread and serious: – The function of linked terrestrial–freshwater–estuarine–marine ecosystems is affected *by barriers to flow and modification of coastal habitats*. – *Exposure* of acid-sulphate soils can impact many species. – Artificial light (**Skyglow**) from urban and industrial facilities and developments will continue to grow and impact many species (e.g. turtles) and these	Limpus, C.J. 2020. Queensland Turtle Conservation Project: Monitoring marine turtle hatching behaviour in response to coastal lighting on the Woongarra Coast, 2019-2020 breeding season. Brisbane: Department of Environment and Science, Queensland Government. (29 pp.) Shimada, T. et al. 2023. Industrial and residential sky glow disrupts the orientation of hatchling and adult flatback turtles on nesting beaches. Regional Environmental Change 23:20 Duncan, E.M. 2021. Plastic Pollution and Small Juvenile Marine Turtles: A Potential Evolutionary Trap. Frontiers in Marine Science 8, Article 699521		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		impacts are not well understood (Workshop *participant* 2023) e.g. skyglow in Port Curtis and the Woongarra Coast is now significantly negatively disrupting ocean finding behaviour of loggerhead and Flatback turtles. – **Illegal fishing, poaching**, extraction of predators and particle feeders, extraction from unidentified or unprotected spawning aggregations, incidental catch of species of conservation concern and discarded catch (e.g. CSIRO research - 6-10T/Bycatch for every 1T product, including dugong/in nets - high or very high risk). – **Fisheries impacts**: – The Queensland **Cucumber Fishery** harvests CITES-listed black teatfish (*Holothuria lwhitmaei*) and white teatfish (H. *fuscogilva)* and other IUCN-species from the Reef. Overview of the Reef sea cucumber fishery with focus on vulnerable and endangered species (Wolfe & Byrne 2022). There have been catch reductions and fishery closure for teatfish harvest on the Reed due to local depletion (target species, *Actinopyga spinea* ~50% of total catch) – The escalating activity around active physical interventions in the Region (for example, coral gardening and assisted evolution) to support the	RJFMP Restoration of Reef Islands Project Plan Integrated Monitoring and Reporting – Sustainable use and benefits (SEABORNE) Integrated Monitoring and Reporting -Integrated Reef stewardship (PROTECT)) Integrated Monitoring and Reporting – Monitoring collective capacity and implementation (Governance) Reef Knowledge System – Resilient Reefs Network (gbrmpa.gov.au) A Guide for Current Permit Holders Traditional Owner Implementation Plan (2022) AIMS LTMP Annual Report 2020-2021		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		resilience of the Reef has introduced more threats to consider. – **Biosecurity of the islands** aims to limit the spread of **weeds, invertebrates and other animal pests** from the mainland to islands, and between islands. – Potential influences from **ship grounding and/or ship anchorage** activity, with ship voyages through the Region slowly increasing. – **Some migratory species**, e.g. turtles, may be well protected in the Reef but not necessarily at other parts of the migratory cycle (this varies among species). • The impacts affect many of the values relevant to the MNES and OUV in the Region (refer CO2). – The **direct and indirect impacts of climate change** over the past few years (thermal stress events, severe cyclones and consequent loss in coral habitat) have likely impacted many species, particularly habitat-associated or those with narrow thermal tolerance. Inshore species and their habitats adjacent to the developed coast are under more pressure than those offshore (refer CO2). **Rising sea levels** threaten coastal and island communities. Increased erosion and inundation may lead to significant changes in estuarine habitats, with turtle nesting sites vulnerable due to greater beach erosion and inundation of nests. Seabird nesting and shorebird roosting sites are also at risk (Richards & Day 2018).	Roepke et al. (2022). Applying behavioural studies to the ecotoxicology of corals: A case study on *Acropora millepora*. Frontiers in Marine Science, 2458. Nordbord et al. (2022). Coral recruits are highly sensitive to heavy fuel oil exposure both in presence and absence of UV light. Environmental Pollution, Vol 309. Marzonie et al. (2021). Toxicity thresholds of nine herbicides to coral symbionts (Symbiondiniaceae). Scientific Reports, Vol 11, 21636. Berry et. al. (2021). Effects of suspended coal particles on gill structure and oxygen consumption rates in a coral reef fish. Marine		

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		– **Climate change** risk is likely to increase in future due to emission trajectories and unavoidable future climate change, locked in by past and current emissions (Outlook Report 2019). – More is known about inshore and mid-shelf than offshore and north. **Very little is known about impacts on deep water habitats** and their biodiversity. – **Crown-of-thorns starfish** (COTS) – strategic planning for reef prioritisation, tactical deployment of Program vessels and efficient in-water culling operations are now maximising the coral protection benefits of the Program. – COTS Control Innovation Program (led by Reef Authority with RRRC and Reef Foundation) have culled >1.1m starfish, protecting 700,000 ha corals (since 2012) ($41.8 million, 2022-2024 and an additional $161.5 million provided by the Australian Government in 2022). However, **COTS density has been surveyed for only 2% of the Reef** (Bozec et al. 2022). In June 2022 - starfish were at or below sustainable levels for coral growth and recovery at 1,065 (87%) of the 1224 sites where culling was conducted. COTS densities were sustainable at 117 of the 190 actioned reefs (62%), culling was ongoing at 48 reefs (25%) and surveys had detected COTS on 18 reefs (9%) that required future culling (Annual Report 2021-2). Some example projects include ReefScan automated benthic survey technology (jointly funded by	Pollution Bulletin. 169, 112459. Flores et al. (2020 Toxicity thresholds of three insecticides and two fungicides to larvae of the coral Acropora tenuis. PeerJ, 8, e9615. Reef Regional Report Card Partnerships and report cards: Wet Tropics, Dry Tropics, Mackay-Whitsunday-Isaacs, Fitzroy Basin, Gladstone Health Harbour No-anchoring areas reduce coral damage in an effort to build resilience in Keppel Bay, southern Great Barrier Reef (Beeden et al. 2014) Rapid survey protocol that provides dynamic information on reef condition to managers of the Great Barrier Reef (Beeden et al. 2014).		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		RJFMP), eDNA detection of COTS, biocontrol using chemical attractants and deterrents, and updated COTS and coral larval dispersal and connectivity modelling. Seven COTS Control Program vessels are deployed to suppress COTS outbreaks to levels that are sustainable for coral growth and recovery. These research projects are expected to directly benefit the Control Program as they achieve full operational readiness. – COTS Strategic Framework outlines managers' understanding of COTS and outbreak management cycles. – **Disease (including coral disease) threats not well known and/or** understood for some species (e.g. Grouper iridovirus disease). – The international Convention for the Control and Management of **Ships' Ballast Water and Sediments (2017)** - requires all international vessels and domestic commercial vessels to comply with the Convention i.e. have an approved Ballast Water Management Plan, Ballast Water Management Certificate and International Ballast Water Management Certificate. – **Impacts are increasing and compounding**, focused on inshore areas in the **southern two-thirds of the Region**. Many threats of most concern are land-based in origin. • **Cumulative impacts are particularly challenging to quantify, assess and manage** and **are little understood in the Region**. These impacts are beginning to be better	Great Barrier Reef: Clearing the way for reef destruction, Nature (Reside et al. 2017).		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		understood through descriptive qualitative models and spatial mapping tools. – Responses to a stressor can be complex (indirect, nonlinear), variable in space and time and compounded by other stressors or ecological processes. It is relatively easy to attribute coral loss to a range of acute stressors, but **more difficult to identify the causes of hindered coral recovery**. Causes can be multiple and responses can vary among coral species. The impact of multiple stressors is difficult to predict in biogenic habitats such as coral reefs where acute and chronic pressures simultaneously affect the reproduction, growth and mortality of habitat forming species. Bozec et al. (2022) have developed a simulation model of coral demographics to quantify the cumulative effects of multiple disturbances and how they drive coral cover at local and regional scales. This model informs recent trends (2008-2020) and the status of unmonitored reef areas (about 96% of 3,806 reefs) and can be used to design improved coral and COTS surveillance programs to support management and may help identify areas most likely to respond to interventions and sustain improvements over the longer term. – Reef rehabilitation projects (RJFMP) include installation of reef stars and Coral clips to stabilise coral rubble and improve coral growth in areas impacted by bleaching, cyclones and maritime incidents e.g. Green Island (2020), Bait Reef (2021).			

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		– There is a very real and present danger that the **combination of threats present in the Region will continue to weaken the resilience of the Reef ecosystem**. As a consequence, **the Reef's ability to recover from serious and increasingly frequent environmental disturbances (such as mass coral bleaching events) remains at high risk.** • **Reef Authority Summit and resulting Blueprint** (2017) (under review) identified the urgent need to deliver on ground actions to enhance the resilience of the Reef including expanding and extending the COTS Control Program and protecting key species for reef recovery. • **The Reef Knowledge System** hosts an internal-only interactive dashboard, the Resilient Reefs Network Guidance Tool, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park. • Greater understanding of the potential **impacts to Indigenous cultural heritage** values is being sought through the cultural referrals program (Permits) and the TUMRA cultural values mapping programs in line with the Reef Authority's position on, and progress towards, Traditional Owner co-management of the Marine Parks. The Aboriginal and Torres Strait Islander Heritage Strategy (2019) is a driving force in addressing these matters. Challenges:			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Addressing threats at various scales and the need for a combination of Reef-wide, regional and local solutions to threats that impact on the Reef. • Prioritising actions and continuing to improve methods for understanding and responding to cumulative impacts. • While the focus of reef management has often been on local coral recovery (i.e. often in response to climate change), cumulative impact assessments require integration of all stressors across the coral life cycle. However, pressures on coral recovery across the Reef are less well established (Bozec et al. 2022). • '*We are aware of how a range of threats impact the Reef, but there is little or no understanding of the consequences of losing Reef biodiversity, including impacts on ecosystem services related to fisheries, coastal protection, recreational values and the like. Managers have little understanding of this and are unable to make sophisticated decisions about how to manage and mitigate this'* (Interviewee 12, 2023).			
CO4 The broader (national and international) level influences relevant to biodiversity are understood by managers.	4	• Several threats that impact on the Reef occur at international and national scales and are impacting Reef resilience. While managers may have some understanding of these issues, matters such as climate change and the specific impacts it is likely to bring across the Region are less well understood, with the governance system struggling to identify and implement effective responses.	State Party Report on the state of conservation of the Great Barrier Reef World Heritage Area (Australia) 2015 Reef 2050 Plan Reef 2050 Plan – Implementation Strategy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• UNESCO reporting on the Reef, including in relation to 'in Danger' listing (Report on the Joint WHC/IUCN Reactive Monitoring Mission (Carter & Thulstrup – UNESCO 2022), State Party response (2023) and UNESCO response (2023). – Since 2010, WHC has raised concerns that activities within the Reef Region are irrevocably threating the OUV of the Reef. – Reactive monitoring missions conducted in 2012 (14 recommendations); 2013 WHC decision to consider inscription on List of world heritage in Danger, in the absence of substantial progress. – 2014 WHC acknowledged progress e.g. 2013 Reef Water Quality Improvement Protection Plan and intention to focus port development to priority areas. – 2014 Outlook Report – overall outlook for Reef is poor; climate change poor water quality, coastal development are major threats. – 2015 adoption of Reef 2050 Plan with framework to protect the WHA (Reef not inscribed on In Danger List). – 2017 WHC concern at coral bleaching and mortality in 2016-17. – 2019 Outlook Report – long term outlook for the ecosystem of the Reef deteriorated from poor to very poor; more rapid and widespread deterioration of	eReefs Satellite tracking improves conservation outcomes for nesting hawksbill turtles in Solomon Islands. *Biological Conservation* 261: 109240 (Hamilton RJ et al. 2021). Bell I. et al. 2020. Marine turtle monitoring. In: Pilot trip to Coral Sea Islands: Report on an environmental assessment of six islands in the Coringa-Herald group of the Coral Sea Marine Park, December 2019; Eds Hemson G. and Melzer R. QPWS & Partnerships, DES. Environmental assessment of the Coringa Islets and Herald Cays in the Coral Sea Marine Park (Hemson et al. 2019) CITES		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		ecological processes; progress insufficient in meeting key targets of Reef 2050 Plan, especially related to water quality. Required revision of Reef 2050 Plan, accelerate action to address climate change (in accord with Paris Agreement on Climate Change and create opportunities for recovery) – 2022 Joint WHC/IUCN reactive monitoring mission (21-30 March 2022) to assess whether updated Reef 2050 Plan adequately addressed threats posed by climate change and provides a pathway for accelerated actions in other areas affecting conservation of the Reef. Key findings: – OUV 'considerably impacted by climate change factors, and that the resilience of the property to recover from climate change impacts is significantly compromised, in particular due to degraded water quality and fisheries' (p.27) – Management frameworks, strategies and plans in place to protect OUV lack of clear climate change targets and implementation measures are not fully implemented, particularly in relation to water quality and fisheries activities. – Reef 2050 Plan promotes advancement of climate change mitigation commitments under the Paris Agreement target (1.5oC), but associated plans and strategies referred to in the Plan do not provide any clear pathway to avoid significant negative impacts to the OUV.	Queensland managed fisheries assessed under the EPBC Act Seagrass Watch Marine Monitoring Program Reef Advisory Committees Reef partners Increased involvement with Great Barrier Reef Foundation projects Lady Elliot Island Ecosystem Resilience Plan Raine Island Recovery Project Resilience Hot Spot Mapping Reef 2050 Plan Indigenous Implementation Strategy Traditional Owners and Sea Country in the Southern Great Barrier Reef - Which Way Forward?		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Increasing investment in research into coral restoration etc – **Need more concrete actions** that are sufficient to conserve the OUV under global temperature increase scenarios. – **Recommend Reef be inscribed on List of WH in Danger**. – State Parties responses (13 September 2022,10 March 2023 and 6 June 2023) – have implemented policies and committed new funding to address the WHC/IUCN recommendations; $1.2 B of new funding to help build Reef resilience, improve water quality and protect marine life (total investment of >$4.4B); committed to "ambitious action on climate change and increased investments to protect Reef"; legislated 2030 target to reduce GHG emissions to 45% and net zero emissions by 2050 (refer IN1). – WHC response (31 July 2023) – Acknowledged improved responses by the State Party to identified recommendations. – '..the property remains under serious threat and urgent and sustained action to implement the priority recommendations of the mission is essential in order to improve the long-term resilience of the property' (p.28). – Concerns expressed in relation to ongoing land clearing in the Reef catchment, the scale and			

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		frequency of bleaching events have impacted many species including coral, seagrass, dugong and bony fish – Recommended to re-evaluate whether the Reef meets the criteria for inscription on the List of World Heritage in Danger at the 46th session of the Committee (i.e.2024). – WHC response (September 2023) – Decision to not consider the Reef for inscription on the List of World Heritage in Danger based on the 'increased action Australia is taking to protect the Great Barrier Reef). – Key recommendations focused on action to address climate change, support Reef water quality and sustainable fisheries, improved data validation and addressing threats to protect species from fishing gear. • Climate change (refer also PR3 relating to governance) – presents a very high risk for the region and especially Reef biodiversity due to elevated water temperatures, increased levels of acidity, more frequent and severe cyclones etc. Climate change targets are set internationally and the Australian and State Governments respond to these targets. At times there are policy inconsistencies across jurisdictional levels where policy on climate change, for example, may be insufficient to			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		address predicted impacts on the Reef. These mismatches may require transformative governance responses. – State Party report to World Heritage Committee reflect understanding of national and international influences and has resulted in expanded research to document and understand the condition and trend of biodiversity in the Region. – The Reef Authority and Parks Australia joined over 30 international agencies to sign a joint International Statement on Climate Change and Biodiversity Loss (2021) that highlights support for protected areas.. • Endangered species – DES Threatened Species Operations has led the development of a **Conservation Strategy for marine turtles** in Queensland that recognises our dependence on effective conservation management of marine turtles in neighbouring regions and countries for maintaining sustainable populations of these migratory species within the Marine Park. Satellite telemetry and flipper tag recovery data show that: the declining hawksbill turtle foraging populations within the Reef originate from nesting populations in Papua New Guinea, Solomon Islands and Vanuatu; the majority of green turtles nesting at Raine Island originate from foraging areas in Torres Strait and Gulf of Carpentaria where there are no marine			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		protected areas for facilitating sustainable shallow coastal foraging areas; and green turtles of the Coral Sea genetic stock that nest on islands within the Coral Sea Marie Park migrate mostly form shallow foraging habitats within the GBRMP. – **Wildlife Trade Operation (WTO) approval** decisions **under the EPBC Act have influenced fisheries**. These include: The WTO approval for Queensland East Coast Inshore Fin Fish Fishery was revoked in 2020; Sea Cucumber Fishery (East Coast) WTO approval in 2021 prohibits the export of black teatfish; and Queensland Coral Fishery WTO approval in 2021 includes numerous new conditions and recommendations related to harvest controls – Since 2019, two sea cucumber species relevant to commercial fisheries have been listed on Appendix II to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), including: black teatfish (*Holothuria whitmaei*), white teatfish (*Holothuria fuscogilva*). – Other species relevant to commercial fisheries will have **Appendix II CITES listings** come into effect in next 12 to 18 month. These include: prickly redfish (*Thelenota ananas*), amberfish (*Thelenota anax*) and requiem sharks (Family Carcharhinidae) – Since 2019, **the European Union has banned the import of five coral species** from Australia and the United			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Kingdom has banned import of all corals from Queensland. – In response Reef 2050 LTS Plan. • Wetlands – The Ramsar Convention aims to reduce global loss of wetlands and conserve and manage remaining wetlands. Further information can be found on Wetlands Info site. • Waterbirds – There are a range of conventions, partnerships, agreements, legislation and strategies that relate to the protection and management of waterbirds and their habitats (refer WetlandInfo).			
CO5 The **stakeholders** relevant to biodiversity are **well known** by managers.	4	• Key stakeholders or actors are **well known to managers** and include: – Government institutions and agencies – National, state and local governments – the Reef Authority – Reef Advisory Committees (Indigenous and Tourism) (advise on actions to address risks to Marine Park) – Local Marine Advisory Committees (LMACs) (diverse composition and work at local and regional scales) – Scientific Expert Panel (provides input into implementation of Reef 2050 Plan)	RJFMP Restoration of Reef Islands Project Plan Eye on the Reef RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System Reef Regional Report Card Partnerships and report	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Natural resource management groups – Queensland Wetlands Governance Group and Reef Wetlands Network – Non-institutional (independent with their own policy and delivery frameworks) – Traditional Owners, including four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), who undertake 'cultural referrals'. Participate in Values Based Mapping (23 island protected areas have had a values assessments undertaken, including five assessments that were completed with first nations partners for Cape York Peninsula Aboriginal Land). – various industry sectors (fisheries, tourism, mining, agriculture) and other user groups (Defence) – environmental NGOs – international, national and local – public interest groups – research institutions and universities and schools (Reef Guardian Schools). Increased collaboration between RJFMP and technical experts to strengthen research and monitoring for improved management of the Reef (RIMReP) in areas specific to seabird monitoring, cay geomorphology and island biosecurity. – Reef users (e.g. ongoing engagement with permit holders)	cards: Wet Tropics, Dry Tropics, Mackay-Whitsunday-Isaacs, Fitzroy Basin, Gladstone Health Harbour		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– the community and individual citizens– local, regional, national and international (refer to PR3 on governance) – mass media – political parties • The Reef 2050 Plan supports best practice and community stewardship activities that contribute to Reef Health and resilience (Action EHA28). Stakeholder engagement is a strong component of the Reef Authority's management. • Great Barrier Reef Marine Park Authority Actor Network Mapping project: Mapping working agreements between the Marine Park Authority, partners, stakeholders, and community of practice: This project maps the existing actors within a network that connects the Reef Authority to the organisations and institutions they engage for research and management practice. The goals are to: provide information to the Reef Authority's science for management sector; identify gaps in existing Reef management partnerships; and inform management decision-making process by identifying actors in the Reef management landscape solely from a Reef Authority centric perspective. • Stakeholders have been engaged in Marine Monitoring Program, previous Outlook reports, Whitsunday Plan of Management, Reef 2050 Plan, policies and position statements and RIMREP, Annual Consensus workshop for humpbacks			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Pest/threat/impact mitigation actions undertaken by the RJFMP Restoration of Reef Islands Project (2020 – 2025; Reef Trust-funded) will be co-designed and co-delivered by trained, volunteer and/or employed Traditional Owners. Addresses 2018 actions EHA3 and CBA3/2021 Strategic Actions 5.1 and 5.3 and Enablers A.5 and B.4. Challenges: • Greater engagement with: – non-TUMRA Traditional Owner groups in line with the Reef Authority's position on, and progress towards, Traditional Owner co-management of the Marine Parks – community groups, in particular, local and regional groups to ensure that they can participate and contribute to improved Reef management, particularly in the face of ongoing climate change.			
PLANNING					
PL1 There is a **planning system** in place that effectively addresses biodiversity	3	• The planning system plays an important role in achieving biodiversity outcomes. It aims to support biodiversity and Reef outcomes, but some of the **challenges facing the Reef are increasing in scale and complexity** and include threats such as climate change, poor water quality, coastal development, expanding infrastructure and many others. • Planning to achieve effective biodiversity outcomes for the Reef is **spatially complex** as it spans marine and terrestrial	• Acquisitions to Protected Area Estate (GBR Island Arks Acquisitions Project) include priority parcels of island land that provide improved biodiversity conservation outcomes, visitor experiences, and opportunities for co-	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		environments, requiring effective coordination of actors and systems. – **Marine spatial planning** implements ecosystem-based management based on integrated, multi-objective marine plans that are comprehensive, participatory and utilise good governance structures (refer PR3). Reef planning incorporates marine protection, Traditional use of marine resources, support for local economies, addressing climate change impacts, developing financing mechanisms, supporting research, and good governance etc. – **Terrestrial spatial land use planning** in the Reef context focuses on catchment-based planning for NRM and traditional land-use planning (refer PL2). • The planning system relevant to biodiversity also comprises planning that is undertaken at various levels (**vertical** i.e. international, national, state, regional and local); and across sectors (**horizontal** i.e. planning across state agencies, or across regional NRM bodies or local governments). • The system **is complex**, with a diversity of legislation, plans, policy, strategies and guidelines (refer PL2) that apply at multiple scales. There are **increasing challenges in ensuring effective integration of these documents and effective implementing, resourcing and monitoring**.	management with First Nation's Peoples. • Wild Duck Island lease– 118 ha former tourism lease - protects the largest flatback turtle rookery site for the Eastern Australian stock for this species; consolidates the tenure of the entire island into protected area management. • St Bees lease–4.2 ha former residential lease site consolidates the entirety of the island into the protected area estate. It adjoins South Cumberland Islands NP, at 3160 ha. The site contains important conservation values with over 70% mapped as remnant vegetation and essential habitat for the koala and flatback turtles (threatened species under the NCA). The site's previous lease		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The **key components** of the planning system for the Reef include: – **International frameworks** that set global standards to which the planning system needs to respond (e.g. climate change, endangered species, wetlands, migratory species etc). – The **Australian Government** coordinates management through the Reef Authority (the principal adviser to the Commonwealth). There is a range of national government legislation, policies, strategies and planning that reflect international obligations. – The **Reef Authority** is the lead management agency for the Reef and reports to the Commonwealth Minister for the Environment. The Reef Authority provides technical advice on Reef-related matters to other Commonwealth departments and the Queensland government. It partners with the Queensland government under the Intergovernmental Agreement. The Marine Parks are jointly managed, although the Queensland Government also has jurisdiction over coastal waters. There are complementary arrangements over the Marine Park. The Reef Authority undertakes **strategic planning and statutory planning** (regulation of activities in the Marine Park e.g. zoning plans). It has established internal structures and processes to plan and manage the Reef.	use has had significant negative implications for conservation and management of the surrounding national park. Protects important foreshore habitat in the Marine Park, provides protection from impacts, inappropriate use, and assists in the future protection of important regional ecosystems and species on the island. • Long Island Broad Sound lease- 3,495 ha former grazing lease site provides connectivity to existing national park tenure, protection to large estuary, mangrove and wetland systems, and Regional Ecosystems 'of concern', and other significant ecological values. The rehabilitation, restoration and ongoing management of Long		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **State government** planning involves, among others, statutory planning, vegetation planning and management, coastal planning, biodiversity/conservation planning, protected area planning and sectoral planning related to tourism, mining, agriculture, ports etc. **Land use planning takes place mainly in the Reef catchments** and addresses decisions concerning the location, scale and use of land. – the **Queensland Planning Act 2016** aims to protect ecological processes and natural systems from local to national levels. A key instrument is the planning scheme which guides appropriate outcomes for the use and development of land. Planning aims to identify areas with high biodiversity value and manage uses and development in these areas so that impacts on biodiversity are avoided or minimised. – The **strategic planning framework** allows for the identification of areas of higher value for biodiversity (e.g. wetlands, forested catchments etc) at the landscape scale; considers impacts of use or development (including cumulative impacts) on biodiversity; directing use and development away from higher value areas; establishing clear expectations for where use and development can occur, and by coordinating approvals and offsets.	Island is likely to be considerable and take several years to restore degraded grazing impacts. Made a significant contribution to the conservation of the Broad Sound region of the GBR, e.g. critical rookeries for the vulnerable Flat Back Turtle, as well as many other species. • Other acquisitions progressing on leasehold and freehold properties that will provide important conservation value land to an expanded PAE in the GBR, e.g. Restoration Island tourism lease 15.3 ha, Long Island Baffle Creek freehold 35.92 ha, Curtis Island grazing freehold 296.23 ha, and Magnetic Island freehold 2.7 ha. (timeline unknown) • Esplanades- The closure of 9 esplanades (road		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– However, **planning undertaken by local government through planning schemes is limited to regulating new use and development and has little ability to address impacts of historical depletion of biodiversity**. – **Regional** (catchment planning, NRM, Landcare etc) – **Local government planning** (planning schemes, strategies, policies etc). Reef Guardian Councils work to address matters relevant to protecting the Reef. – **Sectoral planning** – Industry (cane growers, pastoralists, mining, ports etc), research organisations and universities). • The Intergovernmental Agreement sets a framework for joint coordination of planning and management, however, "*the process is complicated due to overlapping permits*" (Workshop participant 2023). • **The effectiveness of the planning system depends on the integration of planning and related plans within the system and the linkages among the key actors within the system**. However, "*the different players in the system often have different objectives and this complicates planning and management*" (Workshop participant 2023). • **Climate change** is having a significant impact on biodiversity.	reserve tenures) on national park islands in the Reef added 1,049 ha to adjacent PAE and reduced inappropriate uses and impacts to the sensitive coastal zone on foreshore areas, including bird and turtle habitats, consolidates tenure and provides vital connectivity of the protected area estate. Has improved habitat management capacity over the frontal dunes at Wreck Rock, which support the second largest nesting population of loggerhead turtles in E. Australia. USL islands – The GBR Island Arks Acquisition project has completed an evaluation of islands across the GBR and have identified islands and parcels of high conservation significance for inclusion into the PAE.		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– '*We don't have a planning process or system that is fit for purpose in addressing climate change*' (Interviewee 12, 2023). – '*The Reef Authority is focused on reacting to current threats in its tactical work. It hasn't developed a more strategic view on how to tackle climate change impacts over time*' (Interviewee 12, 2023). • Several **key acquisitions** have been made to extend the protected area estate (see evidence). Consideration of Queensland State islands is a factor that influences the Region (noting that the islands are not explicitly included in the Region). Challenges: • Establishing effective review processes to assess the planning systems and related plans to ensure that they are delivering on outcomes for Reef biodiversity, including effectively addressing climate change at all levels of planning from national to local levels and other potential impacts. • Reviewing and implementing the recommendations of the Samuel (2020) review of the EPBC Act and subsequent Nature Positive Plan (2022) • Working across sectors to effectively address catchment-based planning issues.	The majority of the islands are unallocated state land (USL). The addition of (~144) USL island parcels into PAE provides inclusion of important regional ecosystems and other key conservation values into the GBR's protected area. • Ecological site inspections undertaken to assess and plan for future management requirements, and engagement with First Nations peoples and other stakeholders are ongoing.		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Effectively addressing emerging threats such as climate change in a range of integrated plans. • Integration of plans and processes across jurisdictions. "*With a range of different players in the (planning) system they often have different objectives. For example the Marine Park Act outlines clear values for the marine park, but fisheries may manage for different objectives*" (Workshop participant 2023) and these need to be more aligned. • Improving **regional and development planning** to better address biodiversity and restore ecosystem health. Consideration of the nature of regions is challenging as regions may extend from hinterland areas within the catchment, to the coast, and inshore and offshore areas.			
PL2 The **planning system** for biodiversity **addresses the major factors influencing** the Great Barrier Reef Region's **values.**	3	• The planning system, with its multiple components, has delivered a diverse range of documents that address the Reef region's values (refer to the extensive list provided in the evidence). However, the continuing decline in the health of the Reef indicates potential limitations of the planning system in being able to combat threats to the Reef region. • There is a complex array of panning documents to support biodiversity conservation. Key components of the planning system relating to biodiversity include the following. **Reef 2050 Plan** (2021-25)	Register of planning documents (DES) Policies plans and position statements (Reef Authority) Provision Reef – Promoting Sustainable Reef Harvest Fisheries (East Coast trawl) Management plan 2010 Reef 2050 update on progress	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Biodiversity is specifically addressed in the Plan, which focuses on a range of issues and threats affecting the Reef. It is intended to guide governments, community and industry in their work to achieve clear targets for improving the condition of the Reef. It sets out desired outcomes, objectives, targets and actions for protecting the Reef's OUV and is underpinned by RIMReP. • Its actions in relation to biodiversity focus on ensuring impacts on Reef health and resilience are considered in planning, developing coastal hazard responses, improving connectivity and resilience through protection, restoration and management of Reef priority coastal ecosystems. – The Plan lacks sufficient statements regarding the impacts of climate change and the impacts of extreme weather, although it does outline a strategic approach for monitoring bleaching risk and assessing coral bleaching impacts when events occur. – The Plan needs 'greater ambition beyond 'business as usual' and requires clear indicators for success and adaptive management' (Carter & Thulstrup 2022). Climate change needs to be pivotal within the Reef 2050 Plan. • Nature Positive Plan: better for the environment, better for business (2022) (DCCEEW)	Coral bleaching risk and impact assessment plan Lady Musgrave Reef Site Management Arrangements. Great Barrier Reef Blueprint for Resilience vulnerability assessments Reside et al, 2017, Great Barrier Reef: Clearing the way for reef destruction, Nature Great Barrier Reef Marine Park (Declaration of No-Anchoring Areas — Townsville/Whitsunday Management Area) Notifiable Instrument 2021 Great Barrier Reef Strategic Assessment Report, Chapter 5 The Queensland Plan Coastal Protection State Planning Regulatory Provision 2013		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Describes circumstances where nature (species and ecosystems) is being repaired and is regenerating rather than declining. • New National Environmental Standards (NES) will be designed (refer PR13). • A key approach will be increased focus on **regional planning** (which was a focus of activity from the 1980s to early 2000s with the development of the State Coastal Management Plan and related regional coastal management plans, regional NRM plans across all Reef catchments, and various water quality plans). The new regional plans will be informed by conservation plans and underpinned by good data and made in accordance with a Regional Planning Standard. The regional plans and NES will provide greater certainty in relation to where development impacts will be prohibited. Zoning Plan • Primarily aims to protect biodiversity. It provides spatial control of use and, to a lesser extent, access within the Marine Park. It establishes the framework for extractive use and the **need for permits** for some uses, such as tourism, and fishing. Zoning plans are developed under Part 5 Division 2 of the Great Barrier Reef Marine Park Act 1975. Complementary arrangements are in place in adjacent areas under Queensland jurisdiction.	Code of Practice for Dwarf Minke whale interactions Emergency disposal of foreign fishing vessels Examples of policies and position statements re: dugong, protected species, sharks & rays, translocation and guidelines (see GBRMP website: http://www.gbrmpa.gov.au/about-us/legislation-regulations-and-policies/policies-and-position-statements) ANAO performance audit The Conservation and Protection of National Threatened Species and Ecological Communities Australian National Biodiversity Strategy Australian Ballast Water Management Requirements		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Has adopted complementary commercial net fishing restrictions already in place under Queensland marine park legislation to support dugong conservation. Applies to the Species Conservation (Dugong Protection) Special Management Area of Bowling Green Bay and in the Habitat Protection Zone (HP-19-5171) to protect dugongs from the risk of entanglement in fishing nets between the high and low water mark. • An Australian Academy of Science (2023:32) survey of Round Table participants noted that 82% supported a **revision of management zoning plans** to encompass catchments to deep water. Legislative and Regulatory provisions • *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* is the national central piece of environmental legislation. It identifies MNES (including nationally threatened species and ecological communities, migratory species, wetlands protected under the Ramsar Convention and WHAs such as the Reef). Any action that may impact a listed MNES requires assessment and approval. – The Reef Authority, in relation to MNES, provides advice on whether a proposed action is likely to have an impact on MNES and joint assessments are conducted when a decision is made on an EPBC referral in relation to a	Hinchinbrook Island National Park Management Plan 2017 Hinchinbrook Island National Park Visitor Strategy 2017 QPWS Management Statements QPWS Management Plans Lady Elliot Island Ecosystem Resilience Plan Field Management Program Annual RHIS Project Plans Field Management Program Annual COTS Response Project Plans QPWS Fire Strategies Crown-of-thorns starfish control program Register of planning documents DES Declaration of No-Anchoring Areas —		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		controlled action (refer Deemed applications under the EPBC Act. – However, the Samuel (2020) review of the EPBC Act, highlights limitations in the Act that affect joint planning and decision making. The Nature Positive Plan (2022), which describes the EPBC Act as ineffective, inefficient, failing to value Traditional Knowledge, relying on inaccessible and dated data, and weak compliance and enforcement, sets out a new path to enhance environmental outcomes (refer above).. – Biosecurity Act 2014. • The planning system must consider various international conventions e.g. Ramsar, JAMBA, CAMBA and ROKAMBA. • **Nature Conservation Act** 1992 provides strong legislative basis for biodiversity management and control of potential impacts across the region (including islands). • Planning Act 2016 establishes the planning instruments that support plan making, development assessment and dispute resolution. It aims to establish an efficient and accountable system of land-use planning and development assessment to protect ecological processes and natural systems from local to national levels. It sets out a number of planning tools, such as local government planning schemes, State Planning Polices (SPP) and Regional Plans relevant to biodiversity. This legislation is important in addressing coastal development and establishing relevant codes to minimise the impact of development on sensitive habitats.	Townsville/Whitsunday Management Area Notifiable Instrument 2021 RMS Curtis Island National Park Management Statement (2019) QPWS Management Plans Sustainable Fishing Strategy 2017-2027 QPWS Management Statements (see QPWS – Nature Conservation Act – QLD islands within WHA) Paddock to Reef Integrated Monitoring, Modelling and Reporting Program No-anchoring areas reduce coral damage in an effort to build resilience in Keppel Bay, southern Great Barrier Reef Reef Joint Field Management Program: Annual Business Plan Summary 2022-23		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Biodiversity can be recognised in conservation areas, through purposeful zoning to restrict uses in areas of high biodiversity value and overlays that impose additional requirements for permits etc. • Several other relevant Acts include the Vegetation Management Act 1999 and Water Act 2000. • The **Coastal Protection State Planning Regulatory Provision** (SPRP) contains policies for coastal-dependent land uses and developments that are required to take precautionary measures when developing in sensitive marine and coastal environments. • 58% of no-anchoring areas legislated within the Marine Park (June 2021) (Increase from 33% in 2019). The Reef Authority and DES continue to progress towards the target of all no-anchoring Areas within the Marine Park legislated. – In 2020, the Reef Authority used a **Notifiable Instrument** to legislate no-anchoring areas within the Whitsunday Planning Area (rather than the previous method of a Plan of Management or Regulation amendment). • The management of wetlands are formalised in laws passed by the Qld and Commonwealth governments and through international obligations and management agreement i.e. Ramsar. The laws, policies and programs are described on Wetland info website.	Reef joint Management Program Business Strategy Summary 2022 to 2026 Reef HQ Position statements/policies/guidelines: Managing Scientific Research in the Great Barrier Reef Marine Park Guidelines for the Management of Artificial Reefs in the Great Barrier Reef Marine Park Guidelines for Managing Visitation to Seabird Breeding Islands Ecological Risk Assessment of the East Coast Otter Trawl Fishery in the Great Barrier Reef Marine Park NESP Projects AIMS LTMP Reef Monitoring - AIMS Fish Aggregating Devices and Artificial Reefs. Literature review of		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The State Planning Policy (SPP) (2017) includes policies that promote access to coastal waters and the foreshore as a means of providing significant benefits to the community through a number of recreational uses and for commercial operations (e.g. tourism). • Amendments to the *Great Barrier Reef Marine Park Act 1975* e.g. to provide additional protection for dugong and turtle populations from the threats of poaching, illegal trade and illegal transportation and increased civil penalty provisions. • Single impact assessment system applies to the marine park - to better integrate the Great Barrier Reef Marine Park Act 1975 and Great Barrier Reef Marine Park Regulations 1983 with the national environment law—the Environment Protection and Biodiversity Conservation Act 1999. • Fish Habitat Areas are declared under Qld Department of Primary Industries and Fisheries legislation. • Plans of management – Complement Zoning Plan and impose controls on the granting of permissions. – Identify arrangements for activities, areas, species or ecological communities, including with community groups with a special interest in an area, including some form of Native Title; and complement zoning and permitting arrangements. Some components are legally	benefits and negative impacts for the Great Barrier Reef? QLD Threatened Species Program (2020) Threatened Species Program 2020-2040 (www.qld.gov.au) Queensland Threatened Species Program | Environment, land and water | Queensland Government (www.qld.gov.au) Reef Authority ELibrary: Crown-of-thorns starfish Strategic Management Framework RJFMP Annual Business Plan Summary Reef Authority ELibrary: Reef Joint Field Management Program: Annual Business Plan Summary 2022-23 RJFMP Program Business Strategy Summary 2022-2026 Reef Authority ELibrary: Reef joint Management Program		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		binding. POMS are developed under Part VB of the Great Barrier Reef Marine Park Act 1975. – Whitsundays POM (2020) (seabirds such as black naped and bridled terns protected by extending the time vessels and aircraft cannot access nesting areas during key nesting periods) (under review); Cairns Area POM 2008 (revised version currently being considered by the State); Hinchinbrook POM 2004; Shoalwater Bay (Dugong). – New POMs will include MERI framework to assess effectiveness of POM strategies. 'Policies' include strategies, policies, site management arrangements, position statements and guidelines: • *Strategies* – Reef 2050 Plan – Implementation Strategy – The 25-Year Strategic Plan for the Great Barrier Reef World Heritage Area outlines strategies for to manage, preserve and wisely using the World Heritage Area. – Conserving Nature - a Biodiversity Conservation Strategy for Queensland (2022) – Reef Authority Communication Strategy 2021-2024 (2021).	Business Strategy Summary 2022 to 2026 GBRMP Regulations - assessment criteria for identifying and analysing impacts (s103)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Reef Authority Roadmap to net zero by 2030 (2022) - The greenhouse gas emissions reduction strategy will set new targets with enabling initiatives that move the Reef Authority towards net zero emissions in their operations by 2030 (for Scope 1* and 2^) including the development of a plan for net zero for Scope 3# emissions. This will incorporate new pollution prevention practices, waste minimisation measures, and more efficient use of resources. – Queensland Protected Area Strategy 2020-2030 – Queensland Marine Turtle Conservation Strategy (2021-2031). – Pest control strategies e.g. Crown-of-thorns starfish Strategic Management Framework – Tourism management action strategy (2021) – Queensland Sustainable Fisheries Strategy (2017-2027) – Wetlands in the Reef Catchments. Management Strategy 2016-21 (update expected 2023) promotes an integrated approach to catchment management that considers the multiple values of wetlands and identification of threats/pressures in a whole-of-system context. – Great Barrier Reef Climate Change Adaptation Strategy and Action Plan 2012–2017. • *Policies* – Great Barrier Reef Interventions Policy (2020) – to assess restoration and/or adaptation intervention			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		proposals and decide whether to grant a permission or authorise the activity (e.g. interventions may be stabilising reef substrate, local and regional cooling and shading to reduce coral stress, assisting coral adaptation to warming oceans etc). – Dredging and Dredge Spoil Material Disposal Policy (2019) – Cruise Shipping Policy for the Great Barrier Reef Marine Park (2019) - guides protected area managers making decisions on cruise ship operations within the Reef and informs cruise ship operators, booking agents and tourists of management arrangements. – Cumulative impact management policy (2018) – targeted at the Reef Authority and other government agencies. Encourages decision making that identifies past, present and reasonably foreseeable pressures; examines their combined effects on the Ree values; and designs and applies appropriate management measures to avoid and mitigate impacts. – Net benefit policy (2018) – decisions and actions to reduce pressures and impacts on the Reef deliver a positive change in the condition and trend of Reef values. – Managing Tourism Permissions to Operate in the Marine Park – Policy on Managing Bareboat Operations in the GBR Marine Park – Marine Tourism Contingency Plan			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Dredging coral reef habitats (2016) - development of new marine infrastructure or the expansion of existing marine infrastructure does not have an adverse environmental impact on coral reef habitats in the Marine Park. It details what is activities are unlikely to be granted a permission (e.g. capital dredging of live coral reef habitat). Environmental impact management. – Policy on Moorings in the Great Barrier Reef (2014) provides a framework for the management and use of tourism and recreational vessel moorings that protects the environment and promotes ecologically sustainable access to the Reef. Moorings maintenance has improved through auditing. – Policy on Managing Activities that include the direct take of protected species from the Marine Park – Managing scientific research in the Great Barrier Reef Marine Park – Operational Policy on Whale and Dolphin Conservation in the Marine Park – Sewage discharges from marine outfalls to the Great Barrier Reef Marine Park – Structures Policy – a range of policies that relate to the protection and management of waterbirds and their habitats (refer wetland info) – Reef Authority policies and position statements			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Permission System Policy (2017) – to enable the Reef Authority and QPWS to implement a permission system that achieves the objects of the Commonwealth Marine Park Act and Queensland Marine Parks Act (Marine park permission system) – The use of Hydrodynamic Numerical Modelling for Dredging Projects in the Great Barrier Reef Marine Park - to ensure good baseline information is gathered dredging/habitat modification activities. – Queensland Environmental offsets policy – Planning for priority ports – Traditional use of marine resources (refer TUMR topic – Table 47) • *Site management arrangements* – Site Specific Management Plans for Raine Island, Moulter Cay and MacLennan Cay; Low Isles, Clump Point, Mission Beach; Michaelmas Cay locality; Upolu Cay Reef; Bauer Bay; South Molle Island; Blue Pearl Bay, Hayman Island; Whitsundays Plan of Management setting 5 site plans; Tongue Bay; Hill Inlet and Whitehaven Beach; Fitzroy Reef; Keppel Bay and islands; Lady Elliot Island Reef; Lady Musgrave Island Reef – John Brewer Reef Site Plan (2021) – Site Planning is often reactive rather than proactive when it comes to protecting biodiversity (e.g. a site plan for the Keppels has not been developed; yet commercial			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		aquarium fishermen through ProVision Reef have agreed voluntarily to stop collecting corals there due to the impacts from coral bleaching). • *Position statements and management statements* – Since 2019 eight **management statements** have been prepared under the Nature Conservation Act 1992, including one co-designed with a first nations partner; 23 island protected areas have had a values assessments undertaken (five assessments completed with first nations partners for Cape York Peninsula Aboriginal Land). (Refer PL2-PL9). – Raine Island National Park (Scientific) – Management Statement 2021 (under DES VBMF) incorporates: Raine Island, Moulter Cay and MacLennan Cay. Provides strategic management direction for key values (Section 4) and meeting custodial obligations across eight management themes (Section 5), including managing access to the Restricted Access Special Management Areas surrounding Raine Island (Raine Island Recovery Project. A Resource document includes information about the park, including as a significant cultural and story place for First Nations peoples, historic heritage values and biodiversity values as one of the world's largest remaining nesting populations for green turtles and significant seabird rookery. – Conservation of dugongs			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Translocation of species in the Marine Park. – Reef Authority Position Statements are used to influence matters outside of the Reef Authority's direct jurisdictional responsibility (refer Policies, plans and position statements) and include: – Position Statement - Fishing (2020) – Position Statement - Water quality (2020) – Position Statement - Climate change (2019) - explains the causes of climate change, why it's the greatest threat to the Reef, and that actions are needed at all levels. – Position Statement - Coastal ecosystems (2018) – Position Statement - Marine debris (2019) – Position Statement - protected species Queensland East Coast Inshore Finfish Fishery (2007) – Position Statement -sharks and rays in the Queensland East Coast Inshore Finfish Fishery (2007) • *Guidelines* – National Guidelines for the Survey of Cetaceans, Marine Turtles and the Dugong (2023) – Joint Guide for Current Permit Holders (2021) to help current permit holders navigate permits, understand how to be a responsible permit holder and know the general requirements when operating in the Marine Parks. – Draft Artificial Reef Guidelines and FADs			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Activity impact assessment guidelines e.g. pontoons guidelines (2019) – Environmental Management Plan Guidelines – Improved Assessment and decision Guidelines (2019) (refer PL6) – Applications for Joint Permissions Guideline (2017) (to deliver a consistent and transparent application process that complies with legislation, standards and policy). – Australian National Guidelines for Whale and Dolphin Watching (2017) – Best environmental practices for diving and snorkelling - communicate preferred behaviours and are available for tourists and recreational users to minimise impacts on biodiversity. – The Next Generation Tourism Planning: A Guideline for planners in Queensland (2017) – addresses how to achieve good planning outcomes for tourism in natural environments. – Reef Trust offsets – Coral transplantation – Management of artificial reefs in the Marine Park – EPBC Act referral guidelines for the Outstanding Universal Value of the WHA – Guidelines for Hydrodynamic Modelling (of Dredge Spoil) – National Assessment Guidelines for Dredging (2009)			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Dugong conservation in the Great Barrier Reef Marine Park (2007) Other plans and educational material • As part of the Reef Authority's Policy and Planning Strategic Roadmap, to deliver a proactive and risk-based approach to policy, planning and regulation, the Policy team has commenced (mid-2022) **a rationalisation of all external facing policies relating to management and protection of Marine Park values**, including biodiversity. An expected outcome is management tools that are understood, fit-for-purpose, flexible, responsive and aligned. There is a high priority need to review and update **species-related policies**, including the Reef Authority's relevant statutory instruments. • Reef Blueprint update (due 2023) – emphasis on climate change adaptation and promoting actions through a 'resilience network' of sites that have the best chance of supporting system-wide resilience and recovery following disturbances; includes 10 key initiatives to build Reef resilience. • Reef Islands Initiative (2020-22)– a large reef rehabilitation project involving local communities and tourism operators, who undertake on-ground and in-water actions to protect and restore critical high-value island habitats e.g. 12.4 ha revegetated on Lady Elliot Island, 125% increase in turtle			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		habitat, seagrass restoration in Whitsundays (Pioneer Bay) and coral larvae collection and reseeding trials. • Reef Islands Restoration (2020) ($5.5million) to undertake threat mitigation, restoration and revegetation of critical island habitat; delivered by the Reef Authority, Traditional Owners and Indigenous rangers with RJFMP officers. • Threatened species action plan (2022-2032) (DCCEEW) - Includes Raine Island (Qld) as a Priority Place and Green Turtle as priority species. • **Regional Catchment Strategies** provide an integrated framework for the management of land, water and biodiversity. They provide a framework in which local governments can align their planning to achieve regional biodiversity objectives. • Science and Knowledge Needs for Management (2020). • **Crown-of-thorns starfish Strategic Management Framework** (2020). • **Reef Restoration and Adaptation Program** (refer CO2). • Development of new spatial plan by the Reef Authority – commencing in southern region to be implemented by 2025. • Recovery plan for marine turtles in Australia 2017-2027 (DCCEEW 2017) • Reef 2050 Water Quality Improvement Plan addresses impacts on Reef habitats from catchment and coastal run-			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		off. The Reef Plan guides how industry, government and the community will work together to improve the quality of water flowing to the Reef. • https://www.nespmarine.edu.au/Water quality improvement plans and Healthy waters management plans address impacts on the Reef coming from Reef catchments investigate ways to protect the Reef. Plans are in place for Burnett Mary Regional Group; Cape York NRM; Fitzroy Basin Association; NQ Dry Tropics; Reef Catchments (Mackay Whitsunday Isaac); Terrain NRM • National Invasive Ant Biosecurity Plan 2018–2028 • Queensland Ecotourism Plan 2013 - 2020 • Lady Elliot Island Ecosystem Resilience Plan (2020) maximise resilience to climate change and other stresses by enhancing natural vegetation communities, minimising impacts of introduced flora and fauna, and maximising breeding opportunities for important coastal birds and marine turtle species while having regard to existing footprint and uses. • Threat Abatement Plan for the impacts of marine debris on vertebrate marine life - provide a framework for the abatement of injury and fatality to marine species caused by harmful marine debris. • Values-Based Management Framework (QPWS) and values assessments completed for Qld islands, within WHA but not the Region). All management statements under the VBMF			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		have clear objectives, outcomes and strategic management directions for key values of the protected area, e.g. Raine Island National Park (Scientific) - Management Statement 2021 (Incorporates: Raine Island, Moulter Cay and MacLennan Cay) • The Queensland Plan will outline a shared vision for the next 30 years and identify local and state-wide priorities. • Annual Operational Plans • Species specific plans e.g. marine turtles, dugong – help to stabilise populations, although recovery remains weak. – National Dugong and Turtle Protection Plan 2014-17 – Nest to Ocean Turtle Protection Program • The management of wetlands are formalised in laws passed by the Qld and Commonwealth governments and through international obligations and management agreement i.e. Ramsar. The laws, policies and programs are described on WetlandInfo website. • A range of conventions, partnerships, agreements, legislation and strategies relate to the protection and management of waterbirds and their habitats (WetlandInfo website). • The Queensland Ecotourism Plan 2013 - 2020 • **Vulnerability Assessments** (VAs) identify those elements of biodiversity that need specific attention as well as actions to address them. They document the status of species and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		ecosystems in and adjacent to the Reef, the ecosystem services they provide, the pressures they are experiencing, how they are managed and actions or potential actions that may be used to maintain their health and resilience. Twelve VAs have been completed (including seagrass, shorebirds, sharks and rays, inshore dolphins). No recent progress. • Trawl plan includes requirements for TEDs for Turtles, BRDs for other bycatch/fish. Permission system, permits and compliance • There have been ongoing enhancements to Reef Management System and Permits online. – A range of permits are in place to regulate entry and use as a means to better protect biodiversity values. Enforcement assists in the delivery of the outcomes of the Zoning Plan. – EAP is developing internal documents such as templates, guidelines and procedures which are used to administer the Permission System e.g. A Guide for Current Permit Holders developed with QPWS (2021) to help current permit holders navigate the complexities of permits, understand how to be a responsible permit holder and know the general requirements when operating in the Marine Parks.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Provide greater clarity and guidance for permissions applicants, accredited institutions. This includes: an updated risk assessment procedure to consistently consider all values of the Marine Park (e.g. biodiversity); guidelines for considering indirect or flow-on impacts that may be caused by a proposal; guidelines on the use of drones; expanding opportunities for tourism-related whale-watching; changing the types and frequencies of inspections required for fixed facilities; easy-to-read fact sheets for the permission system including types of Permissions. • Enforcement of the Zoning Plan and permits is improving due to the extension of vessel monitoring across the commercial fishing fleet, better targeting of compliance actions based on risk assessment that prioritises impacts on protected species, and improved monitoring technology. • Australian Academy of Science (2023:32) notes that current permitting processes 'lack the capacity to make decisions based on weighing up risks, benefits or competing outcomes. Instead there is a focus on the risks created by the intervention (i.e. restoration activities face the same permitting questions as an extractive or destructive activity, preventing timely action).' • Challenges: – Despite a plethora of legislation, policy, plans and strategies biodiversity is in decline in the region			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		indicating limitations in the ability of current plans (and the planning system, refer PL1) to effectively address direct, indirect and cumulative impacts from development (refer CO2, CO3, CO4). – The Nature Positive Plan (2022) highlights the importance of reinvigorated regional planning. Forward looking regional plans that address biodiversity and natural resource management can assist in better protecting biodiversity from a range of threats and begin to address cumulative impacts more appropriately, especially from coastal development. – Australian Academy of Science (2023) notes: – a lack of clarity concerning the laws and regulations that support the development of Reef interventions at scale; – difficulties harmonising overlaps in cross-jurisdictional regulations e.g. in relation to seagrass and mangrove protection.			
PL3 **Actions** for implementation regarding biodiversity are **clearly identified** within the plans	3	• Actions relating to biodiversity are identified in a range of documents (refer PL2). • Reef 2050 Plan has both broad and more specific actions: – prioritise **functional ecosystems** critical to Reef health in each region for their protection, restoration and management (Action EHA7); – maintain and work to add to the **island and coastal protected area estate** and continue to provide funding	Commonwealth marine bioregional plans NERP Projects Reef 2050 Plan – Implementation Strategy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		for protected area management in the Reef coastal zone (EHA9); – improve **connectivity and resilience** through protection, restoration and management of Reef priority coastal ecosystems including islands through innovative and cost-effective measures (EHA10); – reduce crown-of-thorns starfish outbreaks by continuing to **improve water quality** and undertaking a targeted control program as needed. Improve integration and effectiveness of crown-of-thorns starfish research and management (EHA12); – implement **ecosystem health** initiatives through the Reef Trust Investment Strategy (EHA14); – implement conservation plans for **priority species of conservation concern** (BA16); and – ensure that through the Field Management program resources are available for island habitat restoration projects and pest eradication particularly at critical seabird and turtle nesting sites (BA24). • The 2022 Joint WHC/IUCN reactive monitoring mission (21-30 March 2022) notes that while the Reef 2050 Plan promotes advancement of climate change mitigation commitments under the Paris Agreement target (1.5°C), in part to address biodiversity, the **associated plans and strategies referred to in the Plan do not provide any clear pathway to avoid significant negative impacts to the OUV** (i.e. including its biodiversity).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Reef 2050 Water Quality Improvement Plan 2017-2022 has a range of actions that address water quality and impacts on biodiversity. • Wetlands in the Reef catchments, Management Strategy 2016-21 presents the policy drivers that inform action, the values and pressures on these wetlands and coastal ecosystems, and outlines management actions within five themes. • The Great Barrier Reef Blueprint for Resilience identifies a number of actions including: identify and protect resilience bright spots; expand and extend of COTS control detailed (refer IN1); protect key species for reef recovery. • Threatened species prioritisation framework is being developed by DES. • Threatened Species Action Plan 2022-2032 maps a pathway to recovery for Australia's threatened wildlife, spanning terrestrial, marine and freshwater environments. This includes species of sharks and turtles (p.43-44). • **Pest and Weed Management Strategies** developed by QPWS at various islands in the WHA identify a range of action statements. • The **Reef Joint Field Management Program has SMART actions and targets** for protection of biodiversity values (refer annual reports and the FMP Annual Business Plan). • **Species management plans, including Threatened species plans** with specific actions are in place for many species including marine turtles.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– A range of local scale plans identify local actions including: fire strategies, pest strategies, monitoring and research strategies and biosecurity plans for priority island National Parks under the Values Based Management Framework. • COTS Control Program (refer section 3.2 of Crown-of-thorns starfish Strategic Management Framework and annual work programs). • **Macroalgae Removal Trials Magnetic Island** – Interim Report outlines actions (in order of priority) for the 2019-2020 financial year to develop larger scale restoration techniques to protect/restore coral reefs. Challenges: • Ensuring generic actions in higher level plans are adaptable to local and regional scales and are able to be modified as new research and circumstances change.			
PL4 **Clear, measurable and appropriate objectives** for management of biodiversity have been documented	3	• As is standard practice in planning, most planning documents identify clear, measurable and appropriate objectives (refer PL2, PL3). • Reef 2050 Plan includes 20 objectives for the Reef. Many objectives refer to the Reef being 'healthy' and/or 'resilient'. The objectives apply from local to Reef-wide scales. The objectives are designed to be measurable, interpretable, sensitive to scale and reliable. Relevant objectives from the Reef 2050 Water Quality Improvement Plan 2017-2022 have been incorporated into the Plan's objectives.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef 2050 Objectives and Goals 2021-2025 explores the Reef 2050 Plan's objectives in more detail, explaining their meaning and relevant indicators. Examples of objectives include, coral reef habitats maintain good condition and resilience (indicators include percent of hard coral cover, coral disease per unit of coral cover etc); populations of seabirds and shorebirds are healthy etc. Challenges: • Ensuring that all objectives (and goals) have greater clarity to enhance transparency and enable effective monitoring of outcomes from plans and other documents.			
PL5 There are plans and systems in place to ensure appropriate and adequate **monitoring information** is gathered in relation to biodiversity	3	• *"Our broad knowledge of the Reef has improved. The Reef is a massive system to monitor and we are doing OK"* (Workshop participant 2023). • There are over 90 monitoring programs related to biodiversity within the Region. – They monitor *"the effect of impacts on biodiversity…the missing link is attribution of those effects to one or more impacts (including cumulative impacts)"* (Workshop participant 2023). • Existing monitoring represents about 40% of the environmental regimes of the Reef (Mellin et al. 2020, Bozec et al. 2022). • Monitoring and Evaluation Plan (Reef Trust Partnership).	Water Quality Improvement Plans Reef 2050 Long-term sustainability plan Reef 2050 Plan – Implementation Strategy Regional Report Cards (addresses the condition of waterways): Gladstone Healthy Harbour Partnerships Report Card Mackay-Whitsunday-Isaac Healthy Rivers to Reef Partnership Report Card	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Reef 2050 Integrated Monitoring and Reporting Program (RIMReP) is a key initiative of Reef 2050 Plan. It will establish a framework for standardised and integrated ecological, social and economic monitoring in coastal and marine areas. It will focus initially on establishing an integrated monitoring program for the WHA. The aim is to develop a framework that could be adapted and applied to other coastal and marine regions in the future. RIMReP draws on existing monitoring programs (refer below). – **The first phase** of RIMReP systematically identified critical monitoring activities needed to support an integrated program (ended June 2019). – Through **Phase 2** of the Reef Trust Program (RTP), funding was available (through Great Barrier Reef Foundation) to make a signification contribution to address priority gaps as identified within the Priority monitoring gaps prospectus: Reef 2050 Integrated Monitoring and Reporting Program (2021). A total of $13.1 million for 11 projects was funded in 2021. The projects cover the biophysical, cultural and socio-economic contexts of the Reef, including inshore dolphins, seabirds, island habitats, including invasive species and seabirds and Reef fish (latest project overview document). Support through the RTP will continue to deliver project outcomes that fill critical monitoring gaps identified	Wet Tropics Healthy Waterways Partnership Report Card Dry Tropics Partnership for Healthy Waters Report Card Fitzroy Partnership for River Health RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23 RIMReP Annual Business Plan 2021-22 RIMReP Annual Business Plan 2020-21		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		during the Program design phase. Includes the Paddock to Reef program. – A centrepiece of RIMReP is the interactive online Reef Knowledge System — providing up to-date information about the Reef to guide effective management decisions. It will show monitoring and modelling data from a wide range of sources in useful and interactive ways. A demonstration site was released in 2020, with further enhancements being undertaken. – A fit for purpose **Data Management System** (DMS) is the critical infrastructure to underpin the successful delivery of RIMReP and related reporting activities, management systems and decision support tools. The scoping phase of the DMS in 2020-21 identified the size, scale and maturity of data sets critical for initial inclusion in RIMReP; defined the infrastructure requirements and environments and the best estimate of ongoing operational requirements. It will collect data and metadata from data providers, store/cache data collections, apply transformations and provide a delivery mechanism through a rich API interface. It will include an interoperable metadata sub-system: an open and easily accessible catalogue, based on standards, of all datasets relevant to RIMReP. The design and build of this fit for purpose DMS for RIMReP will occur over 2022-23 and 2023-24.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– *'Do we have all the inputs we need going into the DMS? We have AIMS data and social monitoring data and the like, but little reconnaissance data and more regular citizen science data'* (Interviewee 12, 2023). • The **Reef Joint Field Management Program** - received Reef Trust Partnership funding in 2022 to coordinate three projects funded through the RIMReP: development and deployment of **biosecurity monitoring tools**; **seabird monitoring**; and **Island habitat monitoring** (through the Island Watch Program that gathers data on pest incursions, emerging threats and impacts on key values). – **Island habitat monitoring**: Improving the scale and accuracy of Regional Ecosystem mapping for islands throughout the WHA; conduct fauna surveys on selected island national parks to improve knowledge and enhance the skills of staff and First Nations Peoples; increase knowledge of cays within the WHA through geomorphological and vegetation classification of cay subtypes, and assessment of vulnerability to the impacts of climate change; collect contemporary baseline data; and develop a methodology for the ongoing surveillance of the condition of key value. – QPWS delivers management planning for **island protected areas** using the Values Based Management Framework. The first step in this			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		process is a values assessment in which the key values of that protected area and the threats to them are identified. The values are assigned current condition scores desired conditions and broad strategic management directions to get there are established. – The RJFMP Restoration of Reef Islands Project (2020-25) is assessing the condition of *Pisonia grandis* forests and communities in the northern and far northern Reef with special reference to the presence of key threats e.g. urbicola soft scale and its invasive ant mutualists. – The program uses **Health Checks** as a tool for efficiently and routinely assessing the condition of key park values (4748 reef health and impact surveys were submitted by 143 people in 2021–22) and undertakes ongoing **bird monitoring** under the guidance of relevant seabird and shorebird monitoring strategies. – The **Sightings network** uses a smartphone app to enable any user to access Marine Park zoning in real-time and report interesting/unusual sightings (3226 sightings by 321 people were submitted in 2021–22 (Reef Annual Report 2021-2). – Seabird monitoring: trialling methods to improve ability to detect population trends and identify reasons for change through more accurate monitoring of breeding			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		pairs and through developing methods to measure fledging success. – Coastal Bird Monitoring and Information Strategy 2015 - 2020 provides for the ability to evaluate the status of seabird populations and their demographic trends. Threats to all significant seabird nesting sites in the Reef was compiled as part of a draft report (due June 23) on the adequacy of protection and management of seabird nesting sites by RJFMP. – Biosecurity surveillance and monitoring tools: – National Invasive Ant Biosecurity Plan 2018-2028: eDNA - increase capacity for early detection of four invasive ant species (yellow crazy ants, red imported fire ants, electric ants and tropical fire ants) by screening for eDNA in soil samples (with James Cook University); CritterPic – trialling camera box units with a long-life bait system to detect and identify pest rodent species utilising artificial intelligence (with Murdoch University). – Hazard map for the Reef to predict regions with a lower risk of persistent warning and coral bleaching - Oceanographic drivers of bleaching in the GBR (Vol 3) (Klein et al. 2021) and Oceanographic drivers of bleaching in the GBR (Vol2) (Langlais et al. 2021)			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• AIMS long term monitoring program provides data on coral cover, coral bleaching, COTS numbers, major fish species and benthic organisms. • Marine Monitoring Program has provided long-term data on the condition and trend of inshore (within about 10km of the Queensland coast) water quality, coral and seagrass and the land-based run-off pressures that impact on them since 2005. This small part of the Reef is fundamental to support biodiversity, Traditional Owner cultural values, tourism and a range of other uses. Monitors 21 inshore reefs. • The RJFMP Technology Transformation Program 5-year Strategic Plan identifies the technology solutions and the trial and implementation of methods to improve biodiversity understanding and management. (e.g. nesting turtle and seabird surveys, island geomorphology change monitoring and COTS surveys and cull planning). • Ranger BoT (QUT) and Reefscan (AIMS) developed a modular suite of automated marine monitoring systems that translate field data into comprehensive information about the state and health of critical marine ecosystems by employing autonomous surface and sub-surface high resolution benthic survey technologies to survey reef habitats and detect COTS, to inform seagrass, and reef health monitoring, island pest programs and incident response. This will increase the area and depth range of coral reefs and other habitats (e.g. seagrass) that can be			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		surveyed. Data accuracy, precision and collection efficiency can be increased using these systems. The applications are nearing operationalisation stage for implementation. – *Aerial monitoring* – drones deliver real-time perspective on coral reefs, survey shallow, clear-water reef flats, mangroves and provide information on water quality, temperature, coral reef health, bathymetry maps and island mapping e.g. QPWS Marine are implementing drone technology for island mapping, turtle and seabird monitoring, fire management and reef surveys. Further applications and implementation to work programs are underway; – *Autonomous Surface Vessels* – operate in hazardous locations, at night, and cover large areas; can tow sensors, undertake shallow water bathymetric surveys and collect water samples, collect information on bleaching, COTS and other threats; WAM-V (Marine Advanced Robotics) – sonar bathymetry surveys and benthic imaging, especially in shallow reef-flats; – *Reefscan Transom* – optical imaging system and AI computing capabilities mounted on a crewed or autonomous surface vessel; user-friendly – enables people to collect and share marine monitoring data without getting in the water; – *CoralAUV* – can navigate physically intricate environments exposed to strong, complex currents; high			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		accuracy cameras and sensors and other instrumentation; enables repeat surveys to inform management. • **Dugong surveys** (James Cook University) - provided through the Reef 2050 RIMReP funding. • **Turtles** (TurtleNet): – **Long term monitoring of nesting turtle** at Mon Repos, Wreck Island through QPWS (Col Limpus): nesting turtles at index monitoring sites: Loggerhead: Wreck Rock, Wreck Island, Mon Repos, etc; Green, nGBR stock: Raine Island, Milman Island; Green sGBR stock: Hero Wreck and Lady Musgrave Islands; Flatback: Curtis, Peak, Wild Duck and Avoid Islands; Hawksbill: Milman Island. Foraging turtles: Hoiock Reefs: green and hawksbill turtles; Port Curtis: green turtles; Moreton Bay: green and loggerhead turtles. – Finalise and implement the **Queensland turtle strategy**. The RJFMP GBR Green Turtle Research Program (2020 – 2025; Reef Trust-funded) is filling critical information gaps in our understanding of the population dynamics of northern Reef green turtles through: i) broad-scale aerial surveys of potential nesting beaches in the northern Reef and Torres Strait to determine nesting distribution and abundance; ii) foraging ground population monitoring to define population structure, sex ratio, recruitment and annual abundance of northern GBR			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		green turtle stocks and; iii) satellite telemetry to define habitat use of nGBR adult males during foraging, courtship and breeding migrations. – The Rivers to Reef to Turtles project aims to identify and measure the key pollutants in rivers, the Reef and in green turtles themselves. – A number of marine turtle rookeries along the coast have been identified under the Nest to Ocean Turtle Protection Program for active nest protection and predator control efforts to reduce the threat posed by feral pigs and other predator species. • DES in collaboration with UNEP Convention for Conservation of Migratory Species provides a mapping tool (TurtleNet) for displaying distribution and abundance of **marine turtle nesting, migration data and population trend** that is freely accessible to government agencies and the general public. • **Ship of opportunity** – involves a large commercial ship (Rio Tinto), fitted with sensors/collection devices, collecting information as it travels through the Reef shipping channel. The information collected is used to develop models and tools to better understand ocean chemistry. • **Boat-based surveys** have been conducted along the Northern Reef. • DES **Wildlife Threatened Species Operations** coordinates annual monitoring or all species of nesting marine turtles in			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		eastern Australia at the key index sites identified within the Conservation Strategy for Marine Turtles in Queensland - data are collated into the Queensland Marine Turtle Conservation Data Base and displayed to the general community via TurtleNet; trend data from index beach monitoring by species can be downloaded in graphical form using TurtleNet; maintains a relational database (StrandNet) that collates reports of strandings of sick, dead, injured marine Megafauna (Cetaceans, dugong, pinnipeds, turtles) within Queensland with capacity for analysis of distribution, abundance of strandings in response to threatening processes. • Eye on the Reef **program** is run by the Reef Authority for tourism industry staff and the wider community. It captures spatial status information from hundreds of reef locations. Visitors to the Reef collect information about reef health, marine animal and incidents. Tourism operators undertake weekly observations at specific sites providing early warning data (517 site monitoring surveys in 2021-2). • Several non-government-funded research projects are underway (run by the **Reef Foundation**) to complement and add to the monitoring and understanding of condition and trend of biodiversity. The Reef Authority has an MOU with the Great Barrier Reef Foundation to influence and direct some of these projects. See projects currently underway detailed below.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The **Reef Restoration and Adaptation Program** (RRAP) is collaborative long-term research and development program to develop, test and risk-assess novel interventions to help build resilience of the Reef under a changing climate. It aims to develop a toolkit of effective, at-scale Reef interventions that are feasible, safe, acceptable and affordable. The program is currently in the research and development phase. The 'Ecological Intelligence for Reef Restoration' sub-program of RRAP aims to fill key foundational knowledge gaps essential for the interventions – including data on region-, temperature- and species-specific coral life-histories. • **The Outlook Report is updated and published every five years** and includes an assessment of the value, condition, trend, impacts, effectiveness of management and risks of threats associated with biodiversity. • Regional Report Cards. • RAMSAR reporting. • MERIT provides consistent reporting across all programs, collects data linked to Australia's biodiversity conservation work and displays aggregated program information in publicly accessible dashboards. • **IMR RTP Sustainable use and benefits monitoring project (SEABORNE)** (2021-2024) - will design a monitoring program to help managing agencies make informed decisions about striking the right balance between sustainable use and long-			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values. • IMR RTP Integrated Reef stewardship monitoring project (PROTECT) (2021-2024) - will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes. No results yet. • IMR RTP Monitoring collective capacity and implementation (Governance) (2021-2024) - will develop a monitoring framework to assess how these different components of various plans are working together to achieve improved Reef health. No results yet. Challenges • Cumulative impacts monitoring. • Comments from workshop participants (2023) included: – Ensuring RIMReP provides clear guidance and coordination of monitoring activities, including the needs and methods to ensure the data is compatible with the Reef Knowledge System. Not much has happened since the expert reports and recommendations were developed.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– *"We are good at monitoring species to extinction. We need to take this information and connect it to positive action".* – *"High profile species have good monitoring. Elsewhere there are lots of gaps".* – *"If it is not a fisheries species of importance then often nothing is happening in terms of ongoing monitoring".*			
PL6 The main **stakeholders** &/or the local community are **effectively engaged** in planning to address biodiversity	3	• Stakeholders, including the local community, (refer CO5) are routinely included in a comprehensive range of planning processes related to biodiversity (refer PL2, which lists major planning documents and instrument and related evidence including strategies and plans that list relevant stakeholder engagement; and PL5 which addresses monitoring and related stakeholder engagement). It is difficult to assess how effective this engagement is, without some form of stakeholder evaluation or assessment process. • **Engagement can involve a spectrum of activities** that require different levels of engagement, timeframes, resources and concern about decisions that are made (IAPP 2018, based on Arnstein 1969). For example, engagement in relation to Biodiversity: – **1. Frequently consists of 'informing'**, i.e. providing balanced, objective information to assist in understanding a problem, alternatives, opportunities and/or solutions:	The Raine Island Reference Group Raine Island Scientific Advisory Group	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Targeted education and stewardship programs** assist the Reef Authority to establish mutually beneficial relationships with the community and others at all stages of learning. – Threatened Species Operations provides annual training in monitoring of marine turtle populations and nest protection for community Citizen Science volunteers and indigenous rangers at Mon Repos Conservation Park. – **Reef HQ Great Barrier Reef Aquarium**, the Reef Authority's national education centre for the Reef fosters community and stakeholder behaviour change and participation in actions to address threats to the Reef by ensuring they have a clear understanding of the value of the Reef, the threats to its sustainable future and the actions they can take to protect it. This is primarily done through the Reef Education team's virtual connections program and local community events. – Reef HQ volunteer program. – The Reef Authority's Education, Stewardship and Partnership Section build capacity, partnerships, voluntary compliance and innovation amongst Reef users. – The **Reef Education** team are delivering educational programs through the virtual outreach program to educate people about the Reef and its			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		value, the threats to its stainable future and to encourage participation by taking action to address threats to the Reef. – AIMS, JCU and CSIRO address biodiversity issues at the level of species or habitat protection through research and monitoring, and provision of information to address management issues. – **Reef Knowledge System** is available to all stakeholders to raise awareness of relevant Biodiversity issues. – A number of community events are run by Queensland Government Wetlands program including the annual World Wetlands Day on 2 February. – Local governments and a range of sectors (agriculture, fishing, tourism) also inform stakeholders on issues relevant to biodiversity. – 2. **often consists of 'consulting'** (to obtain feedback on analysis, alternatives, decisions) – The Reef Authority Board, Reef Advisory Committees and LMACs comprise diverse stakeholders who provide advice on a range of planning matters related to biodiversity. – Walking the landscape involved a number of stakeholders including scientists, farmers, extension officers, and governments. – **Information/data collection** - through various programs and a range of sources, which informs			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		management decisions and provides evidence-based advice to the government, the public and stakeholders. Information is shared with various stakeholders, through publications such as the Reef summer snapshot and Marine Monitoring Program reports, along with briefings and engagement opportunities. – There is a high-level regulatory requirement for stakeholder engagement and education through zoning plans, policy and Plans of Management, e.g. **public submission requirements** exist for policy development and public meetings for site planning. – Development of new southern POM will include formal public consultation and targeted consultation with to address a range of biodiversity issues. – Local governments and a range of sectors (agriculture, fishing, tourism) also consult stakeholders on issues relevant to biodiversity. – 3. **may incorporate 'involving'** (work directly throughout the process to ensure relevant concerns/aspirations are understood and considered) – **RJFMP partners** with the Queensland Wader Study Group, Traditional Owner Groups and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Birdlife Australia on their seabird and shorebird programs. – **Trained community volunteers and indigenous rangers** may be provided with Turtle Conservation Collaborating Partner Authorisation to facilitate their application of the training in turtle conservation actions within their home beaches. – The Science and Knowledge Needs facilitates discussion between scientists and Marine Park managers about scientific projects that will help inform Marine Park management, especially high priorities. – Major Integrated Programs – Burdekin and Wet Tropics aim to reduce nutrient, sediment and pesticides loads into waterways in the Wet Tropics and Burdekin regions. Both groups have been engaged on behalf of a broader consortium of partners, including industry groups, science institutions, and non-government organisations. – **Master Reef Guides Masterclasses** bring together key stakeholders and community to work with tourism operators and their guides to deliver current best practice tourism operations. Master Reef Guides are trained to a high standard and present the Reef's values, including its biodiversity, to the community and tourists regularly.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– RIMReP partners provide a forum for cross-agency advice, coordination and input, including stakeholder advice. – LMAC supported projects. – Reef Guardians, including Reef Guardian Councils. – Eye-on-the-Reef. – Local governments and a range of sectors (agriculture, fishing, tourism) also involve stakeholders on issues relevant to biodiversity. – 4. less frequently involves 'collaborating' (partnering with relevant groups in each aspect of the decision – developing alternatives, identify preferred solution) and 5. "empowering' (to place final decision-making in the hands of others. – TUMRA Traditional Owners are engaged with the Reef Authority in planning and on-Country work. However, the links from the community, through their coordinators to the Reef Authority and relevant committees and boards could be strengthened. Non-TUMRA groups are less well engaged, lacking capacity and resources to access country and undertake planning and management. – Tourism operators work collaboratively with the Reef Authority to ensure best practice outcomes for biodiversity (refer Commercial Marine Tourism, Table 35). • Challenges			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– 'Deep, meaningful, respectful and consistent engagement with each community is essential. And it must be tailored to their specific characteristics … and (provide) real empowerment' (Chubb 2023:3). – Ensuring on-going and effective engagement with Traditional Owners. – Staff shortages limit the ability of Reef Authority officers and staff, including rangers to engage with stakeholders more fully. – COVID-19 impacted on the ability of rangers to access remote communities and undertake relevant work in relation to planning and Traditional use of marine resources.			
PL7 **Sufficient policy** currently exists to effectively address biodiversity	3	• Refer PL2 where a range of policy documents are discussed (refer evidence also). • **Planning and Policy Roadmap** – will focus the Reef Authority's efforts to deliver a proactive, contemporary and risk-based approach to Marine Park policy, planning and regulation that will protect key values and enable ecologically sustainable use for a changed and changing Reef. This includes assessment and rationalisation of Reef Authority policies. Challenge:		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Developing more effective policy in relation to climate change at a whole of government level that can inform action to enhance biodiversity outcomes for the Reef (refer Table 33). This may require consideration of more transformative governance and policy outcomes.			
PL8 There is **consistency across jurisdictions** when planning for biodiversity	3	• There are multiple actors and levels of planning related to biodiversity (refer CO5, PL6, PR1 about stakeholders) and hence multiple jurisdictional considerations. • The Intergovernmental Agreement for the Reef is the overarching coordination document ensuring consistency across jurisdictions. Schedules attached to the IGA provide for **consistent management for the RJFMP, fisheries and the** Reef 2050 Plan. There are many examples of consistency (e.g. complementary zoning, joint permitting, plans of management, port management plans, defence environmental planning, shipping planning). • Permits Online – recent enhancements allow for greater consistency and efficiency for permit applications including development of six Routine (standardised) permit examples for low-risk activities. Updated permission system policy and new guidance documents. • *Lack of consistency* is experienced in relation to the Queensland Fish Habitat Zone and Marine Park Authority Habitat Protection Zone. • Comprehensive strategic assessment provides strong alignment for planning. There are improved Assessment and decision guidelines.	RIMReP program governance RIMReP Business Strategy 2020-25	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef 2050 Integrated Monitoring and Reporting Program (RIMREP) vision is to develop a knowledge system that enables resilience-based management of the Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing, i.e. progress towards targets and objectives under the seven themes. It takes place across jurisdictions from Paddock to Reef, including monitoring and reporting for paddock, catchment and marine. – The Paddock to Reef Integrated Monitoring, Modelling and Reporting program (Paddock to Reef Program) reports on the Reef 2050 Water Quality Improvement Plan targets and objectives. It takes place across jurisdictions from Paddock to Reef, including monitoring and reporting for paddock, catchment and marine. – RIMReP's Reef Knowledge System and the Data Management System, aims to assist the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement – The RIMReP governance groups oversee the Program, setting strategy and direction and managing risk. Partners signed a RIMReP Collaboration Statement. Challenge: • "*Some gaps remain, particularly with local governments and catchment planning groups*" (Interviewee 2023).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PL9 **Plans** relevant to biodiversity provide **certainty regarding where uses may occur**, the type of activities allowed or specifically disallowed, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.	3	• Refer PL2 for a discussion of key plans relevant to biodiversity (and related evidence). • **The zoning plans** (Reef Authority and GBRCMP) aim to provide certainty for what activities can occur in what zones. **Activities that require a permit** (e.g. **ports, dredging, pontoons, tourism** programs) are assessed on a case-by-case basis. – 'Caps' on certain activities are only enforced through an assessment where a site plan/plan of management exists. In those cases, the main type of activity managed in any 'cumulative manner' is tourism visitor numbers, vessel size and pontoons in high tourism areas. – Permits have spatial restrictions in their core matters, and additional conditions may be included based on the risk assessment of impacts of that activity. Therefore, through the permissions system, 'circumstances where impacts are likely to be acceptable' are generally considered as part of the assessment processes. – Cumulative impacts of multiple permits are considered/addressed through site plans/site management arrangements. • **Scientific research**, especially around research stations is also managed on a case-by-case basis. Research station manages are engaged in site management in the relevant scientific research zones through joint Marine Parks permission system referrals. Conditions may be added to the	Activity Assessment - Activity not mentioned or considered in the preparation of a Plan of Management (2021) Activity Assessment - No or low adverse impact activity under clause 2.3B of the Whitsundays Plan of Management 1998 (2021) Types of Permissions Fact Sheet (2022) Research Permissions Fact Sheet (2022) Fisheries Permissions Fact sheet (2022)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		permit, where appropriate to spatially and/or temporarily limit research activities. Station managers separately collect research activity information at the various sites/ – The Reef Authority also requests research collection reports. Current research take is generally unknown and is an identified gap (Workshop participant 2023). – All research permit activity reporting is done through Permits Online, generating a searchable database on reported take (or other research activity). – The Reef Authority is entering historical reported research activity data to integrate into a database and this may help in the assessment of cumulative take (Workshop participant 2023). • The joint Marine Parks permissions system provides better clarity to Permit applicants. – Permits Online - a new online portal to submit applications and manage all permissions and contact details; enhancements allow greater consistency and efficiency for permit applications, including development of six Routine (standardised) permits for low-risk activities. – Review of over 1,100 standard conditions in permit templates undertaken to ensure conditions are consistent, contemporary, enforceable, relevant and easy to understand for permit holders (2019-22; planned completion June 2023). Of these 1,100 conditions, 50			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		conditions related to commercial harvest fisheries will be reviewed. A jointly approved internal procedure with QPWS has been approved in 2022 to ensure the periodic review of conditions continues following completion of this work. • Preservation zones, dugong protection areas provide restrictions on activities that may impact on areas of particular biodiversity significance. – Updated and new guidance documents and permission system policy e.g. Policy on Great Barrier Reef interventions; Draft Artificial Reef Guidelines; a series of easy to read fact sheets for the permission system (e.g. types of permission, research, and fisheries). – Updated checklist of information required at the time of permit application. – Longer permit terms up to 20 years. – Improved Assessment and decision Guidelines (2019) – guidance about the application and interpretation of legislation and policy relevant to assessing and deciding Marine Park applications to use and enter the Marine Park. Targeted at Reef Authority staff and applicants, permission holders and the general public. The aim is to ensure decisions within the permission system are fair, transparent and consistent and contribute to achieving the objects of the Marine Park Act.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Two flexibility Guidelines - to assist with the assessment of new activities not previously considered in Plans of Management. • Four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi) have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. Challenge: • Ensuring flexibility in plans (i.e. in relation to where uses may occur) as the Reef changes as a result of climate change impacts.			
INPUTS					
IN1 **Financial resources** are **adequate and prioritised** to meet management objectives to address biodiversity	3	• Funding progress related to Reef 2050 Plan's biodiversity commitments are difficult to determine, with some lack of transparency in tracking not only government funding allocations, but also those from other management organisations and industry sectors. Assessing adequacy and prioritisation are difficult. • Increasing funds have been allocated by the Commonwealth Government to address a range of matters affecting the Reef. Adequate financial resources are needed to halt and reverse the downward trend in reef health, improve biodiversity knowledge and increase understanding of factors impacting on biodiversity and ecosystem processes.	Reef 2050 Integrated Monitoring and Reporting Program All Reef Trust investment Strategies Biodiversity Offsets Policy Reef Trust offsets calculator Field Management Plans Field Management Program Annual Report Summary Documents Australian Government Reef Program	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The largest of the Commonwealth Government's environment measures in the 2022-23 budget is a $1.2 billion investment over nine years (to 2029-30) in the Reef (David & Bathgate 2023) – the. Previous funding amounted to $2.1 billion from 2014-24. Key components are listed below. What is missing from this tranche of money is **the absence of specific additional commitments to address climate change**, the key driver of reef decline (although perhaps some of the research funding may be applied to this). - $421.5 million is committed to 2025-26. - $30 m (2021-23) going to the Reef Trust Special account for Reef 2050 Plan. - The package focuses on (refer Budget measures: Budget paper no. 2): – **Water quality improvement** ($579.9 million) to reduce run-off and meet WQIP targets (refer Table 42); – **Reef management and conservation** ($253 million) for COTS control program ($161.4 million); remaining funds allocated to the Reef Authority to aid compliance and enforcement of regulations, expansion of TUMRAs and enhancing Traditional Owner engagement in Reef management; and reactivation of the Tourism Industry Activation and Reef Protection Initiative – supporting 17 tourism operators contracted to conduct site stewardship activities (e.g. coral healthy surveys and COTS control).	Reef 2050 Plan investment framework Reef Island Refuge Initiative Reef 2050 Plan – Implementation Strategy		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Reef restoration and adaptation** (directed via the Reef Trust): $85m over 8 years for interventions at the reef scale aimed at artificially engineering reefs that are more resilient to warmer ocean temperatures e.g. seeding reefs with larvae of corals that show adaptation to warmer water and marine cloud brightening (to generate larger and more reflective clouds over the ocean to cool the water underneath; unspecified funding for research under the Reef 2050 Long-Term Sustainability Plan. – **Strengthening partnerships and stewardship**: for Traditional Owner and community led projects ($35.9 million) including reef protection projects; investment in fisheries catch monitoring and validation; and other undeclared projects. • Other funding in this package includes: – $63.3 million to support research by AIMS, which includes: – $37.1 million over three years from 2021-22 to increase research capability – $26.5 million to remediate AIMS' Cape Cleveland wharf (south of Townsville). – $12.4 million to the Reef Authority to extend fee relief to local tourism businesses in the Marine Park impacted by Covid-19. • Reef Recovery 2030 fundraising campaign (Reef Trust Partnership) – aims to scale private investment in Reef protection efforts using the initial Australian Government			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		grant as leverage to attract corporate partners and philanthropists. As of June 2022, $240m has been leveraged (67% of the target identified in the Collaborative Investment Strategy). • **Previous funding** (prior to 2022-23 FY) – The **Technology Transformation Program** is funded internally on an annual recurring basis for operations and capital. A further $1.5M for 2021-23 is provided for the AIMS/QPWS shared benthic survey technology development project, mooring systems technology solutions and field monitoring technology solutions. – **In 2022 the RJFMP** finalised its five-year expansion implementing 12 key investment areas. Government base funding has doubled over five years from $17m to over $38m (Reef Annual Report, 2021-22). This will support up to **194 Program–funded staff**, a **fleet of 22 vessels** and an improved capacity to deliver field operations and respond to incidents. – In 2022-23 the **RJFMP** will have oversight of over $60 million (around 31% is from other sources of funding). The anticipated RJMP funding available is $41,538,138. In addition the Program will oversee an anticipated $18,613,311 in funding from a number of other sources on behalf of QPWS and the Reef Authority. – Reef Restoration and Adaptation Program (RRAP) involves diverse partners to help resist, adapt and recover from impacts of climate change. The program supports 34 muti-institutional projects. $104.5 million is			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		available through the Australian Government Reef 2050 budget for prioritised Reef 2050 Plan actions (through Reef Trust), and the Reef Foundation and research partners ($50 million), with a further $92.7 million committed over the next eight years. – Significant financial resources being allocated to addressing **major threatening processes** impacting on biodiversity such as water quality, COTs and coral bleaching. – **COTS Control Program** (2012 to June 2020) - the Australian Government committed to invest $34.5 million; program aims to protect coral (with the majority of sites valued highly for tourism); included investment in culling vessels. A **'COTS strategic management and contingency plan'** has been drafted and is expected to be approved by the Reef Authority by the end of 2023. – Resources significant for water quality improvement through Reef Plan, management of COTS, but scale and scope of these impacts is whole-of-Region and very large. – A $225 million **Reef Trust** - delivered by the federal government in collaboration with Queensland government - to manage the Reef. – **Offsets** delivered through the Reef Trust aim to deliver an environmental outcome that maintains the condition of the impacted MNES. Offsets are required under the EPBC Act and associated Environmental Offsets Policy. (Note: there are no activities within the Marine Parks			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		boundary that have been permitted and required offsetting). – Considerable financial resources are allocated to improve biodiversity knowledge and increase understanding of factors impacting on biodiversity and ecosystem processes through institutions such as AIMS, National Ecosystem Research Program, Regional NRM bodies, Great Barrier Reef Foundation and other Commonwealth and Queensland Government programs. – Australian Government Reef Program – has six integrated components within the Reef catchments including: Water Quality Grants and Partnerships; Systems Repair and Urban Grants; Water Quality Monitoring and Reporting and Research and Development; Land and Sea Country Partnerships; Reef Authority Reef management system and reef resilience programs; Reef Island Refuge Initiative (island arks) (a network of climate change refuges will be established on five Reef islands (Australian Government has contributed $5 million for five years to this $14 million, 10-year program). Challenges: • "*We have good understanding (of biodiversity) and enough plans, but we don't have sufficient finances and staff resources to implement all of this*" (Workshop participant 2023).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• "*Big dollars are needed. The cost of fixing biodiversity is high and the scale is big*" (Workshop participant 2023). • "*It will take decades to bring the Great Barrier Reef back to the resilience we would like… We need to maintain representative species and ecosystems in the decades to come… We are finding ways to enhance the recovery of some species* (e.g. turtle) and systems (e.g. coral reefs) *while we deal with bigger problems such as climate change… We should have more emphasis on how to deal with issues today and take action to keep species and systems functional, while the bigger picture is corrected*" (Workshop participant 2023).			
IN2 **Human resources** within the **managing organisations** are adequate to meet specific management objectives to address biodiversity	3	• This indicator addresses the capacity of all the actors/managers to set and deliver policies, programs, instruments, programs and other activities to achieve the desired outcomes related to biodiversity. There is no overall monitoring of this indicator across all relevant Reef 'managing organisations' and it is difficult to assess effectiveness. • Based on the 2022 review of the RJFMP, increased joint base funding will now support up to **194 Program–funded staff**, including an improved capacity to deliver field operations and respond to incidents. Recruitment to the final 34 Program positions will be completed in 2023. • Since 2019 Reef Authority efforts have been refocussed to **priority management areas** (which encapsulate aspects of biodiversity), including:		Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Sustainable fishing (3 FTE) – Larger and stronger policy and planning section to support reforms (16 FTE and 9 temporary FTE staff) – Strategic advice (2 FTE) e.g. policy and position statements – Reef intervention (4 FTE and 6 temporary FTE staff) and – Reef conservation actions (4FTE and 3 temporary FTE staff) – Tourism Reef Protection Initiative (3 temporary FTE). • Permits Compliance Team has maintained 3 x FTE staff. The team manages non-compliance on a daily basis through the implementation of the My Case Manager System and complimentary Managing Permissions Non-Compliance Procedure that were both effective from February 2021. • Other resourcing across the agency remains (since 2019) committed to meeting specific biodiversity management objectives, for example: – Environmental Assessment and Protection (permissions) section Science for Management section – Douglas Shoal Remediation section – TUMRA section Challenge: • Understanding human resourcing issues within all managing agencies that address biodiversity e.g. regional bodies, relevant industry sectors, research institutions.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN3 The **right skill sets** and expertise are currently available to the **managing organisations** to address biodiversity	3	• Skill sets vary across the managing organisations. However, as there is no overall monitoring of this indicator across all relevant Reef 'managing organisations' it is difficult to assess effectiveness. • Staffing within the Reef Authority has increased (referIN1, IN2). In 2022 the RJFMP implemented 12 key investment areas that arose from the 2017 periodic review of the Program. The review considered the skill set required to effectively manage the Reef. Increased joint base funding will now support up to 194 Program–funded staff. This will provide an improved capacity to deliver field operations and respond to incidents across the Reef. • Key **skill sets within the Reef Authority** include: – *chief scientist* (1 FTE) – *dedicated Science for Management section* (15 ongoing FTE and 5 temporary FTE) that focuses on increasing the Reef Authority's access to knowledge (socio-ecological) about the Reef through monitoring, interactive knowledge systems and evidence-based science communications. This includes: two dedicated Natural Scientists who engage regularly with natural scientists at numerous institutions (e.g. AIMS, JCU, CSIRO, UQ); two dedicated Social Scientist who engage regularly with social-ecological scientists at numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science Community for the Reef and Reef 2050 (Human Dimensions consortium)	eReefs Permission Systems and Compliance Program	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Some report that the **Reef Authority does not have inhouse skill sets for making decisions in circumstances of high uncertainty** (e.g. due to climate change) and that this limits the Reef Authority's ability to work effectively with a range of research-focused organisations (Interviewee 10, 2023). – There have been general challenges over the past two years (during Covid-19) in recruiting to positions at the Reef Authority. Many positions (including some described above) have remained vacant as a result (Workshop participants 2023). – Within the Reef Authority the biophysical science skills are adequate for planning and management tasks. Within the permitting area the Reef Authority's staff do not always have the necessary skills to assess applications (Interviewee 10, 2023). However, there is extensive collaboration with relevant scientists in AIMS, universities and CSIRO. – Refer to PR5 relating to training to improve the skill sets required to manage the Reef. • **Research and monitoring** skill sets are mostly secured through contractual arrangements with universities, AIMS, CSIRO, and consultants but specialist skills are required and available for project design, monitoring, evaluation, improvement and reporting. • Some **specialist skills have been lost** (e.g. taxonomy) and are not being readily replaced.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Agencies generally have the right expertise/skill sets reflected in position descriptions. **Challenge:** • Retaining and attracting staff at all levels within the Agency and skilling staff for making decisions in circumstances of high uncertainty (e.g. in relation to climate change and related impacts on biodiversity).			
IN4 The necessary **biophysical information is currently available** to address biodiversity	3	• Extensive biophysical information is currently available (refer CO2, CO3, CO4 including evidence). "*The Reef is one of the most monitored coral reef ecosystems in the world*" (Workshop participant 2023). • Gaps in biophysical information are being identified, as outlined below. 'Better data and information are needed to set clear outcomes, effectively plan and invest' (Samuel 2020 – EPBC Act Review). • The information base for biodiversity management is slowly improving through research (based in universities and a range of research organisations) and investment into a number of programs (e.g. RJFMP), citizen science and a range of projects (refer IN1 where recent announcements have been made for investment in biophysical information to 2029-30). • The Australian Academy of Science (2023:34) notes that new interventions to address biodiversity in a climate-changed future 'will require expanded monitoring and modelling' to support decision making. Resilience indicators to be	Great Barrier Reef Strategic Assessment Report (Chapter 7, Section 7 – gaps) Improved dredge material management for the Great Barrier Reef Region: To provide improved information on which to base dredge spoil management decisions for the five major ports and one marina in the Great Barrier Reef World Heritage Area. Identification of impacts and proposed management strategies associated with offshore ship anchorages	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		captured in future monitoring programs could include impacts of ocean currents, multiple and cumulative stressors, intensity of extreme events and the scale of and uncertainty in modelling. • **Traditional Owner knowledge** relating to biodiversity is increasingly available to managers. Indigenous Ranger programs and strengthened communication between managers and Indigenous people through Land and Sea Country Partnership Program have improved the quality of biodiversity information. However, Samuel (2020) recommends reform to ensure Indigenous Australian are 'listened to'. The Australian Academy of Science (2023:34) calls for greater Indigenous participation 'to address the decline of GBR values in a more profound and connected way, using a collaborative approach founded in Traditional Knowledges.' • The **Scientific Consensus Statement** will be finalised in 2024. It synthesises current peer-reviewed scientific evidence pertaining to the water quality issues (including land-based run-off) in the Reef; and informs a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. It will identify knowledge gaps and limitations in the peer-reviewed scientific evidence, which will inform future iterations of the Reef 2050 Water Quality Research, Development and Innovation Strategy. It involved extensive consultation with policy, management, experts and stakeholders to identify	in the Great Barrier Reef World Heritage Area: To identify current and potential future environmental impacts of offshore anchoring for the five major ports in the Great Barrier Reef World Heritage Area and potential management options. Coastal Ecosystems Assessment Framework http://www.gbrmpa.gov.au/__data/assets/pdf_file/0003/28254/Coastal-Ecosystems-Assessment-Framework.pdf: examined ecosystem services provided by coastal ecosystems in seven basins, impacts (present, past and future), and identification of areas important for protection or restoration. (provided)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and prioritise a series of specific questions (rather than broad chapters), that frame the scope of the evidence being gathered. • RIMReP aims to coordinate and integrate Reef-based monitoring and modelling programs and to develop a knowledge system that enables resilience-based management of the Reef so that mangers can easily access up-to-date information to inform management and reporting, including in relation to how the Reef 2050 Plan is progressing. The six priorities include: governance and program management; science; collecting information; accessing information; guiding management actions; and informing Reef 2050 and Outlook reporting. • The Priority Monitoring Gaps prospectus (2021) provides an overview of the priority monitoring gaps identified to support the implementation of the RIMReP. The gaps have been prioritised based on their utility to assess progress against the Reef 2050 Plan and to inform management of the Reef. The prospectus identified **11 priority monitoring gaps** for further investment including some related to biodiversity. These gaps have since been funded by the Reef Trust Partnership and RIMReP Partners (e.g. RTP-IMR Projects). Priority projects, all of which are relevant to biodiversity, include (estimated cost in brackets and funded by the Reef Trust Partnership and RIMReP Partners) include: – **Fish monitoring** ($9890K) – species of recreational, commercial, biocultural and ecological significance, including sharks and rays.	Integrated monitoring framework for the Great Barrier Reef World Heritage Area *(NESP funded)* Informing the Outlook for Great Barrier Reef coastal ecosystems (technical report on the status of the catchment and the threats it faces). AIMS LTMP Reef Monitoring - AIMS RIMREP Significant Impact Guidelines 1.1 - Matters of National Environmental Significance /marine-turtle-conservation-strategy Significant Impact Guidelines 1.1 - Matters of National Environmental Significance Reports - Reef Restoration and Adaptation Program		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Inshore dolphin monitoring** ($900K) – distribution, threats, population demography and dynamics (includes snubfin and humpback dolphins) – **Sea cucumber monitoring** ($1,550K) – distribution, population demography and dynamics – Island habitat monitoring ($1,050K) – condition and trend of key values – **Biosecurity monitoring** ($900K) – early detection of pest flora and fauna incursions on islands and pest presence on vessels – **Seabird** monitoring ($1,250) – distribution, threats, population demography and dynamics – **Condition and recovery capacity** of the Reef ($790K) – indicators and framework to measure condition and recovery capacity of coral reef habitat – **Sustainable use and benefits** ($690K) – impacts of human use, vulnerability of Reef dependent and associated industries and users to changes in Reef health; benefits – **Stewardship** for the Reef ($725K) – actions reef users are taking to reduce negative impacts, stewardship activity outcomes, community engagement – **Governance** for the Reef ($625K) – policy and program coherence, impact and outcomes, community involvement and satisfaction, use of integrated knowledge sets including Traditional Owner knowledge			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Implementing the Strong People Strong Country framework ($1400K) – indicator selection, data capture and sharing protocols, co-interpretation of data. • The Reef Restoration and Adaptation Program (RRAP) is a collaborative long-term research and development program to develop, test and risk-assess novel interventions to help build resilience of the Reef under a changing climate. The RRAP aims to develop a toolkit of effective, at-scale Reef interventions that are feasible, safe, acceptable and affordable. The program is in the research and development phase, whereby interventions identified in an initial feasibility study are being developed, tested and risk assessed. As the program progresses, the focus may shift to deployment of larger-scale interventions. The Reef Authority are observers on the RRAP Steering Committee and the Board (refer IN1 for recent announcements on funding for RRAP to 2029-30). – There is broad agreement that conventional approaches (e.g. networks of protected areas, and a focus on local protection measures) are unable to mitigate global pressures. The knowledge to be gained through RRAP is essential to guide future management actions at a range of scales. '…success requires a new way of collaboration among scientists and the community' (Bay et al. 2023:5) (refer IN6). • The Reef Knowledge System hosts an internal-only interactive dashboard, the Resilient Reefs Network			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Guidance Tool, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park. – Links to biodiversity datasets for Queensland and the Reef from various reliable sources are publicly available via the Reef Knowledge System. It is the 'first stop shop' for up to-date information about the Reef to guide effective management decisions in a rapidly changing world. The Reef Knowledge System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken. – Monitoring the Great Barrier Reef provides links to up-to-date and accurate information: – **Reef Dashboard** – status and trends for individual reefs and regional summaries – **Reef reports hub** – reports and summaries on the state of the Reef – **AIMS Long term monitoring program** – long term monitoring data – **Monitoring reefs close to the coast** – data on inshore reefs – How we survey the reef – processes used and manuals. • Refer PL5 – Reef Knowledge System and Resilient Reefs Network Guidance Tool			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Science and Knowledge Needs for Management (2021) aims to ensure scientific activities are relevant, targeted to address critical management issues, and that scientific outputs are easily accessible. The priority information needs form the focus of specific collaboration opportunities with science and knowledge providers. The document is supported by an interactive web-tool located on the Reef Knowledge System which identifies the specific collaboration opportunities and can be updated as needs are addressed or new needs identified. • The Queensland **Marine Turtle Conservation** Strategy identifies gaps in knowledge and prioritises actions for each stock/species. DES Threatened Species Operations provides most of the leadership in marine turtle monitoring, research and management advice. • eReefs aims to deliver **Reef water quality** information, enabling anyone to track the effects of storms, cyclones, floods, and other impacts on the Reef. The status of this is unclear, with some interviewees indicating that this was "not working". • New **Reef habitat mapping layers** have been developed: geomorphic, benthic, bathymetry and Sentinel mosaic maps are available on the Reef Knowledge System. However, there is a **lack of comprehensive habitat mapping across the Reef** and this has potential to limit effective planning and management.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• National Environmental Science Program incorporates several research projects focused on managing the impacts of climate change, improving coral condition and compiling research efforts on COTs. – Resilience-Based management tools for the Great Barrier Reef (Mason et al 2020) (NESP Project 4.5): – Areas less impacted by disturbance can help other parts of the reef regenerate by supplying new coral larvae. Key source reefs in the Great Barrier Reef that are strongly connected to much of the reef but have a relatively low risk of experiencing coral bleaching or COTS have been identified. The top 100 key source reefs can disperse larvae to nearly half of the reefs within a single summer spawning event. – Field assessments are used to supplement the modelling data. A new citizen science initiative, the annual Great Reef Census (2020-23) is operational (by 2023, 510 (15%) of reefs surveyed; 4100 surveys completed; nearly 80,000 images collected; over 100 vessels and operators involved). Anyone can collect photos, share them and have them analysed, providing timely data to scientists and managers. – The project aims to develop tools to assist managers determine which interventions provide the greatest benefit in supporting ecosystem resilience.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Recommendations to maintain functioning of the Great Barrier Reef (Wolfe et al. 2019) (NESP Project 4.6) – Identifies taxa of functional importance; taxa and processes of outstanding value and/or threat; recommendations for enhanced and targeted protection; and informed scenarios for knowledge gaps, future research and management. – While there is room to increase monitoring the report found that current initiatives "effectively capture key groups with benefits to reef function" (Wolfe et al. 2019:4). – Knowledge gaps included: invertivory – a poorly understood link in the trophic chain; calculating the carbonate budget for the Reef; microbial communities; spatial patterns and functional impacts of recreational spearfishing; and juvenile COTS. • RJFMP, with JCU, is coordinating Reef Trust Partnership-funded work to *classify cays* based on their geomorphology and vulnerability to sea level rise. • Research funded by the Australian Government (2020) aims to improve understanding of marine heatwaves and provide advance warning of extreme weather events that can impact reefs, fish stock, migration patterns and biodiversity. This will assist marine decision makers prepare for rapid responses based on real-time observations as marine heatwaves evolve **Challenges and key gaps in biophysical information** include:			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• '*There is a wealth of knowledge out there, but when we start to apply this, we see that there are gaps – things that we don't understand*' particularly in relation to the uncertainty surrounding the impacts of climate change. '*The governance framework needs to be better*' (Interviewee 2023). • Australian Academy of Science (2023:20) identify a range of gaps: – Ecological knowledge related to fundamental ecosystem functions and processes – Individual species' interactions, tolerance to change, biological thresholds and ability to adapt – Effects of multiple or combined stressors – Climatological understanding of the impacts and intensity of future events – Uncertainty in models and the scale of modelling – The recovery potential and ecological functioning of new, low-coral-cover systems • Knowledge on ecosystem interactions, connectivity and potential tipping points, and species adaptations or thresholds (e.g. what a loss of coral will mean for the ecosystem and ecosystem services). • Ensuring knowledge richness in relation to biodiversity i.e. incorporation of a wide range of diverse knowledge sets across multiple sectors - integration and co-production of knowledge can enhance biodiversity outcomes, ecosystem management and governance through generating 'enriched' understanding of particular issues			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Inshore dolphins, snubfin dolphins, sharks, rays, long-lived sparse species (e.g. marine megafauna) and non-charismatic or taxa of no apparent economic value are poorly known • mesophotic reefs and deep-water habitats • **ecosystem processes and functioning and functional redundancy** in the Reef ecosystem (exceptions exist for some herbivores), including ecological processes such as groundwater inflows, sinks/sources • connectivity and trophic interactions and implications of deepwater upwellings, planktonic/larval movements • far north of the Reef • uncertainty around biodiversity condition (especially for some elements of biodiversity) due to impacts of climate change (bleaching events, cyclones) • addressing cumulative impacts • integration of knowledge across managers/management agencies and at multiple spatial scales, including integration the perspectives of Traditional Owners and western science.			
IN5 The **necessary socio-economic** information is currently available to address biodiversity	3	• *'Continuing improvement in information and how it is pulled together and made accessible… As managers we can go to a data space to get the information we need'* (Workshop participant 2023). • *'Social science information for the Reef is improving. People are talking to each other. Before we had nothing like this'* (Workshop participant 2023).	The economic and social impacts of protecting the environmental values of the waters of the Capricorn and Curtis Coasts	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• RIMReP aims to coordinate and integrate Reef-based monitoring and modelling programs and to develop a knowledge system that enables resilience-based management of the Reef so that mangers can easily access up-to-date information to inform management and reporting, including in relation to how the Reef 2050 Plan is progressing. It is a partnership involving Australian and Queensland government entities, with Traditional Owners (four members sit on the RIMReP). The Governance groups provide guidance and advice on cultural, social, economic, and other matters, engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision. The six priorities include: governance and program management; science; collecting information; accessing information; guiding management actions; and informing Reef 2050 and Outlook reporting. • Priority Monitoring Gaps prospectus (2021) provides an overview of the priority monitoring gaps identified to support the implementation of the RIMReP. The gaps have been prioritised based on their utility to assess progress against the Reef 2050 Plan and to inform management of the Reef. The prospectus identified **11 priority monitoring gaps** for further investment including some related to biodiversity. These gaps have since been funded by the Reef Trust Partnership and RIMReP Partners (e.g. RTP-IMR Projects). Priority projects, relevant to socio-economic issues, include (estimated cost in brackets and funded by the Reef Trust Partnership and RIMReP Partners):	Deloitte Access Economics Report Economic contribution of the Great Barrier Reef NESP projects: Project 4.11 – Review of sources, transformations and fate of particulate and dissolved organic carbon – implications for the GBR (2018) Project 4.12 – Measuring cost-effectiveness and identifying key barriers and enablers of lasting behavioural change in the cane industry (2021) Tropical Water Quality Hub 2.2 A tradable permit scheme for cost effective reduction of nitrogen runoff in the sugarcane catchments of the Great Barrier Reef (2016)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Sustainable use and benefits ($690K) – impacts of human use, vulnerability of Reef dependent and associated industries and users to changes in Reef health; benefits – Stewardship for the Reef ($725K) – actions reef users are taking to reduce negative impacts, stewardship activity outcomes, community engagement – Governance for the Reef ($625K) – policy and program coherence, impact and outcomes, community involvement and satisfaction, use of integrated knowledge sets including Traditional Owner knowledge – Implementing the Strong People Strong Country framework ($1400K) – indicator selection, data capture and sharing protocols, co-interpretation of data. • **Social and Economic Long-Term Monitoring Program (SELTMP)** is being continually upgraded. Time series data: 2013, 2017, 2021, 2023 (planned) (Led by CSIRO). 2021 survey (3rd data point): addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Reef social-ecological system. The updated broad objectives of SELTMP are to: monitor ***changes in community attitudes*** towards the Reef, its values and management, and the perceived threats to those values; **predict *attitudinal and behavioural responses* to future management interventions** in the Reef, and changes in Reef health; monitor **changes in *social and economic well-being*** of	3.9 Traditional Owners and Sea Country in the southern Reef -Which way forward? (2016) 3.10 Benchmarking costs of NRM improvements for the GBR (2016) 3.11 Monitoring and adaptively reducing system-wide governance risks to the Reef (2016) 2.1.3 Longitudinal study of farmer decision influencers for Best Management Practices (2019) 2.1.7 Engaging with farmers and demonstrating water quality outcomes to create confidence in on-farm decision-making (2019) 2.2.3 Early warning systems to minimize the risk of box jellyfish stings by empowering stakeholders (2018)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Reef-dependent communities, and the benefits they derive from the Reef; and assess and monitor ***social and economic vulnerability, and adaptive capacity*** of Reef communities to changes in Reef condition and the wider system. – Currently, outcomes are limited in relation to broad stakeholder understanding the benefits/costs and ethics of a range of interventions/actions (or inaction) in relation to Reef health. Bay et al. (2023) and Australian Academy of Science (2023) identify the current lack of fully open and inclusive dialogue that comprehensively explores Reef matters, including impacts, and future Reef resilience and related social and economic sustainability. • The Reef Restoration and Adaptation Program (RRAP) (refer IN4) includes a 'Stakeholder and Traditional Owner Engagement Subprogram' which aims to ensure decisions about interventions are socially and culturally responsible and legitimate to stakeholders, rights-holders, managers and the public. The Reef Authority is an observer on the RRAP Steering Committee and the Board. • Toolkit for safeguarding Indigenous heritage and knowledge was released in 2020, available as a guidance tool for parties engaging with Reef Traditional Owners. • Sharing of Indigenous heritage information may be captured through the RIMReP Reef Knowledge System (as related to	2.3.2 'The role of social media in sharing information about the Great Barrier Reef (2017) 2.3.3 Community-based evaluation, governance, and strategic planning for Indigenous Ecosystem Services in Eastern Cape York Peninsula (2017) 2.3.4 Sth Reef Coastal Habitat Archive and Monitoring Program: Developing a Mangrove Management Plan (2019) 3.1.3 Harnessing the science of social marketing in communication materials development and behaviour change for improved water quality in the GBR (2018) 3.1.6 Exploring trading in water quality credits as a cost-effective approach for managing water quality in		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Reef 2050) and negotiated through Data Sharing Agreements with the knowledge holders. • The Reef Authority updated its Science and Knowledge Needs for Management (2021) (Refer IN4). **Key gaps in socio-economic information** include: • Australian Academy of Science (2023:20) identify a range of gaps including: – Impacts on social and cultural values that rely on the Reef's ecosystems, including impacts on Traditional Owner wellbeing – Inclusion of Traditional Knowledges and understanding of flow-on effects to coastal communities. • limited monitoring of Traditional Owner reef use and well-being • gaps and reliability issues about data on extractive use, e.g. spatial precision of logbooks, data on recreational extraction • inconsistency in spatial information e.g. differing grid sizes and mixture of modelled and factual map data • while there has to be an emphasis on the threats that come from within the aquatic environment, the emerging significant issues of impacts from sky glow (related to expanding industrial and urban development of the Reef	the Great Barrier Reef (2020) 3.1.8 Innovative economic levers: a system for underwriting risk of practice change in cane-farming (2020) 3.2.2 The IMS 2050 Human Dimensions Project: cost-effective indicators and metrics for key GBRWHA human dimensions 3.2.3 Monitoring aesthetic value of the Great Barrier Reef by using artificial intelligence to score photos and videos (2017) 3.2.4 Defining, assessing and monitoring Great Barrier Reef aesthetics (2017) National Environmental Research Program (NERP) Tropical Ecosystems (TE) Hub 2.3 Monitoring the health of Torres Strait coral reefs		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		coastline and islands on a wide range of taxa (from turtles to corals) are less well addressed. • limited staff capacity – the Reef Authority has two staff dedicated (EL1 and APS6) to coordinate socio-economic science projects.	10.1 Social and economic long-term monitoring program (SELTMP) 12.1 Indigenous peoples and protected areas Stakeholder and Traditional Owner Engagement - Reef Restoration and Adaptation Program SELTMP Core module pilot data dashboard SELTMP Core Module Report SELTMP Core Module 2021 Survey dataset: Regional Report Cards social survey dashboard Regional Report Cards Module Report Regional Report Cards 2021-22 Social Survey dataset Integrated Monitoring and Reporting - Great Barrier Reef Foundation		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			Measures for Social and Economic Monitoring of the Australian Marine Parks (Navarro et al. 2020) RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System Toolkit for safeguarding Indigenous heritage and knowledge		
IN6 The necessary **Indigenous heritage** information is currently available to address biodiversity	2	• Indigenous Heritage is intrinsically linked to biodiversity values (refer Indigenous Heritage topic, Table 41). There have been improvements in Indigenous heritage information since 2019. • Delivery of the Reef 2050 Plan is underpinned by a partnership approach and this is reflected in the Plan's governance arrangements which include: Indigenous expertise on the Independent Expert Panel; Traditional Owner participation on the Reef 2050 Advisory Committee; and Traditional Owner participation on each of the Reef 2050 Integrated Monitoring and Reporting Program's working groups.	Interim guidelines on the outstanding universal value of the GBRWHA – for proponents of actions Great Barrier Reef Coastal Zone Strategic Assessment: Independent Review Report Great Barrier Reef Strategic Assessment Report Traditional Use of Marine Resources Agreements	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Land and Sea Country Indigenous Partnerships Program** and TUMRAs provide the mechanism for Traditional Owners to apply their knowledge to biodiversity management in their land and sea country and has strengthened communications across the community to build a better understanding of Traditional Owner issues on the management of the GBR Marine Park. • The **Indigenous Reef Advisory Committee** is the key body that advises the Reef Authority on its management, programs and policies. Advice from the Committee ensures its management; programs and policies consider and include Traditional Owner aspirations and recommendations. • Indigenous rangers – working on country (began in 2007) supports Indigenous people to combine traditional knowledge with conservation training to protect and manage their land, sea and culture. • Traditional Owners are the main partners in **VBMF management planning**. They are always requested to participate in management planning and funds exist to pay for their participation. • Implementing the '**Strong Peoples-Strong Country Framework'** was identified as a Priority Monitoring Gap (Marine Park Authority' 2021 prospectus). The Framework aims to build capacity for Traditional Owner leadership of monitoring and reporting in the Reef. Phase 2 involves the development	Australian Government Reef Programme Reef 2050 Plan – Implementation Strategy Whitsundays Plan of Management Science and Knowledge Needs for Management (2021) Science and Knowledge Needs| Strong peoples - strong country: Indigenous heritage monitoring framework summary report Traditional Owner and Marine Parks Management Portal - Overview		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		of a set of objective indicators, to provide information and insights about the condition and trends in Indigenous heritage values in the Reef and its catchments. • As an action under the Reef Authority's Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park (Action A3.1.1), some examples of Sea Country Values Mapping are now available, e.g. Mandubarra Sea Country Cultural Values: 2019-2020 mapping project. – There are four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi) committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals' (e.g. Impact Assessment Guidelines for the Woppaburra Heritage). – This work directly contributes to the Reef Authority's Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park objective O2.4– 'Integrate Traditional Owner knowledge and input into our environmental assessment and permitting process', and action A2.4.3 'develop guidance and templates for applicants on expectations for Traditional Owner consultation. • Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes to better identify risks to relevant Indigenous heritage values for the purpose of assessing potential impacts from proposed activities on			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		those values and implement appropriate avoidance or risk mitigation measures. • Developed a spatial representation for stakeholder of proposed permit areas relating to Native Title Claims, Determinations, TUMRAs etc within the Marine Parks. Challenges and gaps: • Australian Academy of Science (2023:20-21): – Lack of inclusion of Traditional Knowledges and appropriate cooperation with Traditional Owners – 'While Australian law and regulations support the rights of Traditional Owners, principles of free, prior and informed consent are often ignored, incomplete or undermined' (2023:21).			
IN7 The necessary historic heritage information is currently available to address biodiversity	NA			NA	NA
IN8 There are additional sources of **non-government input** (e.g. volunteers) contributing to address biodiversity	4	• **Friends of the Capricornia Cays** (conducted by QPWS) utilises volunteers to conduct weeding activities on the Capricornia Cays National Parks to reduce impacts of weeds on key vegetation communities. QPWS&P delivers a volunteer campground host program where volunteer maintain campground facilities and provide campers with	Volunteer groups and events include: Fisheries working groups Reef Authority partners Burnett Mary Regional Group Cape York NRM	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		information on low impact behaviours that encourage minimal impact from visitors on the Key values. • **Sea Turtle Foundation** (contracted by QPWS&P) coordinates volunteers to respond to strandings and has developed a stranding response training package for volunteers and staff. • **Seabird and shore bird monitoring and management** – cooperative engagement of QPWS/RJFMP, Birdilfe Australia, The Queensland Wader Study Group, several academic institutions and Traditional Owners. • Eye on the Reef database holds Reef health information and is being upgraded to meet current and future needs. A new **Eye on the Reef app** will be released alongside the database to improve stakeholder engagement. • **Great Barrier Reef Foundation projects** (refer CO2) significantly add to the Reef Authority's and QPWS's ability to manage and protect biodiversity. • Landcare. • Coastcare. • Major input from university monitoring and research programs, CSIRO, AIMS etc. • Eco Barge, based in the Whitsundays is a volunteer service which aims to reduce debris in the Marine Parks to help protect biodiversity.	Fitzroy Basin Association NQ Dry Tropics Reef Catchments (Mackay Whitsunday Isaac) Terrain NRM		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• NRM groups have programs addressing biodiversity conservation and have volunteer networks which help achieve outcomes. • Cumulative impact management policy (2018) targeted at the Reef Authority and other government agencies. Encourages decision making that identifies past, present and reasonably foreseeable pressures; examines their combined effects on the Reef values; and designs and applies appropriate management measures to avoid and mitigate impacts. • Volunteer groups and events include: - Reefwatch - CapReef - Reef Guardian Schools - NGOs on Reef Advisory Committees - LMACs - Fisheries working groups - Mackay turtle watch - OUCH (Association of Underwater Coral Heroes) - Beach clean-up days - Seagrass Watch Research stations			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Much of the information on biodiversity comes from researchers outside the Reef Authority e.g. AIMS, universities, UQ, CSIRO. • Partnerships and collaborative Investments through the Reef Trust (Phase V Investments).			
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are **effectively engaged** in the ongoing management of biodiversity	3	• Stakeholders were addressed in CO5 and PL6. They are engaged to differing extents, often relating to particular issues. It is difficult to assess how effective this engagement is, without some form of stakeholder evaluation or assessment process associated with each of these engagement processes. Engagement ranges from informing, seeking advice, to consultation and co-management. • Expert advice is sought on biodiversity matters through the Reef's Advisory Committees. However, the extent to which the voices of the participants on these Committees is 'heard' is unclear (Interviewees 5, 12, 2023). • Relevant industries are engaged in planning processes for biodiversity protection throughout the Reef as outlined in the commitments in the Reef 2050 Plan and through commitments in the 25 Year Strategic Plan. • Scientific Advisory Group. • There are four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), with areas totalling 17,470 square	Great Barrier Reef Blueprint for Resilience Traditional Owner and Marine Parks Management Portal - Overview	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. This work directly contributes to the Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park objective O2.4– 'Integrate Traditional Owner knowledge and input into our environmental assessment and permitting process', and action A2.4.3 'develop guidance and templates for applicants on expectations for Traditional Owner consultation. • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs. A new Eye on the Reef app will be released alongside the database to improve stakeholder engagement. • Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes. This is to better identify risks to relevant values for the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measures. Challenges: • Providing opportunities for greater engagement of local governments in decision-making processes related to			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		biodiversity. Local government planning schemes are an important tool to assist in protecting and enhancing biodiversity values at local and regional scales. • Developing greater **cross-sectoral and cross-scale collaboration** among stakeholders and reduced reliance on 'siloed' decision making. • Effective engagement is often built on trusting relationships, and hence **developing trust among the stakeholders** is essential to build collaborative relationships and more equitable power sharing.			
PR2 The **local community** is **effectively engaged** in the ongoing management of biodiversity	3	• Local community is addressed in PL6. • Matters related to biodiversity are discussed at the Local Marine Advisory Committee (LMAC) meetings. Key stakeholders were encouraged to nominate for the 2021-24 LMAC term. There are currently over 220 active members and management partners involved in the LMAC network. – LMAC feedback on Reef Blueprint (March 2022). – Several Reef-wide presentations given to the LMAC network: COTS and Zoning impacts • Local communities are involved in biodiversity protection through planning processes for areas/specific places and public consultation occurs in relation to the permitting system. • **Community groups are engaged widely in monitoring and field management** activities in the Region.		Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Eye on the Reef program is a powerful monitoring program that enables anyone who visits the Reef to contribute to its long-term protection. The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs. The Sightings network enables Reef users to upload information about what they see in the Marine Park. – DES Wildlife and Threatened Species Operation maintains a hotline for reporting Marine wildlife strandings (Marine-strandings data) and QPWS has numerous community volunteers trained in first response to stranded wildlife and recording/reporting of the events for collation into StrandNet. – Turtle volunteers – Improvements in public reporting capacity for shipping and pollution incidents, and via mobile phone applications. – Reef Guardians is a voluntary stewardship program made up of schools, councils, fishers and farmers (Reef Guardian Schools; Reef Guardian Councils) • DES, Queensland Boating and Fisheries patrol (QBFP) and the Reef Authority have regional-based staff for engaging with local communities. • Reef Authority Regional Offices provide a point of contact. • Tools for the engagement of broader community in management of biodiversity are being improved.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Each year, the MMP team conduct a Monitoring, Evaluation, Reporting and Improvement (MERI) workshop which is structured around presentations outlining the latest information on the condition and trend of water quality, coral and seagrass and the pressures that have affected them. • Partnerships for local actions initiative in Great Barrier Reef Blueprint for Resilience. • Targeted consultation also occurs through committee and stakeholder groups e.g. recreational fisheries. • DES Threatened Species Operations authorise trained members of local communities to undertake marine turtle monitoring and conservation action throughout much of the Reef Region and report their data back to collation within the Qld Marine Turtle Conservation Data Base (refer Nest to Ocean Turtle Protection Program). • Refer to topics on fishing (Table 41, Table 42), Commercial Marine Tourism (Table 38) and Recreation (Table 47). Challenges: • "*Ensuring the Authority proactively addresses efforts to engage the community rather than rely on others to do the engaging*" (Workshop participant 2023).'			
PR3 There is a **sound governance system** in place to address biodiversity	3	• The Reef 2050 Plan recognises the importance of good governance and requires that "governance arrangements are transparent and accountable" (p.36). However, there is no monitoring system in place to measure performance of Reef governance and immature understanding about what	Dale et al., 2013 A method for risk analysis across governance systems: a Great Barrier Reef case study	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		constitutes governance or how it can enhance decision making (Interviewees 2, 3, 2023). • **Governance assessments** have been undertaken by Dale et al. (2013, 2016), Craik, et al. (2017), Morrison et al. (2017, 2019, 2020), Turner (2022) and others. A common theme is the need to review governance systems, including in relation to biodiversity, to ensure that the systems are addressing a range of major threats, in particular climate change, and other impacts that occur at multiple scales. Governance needs to be 'fit for purpose' in addressing diverse pressures on the Reef's biodiversity. – "*There is an outward presentation of good governance, but an inward realisation that this is not the case*" (Interviewee 2023). – '..the GBR management system…is not built with the agility required to adapt to rapidly evolving climate impacts' (Australian Academy of Science (2023:33). Further, 'the decentralised model convolutes decision-making processes and impacts how the various management agencies communicate' (p.36). – "*From what I see, we are moving in the right direction* (in relation to governance improvements)" (Interviewee 2023). • The Reef Foundation is funding the development of a **governance monitoring program** for the Reef, including an assessment of key governance indicators to assess governance effectiveness in relation to Reef 2050 Plan	Grech et al 2013 Guiding principles for the improved governance of port and shipping impacts in the Great Barrier Reef Day and Dobbs. 2013. Effective governance of a large and complex cross-jurisdictional marine protected area: Australia's Great Barrier Reef Queensland Bilateral Agreement for environmental assessments See also review of Port of Gladstone, and Gladstone Healthy Harbours partnership Cvitanovic et al. 2015. Review: Improving knowledge exchange among scientists and decision-makers to facilitate the adaptive governance of marine resources: A review of knowledge and research needs		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		objectives (2022-23). **Governance was identified as a critical monitoring gap in the RIMReP** (refer PL5). • The Reef has a **polycentric system of governance**. Biodiversity is a 'sub-system' within this overall system (along with tourism, fishing, ports etc). • Reef governance for biodiversity is a complex system with diverse stakeholders and partners and complex cross-scale and cross-sectoral dynamics (Turner 2022). '*The Reef is managed by broad, diverse actors that play different roles in decision making and delivery systems'* (Interviewee 2023) • There are **multiple governing authorities** with a **range of interests** that are involved in and make decisions about biodiversity issues, including the Reef Authority, State and Federal agencies such as DES, DCCEEW, local government, industry groups (QSIA, AMPTO), Advisory Committees, LMACs, biodiversity specific groups (e.g. Qld Wetlands Governance Group, GBR Wetlands Network); Technical Working Groups (Paddock to Reef); Steering Groups (e.g. Regional report card); community groups; research organisations, Regional NRM groups and others (refer CO5 – stakeholders, CO6 and PR1 – stakeholder engagement; PR2 local community). • Two Reef Advisory Committees (RACs): Indigenous and Tourism advise the Reef Authority in relation to actions that can be taken to address the risks to the Marine Park, including biodiversity.	Project 3-11_Final Report Integrated Monitoring and Reporting - Great Barrier Reef Foundation		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Some arrangements among the key stakeholders are clearly defined, with streamlined processes (e.g. trying to avoid duplication of environmental assessment processes, strengthening intergovernmental cooperation and partnerships). However, gaps remain, particularly with local governments and catchment planning groups (Interviewee 2023). • **The structural elements of biodiversity governance** are well developed e.g. vision setting, decision-making processes, strategy development, implementation, monitoring and evaluation. – **Diverse array of legislation** (e.g. EPBC Act, Marine Park Act, Nature Conservation Act 1992), **plans, policies and programs** for the protection and sustainable use of the Reef, including its biodiversity and control of potential impacts on MNES (refer PL2). This provides a substantial basis for governing the Reef region in relation to biodiversity. – Some legislation (e.g. EPBC Act), plans, policies etc need review and updating to enhance more effective management. '**Policy is taking time to catch up'** to a rapidly changing reef environment (Australian Academy of Science (2023:33). – The Australian Academy of Science (2023:33) calls for the enforcement of 'a fuller suite of existing sections of legislation and policy' to support Reef management.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– 'There is **a lack of practical, implementable strategies** on the ground to deal with some of the big issues such as climate change. We don't need another planning document about how to do it. We need detailed granularity" (Interviewee 12, 2023). – **Focus on science and obtaining new knowledge** including investment into research and development, monitoring and evidence-based decision making to inform management and governance (refer PL5, IN4,5,6,7,8, PR9,10,11,12). – **IMR RTP Monitoring collective capacity and implementation (Governance)** (2021-2024) - will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. No results yet. • Some of the **targets/goals** in a range of documents in relation to biodiversity are **aspirational** and may not be responding to current and emerging threats/issues (e.g. climate change) • User/access rights to the Reef are mostly clearly defined in the Zoning Plan and relevant information is available through the permitting system. However, this does not mean that all groups are aware of their rights. • In relation to the **functional elements of governance:** – Recognition amongst key actors that Reef management is a **collaborative effort** as the scale of the issues and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		threats facing the reef are bigger than any individual actor can address alone (Interviewee 2023). – Long-standing **political commitment to the Reef and its formal governance arrangements**, which have been in place for over 20 years. The governance system is 'robust and mature' (Interviewee 2023). – the **decision-making powers** are distributed among the key actors in relation to biodiversity (e.g. between the Reef Authority, government and other key actors, including Traditional Owners). – However, *'the system is disaggregating and opportunities for collectively planning and aligning priorities is disaggregated – I feel lost as do lots of others in the governance system'* (Interviewee 2023). – The Intergovernmental Agreement provides the framework for the Australian and Queensland governments to work together to protect the Reef (and jointly issue permits). However, there are **gaps,** especially in relation to the ability of the EPBC Act to effectively protect some species and ecosystems (Samuel 2020), mainly in relation to terrestrial ecosystems (e.g. mangroves, wetlands, functional corridors). – There is less clarity concerning the decision-making powers of non-government actors in the governance system.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– There is less focus on regionalisation – "*we have lost the regional model and need to get it back*" (Interviewee 2023). – It is unclear whether the **representation** of all key players in addressing and making decisions concerning biodiversity is equitable. However, diverse groups are engaged in biodiversity matters. – A key barrier is '**Inclusive engagement** processes that fully encompass co-design, co-development and co-delivery, including FPIC (free, prior and informed consent) from Traditional Custodians' (Australian Academy of Science (2023:33). However, there is increasing focus on **Traditional Owner engagement** resulting in co-management arrangements, especially in TUMRA areas. – It is unclear as to whether all actors/stakeholders can **influence decision making**. However, many stakeholders are consulted for input into a range of plans, guidelines and strategies, while others are more effective partners with a role in decision making, e.g. Advisory Committees, and Traditional Owners with TUMRAs. 'Pathways for integrating Traditional Knowledges and social factors into decision making processes are less developed than the …scientific pathway for contemporary ecological knowledge, particularly for corals and reef systems' (Australian Academy of Science 2023:17).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The **strength of connections** among actors within the governance system is variable. Connections are strongest between the Reef Authority, Commonwealth and State governments. However, more recently external institutions (e.g. WHC/IUCN) have had a significant impact on policy, inputs, planning and management in relation to Reef biodiversity (refer CO2). There is some evidence of the governance system aligning itself in response to international frameworks that relate to biodiversity (e.g. in relation to climate change), but Morrison et al. (2019, 2020) and Turner (2022) suggest a more transformational governance approach is needed. – **Various knowledges** are incorporated into biodiversity planning and management (refer IN4,5,6,7), with a recent focus on research and investment into improving understanding in relation to climate change impacts and approaches to enhance reef resilience. – There are strong connections between **research and decision making,** including: – The Actor Mapping Project identified five MOUs between the Reef Authority and Universities (JCU, Sydney, Central Queensland, UQ and UTS) through which research helps inform management. – Reef 2050 Integrated Monitoring and Reporting Program partners include AIMS, CSIRO, IMOS, DCCEEW, DES and the Reef Authority			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The Reef Authority's Science for Management team – purpose (in part) is as a knowledge brokering and engagement role with the research community – National Environmental Science Program - DCCEEW – There is developing a greater focus on outcome orientation, transparent governance and collaboration (Interviewee 2023). – **Compliance and law enforcement** for biodiversity are a key priority and in general this is well coordinated. – There is a **dispute resolution** system in place that includes documentation of processes, suitability of processes and success. However, it is unclear whether this system is widely supported by the stakeholders. – **Benefit sharing arrangements** are poorly developed, especially with Traditional Owners. – In relation to issues of **adaptability and effectiveness**, the governance system has overseen a continuing decline in biodiversity, particularly in relation to the impacts of climate change (refer OC1-7). There are varying views on the role of reef governance in addressing climate change. • Challenges: – Reef governance in relation to biodiversity is widely acclaimed as world leading. However, outcomes are diminishing, perhaps indicating a level of **'drift'** in the governance system. "*This* (governance) *requires a more interventionist approach to achieve outcomes for the*			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Reef. This represents a paradigm shift that is currently underway, but not yet achieved" (Interviewee 2023). – The Reef Authority is "*uncomfortable about changing its governance…but in times of uncertainty this doesn't work…People deeper in the organisation are more adaptable, but they are constrained…New governance approaches are needed*" (Interviewee 2023). – Due to operational complexity and the large number of actors involved in the governance system, **changes to policy and operational matters can take a long time to deliver** and implement (Interviewee 2023). – The various governance components or sub-systems are '***siloed in a policy sense'*** (Interviewee 2023), with restrictions in connections between Reef policy, regional planning and the circular economy. The challenge is in ensuring that Reef decisions are made not in isolation, but in collaboration with diverse stakeholders and partners. – "***Governance is siloed in terms of its outcome orientation****…Cost-effective approaches are often driven by targets and this can often rule out more integrated approaches and may set up conflicts among key stakeholders…We need to look at how to reformulate the outcomes themselves*" (Interviewee 2023). – Australian Academy of Science (2023:17) noted siloing of information at project or institutional levels by some Reef-focused institutions that 'patch protect' research data for commercial or other reasons.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Addressing **system flexibility** i.e. reassessing and updating the governance system to reflect changes in context and ensuring there is consistency with ancillary organisations and policies (including international policy, especially in relation to climate change). – Enhancing commitments to innovation and a willingness to trial and experiment, including institutional innovation e.g. governments are willing to focus on land use management, but are less focused on long-term structural adjustment in various industries to enhance Reef outcomes and sustainability (Interviewee 2023). – Maintaining the independence of the Reef Authority to make collaborative decisions that will improve biodiversity outcomes for the Reef. – Good governance also requires empowered and independent 'watchdogs' to ensure outcomes are achieved (Morrison 2017).			
PR4 There is effective **performance monitoring**, including. regular assessment of appropriateness and **effectiveness of tools, to gauge progress towards the**	4	• In general there is little coordinated monitoring of tools based on reliable indicators that assess effectiveness in relation to stated objectives. Hence it is difficult to easily address this indicator. The IMR RTP Governance Project (2021-24) will develop a monitoring framework to assess how different components of the governance system are working together to achieve improved Reef health, including relevant management tools. No results yet	Great Barrier Reef Coastal Zone Strategic Assessment: Independent Review Report Reef 2050 Plan Annual Report and Implementation Strategy Australian Government Reef Programme	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
objective(s) for biodiversity		• At the international level, DCCEEW is responsible for reporting Australia's environmental performance and progress towards sustainable development commitments to international agencies such as: Organisation for Economic Cooperation and Development (OECD); United Nations Commission on Sustainable Development. • Delivery of annual workplans is tracked across the year and reported to the executive quarterly. • Reef 2050 Plan – presents actions to protect the values, health and resilience, while allowing ecological sustainable use. The Reef 2050 Integrated Monitoring and Reporting Program (RIMREP) tracks the progress of outcomes outlined in the Plan including objectives under the plan's seven themes: ecosystem health, biodiversity, heritage, water quality, community benefits, economic benefits, governance and reporting. – The design phase of RIMReP was completed in 2019. It delivered the structure, program and monitoring design, an implementation roadmap, and an initial release of the Reef Knowledge System. – Implementation phase of RIMReP is progressing with the greatest effort directed toward continuing the scoping and implementation of a fit for purpose Data Management System, progressing the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement.	RIMReP Web pages RIMReP – Reef Knowledge System RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23 RIMReP Annual Business Plan 2021-22 RJFMP Annual Reports and 5 yearly periodic review. Field management of the Great Barrier Reef Marine Park Reef Authority Annual Report 2021-22 Evaluation and reporting | Parks and forests | (DES) Reef 2050 Plan Progress Reports - DCCEEW Outlook Report 2019		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The annual reports of Commonwealth departments, Parliamentary departments, Commonwealth authorities, Commonwealth companies and other Commonwealth agencies, must under Section 516A of the Environment Protection and Biodiversity Conservation Act 1999, include a report on environmental matters. • Strategic Assessment and Outlook Reports are undertaken at regular intervals • Monitoring, Evaluation, Reporting and Improvement Plan are required six monthly under the Australian Government Reef Programme. • Under the EPBC Act all cetaceans (whales, dolphins and porpoises) are protected in Australian waters. The Act contains notification obligations if a vessel collides with a cetacean that must be done within specified timeframes. The notice should contain specifics such as date of incident, location, outcome of the collision and contact details. The Australian Marine Mammal Centres has developed an online National ship strike database and questionnaire which is now live. • Annual RJFMP Thematic Reviews (internal to the Reef Authority) - COTS Response, Seagrass Watch, Pests, Island Health, Marine Megafauna, Fire, Coastal Birds, Technology Transformation, Reef Interventions, NGBR Green Turtle Research, VBMF) Uses IUCN methodology.	Queensland's Protected Area Strategy 2021 Report Card | Parks and forests | DES		
PR5 Appropriate training is available to the	3	• Reef Authority staff have a good base level of training.	Training (related to biodiversity) that staff of	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
managing agencies to address biodiversity		– There is limited on-the-job training for field staff in biodiversity management issues (restricted to a few staff who go into the field regularly). Some staff participate in workshops, conferences, steering committee meetings. There is informal mentoring across agencies and also cross-decking in the RJFMP. – Capacity needs for all RJFMP/QPWS' natural resource management are monitored by coordinators. (Refer training for RJFMP staff in evidence). Training packages for RHIS, seabirds, strandings exist and all staff participating in fire and pest management have the appropriate qualifications and licences. – The Environmental Assessment and Protection section has developed a series of training modules and fact sheets to train new permit assessment officers. These are available to the staff of the Reef Authority more broadly through a new Learning Management System. – Cultural competence training is being implemented in DES. • Ranger training is expanding. – In 2021-22 15 Indigenous Rangers and one Program staff member from 10 different First Nations groups completed diver training (RJFMP Annual Report 2021-22). • Tourism industry is engaged in training of staff, including the Master Guides Program. • Reef Discovery Course (2020) aims to improve knowledge and understanding of the WHA, its cultural connections,	the RJFMP are expected to complete: Foundation Program – overview to provide context about roles in the RJFMP Incident response training – all RJFMP staff are encouraged to complete the training (provided by AMSA or MSQ): AIIMS (Australasian Inter-Service Incident Management System) BEO (Basic Equipment Operator) AEO (Advanced Equipment Operator) OSECK (Oil Spill Evidence Collection Kits) Shoreline Response Shoreline Clean up and Assessment Technique SAD (Site assessment of damage)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		biological diversity and management protection and inspire participants to take action to protect the Reef (originally designed for the tourism industry, but now available to interested individuals) – 421 users (to 2023).	AMSA courses (5-day courses for Incident Management teams) MIDO training (Maritime Incident Duty Officer) (in-house)		
PR6 Management of biodiversity is **consistently implemented** across the relevant jurisdictions	3	• This indicator addresses, in relation to biodiversity, the alignment of priorities among the Reef actors, the level of cooperation, and integration or coordination of strategies across multiple levels to achieve the desired collective outcomes (as stated in the Reef 2050 Plan). Connectivity is enhanced by the policies and related documents (refer PL2) that work to enhance cross-sectoral coherence among the actors/institutions at various levels. However, the extent to which consistent implementation is evident in the Reef is difficult to assess due to the limited monitoring data related to this indicator. • The IIntergovernmental Agreement (refer PL2) provides a framework for the Australian and Queensland governments to work together to protect the Reef. • There are many examples of consistency (e.g. Joint permitting under the IGA), complementary zoning between state and commonwealth Marine Parks, port management plans, defence environmental planning, shipping planning) but examples also exist of a lack of consistency (e.g. Qld Fish Habitat Zone and Marine Park Habitat Protection Zone).	Coastal protection State Planning Regulatory Provision 2013 Framework announced for 'one stop shop' environmental approvals Coastal Ecosystems Assessment Framework Review right processes as part of the permit application assessment State Planning Policy 2017 RIMREP Queensland Assessment Bilateral Agreement http://elibrary.gbrmpa.gov.au/jspui/bitstream/11017/3204/1/GBR-Summit-background-paper-and-workbook.pdf	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• RIMReP tracks progress towards objectives under the Reef 2050 Plan. • Queensland Assessment Bilateral Agreement provides for the accreditation of certain Queensland environmental assessment processes, i.e. project proposals that require both state and Commonwealth approval are assessed using a single set of project documentation. • The Samuel (2020) review of the EPBC Act, highlights limitations in the Act that affect joint planning and decision making (refer PL2). Challenges: • Enhancing communication and institutional linkages among institutions relevant to biodiversity (e.g. "*gaps remain, particularly with local governments and catchment planning groups*" Interviewee 2023). • Reducing the legislative and regulatory constraints that limit integration and coordination.	RIMReP Web pages RIMReP – Reef Knowledge System RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23 RIMReP Annual Business Plan 2021-22		
PR7 There are effective processes applied to **resolve differing views/ conflicts** regarding biodiversity	3	• Limited mechanisms in place to effectively resolve differing views / conflict regarding biodiversity in relation to permitted access under the Zoning Plan, specifically on a range of issues where consideration of tangible and intangible cultural heritage values of the Marine Parks are made through the joint permission system to enable transparent and defendable decisions.	Reef Knowledge System – Resilient Reefs Network (gbrmpa.gov.au) RIMReP Web pages RIMReP – Reef Knowledge System	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There are four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals' to minimise conflicts with a ranger of users. Public comment processes for permit applications expected to impact on other users. The number of applications open for public comment has increased since 2009. • The Permissions system has been upgraded to provide greater clarity to permit holders and thus avoid conflicts in terms of where activities can occur: – Permits Online - a new online portal to submit applications and manage all permissions and contact details; and longer permit terms up to 20 years – updated permission system policy and improved assessment guidelines and a checklist of information required at the time of application..	RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23 RIMReP Annual Business Plan 2021-22		
PR8 **Impacts** (direct, indirect and cumulative) of **activities** associated with biodiversity are **appropriately considered**.	2	• Direct impacts are generally well considered. • Cumulative impacts are considered to some extent - refer Cumulative impact management policy (2018) and Net Benefit Policy (2018)	Integrated Monitoring Framework for the Great Barrier Reef WHA (2013) Planning for priority ports (2017) Reef Trust offsets calculator	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Refer PL2 for a diverse range of legislation, strategies, policies and other documents where impacts associated with biodiversity are considered. For example: – The **Zoning Plan** spatially manages impacts from direct use; all permitted activities are subject to assessment in accordance with the Mandatory assessment criteria (Section 103) in the **Marine Park Regulations**. These criteria are outlined in assessment guidelines and include consideration and mitigation of impacts. – The Reef 2050 Plan (2021) identifies specific priority areas for action that align with impacts outlined in Strategic Assessment and each Outlook Report. – Strategic objectives are outlined in the Reef Authority's Corporate Plan 2022-2023, e.g. 'enhancing reef resilience by providing expert knowledge to advise key decision makers on reducing or avoiding significant threats to the Reef' – Values-Based Management Framework (DES) – focuses on protecting park values, including strategies that address threats and impacts on biodiversity, including: – fire strategies for priority island National Parks guide the use of fire as a conservation tool for the protection and recovery of Key Values on National Park Islands. – pest strategies for priority island National Parks guide pest activities to ensure protection and	Corporate Plan 2022-2023: at a glance. Planning and prioritisation (DES) Crown of Thorns Starfish Program The Reef Authority is dedicated to gaining real-time information on Reef health throughout summer to better understand reef health impacts. This information helps the Reef Authority and its partners to prepare for any management response actions, such as planning surveys by vessel or aircraft. Aerial Survey SOP - Edition 3 (Apr2022)_NC_JM-upload (aims.gov.au) Pre-Summer Workshop at the Reef Authority each year plans for Reef Health Incident Response over		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		enhancement of key habitats and species on National Parks. – Monitoring and Research Strategies (M&RS) for several priority island National Parks under the VBMF detail what monitoring needs to occur in the park for the assessment of Key values. It also identifies specific research needs where more detailed scientific knowledge is required. The M&RS captures all the monitoring (including Health Checks) and research that is required, or desired, on a park. The need for comprehensive assessment and survey may also be captured in the M&RS. – **Vulnerability assessments for several key species and habitats** document key risks to biodiversity. – Plans of Management and Special Management Areas identify and address issues of biodiversity management. – Strategic assessments outline impacts to biodiversity. • Permits Online - a new online portal to submit applications and manage all permissions and contact details. Enables longer permit terms up to 20 years – Improved assessment guidelines – A checklist of information required at the time of application. – Updated permission system policy and new guidance documents.	summer for monitoring and responding to any potential incidents (bleaching, cyclones, etc) Emergency Special Management Area may be considered as a management tool after severe coral bleaching to limit coral extraction. Lady Elliot Island ecosystem resilience plan manages vegetation, pests and provides 10yr plan to manage ecosystem. Network of No Anchoring Areas for Reef Protection – refer to the CMT evidence table Raine Island Recovery Project aims to protect and restore the island's critical habitat to ensure the future of key marine species, including green turtles and seabirds.		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Permission statements express the Reef Authority's position on various issues that are outside its direct regulatory control (refer PL2) e.g. fishing, water quality, climate change, coastal ecosystems, marine debris. – eReefs is delivering Reef water quality information online, enabling anyone to track the effects of storms, cyclones, floods, and other impacts on the Reef – NESP projects – Project 1.6 - Multiple and cumulative impacts on the Reef: assessment of current status and development of improved approaches for management – Project 2.1 - Assessing the cumulative impacts of climatic disturbances on inshore Reef coral reefs, identifying key refuges and testing the viability of manipulative reef restoration – Project 2.1.6 - From exposure to risk: novel experimental approaches to analyse cumulative impacts and determine thresholds in the WHA – Project 2.3.1 - Benthic light as ecologically validated Reef wide indicator for water quality: drivers, thresholds and cumulative risks.	Macroalgae Removal Trials Magnetic Island – Interim Report		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Actions under the Reef joint Management Program Business Strategy Summary 2022 to 2026, e.g. strengthen **biosecurity** measures and enhance **pest and fire** management to maintain island habitats. QPWS has biosecurity risk prevention protocols in place to prevent the introduction of pests and diseases by QPWS and management partners onto and between islands (regardless of tenure) within the QPWS Great Barrier Reef and Marine Parks Region. • Various **Programs, including monitoring** programs (**refer PL5**) address threats and impacts, including: – Crown-of-thorns starfish control program directly manages this high-risk impact to the Reef. Targets reefs of high ecological and economic value for pest management. Uses a reef prioritisation tool, based on several criteria, to inform prioritisation for the program. – Resilient Reef Network (RRN) tool, COTS Prioritisation model, and UQ's Reefmod are used to inform the Reef Authority of preferred locations for deployment of intervention trials under RRAP (2023). These take into consideration threats and disturbance history – Various research projects (2021-24), e.g. ReefScan automated benthic survey technology (jointly funded by RJFMP; eDNA detection of COTS, biocontrol using chemical attractants and deterrents, and updated COTS and coral larval dispersal and connectivity modelling; Leaf to Reef			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		program Lady Elliot Island (funded by Great Barrier Reef Foundation) – Turtle stocks at greatest risk from climate change (DCCEEW) (2022+) – National Guidelines for the Survey of Cetaceans, Marine Turtles and the Dugong (2023) • The **Reef Knowledge System** hosts an internal-only interactive dashboard, the Resilient Reefs Network Guidance Tool, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park. **Challenges:** • Consideration of the usefulness of defining 'Limits of acceptable change'.			
PR9 The best available **biophysical research and/or monitoring information** is applied appropriately to make relevant management decisions regarding biodiversity	4	• The National Environmental Science Program (NESP) is a long-term commitment by the Australian Government to support research into environment and climate science. NESP projects deliver collaborative, practical and applied research to inform decision making and on-ground action. The program connects scientists, policy makers, Indigenous people and communities. Three NESP hubs are undertaking research that directly or indirectly relate to biodiversity in the Reef: – The Tropical Water Quality Hub is researching coastal water quality and coastal management focused on the Reef and other tropical waters. This research is also	National Environmental Research Program Coastal Bird Monitoring and Information Strategy 2015- 2020 Significant Impact Guidelines 1.1 - Matters of National Environmental Significance Hemson et al, 2017 Autonomous Monitoring	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		providing critical information for decision makers involved in delivering against the targets and outcomes of the Reef 2050 Plan (refer http://nesptropical.edu.au/). – The Marine Biodiversity Hub is researching Australian oceans and marine environments, including temperate coastal water quality and marine species. The Hub's research provides nationally consistent scientific information to support evidence-based decision making about marine species, marine protected areas, and pressures on the marine environment. – The Northern Australia Hub is researching practical solutions to support the region's natural and cultural environments. The Hub's research is delivering new knowledge, tools and partnerships and focuses on landscape-scale studies covering savanna, rainforest and aquatic ecosystems and biodiversity; land and water planning for urban, agricultural, and infrastructure development; and Indigenous land management including Indigenous Protected Areas (refer http://www.nespnorthern.edu.au/). • The Reef Restoration and Adaptation Program (RRAP) is collaborative long-term research and development program to develop, test and risk-assess novel interventions to help build the resilience of the Reef under a changing climate. It aims to develop a toolkit of effective, at-scale Reef interventions that	of Seabird Breeding Sites – available on external portal		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		are feasible, safe, acceptable and affordable. The program is currently in the research and development phase. – The 'Ecological Intelligence for Reef Restoration' sub-program aims to fill key foundational knowledge gaps essential for the interventions – including data on region-, temperature- and species-specific coral life-histories. • About 19 in-water **coral reef restoration projects** (since 2017) **and a growing field of research** into coral restoration and adaptation on the Reef (including RRAP above). – Many projects in their infancy and will require assessments of cost-effectiveness, scalability and socio-economic impacts (McLeod et al. 2022). – Australian Academy of Science (2023:23) notes: – Coral interventions include: small scale coral gardening, hardy corals, coral rubble stabilisation, genetic diversity in asexual propagation and artificial reefs. – Water-focused interventions include: solar radiation management (e.g. shading, fogging, cooling); assisted gene flows, cryogenic and biobanks; rubble stabilisation, COTS control; larval collection and settlement; artificial habitat; probiotics; heterotrophic feeding/food manipulation; alkalinity manipulation; microbiome manipulation; manipulation of symbionts; coral			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		breeding for enhanced tolerance and transplanting corals from warmer climates. • The Eye on the Reef Program database, which holds Reef health information, is being upgraded to meet current and future needs. The program incorporates surveys by field staff with data collected by researchers, the tourist industry and stakeholder observations, to detect and assess impacts from extreme weather events, warm water bleaching, flood plumes, Crown-of-Thorns Starfish, ship and smaller vessel groundings and disease. The system enables a range of users to contribute to Reef management through: – Reef Health status reporting – Reef-wide early warning system – Reef-wide and local incident response – Increased stewardship. • The Scientific Consensus Statement is in development and due to be finalised in 2024. It is a synthesis of current peer-reviewed scientific evidence pertaining to the water quality issues (including land-based run-off) in the Reef. It informs a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. It has included extensive consultation with policy, management, experts and stakeholders was undertaken to identify and prioritise a series of specific questions (rather than broad			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		chapters), that frame the scope of the evidence being gathered. The Statement will also identify knowledge gaps and limitations in the peer-reviewed scientific evidence, which will inform future iterations of the Reef 2050 Water Quality Research, Development and Innovation Strategy. • Biophysical information is extensively used in the EIS and permit assessment process. • Analysis of the "GBR Seabird Atlas" identifying trends of declining seabird breeding in several seabird species. The analysis combined with research observations of poor breeding during warm water events has led to the development and implementation of a **new seabird monitoring strategy** targeting species and issues of greatest concern. – QPWS leads or contributes to mot seabird related monitoring and management actions in the Reef 2050 Plan. • Information from targeted projects (e.g. NESP, AIMS LTMP, Marine Monitoring Program, Sustainable Regional Development Program) guides development of plans, policies and guidelines (e.g. Hydrodynamic modelling guidelines, management of dredge spoil material and ship anchorages, and cumulative impacts policy development) (refer PL2, PL5 and PR8).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• eReefs is delivering Reef water quality information online, enabling anyone to track the effects of storms, cyclones, floods, and other impacts on the Reef. • The significant impact guidelines provide overarching guidance on determining whether an action is likely to have a significant impact on a matter protected under national environment law — the Environment Protection and Biodiversity Conservation Act 1999 • Biosecurity of the islands aims to limit the spread of weeds, invertebrates and other animal pests from the mainland to islands, and between islands. • DES QPWS Threatened Species Operations leads or contributes to most turtle related monitoring and management actions in Reef 2050. • The Rivers to Reef to Turtles project aims to identify and measure the key pollutants in rivers, the Reef and in green turtles themselves. • Monitoring Reef health over summer (2019-22) – Snapshots summarised the conditions, impacts and health of the Reef over the summer. The most recent Snapshot was released in 2022 and informs AIMS's annual reporting on coral reef condition, informs management partners, researchers and others about reef health status and conditions. Challenges:			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• *"The monitoring program is suitable for previous times when the reef experienced a more steady-state…The* ***modelling approaches used now won't work…The existing planning and decision-making framework doesn't deal well with uncertainty…The biggest weakness with the Reef 2050 Plan is that there are no methods or agreed processes to make decisions in times of high uncertainty****…We run the risk that a lot decisions will be too little and come too late*" (Interviewee 2023). – Australian Academy of Science (2023:23) identified: – Interventions are about buying time for reef ecosystems to adapt, but no known interventions are holistic and at-scale for a sustainable and resilient Reef. At the individual reef scale there is evidence of successful rehabilitation – but scalability remains unknown. 'Interventions are unlikely to preserve the current reef state in entirety' (p.26). – Interventions may require trade-offs between target and location of intervention and evaluation of the potential loss of other parts of the system. These trade-offs have the potential to lead to conflict and present risks to an evidence-based prioritisation process aligned with public support for actions. – 'The tools we have had that served us well over the past four decades need to be amplified and applied based on			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		what is likely to happen rather than what has happened' (e.g. coral gardening may not be an effective method for restoration at scale). – Gaps in intervention knowledge and practice include: in approaches, field trials, efficacy, risk appetite and acceptance, implementation, cost-benefit feasibility and scalability. There are gaps in intervention effectiveness and prioritising what to protect with interventions; and in fundamental ecological research e.g. Reef ecosystem, species and land-sea connectivity. – Improving the current modelling, monitoring and integration of existing datasets (e.g. RIMReP, Integrated Ocean Stewardship (CSIRO), RRAP, Integrated Marine Observing System (CSIRO) and others) may support better management decisions. Agreements among research groups regarding data standards and sharing are challenging.			
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding biodiversity	3	• Refer IN5 which outlines available socio-economic data. • **Social and Economic Long-Term Monitoring Program (SELTMP).** Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to:	Report Card 2020 NESP Project: 1.17 Integrated data requirements for natural resource management (2022) Traditional Owner and Marine Parks Management Portal	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Monitor changes in community attitudes towards the Reef, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the Reef. – Assess and monitor social and economic vulnerability, and adaptive capacity of Reef communities to changes in Reef condition & the wider system. • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment: This project reviewed common frameworks that conceptualise the relationship between people and nature to identify which parts of the system influence environmental outcomes, and factors relevant to designing policy or influencing behaviours. • Developed a spatial representation for stakeholder of proposed permit areas relating to Native Title Claims, Determinations, TUMRAs etc within the Marine Parks. • There are four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. • Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes to better identify risks to relevant Indigenous heritage values for the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measures. • RIMReP's vision is to develop a knowledge system that enables resilience-based management of the Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing.			
PR11 The best available **Indigenous heritage** information is applied appropriately to make relevant management decisions regarding biodiversity	2	• Refer Heritage (Indigenous) topic (Table 44)., in particular the Traditional Owner heritage assessment and Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park • Developed a spatial representation for stakeholders of proposed permit areas relating to Native Title Claims, Determinations, TUMRAs etc within the Marine Parks • There are four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location	Traditional use of marine resources Impact Assessment Guidelines for the Woppaburra Heritage National Environmental Science Program (NESP) projects of particular relevance include: Tropical Water Quality Hub	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		specific activities within their Sea Country through a system of 'cultural referrals'. • Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes to better identify risks to relevant Indigenous heritage values for the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measures. • Land and Sea Country Indigenous Partnerships Program and TUMRAs provide the mechanism for Traditional Owners to apply their knowledge to biodiversity management in their land and sea country.	Project 3.9 Indigenous capacity building and increased participation in management of Queensland sea country vulnerability assessments Traditional Owner and Marine Parks Management Portal		
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding biodiversity	NA			NA	NA
PR13 Relevant **standards** are identified and being met regarding biodiversity	3	• There are various international standards relevant to biodiversity e.g. UNDP Standards –Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management. This includes a series of objectives related to conserving biodiversity and ensuring fair and equitable benefit sharing	A critical review of environmental management of the 'not so Great' Barrier Reef (Brodie & Waterhouse 2012)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• National Environmental Standard (NES) (Matters of National Environmental Significance) 2021 (under review) includes: Standard for all matters of NES, including biodiversity; World Heritage (i.e. OUVs are protected, conserved, presented and transmitted); National Heritage (natural, historic and Indigenous places of outstanding heritage significance); Ramsar wetlands; threatened species and ecological communities; migratory species; Commonwealth Marine environment; Great Barrier Reef Marine Park. New Standards are required to improve decision making to ensure that outcomes for biodiversity are delivered (Samuel 2020). – NES is being reviewed to ensure that developments that impact on habitats/ ecosystems are consistent with achieving outcomes for MNES. – They clarify existing settings of the EPBC Act to define clear limits of acceptable impacts while allowing flexibility for development. – Currently there are opaque rules and unfettered discretion in decision making that can result in poor environmental outcomes (Samuel 2020). • Nature Positive Plan (2022) addresses the need for new NESs which will be for: MNES; First Nations engagement and participation in decision making; community engagement	GBRMP Water quality guidelines Great Barrier Reef Biodiversity Conservation Strategy 2013 Reef 2050 Water Quality Improvement Plan 2017-2022 RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and consultation; regional planning; and environmental offsets. • Wetlands GBR Management Strategy outlines a number of objectives, targets and standards • Various standards relating to: Reef discharge (2022); Water Quality Guidelines. • Various standards are being developed through RIMReP. The vision is to develop a knowledge system that enables resilience-based management of the Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. • Explicit desired outcomes and targets linked to current condition assessment are being established as part of the Strategic Assessment Program Report (Tables 3, 4 and 5) and through the identification of MNES and their relationship to the management programs of the Reef Authority. • Standards and thresholds being developed through RIMReP. • Reef WQIP has clear water quality targets, and catchment and land management targets.			
PR14 **Targets** have been established to benchmark management	4	• Update of Reef 2050 Water Quality Improvement Plan 2017-2022 targets are currently under review to be finalised in 2023/2024. There are clear catchment and land management targets.	The need for broader ecological and socioeconomic tools to evaluate the effectiveness	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
performance for biodiversity		• Refer Program Reports, Biodiversity Conservation Strategy and management of tourism, recreation and fishing. • Wetlands GBR Management Strategy outlines a number of objectives, targets and standards.	of coral restoration programs, *Restoration Ecology* (Hein et al. 2017)		
OUTPUTS					
OP1 To date, the actual **management program** (or activities) has progressed in accordance with the planned **work program** for biodiversity	3	• Management programs within the Reef Authority and related government agencies have progressed. However, delays have been experienced due to COVID-19 restrictions that prevented access to TUMRA area and other remote locations. It is less clear how well management programs of other organisations that also manage biodiversity have progressed. • Reef 2050 Plan work program is progressing but timeframes are lagging in some areas. • EPBC fisheries accreditation timelines being met. • Annual research plans and timelines largely met. • See progress of research funded through NERP, Caring for Our Country • The **Reef Joint Field Management Program** is responsible for the planning and delivery of in-field activities and field operations within the WHA, including Commonwealth and state marine parks and Commonwealth islands and state island protected areas. RJFMP Annual Business	RRRC website http://www.rrrc.org.au/ Great Barrier Reef Coastal Zone Strategic Assessment: Independent Review Report Great Barrier Reef Strategic Assessment Report, Sections 4.3.1, 4.6, 4.7 and 4.8 Great Barrier Reef Biodiversity Conservation Strategy 2013 COTS control program Reef Authority – Strategic Plan 2013-2017 Vulnerability Assessments Annual Operating Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Plan Summaries outline the activities and priority projects the Program will undertake to protect the WHA from threats, build resilience for marine habitats, islands and species, strengthen partnerships with Traditional Owners and support ecotourism opportunities. – RJFMP Program Business Strategy Summary 2022-2026: framed around five Program priorities and two overarching activities – Annual RJFMP Thematic Reviews conducted to assess effectiveness of programs (internal): COTS Response, Seagrass Watch, Pests, Island Health, Marine Megafauna, Fire, Coastal Birds, Technology Transformation, Reef Interventions, Northern Great Barrier Reef Green Turtle Research, VBMF). • Marine Monitoring Program outputs include: – Annual Marine Results reports which provide the marine information in the Report Cards. This includes information on key water quality indicators in the inshore regions of the Reef. – Annual Summary Report, which provide a short overview of the key findings. – Annual technical reports provide detailed scientific information on the condition and trend of inshore water quality, coral reefs and seagrass meadows.	Wescott G, Fitzsimons J, 2016 Big, Bold and Blue : Lessons From Australia's Marine Protected Areas Reef Trust Investment Strategies 2020 — Fish Aggregation Devices and Artificial Reef Interim policy 2020 Lady Elliot Island ecosystem resilience plan 2020 Crown-of-thorns starfish Strategic Management Framework 2021 Science and Knowledge Needs for Management (2021)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Regional Report Cards and Reef Water Quality Report Cards are published. • Crown of thorns starfish Control Program: the strategic framework outlines the outbreak management cycle, monitoring methods and how research and innovation informs management. • Northern GBR Green Turtle Program: – Great Barrier Reef Green Turtle Research Project: a three-and-a-half-year, $5.93 million research program proposes a series of activities to improve understanding of this turtle population and to inform management activities, including how best to respond to the impacts of climate change. • Macroalgae Removal Trials Magnetic Island – Interim Report outlines actions (in order of priority) for the 2019-2020 financial year to develop larger scale restoration techniques to protect/restore coral reefs. • Raine Island Project Report. • Mass Coral Bleaching Report outlines results from aerial surveys along the Reef to assess the extent of coral bleaching in 2022. • Various QPWS projects completed e.g. habitat protection fence at Bowling Green Bay Spit installed (2020) - the number of non-breeding little terns compared to breeding little terns is significantly greater; Far Northern Inshore			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Dolphin Project Update reports (2021 and 2022); Macroalgae Removal Trials Magnetic Island (Draft Final Report). • Values based management program (DES), includes: eight management statements prepared under the Nature Conservation Act 1992, including one co-designed with a first nations partner; 23 island protected areas had a values assessments undertaken, including five assessments completed with first nations partners for Cape York Peninsula Aboriginal Land (CYPAL). • DES and QPWS have initiated several projects and programs, including: – Reintroduction of **traditional burning practices** to North Keppel Island with First Nation Partners. – Curtis Island systematic ignition landscape fire mitigation program have demonstratable change in reducing the impacts of bushfire on sensitive ecosystems. – Whitsunday Islands National Park aerial ignition program promoting healthy ecosystems (Paul Williams Review paper). – QPWS has implemented **feral animal control program** on Curtis Island. The program aims to reduce impacts on threatened species and key habitat. Significant progress has been made in achieve this outcome. – Under the QPWS **pest program goats** have been eradicated from Orpheus Island. No sightings for two			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		years, continuing monitoring phase to confirm eradication. – QPWS implemented a **mouse eradication program** to protect nesting seabirds on North West Island. Eradication was confirmed in August 2022.			
OP2 **Implementation** of management documents and/or programs relevant to biodiversity have progressed in accordance **with timeframes** specified in those documents	3	• COVID-19 has impacted on the progression of some projects and programs. • Refer to Reef Authority Strategic Plan, Great Barrier Reef Coastal Zone Strategic Assessment and Annual Operating Plans and OP1. RRRC annual research plans and timelines largely met. • The Reef Restoration and Adaptation Program (RRAP) is collaborative long-term research and development program to develop, test and risk-assess novel interventions to help build resilience of the Reef under a changing climate. It aims to develop a toolkit of effective, at-scale Reef interventions that are feasible, safe, acceptable and affordable. The program is currently in the research and development phase. • The 'Ecological Intelligence for Reef Restoration' sub-program aims to fill key foundational knowledge gaps essential for the interventions – including data on region-, temperature- and species-specific coral life-histories. • EPBC fisheries accreditation timelines being met. • Reef Plan is progressing as planned.	Whitsunday Plan of Management amendment Great Barrier Reef Blueprint for Resilience Reef 2050 Plan – Implementation Strategy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Marine Monitoring Program Annual Reports includes information on key water quality indicators in the inshore regions of the Reef. • Governments response to Samuel Review of EPBC Act (2020) and corresponding actions implemented, including development of the Nature Positive Plan: better for the environment, better for business - DCCEEW (2022) • Annual RJFMP Thematic Reviews – Programs include: COTS Response, Seagrass Watch, Pests, Island Health, Marine Megafauna, Fire, Coastal Birds, Technology Transformation, Reef Interventions, NGBR Green Turtle Research, VBMF). • Mass Coral Bleaching Report outlines results from aerial surveys along the Reef to assess the extent of coral bleaching in 2022. • Other specific projects include: – Resilience network initiative post the Summit / Blueprint and related research programs are in progress. – Raine Island Project report – Great Barrier Reef Green Turtle Research Project – In September 2020, QPWS Rangers installed a habitat protection fence at Bowling Green Bay Spit, with the aim to protect and increase habitat for nesting little terns. With the fencing, the number of non-breeding little terns compared to breeding little terns is significantly greater.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Far Northern Inshore Dolphin Project Update reports on field trip results in Nov 2021 and May 2022. – Macroalgae Removal Trials Magnetic Island – Draft Final Report describes trials of a prototype air-lift pump system (to aid macroalgae removal). It also provides an update on relevant research being led by James Cook University and ongoing engagement with the Magnetic Island community on potential rehabilitation projects. Challenge: • Little data readily available to assess the diverse range of managers and managing organisations that implement biodiversity plans and programs.			
OP3 The **results** (in OP1 above) have achieved their **stated management objectives** for biodiversity	2	• Refer PL2 (list of relevant documents), PL4 (clear, measurable objectives), PL5 (monitoring), PR8 (impacts), OP2 (implementation timeframes) and relevant evidence. • In general the management objectives for biodiversity stated in relevant plans and programs are assessed and are generally achieved or on target. (*Note*: this assessment does not address the relevance of these objectives). – "*We are ticking off these objectives*" (Workshop participant 2023). – "*Results in workplans are delivered but not all objectives in all plans are delivered*" (Workshop participant 2023). • The Marine Monitoring Program's achieves its stated objective - which is to assess trends in ecosystem health,	Reef report Card, Progress Reef 2050 Plan reports	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and resilience indicators for the Reef in relation to water quality and its linkages to end-of-catchment loads. • Challenge: – Publicly available data on Reef 2050 Plan implementation (DCCEEW) is dated (available to 2016 and last updated 2021), although annual Activity Reports are available to the public.			
OP4 To date, **products or services** have been produced in accordance with the stated management **objectives** for biodiversity	3	• Reef Water Quality Report Cards released for 2019, 2020. The 2021 and 2022 Report Card will be finalised in late 2023. The Reef report cards track 'Inshore marine condition' that includes water quality, coral and seagrass condition, and freshwater wetland condition. Indicators of land management impacts on water quality, catchment condition, and wetland and inshore marine ecosystem condition, are reported in the Reef Water Quality Report Cards. • **Reef HQ Aquarium** provides both products and services and is an avenue to enhance community understanding of the Reef; offers high-quality products and promotes the values of the Reef, the threats its facing and the role people can play in protecting it. The products on offer have consistently met visitor expectations. Over 186,000 visitors from January 2019 to February 2021; closed during 2020 due to COVID-19 restrictions. – Reef HQ Aquarium reopened its doors following the temporary closure and remained operational until 1 February 2021. The Aquarium then closed and will be		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		rebuilt to ensure compliance with building code, WHS and accessibility. – The Reef Education team are still delivering educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its sustainable future and to encourage participation by taking action to address threats to the Reef. Reef HQ Aquarium continue to engage with the public and promote educational messages through social media channels and local community events. • Permits online - enhancements allowing for greater consistency and efficiency for permit applications including development of six Routine (standardised) permits for low-risk activities. – Updated permission system policies. • Policy on Great Barrier Reef interventions. • RIMReP's vision is to develop a knowledge system that enables resilience-based management of the Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. Implementation has been delivered in accordance with the RIMReP Business Strategy 2020-25 and delivered under the agreed RIMReP Annual Business Plans. • Refer PL2 (a range of policies, plans and other documents that have been produced), PL5 (monitoring products and services), PR9,10,11 (biophysical, socio-economic, heritage products).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OP5 Effective **knowledge management systems** regarding biodiversity are in place within agencies	3	• The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs. • Reef Knowledge System • Ongoing enhancements to RMS and Permits Online. • ANAO audit recommendation - review and finalise internally managed business procedures, including establishing relevant documents as controlled documents, in order to fully implement Recommendation no.1 from Auditor-General Report No.3 2015–16 Regulation of the Great Barrier Reef Marine Park Permits and Approvals. External documents are being reviewed and established as controlled documents where relevant. • Qld DAF maintains eResearch archive of scientific and research publications and datasets including many items of relevance to biodiversity in the Reef. • DES maintains database of biodiversity records from protected areas including islands within the Reef and adjacent coastal areas; and maintains a relational database (StrandNet) that collates reports of strandings of sick, dead, injured marine Megafauna (Cetaceans, dugong, pinnipeds, turtles) within Queensland with capacity for analysis of distribution, abundance of strandings in response to threatening processes.	Integrated Eye on the Reef database Reef Explorer tool Permits database RIMREP AIMS water quality chlorophyll and turbidity time series data AIMS eAtlas SSIMR Reef explorer | Reef Knowledge System RMS Assessment and decision Managed document procedure - Procedures/Manuals (sharepoint.com) Regulation of Great Barrier Reef Marine Park Permits and Approvals — Follow-up | Australian National Audit Office (ANAO)	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Permits Online - a new online portal to submit applications and manage all permissions and contact details; Improved assessment guidelines; A checklist of information required at the time of application; Updated permission system policy and new guidance documents. • All Reef Plan data is saved on SSIMR database (DARTS/SKIP). Challenges: • Potential gap - The knowledge of biodiversity held in systems are yet to translate directly to inform decisions made in the permits compliance and to a lesser extent permit application assessment processes. • Limited spatial tools available for use, although the Reef Knowledge System aims to provide spatial tools and make information accessible to decision makers (this may help permit compliance and permit assessment decisions). • Limited cumulative information in relation to permitted used and actual use within the marine parks remains (although some work in progress to fill this gap) (Workshop participant 2023). • Greater alignment of communication strategies among organisations that research and manage the Reef to facilitate enhanced public understanding of a range of issues (e.g. climate change) i.e. including data sharing and standard			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		formats (Australian Academy of Science 2023)…. "'*there remain difficulties associated with integration and access to knowledge system across managing agencies'* (Workshop participant 2023).			
OP6 Effective systems are in place to **share knowledge** on biodiversity with the community	4	• Matters related to biodiversity are discussed at the Local Marine Advisory Committee meetings. Key stakeholders were encouraged to nominate for the 2021-24 LMAC term. There are currently over 220 active members and management partners involved in the LMAC network. • Reef HQ **Aquarium** reopened its doors following the temporary closure due to COVID-19 and remained operational until 1 February 2021. The Aquarium then closed and will be rebuilt to ensure compliance with building code, WHS and accessibility. – The Reef Videoconferencing program is Reef HQ Aquarium's outreach education program which informs people around the world about the Reef . • The **Reef Education** team are still delivering educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its stainable future and to encourage participation by taking action to address threats to the Reef. Reef HQ Aquarium continue to engage with the public and promote educational messages through social media channels and local community events. (refer Education at Reef HQ).	COTS updates Coral bleaching updates NESP Reef 2050 Plan Reef 2050 Plan – Implementation Strategy Whitsundays Plan of Management RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23 RIMReP – Reef Knowledge System	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs. It enables anyone who visits the Reef to contribute to its long-term protection. It brings together five assessment and monitoring programs (Sightings network; Rapid Monitoring ; Tourism Weekly Monitoring ; Reef Health and Impact Surveys ; Eyes and Ears Incident Reporting Network) The Reef Health and Impact Survey sub-program is run in partnership with the Queensland Parks and Wildlife Service. • RIMREP's vision is to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. A centrepiece of RIMReP is the interactive online Reef Knowledge System — the 'first stop shop' for up to-date information about the Reef to guide effective management decisions in a rapidly changing world. The Reef Knowledge System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken. • Reef Health Updates: - Over the summer, the Reef Authority issue weekly public reports on the conditions of the Reef (website, social media and occasionally through conventional media outlets such as radio & TV). These updates are based on			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		forecasts, water temperature heat mapping, in-water surveys, citizen science and aerial surveys. The updates are available on Reef health and past Reef health updates are also available. - The Reef Authority, together with AIMS and CSIRO, publish an annual 'Reef snapshot' that provides a concise, easy-to-understand summary of how the Reef has fared over the past summer, what this means for coral and the actions being taken to help coral health. - The five- yearly Outlook Report that examines the Reef's health, pressures, and likely future is publicly available and shares up-to-date knowledge on biodiversity with the community. It also informs other communication products such as the Reef Authority's education programs, Reef HQ material, Reef Beat education series: junior outlook etc. • Communication through plain-English products summarising outcomes of scientific research is undertaken to some extent, but not systematically. • e-Library (Reef Authority external website) provides access to publications. • DAFF staff eResearch Archive • The scientific community is engaged in issues-specific workshops and forums and RACs.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The http://elibrary.gbrmpa.gov.au/jspui/handle/11017/2787?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwjS78qd0Y_WAhVFNbwKHVhZDGEQFggmMAA&url=http://www.gbrmpa.gov.au/our-partners/reef-guardians&usg=AFQjCNGEKbYrzPkYqTHSQGSLshYNFwaaIQReef Guardian Schools initiative – the focus since 20219 has been on citizen science and the role of individuals in protecting the Reef. Schools from around Australia and the world participate in the program. • The non-scientific community is engaged via the Reef Authority's LMACs, magazines – e.g. Reef Beat, media releases etc • Information is updated frequently through the Wetlands information website. • Reef Explorer. • Reef Report Cards are available annually. • Marine Monitoring Program outputs are published, including: annual Marine Results reports which provide the marine information in the Report Cards; annual Summary Report, which provide a short overview of the key findings; Annual technical reports provide detailed scientific information on the condition and trend of inshore water quality, coral reefs and seagrass meadows.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Regional Report Cards are published. • NESP research outcomes are shared via The CHIRP weekly e-newsletter, through hub newsletters, and are made available on Hub websites. NESP researchers are required to make all NESP research outputs publicly available on websites with a persistent and enduring link. Providing open-access to the data and information products derived under the NESP will provide up-to-date, high-quality data and information to decision-makers, environmental managers, other scientists, and to the community. • Tourism RAC is a competency-based committee with members providing a cross-section of stakeholder expertise and interests in areas relevant to tourism on the Reef. Challenge: • Australian Academy of Science (2023) noted: researchers need to be 'honest brokers' and present all lines of evidence and communicate the reality of the Reef's future in the face of climate impacts. '…although consistent and clear government messaging is needed, the government is not necessarily a trusted voice in many public spaces. Embedding key messages into grassroots communications is needed for efficacy' (p.29)			
OUTCOMES					

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC1 The relevant managing agencies are to date **effectively addressing biodiversity** and moving towards the attainment of the **desired outcomes**.	2	• Previous indicators highlight a range of plans, strategies, programs and actions directed to enhancing biodiversity (refer PL2, all Inputs, and all Outputs) and achieving desired outcomes, related to a health Reef (refer CO1 for a discussion of values). • Outcomes, in relation to the condition and trend (CO2) and impacts (CO3) on biodiversity, indicate that desired outcomes of a healthy Reef that is resilient to a range of threats and sustainable into the future, may be limited. • 'We are not effectively managing biodiversity and moving towards attaining the desired outcomes. At this point the **big weakness is that people do not know if the management carried out is enough to protect corals and other biodiversity'** (Interviewee 12, 2023). • Queensland's State of the Environment Report (2020) provides detailed information on the condition of many ecological processes and concludes, "The deteriorating condition of many ecological processes has affected the integrity of the Reef's Outstanding Universal Value. **Ecological processes are expected to continue to decline** due to climate change impacts and inshore land-based run-off". **Population recruitment is reduced for many species** (e.g. corals, fish, some marine turtles, seabirds due to chronic and acute disturbances).	RIMREP COTS Strategy and Contingency Plan Mellin et al 2016, Marine protected areas increase resilience among coral reef communities Reef 2050 plan Reef 2050 Plan – Implementation Strategy Whitsundays Plan of Management Houston W. and Black, R. (2021) Monitoring of Feral Horse Impacts on Curtis Island: Report to Queensland Department of Environment and Science. Department of Agriculture, Science and the Environment, School of Health, Medical and Applied Sciences, Central Queensland University, Rockhampton.	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– "**Ecological processes**, including microbial processes, particle feeding, primary production and competition remain **poorly understood**". " Ecological processes are expected to continue to decline due to climate change impacts and inshore land-based run-off". – "Population recruitment is reduced for many key species, in particular, corals, fishes and some marine turtles and seabirds, largely due to chronic and acute disturbances" – "Reef building has deteriorated, largely due to the combined effects of unprecedented declines in coral cover and crustose coralline algae in some areas in response to thermal bleaching events". – **For some species and ecosystem processes** confidence around condition status is limited due to lack of long-term data over a broad area. • **2022 Joint WHC/IUCN mission** assessed whether the Reef 2050 Plan adequately addresses threats posed by climate change and provides a pathway for accelerated actions in other areas affecting conservation of the Reef. Key findings: – **OUV significantly impacted by climate change factors**; resilience to recover from climate change impacts is **substantially compromised** in part due to degraded water quality. – **Management frameworks, strategies and plans in place to protect OUV: lack of clear climate change targets**	Houston et al. 2021. Assessment of Yellow Chat (Capricorn subspecies) population and associated marine plain habitat on Curtis Island: Progress Report 2015 to October 2021: Report to Queensland Parks and Wildlife Service. School of Health, Medical and Applied Sciences, CQUniversity, Rockhampton. RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System RIMReP Annual Business Plan 2022-23		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and implementation measures are not fully implemented, particularly in relation to water quality and fisheries activities. – Reef 2050 Plan promotes advancement of climate change mitigation commitments under the Paris Agreement target (1.5ºC), but associated plans and strategies referred to in the Plan do not provide any clear pathway to avoid significant negative impacts to the OUV. – Increasing investment in research (e.g. coral restoration). – Need more concrete actions that are sufficient to conserve the OUV under global temperature increase scenarios. – Recommend Reef be inscribed on List of World Heritage in Danger. – Decision by WHC in September 2023 recommended not to list as in Danger. • State Parties response – have implemented policies and committed new funding to address recommendations; – $1.2 billion of new funding to help build Reef resilience, improve water quality and protect marine life (total investment of >$4.4B);			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– committed to "ambitious action on climate change and increased investments to protect Reef"; – legislated 2030 target to reduce GHG emissions to 45% and net zero emissions by 2050 (refer IN1). • Reef management has been in place for many decades and many current successes are underpinned by effective long-term management (e.g. whale numbers have increased and some species are no longer threatened; sediment impacts on seagrass and inshore reefs is being addressed through ongoing catchment management). "*We have come a long way*" (Workshop participant 2023). Some effective outcomes are outlined below. • **Knowledge** of the Reef and its catchment is much improved (refer IN 4,5,6,7 and PR9.10,11,12). Expanded **monitoring programs** provide up-to-date information to guide planning and management (e.g. AIMS LTMP and MMP). – Marine Monitoring Program (Annual Report 2021-2022 for inshore marine habitats): Water Quality (p140 for key conclusions) - every summer satellite images of floods and river plumes entering the Reef are monitored for pollutants. These and other pressures are linked to effects observed on inshore Coral (p.82) and Seagrass meadow (p.122). This has improved scientific understanding of how the Reef is affected by pressures (e.g. cyclones, floods, rising ocean temperatures and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		land-based run-off), and informed management decisions. – The Reef Water Quality Report Card 2020: continued progress towards the water quality targets; more than halfway to the sediment target and almost halfway to the dissolved inorganic nitrogen target; close to achieving the particulate nutrients targets (e.g. phosphorus and nitrogen); overall inshore marine condition improved to moderate in 2019–2020, with water quality improving to good and coral and seagrass remaining in poor condition. • The **Zoning Plan** helps to protect biodiversity within the Marine Park, including diverse species and ecosystems, including threatened species such as dugong and marine turtles. It ensures that industries that rely on the health of the Marine Park continue to provide social and economic benefits to local communities and the wider economy. • **Many threats to the reef are being addressed** (refer CO3) – COTS control – Positive results for inshore water quality in the Reef for the 2021–22 sampling period. Long-term trends of stability or improvement in water quality were observed in all focus regions			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– NESP project – Hazard map for the Reef to predict regions with a lower risk of persistent warning and coral bleaching. – National Park Island pests (biosecurity) and fire – No-anchoring areas – Before 2019 about 33% of no-anchoring areas within the Marine Park were enforceable through legislation. By June 2021 this increased to about 58%. The Reef Authority continues to progress towards the target of all no-anchoring Areas within the Marine Park legislated. – Some improvements in key values since 2019 - coral reefs, islands, mangroves, coastal wetlands and seagrasses, conditions have either improved or remained stable (State Party Report on the state of conservation of Australia's Great Barrier Reef – DCCEEW 2022) • There is some evidence of **recent coral recovery** (refer Coral cover across time in several dashboards) (refer CO2): – AIMS LTMP (2022) registered the highest levels of coral cover yet recorded in the Northern and Central regions over the past 36 years of monitoring; recovery continued on many Southern reefs, although regional coral cover declined slightly due to ongoing outbreaks of COTS in the Swains reefs. **Trends of coral cover are highly variable** across the Reef, and most reefs had between 10-50% hard coral cover.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Species management and recovery plans are progressing e.g. marine megafauna, coastal birds and Green turtle • **Research to inform planning and management** e.g. RJFMP Trial of Restoration Activities: – Project Reefresh: Bait Reef rehabilitation - improve coral cover in Bait Reef. – Yarul Dhingiga: Keppel Bay reef rehabilitation project – Green Island reef rehabilitation project – Coral Nurture Program (replant coral fragments) – **Habitat mapping** (Chris Roelfsema) - map of mid-/outer shelf reefs that has seamless satellite imagery of reef. Geomorphic, benthic, depth and predicted coral types. This will be used to inform future planning (e.g. Southern POM). – NESP project – Hazard map for the Reef to predict regions with a lower risk of persistent warning and coral bleaching. • **Expansion of the Reef protected areas** - Island Arks project - by 2024 about 150 islands/parcels will be added to the protected area estate (total area of 5,563 hectares) • Extensive on-ground work: – Habitat Protection Fence for Nesting Little Terns - the number of non-breeding little terns compared to breeding little terns is significantly greater after fencing. – Macroalgae Removal Trials Magnetic Island - use of a surface supplied (compressed air) venturi pump system			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		increased the rate that hand collected macroalgae could be removed from the water (to a collection point onboard a vessel) and allowed underwater work to occur more safely. – Paddock to Reef program. Challenges: • "*There is a notion that the values of the Reef are static and unchanging and that the job of the Authority is to preserve and protect these values for all time. The reality is dawning that this is no longer possible. The challenge will become* ***what outcomes and values are we managing for*** *– what are realistic ecological, social and cultural outcomes under climate change and the likelihood that ecosystem function decline appears to be inevitable*?" (Interviewee 2023). • **Developing outcomes that are not asset based**, but rather reflect a range of other criteria, including: is reef governance delivering justice to reef communities and owners; are we utilising best decision-making practices under high levels of uncertainty; are we supporting communities and industries to adapt and thrive in the face of highly changed ecosystem functioning (Interviewee 2023). • Workshop participant comments varied: – *'We have the right kind of things in place for the problems we have – some investment is happening.'* – *'There are successes for some aspects of biodiversity'.*			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– *'There is a disconnect between the rest of the management cycle and outcomes. We (Government agency) know the context, have good plans that are well resourced and implemented'. The participant questions whether there 'is a lag between delivering the elements and seeing outcomes' (Workshop participant 2023).* – *'If outcomes are bad, it may well be that we need to look at what we have missed. Understanding is imperfect and we will continue to learn'.* – *'Threats are being reduced but is this fast enough and well enough to reach the outcomes stated in various plans? This is questionable'.*			
OC2 The **outputs** relating to biodiversity are on track to ensure the **values** of the Great Barrier Reef are protected (refer CO1)	1	• Despite extensive and intensive local effort (resilience and adaptation), the **major risk remains continuing widespread emission of greenhouse gases**, although recent improved emissions reductions targets (national and state levels) are a positive step forward. Refer CO1 where values are listed; CO2, CO3 where condition and trend and impacts are discussed, including climate change and related coral bleaching and cyclones and the status of species and ecosystems; PL2 for diverse plans, strategies and programs to address biodiversity; OC1 in relation to addressing desired outcomes). • **2022 Joint WHC/IUCN mission** to assess whether updated Reef 2050 Plan adequately addressed threats posed by climate change and provides a pathway for accelerated	Reef 2050 Integrated Monitoring and Reporting Program Field Management Annual Business Strategy New dugong survey report for southern GBR expected April 2023	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		actions in other areas affecting conservation of the Reef. Key findings: – **OUV significantly impacted by climate change factors**; resilience to recover from climate change impacts is substantially compromised in part due to degraded water quality. – Reef 2050 Plan promotes advancement of climate change mitigation commitments under the Paris Agreement target (1.5oC), but **associated plans and strategies referred to in the Plan do not provide any clear pathway to avoid significant negative impacts to the OUV**. – **Need more concrete actions** that are sufficient to conserve the OUV under global temperature increase scenarios. • Land-based run-off, including nutrients, sediments, pesticides and other pollutants are affecting marine ecosystems. In combination with other severe threats (cyclones, rising acidity, higher water temperatures) and coastal development, the health of the Reef continues to be impacted. The quality and magnitude of the benefits derived from the Reef are declining as a result of declining condition of the Reef's values. Coral cover is impacted by climate change factors and COTS. Fishing, both legal and illegal are impacting on several species. As a result the biological,			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		natural, aesthetic and geomorphic values of the Reef are negatively impacted. • Cumulative impacts management policy has been developed. Cumulative impacts remain a priority for the Reef to ensure that multiple stressors are effectively managed to better protect biodiversity. • Challenges: – *'We have not yet seen the worst of the changes that are occurring… In the context of the future, we are miles off ensuring that the values of the Reef are protected'* (Interviewee 2023). – *'We have made investments into management, but we don't see evidence that this has empowered management to deal with the problems facing the Reef'* (Interviewee 12, 2023) – "***Programmatic innovation,*** *including structural industry adjustment, rather than institutional or policy innovation is needed to address the major challenges that affect Reef values…the Federal and State agencies and the Authority need to work down through the system to get change. It can't be top-down decision making any longer. Subsidiarity should be the key principle*" (Interviewee 2, 2023). – Enhancing understanding of the direct, indirect and cumulative effects of climate change, particularly on the			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		function and behaviours of species and ecosystem processes. – Development and application of models that assist in understanding the impacts of threats and the ways in which systems recover from direct, indirect and cumulative impacts. – While addressing climate change requires collaborative effort on an international scale, agreed actions are required at all levels within Australia (refer Climate change topic).			
OC3 The **outputs** (refer OP1 and 3) for biodiversity are **reducing the major risks** and the threats to the Great Barrier Reef	1	• Refer CO2 and CO3 for detailed findings on the current condition and trends and impacts; PR3 for a review of governance arrangements; OC1 and 2 for outcomes in relation to desired outcomes and protection of values. • Extensive pressures on the reef were outlined in CO2 including from climate change, land-based run-off, coastal development, ports and shipping. Many of these threats are increasing and are cumulative in nature. – "*The major threats are not under control*" (Interviewee 2023) – 'For water quality – we are not really reducing the major risks and threats. For climate change, no, the outputs are not reducing the major risks and threats' (Interviewee 12, 2023).	Great Barrier Reef Strategic Assessment Report, Chapter 11 Strategic Assessment Demonstration case studies and technical reports Sobtzick et al. 2017. Distribution and abundance of dugong and large marine turtles in Moreton Bay, Hervey Bay and the southern Great Barrier Reef. A report to the Great Barrier Reef Authority. Centre for Tropical Water & Aquatic	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• 2022 Joint WHC/IUCN mission assessed whether the updated Reef 2050 Plan adequately addressed threats posed by climate change and provided a pathway for accelerated actions in other areas affecting conservation of the Reef. Key findings: – OUV significantly impacted by climate change factors: resilience to recover from climate change impacts is substantially compromised in part due to degraded water quality. – Management frameworks, strategies and plans in place to protect OUV: lack of clear climate change targets and implementation measures are not fully implemented, particularly in relation to water quality and fisheries activities. – Reef 2050 Plan promotes advancement of climate change mitigation commitments under the Paris Agreement target (1.5ºC), but associated plans and strategies referred to in the Pan do not provide any clear pathway to avoid significant negative impacts to the OUV. – Need more concrete actions that are sufficient to conserve the OUV under global temperature increase scenarios. • COTS Control Program has been significantly expanded (refer IN1) and impacts are being reduced in mainly high	Ecosystem Research (TropWATER) Publication 17/21, James Cook University, Townsville COTS program Brodie, Jon, and Richard G. Pearson. 2016. "Ecosystem health of the Great Barrier Reef: Time for effective management action based on evidence." *Estuarine, Coastal And Shelf Science* 183, no. Part B: 438-451. *ScienceDirect*, Rivers to Reef to Turtles vulnerability assessments		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		tourism visitation sites (about 7% of the Reef). The Relative efficacy of three approaches to mitigate Crown-of-Thorns Starfish outbreaks on Australia's Great Barrier Reef - findings support manual control as the most direct, and only effective, means of reducing COTS densities and improving hard coral cover. • Land-based run-off continues to impact many Reef species and ecosystems, which are in poor condition and continue to decline. – There may be gains from addressing nutrient input. For sediments, this is a legacy issue whereby sediment gets resuspended and impacts on the Reef. We need long time scales to improve this. The evidence isn't there yet to invest further in sediment reduction. Even if we achieve the Reef 2050 Plan targets, this may mean only a small improvement in water quality. Money would be better spent on addressing other issues on the Reef (Interviewee 12, 2023). • The **current management regime and outputs in relation to climate change are inadequate to prevent further declines in biodiversity**. '*We do not yet have a specific actionable strategy to deal with climate change. The degree to which current actions can help reefs adapt to climate change is unclear*' (Interviewee 12, 2023). – '..increasing frequency and severity of pressures has eroded (Reef) resilience, and the **outlook for most**			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		coastal and marine ecosystems is generally poor' (Bay et al. 2023:1) • About 19 in-water coral reef restoration projects (since 2017) and a growing field of research into coral restoration and adaptation on the Reef (including RRAP refer PR9, interventions to enhance coral performance under climate change and research into socio-cultural perspectives). – In water projects include coral gardening, substrate stabilisation, coral repositioning, macro-algae removal and larval-based restoration techniques. "There are positive signs that coral restoration can be a valuable tool to improve resilience at local scales (i.e. high early survival rates across a variety of methods and coral species, strong community engagement with local stakeholders)" McLeod et al. 2022:1). However, 'to date, restoration and adaptation have been undertaken at relatively small scales and at a high cost' (Bay et al. 2023:2) – Many projects are in their infancy and will require assessments of cost-effectiveness, scalability and socio-economic impacts (McLeod et al. 2022). "Australia has about 50,000km^2 of coral reefs and no existing techniques could possibly be scaled up to cover even a fraction of this area" (McLeod et al. 2022:15). – 'Multigenerational studies, spanning several years to decades, are needed to determine how heat tolerance			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and other coral fitness-related traits are maintained under field conditions' (Bay et al. 2023:2). • Fisheries – Species Of Conservation Concern reporting requirements: The threatened, endangered and protected animal (TEP) logbook is used to report interactions with protected animals. Under the *EPBC Act*, commercial fishers must report all interactions with protected species to the Department of Agriculture, Fisheries and Forestry. There is increased Intelligence capacity through VMS, which is reducing illegal extractive use. **Challenges:** • Refer Challenges outlined in OC2. • Selecting the most appropriate management intervention strategies that enhance Reef resilience and functioning. • Progressing relevant research (e.g. in relation to coral restoration) to the point where interventions at scale will bring the required results for improved Reef health.			
OC4 **Use** of the Great Barrier Reef relating to biodiversity is demonstrably **environmentally sustainable**	1	• Key uses relating to biodiversity include activities within: - the Reef catchment e.g. agriculture, pastoralism, mining, coastal and urban development and ports - the marine environment e.g. fishing (commercial and recreational), tourism, recreation Traditional use of marine resources, shipping, research and defence activities • Most uses of the Reef rely on healthy Reef ecosystems e.g. tourism, recreation, Traditional Use, research, fishing. Various stressors (refer CO2, CO3), particularly climate	Great Barrier Reef Strategic Assessment Report, Chapter 11 Strategic Assessment Demonstration case studies and technical reports World Seagrass Atlas (Short & Green)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		change, will impact the environmental sustainability of these uses and various planning documents are in place to manage biodiversity in relation to use (refer PL2). • Recent reports e.g. 2022 Joint WHC/IUCN mission, Queensland's State of the Environment Report (2020) indicate that the Reef's OUV is impacted by climate change and its resilience to recover from climate change impacts is compromised. The health of the Reef is declining in part due to the cumulative impacts of multiple stressors including outbreaks of crown-of-thorns starfish, input of sediment and nutrients, and legacy issues such as catchment clearing and commercial harvesting of iconic species (refer CO2, CO3, PR3, PR8, OP3, OC1, OC2, OC3). - Mass coral bleaching - Cyclones and other extreme weather events, resulting in floods - Ocean acidification • The Reef ecosystems' resistance and capacity to recover is varied. The extent of loss varies between ecosystem components (for example, dugong compared to some fishes) and between localities (for example, the inshore southern two-thirds of the Region compared to places offshore and further north). • AIMS LTMP 2021-2022 report. In 2022, the Reef continues to recover, registering the highest levels of coral cover in the Northern and Central regions over the past 36 years of monitoring. While recovery continued on many Southern reefs, regional coral cover declined due to ongoing	COTS vulnerability assessments		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		outbreaks of COTS in the Swains reefs. The trends of coral cover are highly variable across the Reef. Most reefs had between 10-50% hard coral cover. • Cumulative bleaching undermines systemic resilience of the Great Barrier Reef (Cheung et al. 2021) (Note: addresses coral bleaching in 2016, 2017 and 2020) - The Reef is being damaged by expanding coral bleaching events, with reduced opportunity for recovery in susceptible areas. - The cumulative impact of recent bleachings may have **reduced larval supp**ly by 71%. Most severely bleached reefs (75%) are predicted to have experienced 80-100% loss of larval supply. - **Coral connectivity** is likely to become increasingly disrupted due to the escalation of climate-driven disturbances. - **About 13% of the Reef are potential refugia that avoid significant warming, with 14% within protected areas.** Refugia have the potential to deliver coral larvae to 58% of the Reef (i.e. about 2,185 reefs), although not in the far northern sections of the Reef. These may provide pockets of systemic resilience in the near-term. - Predict brooding corals are likely to increase their dominance in severely bleached areas and profound reduction in spawner larval supply. The ecological consequences of these community shifts are not yet clear, although similar shifts in the Caribbean have reduced ecosystem functions (Alvarez-Flip et al. 2013).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		- 'Theories of conservation planning for climate change will need to consider a shifting portfolio of thermal environments over time' (p.5385). • RJFMP trial of restoration activities to increase resilience of reefs in face of threats: - Project Reefresh: Bait Reef rehabilitation - Yarul Dhingiga: Keppel Bay reef rehabilitation project - Green Island reef rehabilitation project • The Reef Island Arks project - by 2024 another ~150 islands/parcels to be added to the protected area estate (i.e. expansion of about 5,563 hectares) (refer PL2 for acquired island parcels). Can provide safe refuge as places that are remote and more removed from impacts common on the mainland. This is a key strategy to enhance ecological resilience of the WHA. - However, Bay et al (2023) note that existing management strategies and expanded networks of protected areas may be insufficient to slow long-term decline and loss of socio-ecological value and identify an urgent need to undertake research to explore the benefits of adding different combinations of active interventions (e.g. modelling and decision support tools). • MMP Annual Report 2021-2022 for inshore marine habitats and RKS dashboard: - Water Quality (refer p.140) - Seagrass (refer p.122) - Coral (refer p. 82)			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Zoning Plan helps to manage direct use and limit impacts on biodiversity: - Prohibiting spearfishing boosts conservation outcomes for partially protected areas - Conservation benefits of no-take marine reserves outweigh modest benefits of partially protected areas for targeted coral reef fishes - Impact evaluation and conservation outcomes in marine protected areas: A case study of the Great Barrier Reef Marine Park. • The impact of uses on biodiversity varies: - **Commercial marine tourism and recreational** activities have a minor and localised impact on biodiversity values and are rated as environmentally sustainable (refer Table 35 and Table 44) - **Fishing** impacts on biodiversity can be significant (e.g. coral trout and other commercial fish species) but strategies are in place to limit some of the impacts on biodiversity e.g. Turtle exclusion devices (refer below). - **Coastal development and ports** have various impacts on biodiversity (refer Tables 34 and Table 43) including impacts from runoff and loss of coastal ecosystems and connectivity. - **Traditional use** of marine resources is thought to have a low impact on biodiversity (refer Table 47). - **Shipping and defence** activities have a low impact on biodiversity (refer Table 46 and Table 37)			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There has been some improvement in species and ecosystems, including: - While the mainland loggerhead turtle nesting populations have shown appreciable recovery since the introduction of compulsory use of Turtle exclusion devices in trawl fisheries in 2001, there has been only minor recovery of nesting populations on the southern Reef island which used to support the main loggerhead nesting populations in eastern Australia. Collectively the current loggerhead turtle nesting population of eastern Australia is 70% less that the nesting population of the 1970s. - Loggerhead turtle population has increased at Wreck Island - Humpback population has increased - The number and size of coral trout in no-take zones has increased. - Some key habitat areas are being managed (e.g. for dugong). The Reef Authority and QPWS operate a RJFMP for the marine and island national parks, encompassing the Marine Park and the Reef Coast Marine Park. – Through the Joint Field Management Program, the managing agencies have in place an ongoing compliance program that prioritises compliance risks. Risks specific to dugongs considered in this framework include commercial mesh netting and illegal hunting.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The Program is assisting the Marine Monitoring Program in improving the assessment of seagrass condition across the Reef by trialling monitoring techniques and sites. In 2023 sub-tidal seagrass sampling methods were consolidated and two new sites were established bringing the total to 10 sites monitored to improve the assessment of seagrass condition across the Reef. – Vessel transit lane markers are in place in the Hinchinbrook Area and Maritime Safety Queensland is responsible for maintenance. The RJFMP regularly checks that the markers are in place and advises Maritime Safety Queensland if any are missing. – The program continues to support the Marine Animal Stranding Program with volunteer involvement in response to marine turtle strandings increasing. • Multi-decadal stability of fish productivity despite increasing coral reef degradation (Yan & Bellwood 2023) used a 26-year dataset of benthic reef fishes to track trends in fish biomass production through time. Following mass coral bleaching in 1998 the abundance, standing biomass and productivity of fish communities remained relatively constant despite multiple stressors. Species richness declined but rebounded. Species composition changed over time but maintained a steady level of fish biomass production. While these highly dynamic and increasingly degraded systems can still provide			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		some critical ecosystem functions, it is unclear whether these patterns will remain stable over future decades. (*Note*: this study did not address the impact of the four major mass bleaching events in 2016, 2017, 2020 and 2022). • The 2022 Scientific Consensus Statement (due to be finalised in 2024) is a synthesis of current peer-reviewed scientific evidence pertaining to the water quality issues (including land-based run-off) in the Reef. - It informs a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. In the design of the 2022 Scientific Consensus Statement, extensive consultation was undertaken to identify and prioritise specific questions that frame the scope of the evidence being gathered. - It will identify knowledge gaps and limitations in the peer-reviewed scientific evidence, which will inform future iterations of the Reef 2050 Water Quality Research, Development and Innovation Strategy. Challenge: • Under current trajectories, it is unlikely that the coral reefs of the future will resemble those of the past. As multiple stressors, such as climate change and coastal development, continue to impact coral reefs, understanding the changes in			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		ecosystem functioning is imperative to protect key ecosystem services (Yan & Bellwood 2023).			
OC5 **Use** of the Great Barrier Reef relating to biodiversity is demonstrably **economically sustainable**	1	• Refer CO4 in relation to uses taking place in the Reef Region. • There have been some improvements in environmental indicators in relation to the Reef in the past few years. Refer: – Marine Monitoring Program – Reef Water Quality Report Card 2020 – Multi-decadal stability of fish productivity despite increasing coral reef degradation (Yan & Bellwood 2023) – Cumulative bleaching undermines systemic resilience of the Great Barrier Reef (Cheung et al. 2021) • **The condition of Reef's biodiversity is variable** depending on the ecosystem, species, location and related threats and stressors and their impacts. For example, in relation to the inshore Reef region: – 'Overall, marine condition in the inshore Reef improved to moderate in 2019-2020, with seagrass and coral remaining in poor condition and water quality improving to good. The Cape York and Mackay Whitsunday inshore regions remained in poor marine condition. The Burdekin and Fitzroy inshore regions improved to moderate, and the Wet Tropics and Burnett Mary inshore regions remained in moderate condition.' – 'Moderate' progress towards the dissolved inorganic nitrogen and sediment targets, 'Very good' progress towards particulate nutrient targets and 'Good' for	Great Barrier Reef Strategic Assessment Report, Chapter 11 Sustainable Fisheries Strategy 2017-2027 Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef Deloitte Access Economics Report Economic contribution of the Great Barrier Reef (2013) Ban on capital dredge material disposal	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		pesticides. However, these outcomes are influenced by the level of discharge from catchments. In the 2021-22 wet season, the Mackay-Whitsunday region had a discharge of around half the long-term median, while the Burnett-Mary region had a very high discharge. Thus weather/climate events can influence these results. The Marine Monitoring Program: Annual Report for Inshore Water Quality Monitoring 2021-2022 report (Moran et al. 2023:140) notes that the relatively stable or improving water quality indicators are 'likely a product of near-or below-median river discharge over the last ~3 years, with no major flood events impacting most of the Reef catchments in recent years'. • Declines in the condition of inshore waterways and reefs will impact the economic sustainability of the commercial marine tourism industry, recreation, fishing and Traditional use of marine resources. These uses are underpinned by healthy ecosystems and biodiversity. – The commercial marine tourism industry in the past has contributed significantly to the Queensland and Australian economy. However, the industry reports that it is economically sustainable in the near future (12 months) but is unable to predict economic sustainability into the medium or long-term future due to complex factors that may impact the industry (e.g. declines in Reef biodiversity, listing as 'in danger', pandemics,			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		social media posts relating to possible shark attacks and poor reef health) (Interviewee 2023). • Modifying terrestrial habitats that support the Reef is likely to continue, based on the expected increase and **intensification of agriculture and projected increases in urban and industrial development**. – Queensland Agriculture Strategy: A 2040 Vision to double agricultural production (2013) "has set a clear, ambitious target to double Queensland's agricultural production by 2040" (p.9), including expansion of the land under agriculture (p.13). Agricultural expansion in northern Australia (CSIRO) is planned, with much of this development expected to take place in northern Queensland (Interviewee 2023). – The flow-on effects, especially in areas close to the coast may **present a very high risk to the Region's values, including biodiversity, for example through changes to water quality and connectivity**. (Note: there have been updates to the Vegetation Management Act that may reduce these impacts, resulting in declines in land clearing). • With continued **pesticide use** in the catchment, it is almost certain they will also be a component of catchment run-off over the next quarter of a century. Of major concern is the effect that pesticides will have on freshwater and estuarine systems in the catchment that support the biodiversity of the Reef.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The impacts of **incidental catch** continue to have a major impact on species of conservation concern although the trawl fishery has significantly reduced its incidental catch of marine turtles and other non-retained bycatch species by using improved equipment. Death of discarded and incidentally caught species of conservation concern across all fisheries and the Queensland Shark Control Program is almost certain, with major consequences for their populations. As most species discarded are significant for Traditional Owners either as food, a totem or for customary practice, this impact is likely to have a major effect on their cultural values. • The Zoning Plan provides for a range of ecologically sustainable recreational, commercial and research opportunities and for the continuation of traditional activities. **Challenges:** • Systems are in place to provide an environment capable of economic sustainability, however, the economic externalities may determine the final outcome.			
OC6 Use of the Great Barrier Reef relating to biodiversity is demonstrably **socially sustainable**, in terms	2	• Climate change remains the most serious long-term risk facing the Reef and is likely to have far reaching consequences for the region's environment and the people who derive benefits from the Reef as well as related industry sectors including tourism and recreation, fishing as well as traditional use.	Great Barrier Reef Strategic Assessment Report, Chapter 11 Deloitte Access Economics Report 2017 – At what price? The economic, social and icon	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
of understanding and/or enjoyment		• Extensive relationships have been developed with local communities and stakeholders (refer CO5 and OC7). Uptake of the Reef Guardian program within the community is indicative of community interest in and concern for the Reef. • Under the CYPAL the QPWS follow a 'Permits to take, use, keep or interfere with Natural Resources Protocol' (PTUKI) where researchers want to take things within a Traditional Owners land/sea country. This protocol implements respectful governance arrangements where there is formal notification, involvement and data sharing between western science and Traditional owners. Information Sheets produced by Traditional Owner groups advise visitors and researchers on how to conduct their activities within their land and sea country (Stanley Islands). • Woppaburra Guidelines is the first of its kind and was built form developing effective partnerships with Woppaburra Traditional Owners. It is currently being implemented throughout the permit system for any activities that meet the trigger points for referral in the Keppel Island group. • New Darumbal TUMRA enables a community-based plan for management of traditional resources which are accredited in legislation and have proved a successful mechanism for joint management of the Reef. • POMs help protect and conserve the values of the Reef while allowing for a range of experiences and uses in the Marine Park.	value of the Great Barrier Reef SELTMP Experimental Environmental-Economic Accounts for the Great Barrier Reef, 2017 vulnerability assessments		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Protecting, conserving, and enhancing the protected area estates and the species and ecological processes that they support in partnership with First Nations Peoples is a key activity within the RJFMP. Increasing the island protected area estate within the WHA helps to enhance ecological resilience and provide a safe haven away from impacts and influences. • In 2019, the RJFMP moorings projects installed 34 new public moorings and 15 Reef Protection Markers (RPMs) from Cooktown to the Whitsundays and at project completion installed 114 new public moorings and 90 RPMs in the Reef. In 2022-23, a further 42 new public moorings are to be installed within the Townsville and Whitsunday regions. This is a significant contribution to protecting marine ecosystems from anchor damage by the installation of additional reef protection markers and public moorings at popular reef and island locations. Challenges: • Addressing gaps in knowledge in the 'high-emission scenario' related to the predicted impacts of climate change, including improved understanding of how different ecological functions might be impacted and thus enabling communities to be better prepared for possible disruptions to lives and livelihoods (Australian Academy of Science 2023).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Developing frameworks based on technical and social understanding of risks and evaluating the range of potential consequences - intended, unintended, positive and negative (Bay et al. 2023). • Incorporating Traditional Knowledges to provide a framework for managing and adapting to climate change impacts on the Reef (Australian Academy of Science 2023). • Improving alignment of communication strategies to assist public understanding of climate impacts and the risks of intervening and not intervening to build public trust and social licence for higher-risk interventions (Australian Academy of Science 2023). • Engaging with communities to understand what values, regions or functions are most important for preservation in a possible future where not all of the Reef can be 'saved' (Australian Academy of Science 2023:37).'Truthful, open and clear communication with the public is needed to prepare Australians for what is to come, given the GBR will continue to change as the environment becomes more challenging for its habitats and species'.			
OC7 The relevant managing agencies have developed **effective partnerships** with local communities and/or stakeholders	4	• Partnerships represent discernible, formalised and regularised relationships between organisations that see themselves as partners, and are characterised by mutuality (i.e. interdependence, negotiation of agreed objectives, joint decision making, mutual accountability, equitable and mutually beneficial outcomes) (Brinkerhoff 2002).	Reef Guardian Schools Reef Check Seagrass Watch Marine Monitoring Program RAC's: http://www.gbrmpa.gov.a	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
to address biodiversity		• Partnerships form a strong foundation on which to advance outcomes for biodiversity across the Reef. They support program delivery and build an enabling environment for a range of actions or strategies e.g. collecting data -Tourism industry; providing information – research organisations; financial incentives – from government and others; enabling innovation etc. • **Trends** (Interviewee 2, 2023): – Partnerships in general are viewed as necessary to make progress on diverse issues surrounding biodiversity. Working together provides benefits (see below) – Increasing number of partnerships over time and greater partner diversity, contributing to more complex arrangements – Partnerships have focused on planning and policy consensus (co-design, alignment, high level program coordination (e.g. IGA), but are moving to greater involvement of various sectors (e.g. tourism, fishing, agriculture); regional reporting (e.g. coral cover – N,C,S) and integrated delivery partnerships (e.g. with Traditional Owners) – Increasing institutional complexity in partnering e.g. nesting of partnerships – especially in relation to terrestrial issues (NRM arrangements with regional bodies, local governments, NGOs) – Locus of investment and brokerage has diversified e.g. Reef Trust Partnership Grant Agreement – Reef	u/about-us/reef-advisory-committee Our Partners: http://www.gbrmpa.gov.au/our-partners Local Marine Advisory Committees Great Barrier Reef Blueprint for Resilience Reef 2050 Long-term sustainability plan Reef 2050 Plan – Implementation Strategy Whitsundays Plan of Management Reef 2050 Traditional Owner Implementation Plan https://reefto.au/wp-content/uploads/2022/10/DES_GBR_TO-Report_WEB.pdf Animation https://youtu.be/GdIRwn6QINc Timeline https://reefto.au/timeline/		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Foundation and State Government operate as influential investors and program managers – Partnerships characterised by mix of collaborative and contracting mechanisms and require the capacity of the partners to balance the demands of these different, but often nested and competing modes of interaction. • **Various types of partnerships have been formed to enhance biodiversity outcomes** (Interviewee 2, 2023). These include the following: • *(a) knowledge-based/reporting* – provide report cards and information on condition and trend which helps to increase awareness among partners and the public on Reef condition e.g. universities, research institutions, governments at all levels, NRM groups, industry groups including tourism, NGOs, commercial partners – The National Environmental Science Program (NESP) is based on partnerships and collaboration. The NESP Tropical Water Quality Hub connects Reef managing agencies, scientists, Indigenous people and communities. The independent Hub Steering Committee includes stakeholder representatives from industry and community groups. – Research organisations e.g. AIMS, CSIRO – RJFMP Trial of Restoration Activities: – Project Reefresh: Bait Reef rehabilitation (2021) - multi-stakeholder team - to improve coral cover in two small sections within Bait Reef.	Traditional Owner and Marine Parks Management Portal Reef Authority ELibrary: Applications for joint permissions (Document No. 100440)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Yarul Dhingiga: Keppel Bay reef rehabilitation project - a multi-stakeholder team (Reef Authority, QPWS as part of the RJFMP, the Woppaburra TUMRA Aboriginal Corporation (WTAC), Mars Incorporated, Keppel Dive and Freedom Fast Cats - trials techniques on two of the inshore fringing reefs of Great Keppel Island and at a smaller site at Humpy Island Reef (Burye). – Green Island reef rehabilitation project (2020-25) joint initiative between the Reef Authority, QPWS, Mars Incorporated, Quicksilver Cruises and Big Cat Green Island Cruises, the Coral Nurture Program and Gunggandji Traditional Owners to attach live coral fragments – Northern Great Barrier Reef Research program has specific partnerships with Traditional Owner groups; providing employment and knowledge sharing. – Reef Credit Scheme is a market-based approach to improve water quality entering the Reef and enhance biodiversity outcomes (stemming from the Major Integrated Projects initiative with government and other partners). It is encouraging diverse and direct investment, addressing matters of importance to the Reef, while meeting the individual policy, investment and corporate responsibilities of various companies and individuals that invest.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Master Reef Guides (102) share up-to-date scientific and management information about the reef and explain what people can do to protect biodiversity. – Refer OC 6 in relation to Guidelines/protocols and data sharing to protect species and habitats. • *(b) integrated delivery* (more recent focus) - Partnerships are both formal and ad hoc and include: – Sector oriented e.g. with industry (QSIA) – Place based or regional delivery e.g. NRM groups – Local issue specific delivery e.g. with community groups and NGOs – New delivery approaches e.g. RJFMP (Reef Authority and QPWS) – Reef Authority has engaged several tourism operators (AMPTO) to undertake site stewardship activities. – research providers (AIMS, JCU, UQ, CSIRO, NOAA, BoM) – Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes. This is to better identify risks to relevant values for the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measures. – Schools, including Reef Guardian School curriculum resources are designed to fit the Australian Curriculum.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• *(c) Policy and planning* – e.g. Intergovernmental Agreement enables a partnership approach to management by the Australian and Queensland governments in relation to biodiversity. Partnerships with government agencies are both formal and informal : – Partners in the Australian Government e.g. the Reef Authority, DCCEEW (MOU with DCCEEW relating to the integration and application of the EPBC Act and Marine Park Act 1975). – Partners in the Queensland Government e.g. DES, QPWS, State Development, Infrastructure, Local Government and Planning, Department of Agriculture and Fisheries, Qld Water Police, Department of Premier and Cabinet – Local government – responsible for local planning and development decisions and providing public services e.g. water treatment in catchment; Reef Guardian Councils – Reef Advisory Committees are a partnership approach to management involving a range of partners. – Matters related to biodiversity are discussed at the LMAC meetings. Key stakeholders were encouraged to nominate for the 2021-24 LMAC term. There are currently over 220 active members and management partners involved in the LMAC network. • *Working with Traditional Owners* – Supported by the Joint Reef 2050 Secretariat, Traditional Owners on the multiple Reef governance			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		groups came together to develop the Reef 2050 Traditional Owner Implementation Plan (November 2022). The Plan builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products including an animation and timeline were also produced to inform community and government of the long history and desired path forward. – There are now four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. – The Reef Authority works with **Traditional Owners** under TUMRAs to identify, maintain and transfer traditional ecological knowledge within their Sea Country and to research priorities to address key knowledge gaps. The Reef Authority has development the Cultural Knowledge Management System to allow appropriate collection, storage and use of information from Traditional Owners and engagement with Traditional Owners. – Indigenous Training within COTS Program for COTS control and active employment of Traditional Owners by contractors in COTS control activities.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Far Northern Inshore Dolphin Project - meetings with Gudang Yadhaykenu Traditional Owners to discuss threats to dolphins in their Sea Country; Traditional Owners also supported the project with Traditional Knowledge and participated in the vessel surveys and Passive Acoustic Monitoring (PAM) deployment. • Protecting, conserving, and enhancing the protected area estates and the species and ecological processes that they support in partnership with First Nations Peoples is a key activity within the Reef Field Management Program. Islands can provide safe refuge as places that are remote and more removed from impacts common on the mainland such as weeds, pest animals, frequent wildfires, illegal dumping and visitor impacts. Increasing the island protected area estate within the GBR World Heritage Area is a key strategy to enhance ecological resilience and provide a safe haven away from impacts and influences • Blueprint for Resilience (Partnerships for local action initiative). • Diverse benefits are evident from a range of more formal partnerships including: access to diverse skills and resources, including funding; improved mutual understanding; building trust; developing complimentary data sources; opportunities for joint planning and action (Interviewee 2, 2023). However, the effectiveness of the more informal partnerships is not easily measured (Seagrass Watch is an exception with regular performance assessment and continuous improvement).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Challenges: • Aligning goals of government and related agencies with those of partner organisations may require reconsideration of partner goals and roles to enhance outcomes for biodiversity and improve mutuality (Interviewee 2, 2023). • Making high-level goals and objectives (as described in Reef 2050 Plan and related strategies and plans) relatable and beneficial to partners and their constituents. • Addressing ambiguity in roles and balancing accountability to a partners' constituents with responsibility to other partners (CSIRO 2023).			

Appendix 5 Topic grades, justification, evidence, confidence and trends

Biodiversity

Table 35: Calculation of grades for Biodiversity

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT			*Other sources to those listed on the left*		
CO1 The **values** of the Great Barrier Reef relevant to biodiversity are **understood** by managers	4	• The values of the Reef are managed by diverse partners and stakeholders (the Reef Authority, Queensland and Australian government agencies, local governments, industry bodies, Natural Resource Management (NRM) bodies, Traditional Owners, local community and others). • Biodiversity is a critical component of the Reef's Outstanding Universal Value (OUV) and natural heritage value (refer Table 31). • Values are outlined in several key documents: – Great Barrier Reef Marine Park Act 1975 - long-term protection and conservation of the environment, biodiversity and heritage values of the Reef Region (Section 2A). – The Great Barrier Reef Marine Park Zoning Plan 2003 (Zoning Plan) aims to protect and conserve the biodiversity of the Reef ecosystem within a network of highly protected zones, while providing opportunities for the ecologically sustainable use of, and access to, the Reef region. The zoning plan is informed by biogeographic	Reef Strategic Assessment (DCCEEW) Great Barrier Reef Strategic Assessment Report (2014) EPBC Act referral guidelines for the Outstanding Universal Value of the GBRWHA Retrospective Statement of OUV 2012 Marine Park Authority Gazettal Notice - Natural Heritage criteria 2007 Values and attributes table underpinning MNES 1981 World Heritage nomination Reef 2050 Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		zoning undertaken in association with the Representatives Areas Program (2006). – Wetlands in the Reef Catchments Management Strategy 2016-21 (2016) promotes an integrated approach to catchment management that considers the multiple values of wetlands in a whole-of-system context. – The Reef Outlook Report (2019) outlines 26 biodiversity values including habitats to support species and populations of species and groups of species. • **Key values include:** (refer CO2 and IN4,5,6) – One of the **richest and most complex natural ecosystems on Earth**, and one of the most significant for biodiversity conservation – The Marine Park was made a Matter of National Environmental Significance (MNES) in 2009 and included in the National Heritage List in 2007. Biodiversity (habitats and species) and ecosystem processes underpin several MNES: Natural beauty and aesthetics, ecological and biological processes, habitat for conservation of biodiversity, wholeness and intactness, bioregions, habitats and species and listed threatened species and habitats (see Supporting evidence – values and attributes table underpinning MNES). – **70 biological regions** (30 within the coral reef and 40 in surrounding areas)	Reef 2050 Plan – Implementation Strategy Reef 2050 Progress Update to World Heritage Centre Coastal Ecosystems Assessment Framework (2013) Traditional Owner Implementation Plan (2022) Sustainable Regional Development program Reports commissioned by the DCCEEW and Reef Authority during the strategic assessment. Defining the aesthetic values of the Great Barrier Reef World Heritage Area (Johnston et al. 2013) Geological and geomorphological features of outstanding universal value in the Great Barrier Reef World Heritage Area (Geoscience Australia & JCU 2013) Seagrass Watch		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Diverse habitats** including islands, beaches and coastlines, mangroves and saltmarshes, seagrass meadows, coral reefs (<30m) (contain over 400 species of hard coral and cover about 7% of the Marine Park), deeper reefs (>30m), lagoon floor, shoals, *Halimeda* banks, continental slope and open waters. Other terrestrial habitats include freshwater wetlands, forested floodplains, heath and shrublands, grass and sedgelands, woodlands, forests, rainforests and connecting waterbodies. – The Aquatic Conservation Assessments provide detailed information on the conservation values for riverine and non-riverine wetlands to assist planning and policy actions. Terrestrial values are identified through the Biodiversity Planning Assessments. These are being updated. – These habitats support tens of thousands of **marine and terrestrial species**, many of which are of global conservation significance, e.g. major feeding grounds for one of the world's largest populations of the threatened dugong, an important area for humpback whale calving, six of the world's seven species of marine turtle, with internationally important breeding grounds for green, loggerhead and hawksbill turtles. – Some habitats (e.g. soft bottom communities) and most invertebrate species groups (bryozoans, cryptic habitat- associated species, plankton and others) are less well studied. **Knowledge is better for**	Flora and fauna of the Great Barrier Reef World Heritage Area Reef 2050 Integrated Monitoring and Reporting Program Permission System Value Guidelines Reef Regional Report Card Partnerships and report cards: Wet Tropics, Dry Tropics, Mackay-Whitsunday-Isaacs, Fitzroy Basin, Gladstone Health Harbour		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		commercially important species and species of conservation or management concern (marine turtles, crown-of-thorns starfish). – Around 77 species are listed as migratory species including marine turtles, crocodiles, whales, dugong, dolphins, sharks, seabirds and shorebirds. – Reef Joint Field Management Program (RJFMP) in collaboration with Birdlife Australia has identified Key Biodiversity Areas based upon internationally accepted criteria for seabirds. • Regional Sustainability Planning Project on OUV (Defining the aesthetic values of the Reef WHA) (DCCEEW) (2013) aimed to better define aesthetic values and develop a method for identifying and mapping these values. • The 2017 Scientific Consensus Statement is a synthesis of current knowledge pertaining to the water quality issues (including land-based run-off) in the Reef to inform a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. The Scientific Consensus Statement is being updated, for release in 2024). • Values Based Park Management Framework (VBMF) and values assessments have been completed. Twenty-three island protected areas assessed including five that were completed with First Nations partners for Cape York Peninsula Aboriginal Land (CYPAL).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Refer PL2 for a range of relevant documents that address the Reef region's values. Challenges: • "*There is a notion that the values of the Reef are static and unchanging and that the job of the Authority is to preserve and protect these values for all time. The reality is dawning that this is no longer possible. The challenge will become what outcomes and values are we managing for – what are realistic ecological, social and cultural outcomes under climate change and the likelihood that ecosystem function decline appears to be inevitable?*" (Interviewee 2023). • The Australian Academy of Science (2023:34) notes that there are many 'unknowns' (e.g. Reef functions, stressors etc) and that central to addressing these issues is knowing what 'are the key GBR values and what needs protection' and prioritisation under a climate changed future. Similarly Bay et al. (2023:3) state "We can no longer focus on restoring marine ecosystems to their previous composition; we must maximise their function and **value** by adopting new approaches to management and governance', including guiding **transition to novel ecosystems with different values** from the previous state. • Climate Change Vulnerability Assessment predictions of impacts to Reef values have proven to be correct since its publication in 2007. This document would benefit from updating.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CO2 The current **condition and trend of value**s relevant to biodiversity are **known** by managers	3	• Over 90 **monitoring programs** (refer PL5) operate within the Reef region and these provide **diverse information on condition and trend**. – '*About 90 outer reefs and 32 inshore reefs are monitored and trends are reasonably robust. The gap is in reconnaissance data on reefs to know their current condition … This type of data will assist biodiversity management activities*' (Interviewee 12, 2023). – The Outlook Reports provide information on the condition and trend of 26 biodiversity components, every five years (Workshop participant 2023). • **However, condition and trend are relatively unknown for the majority of species,** in part because monitoring has focused on a few key habitats and species or groups of species: iconic (such as coral reefs, seabirds), commercially important (such as seagrass meadows, coral trout); threatened (such as dugongs, marine turtles). – Existing monitoring represents about 40% of the environmental regimes of the Reef (Mellin et al. 2020). – 'GBR science is weighted towards 7% of the Marine Park and World Heritage area that is made up of coral reefs. This is followed by seagrass and fish…' (cited in Australian Academy of Science (2023:34) – **Critical gaps in knowledge** are being identified through a range of science strategies, e.g. Science and Knowledge Needs, NESP and the Priority Monitoring Gaps prospectus (2021), and several projects funded by the	Reef 2050 Plan Reef 2050 Plan – Implementation Strategy Great Barrier Reef Outlook Report 2019 Chapter 2 Informing the Outlook for Great Barrier Reef coastal ecosystems The Marine Monitoring Program provides the marine information for the Reef Report Cards. Reef 2050 Integrated Monitoring and Reporting Program Great Barrier Reef Foundation projects RangerBOT Autonomous Underwater Vehicle Rapid survey protocol that provides dynamic information on reef condition to managers of the Great Barrier Reef Reef Coastal Ecosystems Position Statement	Adequate	Improvin g

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Reef Trust Partnership aim to fill critical monitoring gaps (Workshop participant 2023). – **Coral reef species** – biology and ecology generally well understood but information on reef ecosystem function is weighted to hard corals and reef fishes (Wolfe et al. 2019). – **Data on function and processes of ecosystems generally is lacking** (i.e. beyond corals, fish, seagrass and mangroves). This data 'would enable an understanding of when impacts from climate change will become irreversible' (Australian Academy of Science 2023:8) • **World** Heritage Commission/IUCN reports (refer CO4) (e.g. Reactive Monitoring Mission 2022) highlight concerns relating to the OUV of the Reef and highlighted a range of threats and impacts that impact condition (refer CO3). • Queensland's State of the Environment Report (2020) provides detailed information on the condition of many ecological processes and concludes, "The deteriorating condition of many ecological processes has affected the integrity of the Reef's Outstanding Universal Value. **Ecological processes are expected to continue to decline** due to climate change impacts and inshore land-based run-off". **Population recruitment is reduced for many species** (e.g. corals, fish, some marine turtles, seabirds due to chronic and acute disturbances).	Use of unmanned aerial vehicles (UAVs) for mark-resight nesting population estimation of adult female green sea turtles at Raine Island. (Dunstan et al. 2020) ReefScan Trends in seabird populations across the GBR (Woodworth et al. 2020) Reef Water Quality Report Card (2022) RJFMP Restoration of Reef Islands Project Plan RJFMP Great Barrier Reef Green Turtle Research Project Plan New dugong survey report for southern GBR expected April 2023 Science and Knowledge Needs for Management (2021) Reef Knowledge System – Programs and Reporting Eye on the Reef Reports - Reef Restoration and Adaptation Program		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– "**Ecological processes**, including microbial processes, particle feeding, primary production and competition remain **poorly understood**". " Ecological processes are expected to continue to decline due to climate change impacts and inshore land-based run-off". – "**Population recruitment is reduced for many key species**, in particular, corals, fishes and some marine turtles and seabirds, largely due to chronic and acute disturbances" – **Reef building has deteriorated**, largely due to the combined effects of unprecedented declines in coral cover and crustose coralline algae in some areas in response to thermal bleaching events". – **For some species and ecosystem processes** confidence around condition status is limited due to lack of long-term data over a broad area. • **Listed threatened species** in the Reef include: endangered (loggerhead turtle, leatherback turtle, Olive ridley turtle; blue whale; grey-headed albatross, southern giant petrel); critically endangered (grey nurse shark, speartooth shark and herald petrel); and 15 species listed as vulnerable. • **Species or groups of species in poor condition or vulnerable** include: bony fish (threadfin salmon, grey mackerel, snapper), dugong, inshore dolphins (Australian snubfin, Indo-Pacific humpback, bottlenose), marine turtles, sawfish, sea snakes, seabirds (inshore, coastal	RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System Great Barrier Reef Foundation - Critical Monitoring Gaps Decades of monitoring have informed the stewardship and ecological understanding of Australia's Great Barrier Reef (Emslie et al. 2020). A framework for understanding cumulative impacts, supporting environmental decisions and informing resilience-based management of the Great Barrier Reef World Heritage Area (Anthony et al. 2013)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		foraging, offshore and pelagic foraging), shorebirds, sharks and rays. – Far Northern Inshore **Dolphin** Project (DES) uses quantitative vessel surveys to provide information on the habitat, demographics, behaviour and health of inshore dolphins for Newcastle Bay area of Gudang Yadhaykenu Sea Country. The sightings data populate regional species distribution models to inform spatial conservation management. – Shallow fish surveys are conducted under AIMS LTMP. • There is **little detailed information about the status and trends of many habitat types** within the Reef (for example the lagoon floor, shoals, *Halimeda* banks). • Little information on many seabird species (2020) – the Reef has breeding populations of 20 seabird species; six key biodiversity areas support globally and regionally significant seabird aggregations. – No reef-wide assessment of trends in seabird breeding populations. – "GBR Seabird Atlas" identifies trends of declining seabird breeding in several seabird species. There are **"troubling trajectories for breeding populations of several seabird species"** across the Reef. Some evidence of declines e.g. Common Noddy, Sooty Tern, Masked Booby and no long-term changes in Greater Crested Tern and Brown Booby.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– In general vulnerability is increased when large numbers of a species are concentrated at a small number of key sites. Broad-scale factors including poor breeding during warm water events related to marine heatwaves and El Nino events, and their impact on prey availability may be important drivers of these trends as well as local factors such as coastal development, military activities and non-native species introductions. – RJFMP contracted UQ to analyse seabird data from the WHA over 40 years. The results were presented to RJFMP as a report and also published in Conservation Biology (Woodworth et al. 2020). – For 9 seabird species from 32 islands – probably **declines at 45% of the 86 species**-by-site combinations; increases at 14%. – Probably declines for Common Noddy, Sooty Tern, Masked Booby; no long-term changes for Greater Crested Tern and Brown Booby. – Identified vulnerability when large numbers of some species are concentrated at a small number of key sites. • Little information on **invertebrates** (Workshop participants 2023; Interviewee 14, 2023, Australian Academy of Science (2023:34). • Little information on **sea cucumber species** which are an important commercial fishery and critical gaps in			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		knowledge of their population biology (Overview of the Reef sea cucumber fishery with focus on vulnerable and endangered species, Wolfe & Byrne, 2022). • Improving understanding of the **continental shelf** (Biodiversity of the continental shelf of the WHA) (Gribble et al. 2023) – mapped seafloor habitats and characterised their associated fauna and flora at over 1500 locations in the WHA. New information on inter-reefal communities; development of a bioregional scale understanding of large marine ecosystems, including substratum and biohabitat. • **Cumulative impacts** (climate change, severe weather, land-based runoff etc): **Reefs** continue to be **exposed to cumulative stressors, and the prognosis for the future disturbance regime is one of increased and longer lasting marine heatwaves and a greater proportion of severe tropical cyclones.** There has been a decline in the number of reefs resilient to combined pressures, with the **number of reefs in poor condition increasing** (Carter & Thulstrup 2022) and also declines in many groups of species (due to climate change and human activities) (*Note: latest Report Cards are for 2020*): – Inshore marine condition (2020) – **moderate** condition (e.g. Wet Tropics, Burdekin, Fitzroy and Burnett Mary regions) and Cape York and Mackay Whitsundays regions in poor condition overall.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Inshore reefs (2020) – **poor** condition (due to storms and elevated sea temperatures and poor water quality); some signs of recovery in 2020. – Seagrass meadows (2020) – **poor** condition overall across the Region (due to thermal stress in shallower habitats, disturbance from sea level rise and destruction from storm actions); declining resilience (poor ability of plants to reproduce). – Freshwater wetland condition (2020) – **moderate** condition (better in conservation areas); gaps in connectivity; pest animals' impact on the physical integrity of wetlands; slowing decline in extent of wetlands (O.1% since 2017) (due to clearing, draining, infilling). – **Mangroves** – generally **good** condition but impacted by cyclones and sea level rise. – **Lagoon floor** – some areas exposed to prolonged thermal stress and damaging cyclone waves. – **Islands** – many experiencing damage from severe weather and temperature extremes. – **Mainland beaches and coastlines** – modifications at some sites through sea level rise and erosion. – **Saltmarsh** - significant loses. – **Variable changes in abundance of reef**-associated predators across the Reef – a large group of sharks and rays are in poor condition (Qld. State of the Environment Report,2020).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Some species (such as humpback whales and some turtle populations) show continuing recovery from historical declines. Raine Island Recovery Project (2021-24) aims to re-establish and maintain the island as a viable ecosystem that support viable populations of green turtles and seabirds (in collaboration with Wuthathi and Meriam Nation). RJFMP invested $1.2 million to acquire a lease on Wild Duck Island to better protect the largest flatback turtle nesting site in eastern Australia. • Turtles (refer TurtleNet): – A number of marine turtle rookeries along the coast have been identified under the Nest to Ocean Turtle Protection Program for active nest protection and predator control efforts to reduce the threat posed by feral pigs and other predator species. – Loggerhead turtle (Endangered), *Caretta caretta* study of the foraging population of the Capricorn-Bunker Reefs (May 2022) arose from concerns regarding the severely depleted nesting populations on the coral cays of the southern Reef and a low rate of recruitment of young Loggerhead turtles from the open ocean to coastal benthic foraging in Moreton Bay, the only current index site for monitoring foraging Loggerhead turtles in eastern Australia. (Only sighted at Fitzroy, Wistari and Heron Reefs with the species being most numerous in Wistari and Heron Lagoons; the population continues to be strongly male biased			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		across all age classes with no evidence of a feminising trend among the younger age classes). – **Green turtles** (Vulnerable) – Plentiful across all age classes on all seven of the Capricorn Bunker Reefs examined. – **Rising sand temperatures resulting** in increasing 'feminisation' of green turtle populations (Richards & Day 2018). While the population continues to be strongly female biased across all immature age classes there is no evidence of a strong feminising trend among the younger age classes. – Increasing the Understanding of the Green Turtle Population in Port Curtis, 2016-2019. (Limpus & FitzSimmons 2020). – **Hawksbill turtles** (Vulnerable) – Across all age classes were recorded at low frequency on all seven of the Capricorn Bunker Reefs examined. – **Flatback turtle** (Vulnerable); **Leatherback turtle** (Endangered); **Olive Ridley** turtle (Endangered). – The Flatback turtle, *Natator depressus*, in Queensland: population size and trends (Limpus et al. 2020). • **Coral bleaching** (due to **rising sea temperatures**). Since 2014, over 75% of the Marine Park has been exposed to severe impacts. The first mass bleaching event (i.e.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		occurring in both inshore and offshore reefs) occurred in 1998, then 2002, 2016, 2017, 2020 and 2022 affecting all regions of the Marine Park (other bleaching events also occurred in 2008 and 2011). In 2016 and 2017, back-to-back mass coral bleaching events, caused by sustained high water temperatures, caused about 50 per cent coral loss Reef wide. Four severe cyclones since 2014 have also attributed to a reduction in coral abundance and damage to the reef structure. The 2022 bleaching event was the first to occur in a La Nina year and this is of 'utmost concern' (IUNC/WHC 2023).The effects of more frequent and intense bleaching on biodiversity are largely unknown and may take years to unfold (AIMS Long Term Monitoring Program). – On the **Northern** Reef, region-wide **hard coral cover was moderate** and had continued to increase to 27% (2021) from the most recent low point in 2017. – On the **central** Reef region-wide **hard coral cover was moderate** and had increased to 26% in 2021. – Region-wide hard coral cover on reefs in the **Southern** Reef **was high** and had increased to 39% in 2021. – In **2020**, most of the surveyed reefs experienced heat stress accumulation that produced **widespread coral bleaching** but was below thresholds where widespread mortality is expected to occur. Consistent with this, surveys in **2021 recorded low coral mortality** from the 2020 bleaching event.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– In periods free from acute disturbances, most of the Reef's coral reefs demonstrated resilience through the ability to begin recovery. There is some evidence of thermally tolerant "winners" and more sensitive 'losers" and evidence that reefs have shifted in their assemblages, with recovery reliant on an adequate supply of larvae from non-impacted reefs and sufficiently stable substrate for settling larvae (Bozec 2022). This process takes at least a decade for fast-growing corals (e.g. *Acropora*) and far longer for slower growing species (Carter & Thulstrup 2022). **There is speculation that the current 'recovery' may be evidence of juvenile tolerance to changed conditions and that this may not be sustainable into the future** (Interviewee 2023). • **Rising sea temperatures** (e.g. projected to warm by 1º to 2ºC by 2030 and by up to 3º in coming decades) (Bay et al. 2023) - may also result in range shifts for species; reduced foraging success for seabirds resulting in increased nesting failures; and impacts on health and reproduction of fishes (Richards & Day 2018). • **Ocean acidification** - corals and other calcifying organisms are also expected to be seriously affected by ocean acidification driven by increased levels of CO_2 entering the oceans from the atmosphere. The increase of ocean CO_2 has resulted in a decline of pH of 0.1 from pre-industrial times) taking it to 8.1, or a 26% increase in acidity with			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		changes in reef skeletal integrity (slower growth rates and weaker structure) and impacts on plankton, fish, marine species reproduction and productivity. (*Note:* reef development is thought to cease at pH 7.8) (Carter & Thulstrup 2022). • **Crown of thorns starfish** data is improving (Interviewee 2023). Refer COTS Control Innovation Program and CO3 evidence. Most vulnerability assessments (for a range of species and ecosystems) have not been updated since 2014. • **Projects addressing biodiversity values:** – **Larval reseeding work** – Peter Harrison - research innovation to increase the success of recruitment of coral spawn – Several non-government-funded research projects are underway (funded by the **Reef Foundation**) to complement and add to the monitoring and understanding of condition and trend of biodiversity. Refer also to Reef Trust Partnership funded projects: Integrated Monitoring and Reporting - Great Barrier Reef Foundation. – **Reef Genomics – method to preserve coral persistence through time** - the coral genome from nine key reef-building species has been completed and made publicly available for any researcher to use around the world; will support coral research that relies on understanding the genome and fast track answers to adaptation questions.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Monitoring of the endangered **Capricorn Yellow Chat on Curtis Island** through a collaborative project between QPWS and Central Queensland University. – QPWS Marine are implementing **drone technology for island mapping, turtle and seabird monitoring**, fire management and reef surveys. Further applications and implementation to work programs is underway. – The RJFMP **Restoration of Reef Islands** Project (2020 – 2025; Reef Trust-funded) is assessing the condition of *Pisonia grandis* forests and communities in the northern and far northern Reef with special reference to presence of key threats including urbicola soft scale and its invasive ant mutualists. – **BioCondition** reference site benchmarks are in place for the Capricorn Cays; 59 reference sites in 21 vegetation communities were surveyed. The data will provide BioCondition benchmarks to assess the revegetation progress on Lady Elliot Island. The information will also be available to assess progress in other current and future Capricorn Bunker terrestrial revegetation/rehabilitation projects. This will help to assess the response of the vegetation communities to climate change and other future ecosystem disturbances that may occur. – eReefs is delivering Reef water quality information online, enabling anyone to track the effects of storms, cyclones, floods, and other impacts on the Reef.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The RJFMP uses Reef **Health Checks** as a tool to assess the condition of key park values. **Vessel strike on fauna** is also an area of growing interest. NESP project C5 explores ship strike analysis for large marine fauna – particularly cetaceans. To reduce the risk of vessel strikes and the impacts they may have on marine fauna, the Australian government is developing a National Strategy for Mitigating Vessel Strike of Marine Mega-fauna. Challenges: • **Key knowledge gaps remain** for many species and habitats that are not comprehensively monitored. Condition is inferred for some of the deeper and less accessible habitats, such as *Halimeda* banks, the continental slope and lagoon floor, because these habitats are not frequently monitored and large knowledge gaps remain. • It is increasingly necessary to target management provisions towards key functional taxa to support ecosystem functioning and stability in a future ocean (Richards & Day 2018 cited in Wolfe et al. 2019). • Balancing the desire to reduce knowledge gaps on condition and trend against other areas of investment that may provide more substantive outcomes for the Reef – 'we have reasonably good data' (Interviewee 12, 2023) and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		'there are gaps, but these are not hurting our understanding' (Workshop participants 2023).			
CO3 **Impacts** (direct, indirect and cumulative) associated with biodiversity are **understood** by managers.	3	• Refer CO2 where monitoring programs are outlined, many of which are identifying a range of threats to habitats, ecosystems and species and PL2 where legislation, plans and other documents outline threats and impacts on biodiversity. Also refer Table 30 where key threats to the Reef and associated impacts are outlined. • '*We have a reasonable understanding of condition and trend, but less understanding of the pressures*' (Workshop participants 2023). • **Major risks and threats** to biodiversity (e.g. climate change, catchment run-off and water quality, coastal development and changes to coastal ecosystems, marine debris and a range of direct uses such as fishing, ports and shipping) are well documented and risk assessment and management procedures are in place to address many major threats (Annual Report 2021-2). – **The continuing inputs of nutrients, sediments and pesticides** and the time lag between reduced inputs and improved ecosystem condition, mean land-based run-off will continue to be a serious risk to the ecosystem (refer Land-based Run-off topic, Table 42 for further information on impacts on biodiversity). – 'Water quality impacts reef and coral *recovery* and we don't know which aspects of water quality are responsible' (Interviewee 12, 2023)	Vulnerability Assessments Climate Change and the Great Barrier Reef: A vulnerability Assessment Marine Monitoring Program Reef 2050 Integrated Monitoring and Reporting Program Australian Ballast Water Management Requirements eReefs COTS Strategic Management Framework Permission System Activity Guidelines Rivers to Reef to Turtles Nest to Ocean Turtle Protection Program NESP Marine Biodiversity Hub C5 quantification of national shipping risk project (David Peel), see	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The 2022 Scientific Consensus Statement will be finalised in 2024. It synthesises peer-reviewed scientific evidence pertaining to the **water quality issues** (including land-based run-off) in the Reef and informs a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. Extensive consultation with policy, management, experts and stakeholders was undertaken to identify and prioritise a series of specific questions that frame the scope of the evidence being gathered. The Statement will identify knowledge gaps and limitations in the peer-reviewed scientific evidence, which will inform future iterations of the Reef 2050 Reef Water Quality Research, Development and Innovation Strategy. – Toxicology studies are quantifying the levels of organic and inorganic pollutants within the environment and within sampled animals and there is recent work on **determining the significance of these toxic loads on the health of the species impacted** (refer evidence column). Griffith University (Jason Van De Merwe) in collaboration with DES Threatened Species Operations field studies has developed successful cell-culture based tests for quantifying the impact of pollutants on a range of marine megafauna species.	also marine vessel activity section in the national State of the Environment Report 2016 National Strategy for Mitigating Vessel Strike of Marine Mega-fauna Great Barrier Reef Blueprint for Resilience Kimberly A. et al. 2021. Combining analytical and in vitro techniques for comprehensive assessments of chemical exposure and effect in green sea turtles (*Chelonia mydas*). *Chemosphere* 274, 129752. Limpus, C.J. 2020. Queensland Turtle Conservation Project: Monitoring marine turtle hatching behaviour in response to coastal lighting on the Woongarra Coast, 2019-2020 breeding season. Brisbane: Department of Environment		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Marine debris and plastic** from all sources are likely to remain a high risk and a 'growing threat' (Bay et al. 2023). If outcomes from current management efforts in the catchment can be accelerated, **future risk is expected to decrease**. Collaborative studies between DES Threatened Species operations and Exeter University are identifying a major threat to all **marine turtle species is the ingestion of microplastic** fragments by small post-hatchling turtles during their dispersal in pelagic ocean currents where they forage on plankton at the surface. – **Coastal development** (from diverse sources including agriculture, urban expansion, industrial development) remains a serious risk to the Reef (Table 37). The combined effect of modifications to coastal ecosystems across the Reef catchments is widespread and serious: – The function of linked terrestrial–freshwater–estuarine–marine ecosystems is affected *by barriers to flow and modification of coastal habitats*. – *Exposure* of acid-sulphate soils can impact many species. – Artificial light (**Skyglow**) from urban and industrial facilities and developments will continue to grow and impact many species (e.g. turtles) and these impacts are not well understood (Workshop *participant* 2023) e.g. skyglow in Port Curtis and	and Science, Queensland Government. (29 pp.) Shimada, T. et al. 2023. Industrial and residential sky glow disrupts the orientation of hatchling and adult flatback turtles on nesting beaches. Regional Environmental Change 23:20 Duncan, E.M. 2021. Plastic Pollution and Small Juvenile Marine Turtles: A Potential Evolutionary Trap. Frontiers in Marine Science 8, Article 699521 RJFMP Restoration of Reef Islands Project Plan Integrated Monitoring and Reporting – Sustainable use and benefits (SEABORNE) Integrated Monitoring and Reporting -Integrated Reef stewardship (PROTECT))		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the Woongarra Coast is now significantly negatively disrupting ocean finding behaviour of loggerhead and Flatback turtles. – **Illegal fishing, poaching**, extraction of predators and particle feeders, extraction from unidentified or unprotected spawning aggregations, incidental catch of species of conservation concern and discarded catch (e.g. CSIRO research - 6-10T/Bycatch for every 1T product, including dugong/in nets - high or very high risk). – **Fisheries impacts**: – The Queensland **Cucumber Fishery** harvests CITES-listed black teatfish (*Holothuria lwhitmaei*) and white teatfish (H. *fuscogilva)* and other IUCN-species from the Reef. Overview of the Reef sea cucumber fishery with focus on vulnerable and endangered species (Wolfe & Byrne 2022). There have been catch reductions and fishery closure for teatfish harvest on the Reed due to local depletion (target species, *Actinopyga spinea* ~50% of total catch) – The escalating activity around active physical interventions in the Region (for example, coral gardening and assisted evolution) to support the resilience of the Reef has introduced more threats to consider.	Integrated Monitoring and Reporting – Monitoring collective capacity and implementation (Governance) Reef Knowledge System – Resilient Reefs Network (gbrmpa.gov.au) A Guide for Current Permit Holders Traditional Owner Implementation Plan (2022) AIMS LTMP Annual Report 2020-2021 Roepke et al. (2022). Applying behavioural studies to the ecotoxicology of corals: A case study on *Acropora millepora*. Frontiers in Marine Science, 2458. Nordbord et al. (2022). Coral recruits are highly sensitive to heavy fuel oil exposure both in presence and absence of UV light.		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Biosecurity of the islands** aims to limit the spread of **weeds, invertebrates and other animal pests** from the mainland to islands, and between islands. – Potential influences from **ship grounding and/or ship anchorage** activity, with ship voyages through the Region slowly increasing. – **Some migratory species**, e.g. turtles, may be well protected in the Reef but not necessarily at other parts of the migratory cycle (this varies among species). • The impacts affect many of the values relevant to the MNES and OUV in the Region (refer CO2). – The **direct and indirect impacts of climate change** over the past few years (thermal stress events, severe cyclones and consequent loss in coral habitat) have likely impacted many species, particularly habitat-associated or those with narrow thermal tolerance. Inshore species and their habitats adjacent to the developed coast are under more pressure than those offshore (refer CO2). **Rising sea levels** threaten coastal and island communities. Increased erosion and inundation may lead to significant changes in estuarine habitats, with turtle nesting sites vulnerable due to greater beach erosion and inundation of nests. Seabird nesting and shorebird roosting sites are also at risk (Richards & Day 2018). – **Climate change** risk is likely to increase in future due to emission trajectories and unavoidable	Environmental Pollution, Vol 309. Marzonie et al. (2021). Toxicity thresholds of nine herbicides to coral symbionts (Symbiondiniaceae). Scientific Reports, Vol 11, 21636. Berry et. al. (2021). Effects of suspended coal particles on gill structure and oxygen consumption rates in a coral reef fish. Marine Pollution Bulletin. 169, 112459. Flores et al. (2020 Toxicity thresholds of three insecticides and two fungicides to larvae of the coral Acropora tenuis. PeerJ, 8, e9615. Reef Regional Report Card Partnerships and report cards: Wet Tropics, Dry Tropics, Mackay-Whitsunday-Isaacs, Fitzroy		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		future climate change, locked in by past and current emissions (Outlook Report 2019). – More is known about inshore and mid-shelf than offshore and north. **Very little is known about impacts on deep water habitats** and their biodiversity. – **Crown-of-thorns starfish (COTS)** – strategic planning for reef prioritisation, tactical deployment of Program vessels and efficient in-water culling operations are now maximising the coral protection benefits of the Program. – COTS Control Innovation Program (led by Reef Authority with RRRC and Reef Foundation) have culled >1.1m starfish, protecting 700,000 ha corals (since 2012) ($41.8 million, 2022-2024 and an additional $161.5 million provided by the Australian Government in 2022). However, **COTS density has been surveyed for only 2% of the Reef** (Bozec et al. 2022). In June 2022 - starfish were at or below sustainable levels for coral growth and recovery at 1,065 (87%) of the 1224 sites where culling was conducted. COTS densities were sustainable at 117 of the 190 actioned reefs (62%), culling was ongoing at 48 reefs (25%) and surveys had detected COTS on 18 reefs (9%) that required future culling (Annual Report 2021-2). Some example projects include ReefScan automated benthic survey technology	Basin, Gladstone Health Harbour No-anchoring areas reduce coral damage in an effort to build resilience in Keppel Bay, southern Great Barrier Reef (Beeden et al. 2014) Rapid survey protocol that provides dynamic information on reef condition to managers of the Great Barrier Reef (Beeden et al. 2014). Great Barrier Reef: Clearing the way for reef destruction, Nature (Reside et al. 2017).		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		(jointly funded by RJFMP), eDNA detection of COTS, biocontrol using chemical attractants and deterrents, and updated COTS and coral larval dispersal and connectivity modelling. Seven COTS Control Program vessels are deployed to suppress COTS outbreaks to levels that are sustainable for coral growth and recovery. These research projects are expected to directly benefit the Control Program as they achieve full operational readiness. – COTS Strategic Framework outlines managers' understanding of COTS and outbreak management cycles. – **Disease (including coral disease) threats not well known and/or** understood for some species (e.g. Grouper iridovirus disease). – The international Convention for the Control and Management of **Ships' Ballast Water and Sediments (2017)** - requires all international vessels and domestic commercial vessels to comply with the Convention i.e. have an approved Ballast Water Management Plan, Ballast Water Management Certificate and International Ballast Water Management Certificate. – **Impacts are increasing and compounding**, focused on inshore areas in the **southern two-thirds of the Region**. Many threats of most concern are land-based in origin.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Cumulative impacts are particularly challenging to quantify, assess and manage** and **are little understood in the Region**. These impacts are beginning to be better understood through descriptive qualitative models and spatial mapping tools. – Responses to a stressor can be complex (indirect, nonlinear), variable in space and time and compounded by other stressors or ecological processes. It is relatively easy to attribute coral loss to a range of acute stressors, but **more difficult to identify the causes of hindered coral recovery**. Causes can be multiple and responses can vary among coral species. The impact of multiple stressors is difficult to predict in biogenic habitats such as coral reefs where acute and chronic pressures simultaneously affect the reproduction, growth and mortality of habitat forming species. Bozec et al. (2022) have developed a simulation model of coral demographics to quantify the cumulative effects of multiple disturbances and how they drive coral cover at local and regional scales. This model informs recent trends (2008-2020) and the status of unmonitored reef areas (about 96% of 3,806 reefs) and can be used to design improved coral and COTS surveillance programs to support management and may help identify areas most likely to respond to interventions and sustain improvements over the longer term.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Reef rehabilitation projects (RJFMP) include installation of reef stars and Coral clips to stabilise coral rubble and improve coral growth in areas impacted by bleaching, cyclones and maritime incidents e.g. Green Island (2020), Bait Reef (2021). – There is a very real and present danger that the **combination of threats present in the Region will continue to weaken the resilience of the Reef ecosystem**. As a consequence, **the Reef's ability to recover from serious and increasingly frequent environmental disturbances (such as mass coral bleaching events) remains at high risk.** • **Reef Authority Summit and resulting Blueprint** (2017) (under review) identified the urgent need to deliver on ground actions to enhance the resilience of the Reef including expanding and extending the COTS Control Program and protecting key species for reef recovery. • **The Reef Knowledge System** hosts an internal-only interactive dashboard, the Resilient Reefs Network Guidance Tool, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park. • Greater understanding of the potential **impacts to Indigenous cultural heritage** values is being sought through the cultural referrals program (Permits) and the TUMRA cultural values mapping programs in line with the Reef Authority's position on, and progress towards,			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Traditional Owner co-management of the Marine Parks. The Aboriginal and Torres Strait Islander Heritage Strategy (2019) is a driving force in addressing these matters. Challenges: • Addressing threats at various scales and the need for a combination of Reef-wide, regional and local solutions to threats that impact on the Reef. • Prioritising actions and continuing to improve methods for understanding and responding to cumulative impacts. • While the focus of reef management has often been on local coral recovery (i.e. often in response to climate change), cumulative impact assessments require integration of all stressors across the coral life cycle. However, pressures on coral recovery across the Reef are less well established (Bozec et al. 2022). • *'We are aware of how a range of threats impact the Reef, but there is little or no understanding of the consequences of losing Reef biodiversity, including impacts on ecosystem services related to fisheries, coastal protection, recreational values and the like. Managers have little understanding of this and are unable to make sophisticated decisions about how to manage and mitigate this'* (Interviewee 12, 2023).			
CO4 The broader (national and international) level influences relevant to	4	• Several threats that impact on the Reef occur at international and national scales and are impacting Reef resilience. While managers may have some understanding	State Party Report on the state of conservation of the Great Barrier	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
biodiversity are understood by managers.		of these issues, **matters such as climate change and the specific impacts it is likely to bring across the Region are less well understood, with the governance system struggling to identify and implement effective responses.** • UNESCO reporting on the Reef, including in relation to 'in Danger' listing (Report on the Joint WHC/IUCN Reactive Monitoring Mission (Carter & Thulstrup – UNESCO 2022), State Party response (2023) and UNESCO response (2023). – Since 2010, WHC has raised concerns that activities within the Reef Region are irrevocably threating the OUV of the Reef. – Reactive monitoring missions conducted in 2012 (14 recommendations); 2013 WHC decision to consider inscription on List of world heritage in Danger, in the absence of substantial progress. – 2014 WHC acknowledged progress e.g. 2013 Reef Water Quality Improvement Protection Plan and intention to focus port development to priority areas. – 2014 Outlook Report – overall outlook for Reef is poor; climate change poor water quality, coastal development are major threats. – 2015 adoption of Reef 2050 Plan with framework to protect the WHA (Reef not inscribed on In Danger List). – 2017 WHC concern at coral bleaching and mortality in 2016-17. – 2019 Outlook Report – long term outlook for the ecosystem of the Reef deteriorated from poor to very	Reef World Heritage Area (Australia) 2015 Reef 2050 Plan Reef 2050 Plan – Implementation Strategy eReefs Satellite tracking improves conservation outcomes for nesting hawksbill turtles in Solomon Islands. *Biological Conservation* 261: 109240 (Hamilton RJ et al. 2021). Bell I. et al. 2020. Marine turtle monitoring. In: Pilot trip to Coral Sea Islands: Report on an environmental assessment of six islands in the Coringa-Herald group of the Coral Sea Marine Park, December 2019; Eds Hemson G. and Melzer R. QPWS & Partnerships, DES. Environmental assessment of the Coringa Islets and		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		poor; more rapid and widespread deterioration of ecological processes; progress insufficient in meeting key targets of Reef 2050 Plan, especially related to water quality. Required revision of Reef 2050 Plan, accelerate action to address climate change (in accord with Paris Agreement on Climate Change and create opportunities for recovery) – 2022 Joint WHC/IUCN reactive monitoring mission (21-30 March 2022) to assess whether updated Reef 2050 Plan adequately addressed threats posed by climate change and provides a pathway for accelerated actions in other areas affecting conservation of the Reef. Key findings: – OUV 'considerably impacted by climate change factors, and that the resilience of the property to recover from climate change impacts is significantly compromised, in particular due to degraded water quality and fisheries' (p.27) – Management frameworks, strategies and plans in place to protect OUV lack of clear climate change targets and implementation measures are not fully implemented, particularly in relation to water quality and fisheries activities. – Reef 2050 Plan promotes advancement of climate change mitigation commitments under the Paris Agreement target (1.5oC), but associated plans and strategies referred to in	Herald Cays in the Coral Sea Marine Park (Hemson et al. 2019) CITES Queensland managed fisheries assessed under the EPBC Act Seagrass Watch Marine Monitoring Program Reef Advisory Committees Reef partners Increased involvement with Great Barrier Reef Foundation projects Lady Elliot Island Ecosystem Resilience Plan Raine Island Recovery Project Resilience Hot Spot Mapping Reef 2050 Plan Indigenous Implementation Strategy Traditional Owners and Sea Country in the Southern		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the Plan do not provide any clear pathway to avoid significant negative impacts to the OUV. – Increasing investment in research into coral restoration etc – Need more concrete actions that are sufficient to conserve the OUV under global temperature increase scenarios. – Recommend Reef be inscribed on List of WH in Danger. – State Parties responses (13 September 2022,10 March 2023 and 6 June 2023) – have implemented policies and committed new funding to address the WHC/IUCN recommendations; $1.2 B of new funding to help build Reef resilience, improve water quality and protect marine life (total investment of >$4.4B); committed to "ambitious action on climate change and increased investments to protect Reef"; legislated 2030 target to reduce GHG emissions to 45% and net zero emissions by 2050 (refer IN1). – WHC response (31 July 2023) – Acknowledged improved responses by the State Party to identified recommendations. – '..the property remains under serious threat and urgent and sustained action to implement the priority recommendations of the mission is essential in order to improve the long-term resilience of the property' (p.28).	Great Barrier Reef - Which Way Forward?		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Concerns expressed in relation to ongoing land clearing in the Reef catchment, the scale and frequency of bleaching events have impacted many species including coral, seagrass, dugong and bony fish – Recommended to re-evaluate whether the Reef meets the criteria for inscription on the List of World Heritage in Danger at the 46th session of the Committee (i.e.2024). – WHC response (September 2023) – Decision to not consider the Reef for inscription on the List of World Heritage in Danger based on the 'increased action Australia is taking to protect the Great Barrier Reef). – Key recommendations focused on action to address climate change, support Reef water quality and sustainable fisheries, improved data validation and addressing threats to protect species from fishing gear. • Climate change (refer also PR3 relating to governance) – presents a very high risk for the region and especially Reef biodiversity due to elevated water temperatures, increased levels of acidity, more frequent and severe cyclones etc. Climate change targets are set internationally and the Australian and State Governments respond to these targets. At times there are policy inconsistencies across jurisdictional levels			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		where policy on climate change, for example, may be insufficient to address predicted impacts on the Reef. These mismatches may require transformative governance responses. – State Party report to World Heritage Committee reflect understanding of national and international influences and has resulted in expanded research to document and understand the condition and trend of biodiversity in the Region. – The Reef Authority and Parks Australia joined over 30 international agencies to sign a joint International Statement on Climate Change and Biodiversity Loss (2021) that highlights support for protected areas.. • Endangered species – DES Threatened Species Operations has led the development of a **Conservation Strategy for marine turtles** in Queensland that recognises our dependence on effective conservation management of marine turtles in neighbouring regions and countries for maintaining sustainable populations of these migratory species within the Marine Park. Satellite telemetry and flipper tag recovery data show that: the declining hawksbill turtle foraging populations within the Reef originate from nesting populations in Papua New Guinea, Solomon Islands and Vanuatu; the majority of green turtles nesting at Raine Island originate from foraging areas in Torres Strait and Gulf of Carpentaria			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		where there are no marine protected areas for facilitating sustainable shallow coastal foraging areas; and green turtles of the Coral Sea genetic stock that nest on islands within the Coral Sea Marie Park migrate mostly form shallow foraging habitats within the GBRMP. – **Wildlife Trade Operation (WTO) approval** decisions **under the EPBC Act have influenced fisheries**. These include: The WTO approval for Queensland East Coast Inshore Fin Fish Fishery was revoked in 2020; Sea Cucumber Fishery (East Coast) WTO approval in 2021 prohibits the export of black teatfish; and Queensland Coral Fishery WTO approval in 2021 includes numerous new conditions and recommendations related to harvest controls – Since 2019, two sea cucumber species relevant to commercial fisheries have been listed on Appendix II to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), including: black teatfish (*Holothuria whitmaei*), white teatfish (*Holothuria fuscogilva*). – Other species relevant to commercial fisheries will have **Appendix II CITES listings** come into effect in next 12 to 18 month. These include: prickly redfish (*Thelenota ananas*), amberfish (*Thelenota anax*) and requiem sharks (Family Carcharhinidae)			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Since 2019, **the European Union has banned the import of five coral species** from Australia and the United Kingdom has banned import of all corals from Queensland. – In response Reef 2050 LTS Plan. • Wetlands – The Ramsar Convention aims to reduce global loss of wetlands and conserve and manage remaining wetlands. Further information can be found on Wetlands Info site. • Waterbirds – There are a range of conventions, partnerships, agreements, legislation and strategies that relate to the protection and management of waterbirds and their habitats (refer WetlandInfo).			
CO5 The **stakeholders** relevant to biodiversity are **well known** by managers.	4	• Key stakeholders or actors are **well known to managers** and include: – Government institutions and agencies – National, state and local governments – the Reef Authority – Reef Advisory Committees (Indigenous and Tourism) (advise on actions to address risks to Marine Park) – Local Marine Advisory Committees (LMACs) (diverse composition and work at local and regional scales)	RJFMP Restoration of Reef Islands Project Plan Eye on the Reef RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Scientific Expert Panel (provides input into implementation of Reef 2050 Plan) – Natural resource management groups – Queensland Wetlands Governance Group and Reef Wetlands Network – Non-institutional (independent with their own policy and delivery frameworks) – Traditional Owners, including four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), who undertake 'cultural referrals'. Participate in Values Based Mapping (23 island protected areas have had a values assessments undertaken, including five assessments that were completed with first nations partners for Cape York Peninsula Aboriginal Land). – various industry sectors (fisheries, tourism, mining, agriculture) and other user groups (Defence) – environmental NGOs – international, national and local – public interest groups – research institutions and universities and schools (Reef Guardian Schools). Increased collaboration between RJFMP and technical experts to strengthen research and monitoring for improved management of the Reef (RIMReP) in areas	Reef Regional Report Card Partnerships and report cards: Wet Tropics, Dry Tropics, Mackay-Whitsunday-Isaacs, Fitzroy Basin, Gladstone Health Harbour		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		specific to seabird monitoring, cay geomorphology and island biosecurity. – Reef users (e.g. ongoing engagement with permit holders) – the community and individual citizens– local, regional, national and international (refer to PR3 on governance) – mass media – political parties • The Reef 2050 Plan supports best practice and community stewardship activities that contribute to Reef Health and resilience (Action EHA28). Stakeholder engagement is a strong component of the Reef Authority's management. • Great Barrier Reef Marine Park Authority Actor Network Mapping project: Mapping working agreements between the Marine Park Authority, partners, stakeholders, and community of practice: This project maps the existing actors within a network that connects the Reef Authority to the organisations and institutions they engage for research and management practice. The goals are to: provide information to the Reef Authority's science for management sector; identify gaps in existing Reef management partnerships; and inform management decision-making process by identifying actors in the Reef management landscape solely from a Reef Authority centric perspective.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Stakeholders have been engaged in Marine Monitoring Program, previous Outlook reports, Whitsunday Plan of Management, Reef 2050 Plan, policies and position statements and RIMREP, Annual Consensus workshop for humpbacks • Pest/threat/impact mitigation actions undertaken by the RJFMP Restoration of Reef Islands Project (2020 – 2025; Reef Trust-funded) will be co-designed and co-delivered by trained, volunteer and/or employed Traditional Owners. Addresses 2018 actions EHA3 and CBA3/2021 Strategic Actions 5.1 and 5.3 and Enablers A.5 and B.4. Challenges: • Greater engagement with: – non-TUMRA Traditional Owner groups in line with the Reef Authority's position on, and progress towards, Traditional Owner co-management of the Marine Parks – community groups, in particular, local and regional groups to ensure that they can participate and contribute to improved Reef management, particularly in the face of ongoing climate change.			
PLANNING					
PL1 There is a **planning system** in place that effectively addresses biodiversity	3	• The planning system plays an important role in achieving biodiversity outcomes. It aims to support biodiversity and Reef outcomes, but some of the **challenges facing the Reef are increasing in scale and complexity** and include	• Acquisitions to Protected Area Estate (GBR Island Arks Acquisitions Project) include priority parcels of island land that provide	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		threats such as climate change, poor water quality, coastal development, expanding infrastructure and many others. • Planning to achieve effective biodiversity outcomes for the Reef is **spatially complex** as it spans marine and terrestrial environments, requiring effective coordination of actors and systems. – **Marine spatial planning** implements ecosystem-based management based on integrated, multi-objective marine plans that are comprehensive, participatory and utilise good governance structures (refer PR3). Reef planning incorporates marine protection, Traditional use of marine resources, support for local economies, addressing climate change impacts, developing financing mechanisms, supporting research, and good governance etc. – **Terrestrial spatial land use planning** in the Reef context focuses on catchment-based planning for NRM and traditional land-use planning (refer PL2). • The planning system relevant to biodiversity also comprises planning that is undertaken at various levels (**vertical** i.e. international, national, state, regional and local); and across sectors (**horizontal** i.e. planning across state agencies, or across regional NRM bodies or local governments). • The system **is complex**, with a diversity of legislation, plans, policy, strategies and guidelines (refer PL2) that apply at multiple scales. There are **increasing challenges**	improved biodiversity conservation outcomes, visitor experiences, and opportunities for co-management with First Nation's Peoples. • Wild Duck Island lease– 118 ha former tourism lease - protects the largest flatback turtle rookery site for the Eastern Australian stock for this species; consolidates the tenure of the entire island into protected area management. • St Bees lease–4.2 ha former residential lease site consolidates the entirety of the island into the protected area estate. It adjoins South Cumberland Islands NP, at 3160 ha. The site contains important conservation values with over 70% mapped as remnant vegetation and essential habitat for the koala and		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		in ensuring effective integration of these documents and effective implementing, resourcing and monitoring. • The **key components** of the planning system for the Reef include: – **International frameworks** that set global standards to which the planning system needs to respond (e.g. climate change, endangered species, wetlands, migratory species etc). – The **Australian Government** coordinates management through the Reef Authority (the principal adviser to the Commonwealth). There is a range of national government legislation, policies, strategies and planning that reflect international obligations. – The **Reef Authority** is the lead management agency for the Reef and reports to the Commonwealth Minister for the Environment. The Reef Authority provides technical advice on Reef-related matters to other Commonwealth departments and the Queensland government. It partners with the Queensland government under the Intergovernmental Agreement. The Marine Parks are jointly managed, although the Queensland Government also has jurisdiction over coastal waters. There are complementary arrangements over the Marine Park. The Reef Authority undertakes **strategic planning and statutory planning** (regulation of activities in the Marine Park	flatback turtles (threatened species under the NCA). The site's previous lease use has had significant negative implications for conservation and management of the surrounding national park. Protects important foreshore habitat in the Marine Park, provides protection from impacts, inappropriate use, and assists in the future protection of important regional ecosystems and species on the island. • Long Island Broad Sound lease- 3,495 ha former grazing lease site provides connectivity to existing national park tenure, protection to large estuary, mangrove and wetland systems, and Regional Ecosystems 'of concern', and other significant ecological values. The		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		e.g. zoning plans). It has established internal structures and processes to plan and manage the Reef. – **State government** planning involves, among others, statutory planning, vegetation planning and management, coastal planning, biodiversity/conservation planning, protected area planning and sectoral planning related to tourism, mining, agriculture, ports etc. **Land use planning takes place mainly in the Reef catchments** and addresses decisions concerning the location, scale and use of land. – the **Queensland Planning Act 2016** aims to protect ecological processes and natural systems from local to national levels. A key instrument is the planning scheme which guides appropriate outcomes for the use and development of land. Planning aims to identify areas with high biodiversity value and manage uses and development in these areas so that impacts on biodiversity are avoided or minimised. – The **strategic planning framework** allows for the identification of areas of higher value for biodiversity (e.g. wetlands, forested catchments etc) at the landscape scale; considers impacts of use or development (including cumulative impacts) on biodiversity; directing use and development away from higher value areas;	rehabilitation, restoration and ongoing management of Long Island is likely to be considerable and take several years to restore degraded grazing impacts. Made a significant contribution to the conservation of the Broad Sound region of the GBR, e.g. critical rookeries for the vulnerable Flat Back Turtle, as well as many other species. • Other acquisitions progressing on leasehold and freehold properties that will provide important conservation value land to an expanded PAE in the GBR, e.g. Restoration Island tourism lease 15.3 ha, Long Island Baffle Creek freehold 35.92 ha, Curtis Island grazing freehold 296.23 ha, and Magnetic Island		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		establishing clear expectations for where use and development can occur, and by coordinating approvals and offsets. – However, **planning undertaken by local government through planning schemes is limited to regulating new use and development and has little ability to address impacts of historical depletion of biodiversity**. – **Regional** (catchment planning, NRM, Landcare etc) – **Local government planning** (planning schemes, strategies, policies etc). Reef Guardian Councils work to address matters relevant to protecting the Reef. – **Sectoral planning** – Industry (cane growers, pastoralists, mining, ports etc), research organisations and universities). • The Intergovernmental Agreement sets a framework for joint coordination of planning and management, however, "*the process is complicated due to overlapping permits*" (Workshop participant 2023). • **The effectiveness of the planning system depends on the integration of planning and related plans within the system and the linkages among the key actors within the system**. However, "*the different players in the system often have different objectives and this complicates planning and management*" (Workshop participant 2023). • **Climate change** is having a significant impact on biodiversity.	freehold 2.7 ha. (timeline unknown) • Esplanades- The closure of 9 esplanades (road reserve tenures) on national park islands in the Reef added 1,049 ha to adjacent PAE and reduced inappropriate uses and impacts to the sensitive coastal zone on foreshore areas, including bird and turtle habitats, consolidates tenure and provides vital connectivity of the protected area estate. Has improved habitat management capacity over the frontal dunes at Wreck Rock, which support the second largest nesting population of loggerhead turtles in E. Australia. USL islands – The GBR Island Arks Acquisition project has completed an evaluation of islands across the GBR and have identified islands and		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– '*We don't have a planning process or system that is fit for purpose in addressing climate change*' (Interviewee 12, 2023). – '*The Reef Authority is focused on reacting to current threats in its tactical work. It hasn't developed a more strategic view on how to tackle climate change impacts over time*' (Interviewee 12, 2023). • Several **key acquisitions** have been made to extend the protected area estate (see evidence). Consideration of Queensland State islands is a factor that influences the Region (noting that the islands are not explicitly included in the Region). Challenges: • Establishing effective review processes to assess the planning systems and related plans to ensure that they are delivering on outcomes for Reef biodiversity, including effectively addressing climate change at all levels of planning from national to local levels and other potential impacts. • Reviewing and implementing the recommendations of the Samuel (2020) review of the EPBC Act and subsequent Nature Positive Plan (2022) • Working across sectors to effectively address catchment-based planning issues. • Effectively addressing emerging threats such as climate change in a range of integrated plans.	parcels of high conservation significance for inclusion into the PAE. The majority of the islands are unallocated state land (USL). The addition of (~144) USL island parcels into PAE provides inclusion of important regional ecosystems and other key conservation values into the GBR's protected area. • Ecological site inspections undertaken to assess and plan for future management requirements, and engagement with First Nations peoples and other stakeholders are ongoing.		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Integration of plans and processes across jurisdictions. "*With a range of different players in the (planning) system they often have different objectives. For example the Marine Park Act outlines clear values for the marine park, but fisheries may manage for different objectives*" (Workshop participant 2023) and these need to be more aligned. • Improving **regional and development planning** to better address biodiversity and restore ecosystem health. Consideration of the nature of regions is challenging as regions may extend from hinterland areas within the catchment, to the coast, and inshore and offshore areas.			
PL2 The **planning system** for biodiversity **addresses the major factors influencing** the Great Barrier Reef Region's **values**.	3	• The planning system, with its multiple components, has delivered a diverse range of documents that address the Reef region's values (refer to the extensive list provided in the evidence). However, the continuing decline in the health of the Reef indicates potential limitations of the planning system in being able to combat threats to the Reef region. • There is a complex array of panning documents to support biodiversity conservation. Key components of the planning system relating to biodiversity include the following. **Reef 2050 Plan** (2021-25) • Biodiversity is specifically addressed in the Plan, which focuses on a range of issues and threats affecting the Reef. It is intended to guide governments, community and	Register of planning documents (DES) Policies plans and position statements (Reef Authority) Provision Reef – Promoting Sustainable Reef Harvest Fisheries (East Coast trawl) Management plan 2010 Reef 2050 update on progress Coral bleaching risk and impact assessment plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		industry in their work to achieve clear targets for improving the condition of the Reef. It sets out desired outcomes, objectives, targets and actions for protecting the Reef's OUV and is underpinned by RIMReP. • Its actions in relation to biodiversity focus on ensuring impacts on Reef health and resilience are considered in planning, developing coastal hazard responses, improving connectivity and resilience through protection, restoration and management of Reef priority coastal ecosystems. – The Plan lacks sufficient statements regarding the impacts of climate change and the impacts of extreme weather, although it does outline a strategic approach for monitoring bleaching risk and assessing coral bleaching impacts when events occur. – **The Plan needs 'greater ambition beyond 'business as usual' and requires clear indicators for success and adaptive management'** (Carter & Thulstrup 2022). Climate change needs to be pivotal within the Reef 2050 Plan. • Nature Positive Plan: better for the environment, better for business (2022) (DCCEEW) • Describes circumstances where nature (species and ecosystems) is being repaired and is regenerating rather than declining. • New National Environmental Standards (NES) will be designed (refer PR13).	Lady Musgrave Reef Site Management Arrangements. Great Barrier Reef Blueprint for Resilience vulnerability assessments Reside et al, 2017, Great Barrier Reef: Clearing the way for reef destruction, Nature Great Barrier Reef Marine Park (Declaration of No-Anchoring Areas — Townsville/Whitsunday Management Area) Notifiable Instrument 2021 Great Barrier Reef Strategic Assessment Report, Chapter 5 The Queensland Plan Coastal Protection State Planning Regulatory Provision 2013 Code of Practice for Dwarf Minke whale interactions		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• A key approach will be increased focus on **regional planning** (which was a focus of activity from the 1980s to early 2000s with the development of the State Coastal Management Plan and related regional coastal management plans, regional NRM plans across all Reef catchments, and various water quality plans). The new regional plans will be informed by conservation plans and underpinned by good data and made in accordance with a Regional Planning Standard. The regional plans and NES will provide greater certainty in relation to where development impacts will be prohibited. Zoning Plan • Primarily aims to protect biodiversity. It provides spatial control of use and, to a lesser extent, access within the Marine Park. It establishes the framework for extractive use and the **need for permits** for some uses, such as tourism, and fishing. Zoning plans are developed under Part 5 Division 2 of the Great Barrier Reef Marine Park Act 1975. Complementary arrangements are in place in adjacent areas under Queensland jurisdiction. • Has adopted complementary commercial net fishing restrictions already in place under Queensland marine park legislation to support dugong conservation. Applies to the Species Conservation (Dugong Protection) Special Management Area of Bowling Green Bay and in the Habitat Protection Zone (HP-19-5171) to protect dugongs	Emergency disposal of foreign fishing vessels Examples of policies and position statements re: dugong, protected species, sharks & rays, translocation and guidelines (see GBRMP website: http://www.gbrmpa.gov.au/about-us/legislation-regulations-and-policies/policies-and-position-statements) ANAO performance audit The Conservation and Protection of National Threatened Species and Ecological Communities Australian National Biodiversity Strategy Australian Ballast Water Management Requirements Hinchinbrook Island National Park Management Plan 2017		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		from the risk of entanglement in fishing nets between the high and low water mark. • An Australian Academy of Science (2023:32) survey of Round Table participants noted that 82% supported a **revision of management zoning plans** to encompass catchments to deep water. Legislative and Regulatory provisions • *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* is the national central piece of environmental legislation. It identifies MNES (including nationally threatened species and ecological communities, migratory species, wetlands protected under the Ramsar Convention and WHAs such as the Reef). Any action that may impact a listed MNES requires assessment and approval. – The Reef Authority, in relation to MNES, provides advice on whether a proposed action is likely to have an impact on MNES and joint assessments are conducted when a decision is made on an EPBC referral in relation to a controlled action (refer Deemed applications under the EPBC Act. – However, the Samuel (2020) review of the EPBC Act, highlights limitations in the Act that affect joint planning and decision making. The Nature Positive Plan (2022), which describes the EPBC Act as ineffective, inefficient, failing to value Traditional Knowledge, relying on inaccessible and dated data,	Hinchinbrook Island National Park Visitor Strategy 2017 QPWS Management Statements QPWS Management Plans Lady Elliot Island Ecosystem Resilience Plan Field Management Program Annual RHIS Project Plans Field Management Program Annual COTS Response Project Plans QPWS Fire Strategies Crown-of-thorns starfish control program Register of planning documents DES Declaration of No-Anchoring Areas — Townsville/Whitsunday Management Area Notifiable Instrument 2021 RMS		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and weak compliance and enforcement, sets out a new path to enhance environmental outcomes (refer above).. – Biosecurity Act 2014. • The planning system must consider various international conventions e.g. Ramsar, JAMBA, CAMBA and ROKAMBA. • Nature Conservation Act 1992 provides strong legislative basis for biodiversity management and control of potential impacts across the region (including islands). • Planning Act 2016 establishes the planning instruments that support plan making, development assessment and dispute resolution. It aims to establish an efficient and accountable system of land-use planning and development assessment to protect ecological processes and natural systems from local to national levels. It sets out a number of planning tools, such as local government planning schemes, State Planning Polices (SPP) and Regional Plans relevant to biodiversity. This legislation is important in addressing coastal development and establishing relevant codes to minimise the impact of development on sensitive habitats. Biodiversity can be recognised in conservation areas, through purposeful zoning to restrict uses in areas of high biodiversity value and overlays that impose additional requirements for permits etc. • Several other relevant Acts include the Vegetation Management Act 1999 and Water Act 2000.	Curtis Island National Park Management Statement (2019) QPWS Management Plans Sustainable Fishing Strategy 2017-2027 QPWS Management Statements (see QPWS – Nature Conservation Act – QLD islands within WHA) Paddock to Reef Integrated Monitoring, Modelling and Reporting Program No-anchoring areas reduce coral damage in an effort to build resilience in Keppel Bay, southern Great Barrier Reef Reef Joint Field Management Program: Annual Business Plan Summary 2022-23 Reef joint Management Program Business Strategy Summary 2022 to 2026 Reef HQ		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The **Coastal Protection State Planning Regulatory Provision** (SPRP) contains policies for coastal-dependent land uses and developments that are required to take precautionary measures when developing in sensitive marine and coastal environments. • 58% of no-anchoring areas legislated within the Marine Park (June 2021) (Increase from 33% in 2019). The Reef Authority and DES continue to progress towards the target of all no-anchoring Areas within the Marine Park legislated. – In 2020, the Reef Authority used a **Notifiable Instrument** to legislate no-anchoring areas within the Whitsunday Planning Area (rather than the previous method of a Plan of Management or Regulation amendment). • The management of wetlands are formalised in laws passed by the Qld and Commonwealth governments and through international obligations and management agreement i.e. Ramsar. The laws, policies and programs are described on Wetland info website. • The State Planning Policy (SPP) (2017) includes policies that promote access to coastal waters and the foreshore as a means of providing significant benefits to the community through a number of recreational uses and for commercial operations (e.g. tourism). • Amendments to the *Great Barrier Reef Marine Park Act 1975* e.g. to provide additional protection for dugong and turtle populations from the threats of poaching, illegal	Position statements/policies/guidelines: Managing Scientific Research in the Great Barrier Reef Marine Park Guidelines for the Management of Artificial Reefs in the Great Barrier Reef Marine Park Guidelines for Managing Visitation to Seabird Breeding Islands Ecological Risk Assessment of the East Coast Otter Trawl Fishery in the Great Barrier Reef Marine Park NESP Projects AIMS LTMP Reef Monitoring - AIMS Fish Aggregating Devices and Artificial Reefs. Literature review of benefits and negative impacts for the Great Barrier Reef? QLD Threatened Species Program (2020)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		trade and illegal transportation and increased civil penalty provisions. • Single **impact assessment system** applies to the marine park - to better integrate the Great Barrier Reef Marine Park Act 1975 and Great Barrier Reef Marine Park Regulations 1983 with the national environment law—the Environment Protection and Biodiversity Conservation Act 1999. • Fish Habitat Areas are declared under Qld Department of Primary Industries and Fisheries legislation. • Plans of management – Complement Zoning Plan and impose controls on the granting of permissions. – Identify arrangements for activities, areas, species or ecological communities, including with community groups with a special interest in an area, including some form of Native Title; and complement zoning and permitting arrangements. Some components are legally binding. POMS are developed under Part VB of the Great Barrier Reef Marine Park Act 1975. – Whitsundays POM (2020) (seabirds such as black naped and bridled terns protected by extending the time vessels and aircraft cannot access nesting areas during key nesting periods) (under review); Cairns Area POM 2008 (revised version currently being considered by the State); Hinchinbrook POM 2004; Shoalwater Bay (Dugong).	Threatened Species Program 2020-2040 (www.qld.gov.au) Queensland Threatened Species Program | Environment, land and water | Queensland Government (www.qld.gov.au) Reef Authority ELibrary: Crown-of-thorns starfish Strategic Management Framework RJFMP Annual Business Plan Summary Reef Authority ELibrary: Reef Joint Field Management Program: Annual Business Plan Summary 2022-23 RJFMP Program Business Strategy Summary 2022-2026 Reef Authority ELibrary: Reef joint Management Program Business Strategy Summary 2022 to 2026		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– New POMs will include MERI framework to assess effectiveness of POM strategies. 'Policies' include strategies, policies, site management arrangements, position statements and guidelines: • *Strategies* – Reef 2050 Plan – Implementation Strategy – The 25-Year Strategic Plan for the Great Barrier Reef World Heritage Area outlines strategies for to manage, preserve and wisely using the World Heritage Area. – Conserving Nature - a Biodiversity Conservation Strategy for Queensland (2022) – Reef Authority Communication Strategy 2021-2024 (2021). – Reef Authority Roadmap to net zero by 2030 (2022) - The greenhouse gas emissions reduction strategy will set new targets with enabling initiatives that move the Reef Authority towards net zero emissions in their operations by 2030 (for Scope 1* and 2^) including the development of a plan for net zero for Scope 3# emissions. This will incorporate new pollution prevention practices, waste minimisation measures, and more efficient use of resources. – Queensland Protected Area Strategy 2020-2030	GBRMP Regulations - assessment criteria for identifying and analysing impacts (s103)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Queensland Marine Turtle Conservation Strategy (2021-2031). – Pest control strategies e.g. Crown-of-thorns starfish Strategic Management Framework – Tourism management action strategy (2021) – Queensland Sustainable Fisheries Strategy (2017-2027) – Wetlands in the Reef Catchments. Management Strategy 2016-21 (update expected 2023) promotes an integrated approach to catchment management that considers the multiple values of wetlands and identification of threats/pressures in a whole-of-system context. – Great Barrier Reef Climate Change Adaptation Strategy and Action Plan 2012–2017. • *Policies* – Great Barrier Reef Interventions Policy (2020) – to assess restoration and/or adaptation intervention proposals and decide whether to grant a permission or authorise the activity (e.g. interventions may be stabilising reef substrate, local and regional cooling and shading to reduce coral stress, assisting coral adaptation to warming oceans etc). – Dredging and Dredge Spoil Material Disposal Policy (2019) – Cruise Shipping Policy for the Great Barrier Reef Marine Park (2019) - guides protected area managers making decisions on cruise ship operations within the			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Reef and informs cruise ship operators, booking agents and tourists of management arrangements. – Cumulative impact management policy (2018) – targeted at the Reef Authority and other government agencies. Encourages decision making that identifies past, present and reasonably foreseeable pressures; examines their combined effects on the Ree values; and designs and applies appropriate management measures to avoid and mitigate impacts. – Net benefit policy (2018) – decisions and actions to reduce pressures and impacts on the Reef deliver a positive change in the condition and trend of Reef values. – Managing Tourism Permissions to Operate in the Marine Park – Policy on Managing Bareboat Operations in the GBR Marine Park – Marine Tourism Contingency Plan – Dredging coral reef habitats (2016) - development of new marine infrastructure or the expansion of existing marine infrastructure does not have an adverse environmental impact on coral reef habitats in the Marine Park. It details what is activities are unlikely to be granted a permission (e.g. capital dredging of live coral reef habitat). Environmental impact management. – Policy on Moorings in the Great Barrier Reef (2014) provides a framework for the management and use of			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		tourism and recreational vessel moorings that protects the environment and promotes ecologically sustainable access to the Reef. Moorings maintenance has improved through auditing. – Policy on Managing Activities that include the direct take of protected species from the Marine Park – Managing scientific research in the Great Barrier Reef Marine Park – Operational Policy on Whale and Dolphin Conservation in the Marine Park – Sewage discharges from marine outfalls to the Great Barrier Reef Marine Park – Structures Policy – a range of policies that relate to the protection and management of waterbirds and their habitats (refer wetland info) – Reef Authority policies and position statements – Permission System Policy (2017) – to enable the Reef Authority and QPWS to implement a permission system that achieves the objects of the Commonwealth Marine Park Act and Queensland Marine Parks Act (Marine park permission system) – The use of Hydrodynamic Numerical Modelling for Dredging Projects in the Great Barrier Reef Marine Park - to ensure good baseline information is gathered dredging/habitat modification activities. – Queensland Environmental offsets policy – Planning for priority ports			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Traditional use of marine resources (refer TUMR topic – Table 47) • *Site management arrangements* – Site Specific Management Plans for Raine Island, Moulter Cay and MacLennan Cay; Low Isles, Clump Point, Mission Beach; Michaelmas Cay locality; Upolu Cay Reef; Bauer Bay; South Molle Island; Blue Pearl Bay, Hayman Island; Whitsundays Plan of Management setting 5 site plans; Tongue Bay; Hill Inlet and Whitehaven Beach; Fitzroy Reef; Keppel Bay and islands; Lady Elliot Island Reef; Lady Musgrave Island Reef – John Brewer Reef Site Plan (2021) – **Site Planning is often reactive** rather than proactive when it comes to protecting biodiversity (e.g. a site plan for the Keppels has not been developed; yet commercial aquarium fishermen through ProVision Reef have agreed voluntarily to stop collecting corals there due to the impacts from coral bleaching). • *Position statements and management statements* – Since 2019 eight **management statements** have been prepared under the Nature Conservation Act 1992, including one co-designed with a first nations partner; 23 island protected areas have had a values assessments undertaken (five assessments completed with first nations partners for Cape York Peninsula Aboriginal Land). (Refer PL2-PL9).			

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		– Raine Island National Park (Scientific) – Management Statement 2021 (under DES VBMF) incorporates: Raine Island, Moulter Cay and MacLennan Cay. Provides strategic management direction for key values (Section 4) and meeting custodial obligations across eight management themes (Section 5), including managing access to the Restricted Access Special Management Areas surrounding Raine Island (Raine Island Recovery Project. A Resource document includes information about the park, including as a significant cultural and story place for First Nations peoples, historic heritage values and biodiversity values as one of the world's largest remaining nesting populations for green turtles and significant seabird rookery. – Conservation of dugongs – Translocation of species in the Marine Park. – Reef Authority Position Statements are used to influence matters outside of the Reef Authority's direct jurisdictional responsibility (refer Policies, plans and position statements) and include: – Position Statement - Fishing (2020) – Position Statement - Water quality (2020) – Position Statement - Climate change (2019) - explains the causes of climate change, why it's			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the greatest threat to the Reef, and that actions are needed at all levels. – Position Statement - Coastal ecosystems (2018) – Position Statement - Marine debris (2019) – Position Statement - protected species Queensland East Coast Inshore Finfish Fishery (2007) – Position Statement -sharks and rays in the Queensland East Coast Inshore Finfish Fishery (2007) • *Guidelines* – National Guidelines for the Survey of Cetaceans, Marine Turtles and the Dugong (2023) – Joint Guide for Current Permit Holders (2021) to help current permit holders navigate permits, understand how to be a responsible permit holder and know the general requirements when operating in the Marine Parks. – Draft Artificial Reef Guidelines and FADs – Activity impact assessment guidelines e.g. pontoons guidelines (2019) – Environmental Management Plan Guidelines – Improved Assessment and decision Guidelines (2019) (refer PL6) – Applications for Joint Permissions Guideline (2017) (to deliver a consistent and transparent application process that complies with legislation, standards and policy).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Australian National Guidelines for Whale and Dolphin Watching (2017) – Best environmental practices for diving and snorkelling - communicate preferred behaviours and are available for tourists and recreational users to minimise impacts on biodiversity. – The Next Generation Tourism Planning: A Guideline for planners in Queensland (2017) – addresses how to achieve good planning outcomes for tourism in natural environments. – Reef Trust offsets – Coral transplantation – Management of artificial reefs in the Marine Park – EPBC Act referral guidelines for the Outstanding Universal Value of the WHA – Guidelines for Hydrodynamic Modelling (of Dredge Spoil) – National Assessment Guidelines for Dredging (2009) – Dugong conservation in the Great Barrier Reef Marine Park (2007) Other plans and educational material • As part of the Reef Authority's Policy and Planning Strategic Roadmap, to deliver a proactive and risk-based approach to policy, planning and regulation, the Policy team has commenced (mid-2022) a rationalisation of all external			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		facing policies relating to management and protection of Marine Park values, including biodiversity. An expected outcome is management tools that are understood, fit-for-purpose, flexible, responsive and aligned. There is a high priority need to review and update species-related policies, including the Reef Authority's relevant statutory instruments. • Reef Blueprint update (due 2023) – emphasis on climate change adaptation and promoting actions through a 'resilience network' of sites that have the best chance of supporting system-wide resilience and recovery following disturbances; includes 10 key initiatives to build Reef resilience. • Reef Islands Initiative (2020-22)– a large reef rehabilitation project involving local communities and tourism operators, who undertake on-ground and in-water actions to protect and restore critical high-value island habitats e.g. 12.4 ha revegetated on Lady Elliot Island, 125% increase in turtle habitat, seagrass restoration in Whitsundays (Pioneer Bay) and coral larvae collection and reseeding trials. • Reef Islands Restoration (2020) ($5.5million) to undertake threat mitigation, restoration and revegetation of critical island habitat; delivered by the Reef Authority, Traditional Owners and Indigenous rangers with RJFMP officers. • Threatened species action plan (2022-2032) (DCCEEW) - Includes Raine Island (Qld) as a Priority Place and Green Turtle as priority species.			

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		• **Regional Catchment Strategies** provide an integrated framework for the management of land, water and biodiversity. They provide a framework in which local governments can align their planning to achieve regional biodiversity objectives. • Science and Knowledge Needs for Management (2020). • **Crown-of-thorns starfish Strategic Management Framework** (2020). • **Reef Restoration and Adaptation Program** (refer CO2). • Development of new spatial plan by the Reef Authority – commencing in southern region to be implemented by 2025. • Recovery plan for marine turtles in Australia 2017-2027 (DCCEEW 2017) • Reef 2050 Water Quality Improvement Plan addresses impacts on Reef habitats from catchment and coastal run-off. The Reef Plan guides how industry, government and the community will work together to improve the quality of water flowing to the Reef. • https://www.nespmarine.edu.au/Water quality improvement plans and Healthy waters management plans address impacts on the Reef coming from Reef catchments investigate ways to protect the Reef. Plans are in place for Burnett Mary Regional Group; Cape York NRM; Fitzroy Basin Association; NQ Dry Tropics; Reef Catchments (Mackay Whitsunday Isaac); Terrain NRM • National Invasive Ant Biosecurity Plan 2018–2028			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Queensland Ecotourism Plan 2013 - 2020 • Lady Elliot Island Ecosystem Resilience Plan (2020) maximise resilience to climate change and other stresses by enhancing natural vegetation communities, minimising impacts of introduced flora and fauna, and maximising breeding opportunities for important coastal birds and marine turtle species while having regard to existing footprint and uses. • Threat Abatement Plan for the impacts of marine debris on vertebrate marine life - provide a framework for the abatement of injury and fatality to marine species caused by harmful marine debris. • Values-Based Management Framework (QPWS) and values assessments completed for Qld islands, within WHA but not the Region). All management statements under the VBMF have clear objectives, outcomes and strategic management directions for key values of the protected area, e.g. Raine Island National Park (Scientific) - Management Statement 2021 (Incorporates: Raine Island, Moulter Cay and MacLennan Cay) • The Queensland Plan will outline a shared vision for the next 30 years and identify local and state-wide priorities. • Annual Operational Plans • Species specific plans e.g. marine turtles, dugong – help to stabilise populations, although recovery remains weak. – National Dugong and Turtle Protection Plan 2014-17			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Nest to Ocean Turtle Protection Program • The management of wetlands are formalised in laws passed by the Qld and Commonwealth governments and through international obligations and management agreement i.e. Ramsar. The laws, policies and programs are described on WetlandInfo website. • A range of conventions, partnerships, agreements, legislation and strategies relate to the protection and management of waterbirds and their habitats (WetlandInfo website). • The Queensland Ecotourism Plan 2013 - 2020 • **Vulnerability Assessments** (VAs) identify those elements of biodiversity that need specific attention as well as actions to address them. They document the status of species and ecosystems in and adjacent to the Reef, the ecosystem services they provide, the pressures they are experiencing, how they are managed and actions or potential actions that may be used to maintain their health and resilience. Twelve VAs have been completed (including seagrass, shorebirds, sharks and rays, inshore dolphins). No recent progress. • Trawl plan includes requirements for TEDs for Turtles, BRDs for other bycatch/fish. Permission system, permits and compliance			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There have been ongoing enhancements to Reef Management System and Permits online. – A range of permits are in place to regulate entry and use as a means to better protect biodiversity values. Enforcement assists in the delivery of the outcomes of the Zoning Plan. – EAP is developing internal documents such as templates, guidelines and procedures which are used to administer the Permission System e.g. A Guide for Current Permit Holders developed with QPWS (2021) to help current permit holders navigate the complexities of permits, understand how to be a responsible permit holder and know the general requirements when operating in the Marine Parks. – Provide greater clarity and guidance for permissions applicants, accredited institutions. This includes: an updated risk assessment procedure to consistently consider all values of the Marine Park (e.g. biodiversity); guidelines for considering indirect or flow-on impacts that may be caused by a proposal; guidelines on the use of drones; expanding opportunities for tourism-related whale-watching; changing the types and frequencies of inspections required for fixed facilities; easy-to-read fact sheets for the permission system including types of Permissions. • Enforcement of the Zoning Plan and permits is improving due to the extension of vessel monitoring across the			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		commercial fishing fleet, better targeting of compliance actions based on risk assessment that prioritises impacts on protected species, and improved monitoring technology. • Australian Academy of Science (2023:32) notes that current permitting processes 'lack the capacity to make decisions based on weighing up risks, benefits or competing outcomes. Instead there is a focus on the risks created by the intervention (i.e. restoration activities face the same permitting questions as an extractive or destructive activity, preventing timely action).' • Challenges: – Despite a plethora of legislation, policy, plans and strategies biodiversity is in decline in the region indicating limitations in the ability of current plans (and the planning system, refer PL1) to effectively address direct, indirect and cumulative impacts from development (refer CO2, CO3, CO4). – The Nature Positive Plan (2022) highlights the importance of reinvigorated regional planning. Forward looking regional plans that address biodiversity and natural resource management can assist in better protecting biodiversity from a range of threats and begin to address cumulative impacts more appropriately, especially from coastal development. – Australian Academy of Science (2023) notes:			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– a lack of clarity concerning the laws and regulations that support the development of Reef interventions at scale; – difficulties harmonising overlaps in cross-jurisdictional regulations e.g. in relation to seagrass and mangrove protection.			
PL3 **Actions** for implementation regarding biodiversity are **clearly identified** within the plans	3	• Actions relating to biodiversity are identified in a range of documents (refer PL2). • Reef 2050 Plan has both broad and more specific actions: – prioritise **functional ecosystems** critical to Reef health in each region for their protection, restoration and management (Action EHA7); – maintain and work to add to the **island and coastal protected area estate** and continue to provide funding for protected area management in the Reef coastal zone (EHA9); – improve **connectivity and resilience** through protection, restoration and management of Reef priority coastal ecosystems including islands through innovative and cost-effective measures (EHA10); – reduce crown-of-thorns starfish outbreaks by continuing to **improve water quality** and undertaking a targeted control program as needed. Improve integration and effectiveness of crown-of-thorns starfish research and management (EHA12); – implement **ecosystem health** initiatives through the Reef Trust Investment Strategy (EHA14);	Commonwealth marine bioregional plans NERP Projects Reef 2050 Plan – Implementation Strategy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– implement conservation plans for **priority species of conservation concern** (BA16); and – ensure that through the Field Management program resources are available for island habitat restoration projects and pest eradication particularly at critical seabird and turtle nesting sites (BA24). • The 2022 Joint WHC/IUCN reactive monitoring mission (21-30 March 2022) notes that while the Reef 2050 Plan promotes advancement of climate change mitigation commitments under the Paris Agreement target (1.5°C), in part to address biodiversity, the **associated plans and strategies referred to in the Plan do not provide any clear pathway to avoid significant negative impacts to the OUV** (i.e. including its biodiversity). • Reef 2050 Water Quality Improvement Plan 2017-2022 has a range of actions that address water quality and impacts on biodiversity. • Wetlands in the Reef catchments, Management Strategy 2016-21 presents the policy drivers that inform action, the values and pressures on these wetlands and coastal ecosystems, and outlines management actions within five themes. • The Great Barrier Reef Blueprint for Resilience identifies a number of actions including: identify and protect resilience bright spots; expand and extend of COTS control detailed (refer IN1); protect key species for reef recovery.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Threatened species prioritisation framework is being developed by DES. • Threatened Species Action Plan 2022-2032 maps a pathway to recovery for Australia's threatened wildlife, spanning terrestrial, marine and freshwater environments. This includes species of sharks and turtles (p.43-44). • **Pest and Weed Management Strategies** developed by QPWS at various islands in the WHA identify a range of action statements. • The **Reef Joint Field Management Program has SMART actions and targets** for protection of biodiversity values (refer annual reports and the FMP Annual Business Plan). • **Species management plans, including Threatened species plans** with specific actions are in place for many species including marine turtles. – A range of local scale plans identify local actions including: fire strategies, pest strategies, monitoring and research strategies and biosecurity plans for priority island National Parks under the Values Based Management Framework. • COTS Control Program (refer section 3.2 of Crown-of-thorns starfish Strategic Management Framework and annual work programs). • **Macroalgae Removal Trials Magnetic Island** – Interim Report outlines actions (in order of priority) for the 2019-2020 financial year to develop larger scale restoration techniques to protect/restore coral reefs.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Challenges: • Ensuring generic actions in higher level plans are adaptable to local and regional scales and are able to be modified as new research and circumstances change.			
PL4 **Clear, measurable and appropriate objectives** for management of biodiversity have been documented	3	• As is standard practice in planning, most planning documents identify clear, measurable and appropriate objectives (refer PL2, PL3). • Reef 2050 Plan includes 20 objectives for the Reef. Many objectives refer to the Reef being 'healthy' and/or 'resilient'. The objectives apply from local to Reef-wide scales. The objectives are designed to be measurable, interpretable, sensitive to scale and reliable. Relevant objectives from the Reef 2050 Water Quality Improvement Plan 2017-2022 have been incorporated into the Plan's objectives. • The Reef 2050 Objectives and Goals 2021-2025 explores the Reef 2050 Plan's objectives in more detail, explaining their meaning and relevant indicators. Examples of objectives include, coral reef habitats maintain good condition and resilience (indicators include percent of hard coral cover, coral disease per unit of coral cover etc); populations of seabirds and shorebirds are healthy etc. Challenges: • Ensuring that all objectives (and goals) have greater clarity to enhance transparency and enable effective monitoring of outcomes from plans and other documents.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PL5 There are plans and systems in place to ensure appropriate and adequate **monitoring information** is gathered in relation to biodiversity	3	• *"Our broad knowledge of the Reef has improved. The Reef is a massive system to monitor and we are doing OK"* (Workshop participant 2023). • There are over 90 monitoring programs related to biodiversity within the Region. – They monitor *"the effect of impacts on biodiversity…the missing link is attribution of those effects to one or more impacts (including cumulative impacts)"* (Workshop participant 2023). • Existing monitoring represents about 40% of the environmental regimes of the Reef (Mellin et al. 2020, Bozec et al. 2022). • Monitoring and Evaluation Plan (Reef Trust Partnership). • Reef 2050 Integrated Monitoring and Reporting Program (RIMReP) is a key initiative of Reef 2050 Plan. It will establish a framework for standardised and integrated ecological, social and economic monitoring in coastal and marine areas. It will focus initially on establishing an integrated monitoring program for the WHA. The aim is to develop a framework that could be adapted and applied to other coastal and marine regions in the future. RIMReP draws on existing monitoring programs (refer below). – **The first phase** of RIMReP systematically identified critical monitoring activities needed to support an integrated program (ended June 2019). – Through **Phase 2** of the Reef Trust Program (RTP), funding was available (through Great Barrier Reef	Water Quality Improvement Plans Reef 2050 Long-term sustainability plan Reef 2050 Plan – Implementation Strategy Regional Report Cards (addresses the condition of waterways): Gladstone Healthy Harbour Partnerships Report Card Mackay-Whitsunday-Isaac Healthy Rivers to Reef Partnership Report Card Wet Tropics Healthy Waterways Partnership Report Card Dry Tropics Partnership for Healthy Waters Report Card Fitzroy Partnership for River Health RIMReP Web pages RIMReP Business Strategy 2020-25	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Foundation) to make a signification contribution to address priority gaps as identified within the Priority monitoring gaps prospectus: Reef 2050 Integrated Monitoring and Reporting Program (2021). A total of $13.1 million for 11 projects was funded in 2021. The projects cover the biophysical, cultural and socio-economic contexts of the Reef, including inshore dolphins, seabirds, island habitats, including invasive species and seabirds and Reef fish (latest project overview document). Support through the RTP will continue to deliver project outcomes that fill critical monitoring gaps identified during the Program design phase. Includes the Paddock to Reef program. – A centrepiece of RIMReP is the interactive online Reef Knowledge System — providing up to-date information about the Reef to guide effective management decisions. It will show monitoring and modelling data from a wide range of sources in useful and interactive ways. A demonstration site was released in 2020, with further enhancements being undertaken. – A fit for purpose **Data Management System** (DMS) is the critical infrastructure to underpin the successful delivery of RIMReP and related reporting activities, management systems and decision support tools. The scoping phase of the DMS in 2020-21 identified the size, scale and maturity of data sets critical for initial inclusion in RIMReP; defined the infrastructure	RIMReP Annual Business Plan 2022-23 RIMReP Annual Business Plan 2021-22 RIMReP Annual Business Plan 2020-21		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		requirements and environments and the best estimate of ongoing operational requirements. It will collect data and metadata from data providers, store/cache data collections, apply transformations and provide a delivery mechanism through a rich API interface. It will include an interoperable metadata sub-system: an open and easily accessible catalogue, based on standards, of all datasets relevant to RIMReP. The design and build of this fit for purpose DMS for RIMReP will occur over 2022-23 and 2023-24. – '*Do we have all the inputs we need going into the DMS? We have AIMS data and social monitoring data and the like, but little reconnaissance data and more regular citizen science data*' (Interviewee 12, 2023). • The **Reef Joint Field Management Program** - received Reef Trust Partnership funding in 2022 to coordinate three projects funded through the RIMReP: development and deployment of **biosecurity monitoring tools**; **seabird monitoring**; and **Island habitat monitoring** (through the Island Watch Program that gathers data on pest incursions, emerging threats and impacts on key values). – **Island habitat monitoring**: Improving the scale and accuracy of Regional Ecosystem mapping for islands throughout the WHA; conduct fauna surveys on selected island national parks to improve knowledge and enhance the skills of staff and First Nations			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Peoples; increase knowledge of cays within the WHA through geomorphological and vegetation classification of cay subtypes, and assessment of vulnerability to the impacts of climate change; collect contemporary baseline data; and develop a methodology for the ongoing surveillance of the condition of key value. – QPWS delivers management planning for **island protected areas** using the Values Based Management Framework. The first step in this process is a values assessment in which the key values of that protected area and the threats to them are identified. The values are assigned current condition scores desired conditions and broad strategic management directions to get there are established. – The RJFMP Restoration of Reef Islands Project (2020-25) is assessing the condition of *Pisonia grandis* forests and communities in the northern and far northern Reef with special reference to the presence of key threats e.g. urbicola soft scale and its invasive ant mutualists. – The program uses **Health Checks** as a tool for efficiently and routinely assessing the condition of key park values (4748 reef health and impact surveys were submitted by 143 people in 2021–22) and undertakes			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		ongoing **bird monitoring** under the guidance of relevant seabird and shorebird monitoring strategies. – The **Sightings network** uses a smartphone app to enable any user to access Marine Park zoning in real-time and report interesting/unusual sightings (3226 sightings by 321 people were submitted in 2021–22 (Reef Annual Report 2021-2). – **Seabird monitoring**: trialling methods to improve ability to detect population trends and identify reasons for change through more accurate monitoring of breeding pairs and through developing methods to measure fledging success. – **Coastal Bird Monitoring and Information Strategy** 2015 - 2020 provides for the ability to evaluate the status of seabird populations and their demographic trends. Threats to all significant seabird nesting sites in the Reef was compiled as part of a draft report (due June 23) on the adequacy of protection and management of seabird nesting sites by RJFMP. – **Biosecurity surveillance and monitoring tools**: – National Invasive Ant Biosecurity Plan 2018-2028: eDNA - increase capacity for early detection of four invasive ant species (yellow crazy ants, red imported fire ants, electric ants and tropical fire ants) by screening for eDNA in soil samples (with James Cook University); CritterPic – trialling camera box units with a long-life bait system to			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		detect and identify pest rodent species utilising artificial intelligence (with Murdoch University). – Hazard map for the Reef to predict regions with a lower risk of persistent warning and coral bleaching - Oceanographic drivers of bleaching in the GBR (Vol 3) (Klein et al. 2021) and Oceanographic drivers of bleaching in the GBR (Vol2) (Langlais et al. 2021) • AIMS long term monitoring program provides data on coral cover, coral bleaching, COTS numbers, major fish species and benthic organisms. • **Marine Monitoring Program** has provided long-term data on the condition and trend of inshore (within about 10km of the Queensland coast) water quality, coral and seagrass and the land-based run-off pressures that impact on them since 2005. This small part of the Reef is fundamental to support biodiversity, Traditional Owner cultural values, tourism and a range of other uses. Monitors 21 inshore reefs. • **The RJFMP Technology Transformation Program 5-year Strategic Plan** identifies the technology solutions and the trial and implementation of methods to improve biodiversity understanding and management. (e.g. nesting turtle and seabird surveys, island geomorphology change monitoring and COTS surveys and cull planning). • **Ranger BoT** (QUT) and Reefscan (AIMS) developed a modular suite of **automated marine monitoring systems**			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		that translate field data into comprehensive information about the state and health of critical marine ecosystems by employing autonomous surface and sub-surface high resolution benthic survey technologies to survey reef habitats and detect COTS, to inform seagrass, and reef health monitoring, island pest programs and incident response. This will increase the area and depth range of coral reefs and other habitats (e.g. seagrass) that can be surveyed. Data accuracy, precision and collection efficiency can be increased using these systems. The applications are nearing operationalisation stage for implementation. – *Aerial monitoring* – drones deliver real-time perspective on coral reefs, survey shallow, clear-water reef flats, mangroves and provide information on water quality, temperature, coral reef health, bathymetry maps and island mapping e.g. QPWS Marine are implementing drone technology for island mapping, turtle and seabird monitoring, fire management and reef surveys. Further applications and implementation to work programs are underway; – *Autonomous Surface Vessels* – operate in hazardous locations, at night, and cover large areas; can tow sensors, undertake shallow water bathymetric surveys and collect water samples, collect information on bleaching, COTS and other threats; WAM-V (Marine			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Advanced Robotics) – sonar bathymetry surveys and benthic imaging, especially in shallow reef-flats; – *Reefscan Transom* – optical imaging system and AI computing capabilities mounted on a crewed or autonomous surface vessel; user-friendly – enables people to collect and share marine monitoring data without getting in the water; – *CoralAUV* – can navigate physically intricate environments exposed to strong, complex currents; high accuracy cameras and sensors and other instrumentation; enables repeat surveys to inform management. • **Dugong surveys** (James Cook University) - provided through the Reef 2050 RIMReP funding. • **Turtles** (TurtleNet): – **Long term monitoring of nesting turtle** at Mon Repos, Wreck Island through QPWS (Col Limpus): nesting turtles at index monitoring sites: Loggerhead: Wreck Rock, Wreck Island, Mon Repos, etc; Green, nGBR stock: Raine Island, Milman Island; Green sGBR stock: Hero Wreck and Lady Musgrave Islands; Flatback: Curtis, Peak, Wild Duck and Avoid Islands; Hawksbill: Milman Island. Foraging turtles: Hoiock Reefs: green and hawksbill turtles; Port Curtis: green turtles; Moreton Bay: green and loggerhead turtles. – Finalise and implement the **Queensland turtle strategy**. The RJFMP GBR Green Turtle Research			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Program (2020 – 2025; Reef Trust-funded) is filling critical information gaps in our understanding of the population dynamics of northern Reef green turtles through: i) broad-scale aerial surveys of potential nesting beaches in the northern Reef and Torres Strait to determine nesting distribution and abundance; ii) foraging ground population monitoring to define population structure, sex ratio, recruitment and annual abundance of northern GBR green turtle stocks and; iii) satellite telemetry to define habitat use of nGBR adult males during foraging, courtship and breeding migrations. – The Rivers to Reef to Turtles project aims to identify and measure the key pollutants in rivers, the Reef and in green turtles themselves. – A number of marine turtle rookeries along the coast have been identified under the Nest to Ocean Turtle Protection Program for active nest protection and predator control efforts to reduce the threat posed by feral pigs and other predator species. • DES in collaboration with UNEP Convention for Conservation of Migratory Species provides a mapping tool (TurtleNet) for displaying distribution and abundance of **marine turtle nesting, migration data and population trend** that is freely accessible to government agencies and the general public.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Ship of opportunity** – involves a large commercial ship (Rio Tinto), fitted with sensors/collection devices, collecting information as it travels through the Reef shipping channel. The information collected is used to develop models and tools to better understand ocean chemistry. • **Boat-based surveys** have been conducted along the Northern Reef. • DES **Wildlife Threatened Species Operations** coordinates annual monitoring or all species of nesting marine turtles in eastern Australia at the key index sites identified within the Conservation Strategy for Marine Turtles in Queensland - data are collated into the Queensland Marine Turtle Conservation Data Base and displayed to the general community via TurtleNet; trend data from index beach monitoring by species can be downloaded in graphical form using TurtleNet; maintains a relational database (StrandNet) that collates reports of strandings of sick, dead, injured marine Megafauna (Cetaceans, dugong, pinnipeds, turtles) within Queensland with capacity for analysis of distribution, abundance of strandings in response to threatening processes. • Eye on the Reef **program** is run by the Reef Authority for tourism industry staff and the wider community. It captures spatial status information from hundreds of reef locations. Visitors to the Reef collect information about reef health, marine animal and incidents. Tourism operators undertake			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		weekly observations at specific sites providing early warning data (517 site monitoring surveys in 2021-2). • Several non-government-funded research projects are underway (run by the **Reef Foundation**) to complement and add to the monitoring and understanding of condition and trend of biodiversity. The Reef Authority has an MOU with the Great Barrier Reef Foundation to influence and direct some of these projects. See projects currently underway detailed below. • The **Reef Restoration and Adaptation Program** (RRAP) is collaborative long-term research and development program to develop, test and risk-assess novel interventions to help build resilience of the Reef under a changing climate. It aims to develop a toolkit of effective, at-scale Reef interventions that are feasible, safe, acceptable and affordable. The program is currently in the research and development phase. The 'Ecological Intelligence for Reef Restoration' sub-program of RRAP aims to fill key foundational knowledge gaps essential for the interventions – including data on region-, temperature- and species-specific coral life-histories. • **The Outlook Report is updated and published every five years** and includes an assessment of the value, condition, trend, impacts, effectiveness of management and risks of threats associated with biodiversity. • Regional Report Cards. • RAMSAR reporting.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• MERIT provides consistent reporting across all programs, collects data linked to Australia's biodiversity conservation work and displays aggregated program information in publicly accessible dashboards. • IMR RTP Sustainable use and benefits monitoring project (SEABORNE) (2021-2024) - will design a monitoring program to help managing agencies make informed decisions about striking the right balance between sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values. • IMR RTP Integrated Reef stewardship monitoring project (PROTECT) (2021-2024) - will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes. No results yet. • IMR RTP Monitoring collective capacity and implementation (Governance) (2021-2024) - will develop a monitoring framework to assess how these different components of various plans are working together to achieve improved Reef health. No results yet. Challenges • Cumulative impacts monitoring. • Comments from workshop participants (2023) included:			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Ensuring RIMReP provides clear guidance and coordination of monitoring activities, including the needs and methods to ensure the data is compatible with the Reef Knowledge System. Not much has happened since the expert reports and recommendations were developed. – *"We are good at monitoring species to extinction. We need to take this information and connect it to positive action".* – *"High profile species have good monitoring. Elsewhere there are lots of gaps".* – *"If it is not a fisheries species of importance then often nothing is happening in terms of ongoing monitoring".*			
PL6 The main **stakeholders** &/or the local community are **effectively engaged** in planning to address biodiversity	3	• Stakeholders, including the local community, (refer CO5) **are routinely** included in a comprehensive range of planning processes related to biodiversity (refer PL2, which lists major planning documents and instrument and related evidence including strategies and plans that list relevant stakeholder engagement; and PL5 which addresses monitoring and related stakeholder engagement). It is difficult to assess how effective this engagement is, without some form of stakeholder evaluation or assessment process. • **Engagement can involve a spectrum of activities** that require different levels of engagement, timeframes, resources and concern about decisions that are made (IAPP	The Raine Island Reference Group Raine Island Scientific Advisory Group	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		2018, based on Arnstein 1969). For example, engagement in relation to Biodiversity: – 1. Frequently consists of 'informing', i.e. providing balanced, objective information to assist in understanding a problem, alternatives, opportunities and/or solutions: – Targeted education and stewardship programs assist the Reef Authority to establish mutually beneficial relationships with the community and others at all stages of learning. – Threatened Species Operations provides annual training in monitoring of marine turtle populations and nest protection for community Citizen Science volunteers and indigenous rangers at Mon Repos Conservation Park. – Reef HQ Great Barrier Reef Aquarium, the Reef Authority's national education centre for the Reef fosters community and stakeholder behaviour change and participation in actions to address threats to the Reef by ensuring they have a clear understanding of the value of the Reef, the threats to its sustainable future and the actions they can take to protect it. This is primarily done through the Reef Education team's virtual connections program and local community events. – Reef HQ volunteer program.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The Reef Authority's Education, Stewardship and Partnership Section build capacity, partnerships, voluntary compliance and innovation amongst Reef users. – The **Reef Education** team are delivering educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its stainable future and to encourage participation by taking action to address threats to the Reef. – AIMS, JCU and CSIRO address biodiversity issues at the level of species or habitat protection through research and monitoring, and provision of information to address management issues. – **Reef Knowledge System** is available to all stakeholders to raise awareness of relevant Biodiversity issues. – A number of community events are run by Queensland Government Wetlands program including the annual World Wetlands Day on 2 February. – Local governments and a range of sectors (agriculture, fishing, tourism) also inform stakeholders on issues relevant to biodiversity. – 2. often consists of **'consulting'** (to obtain feedback on analysis, alternatives, decisions)			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The Reef Authority Board, Reef Advisory Committees and LMACs comprise diverse stakeholders who provide advice on a range of planning matters related to biodiversity. – Walking the landscape involved a number of stakeholders including scientists, farmers, extension officers, and governments. – **Information/data collection** - through various programs and a range of sources, which informs management decisions and provides evidence-based advice to the government, the public and stakeholders. Information is shared with various stakeholders, through publications such as the Reef summer snapshot and Marine Monitoring Program reports, along with briefings and engagement opportunities. – There is a high-level regulatory requirement for stakeholder engagement and education through zoning plans, policy and Plans of Management, e.g. **public submission requirements** exist for policy development and public meetings for site planning. – Development of new southern POM will include formal public consultation and targeted consultation with to address a range of biodiversity issues.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Local governments and a range of sectors (agriculture, fishing, tourism) also consult stakeholders on issues relevant to biodiversity. – 3. **may incorporate 'involving'** (work directly throughout the process to ensure relevant concerns/aspirations are understood and considered) – **RJFMP partners** with the Queensland Wader Study Group, Traditional Owner Groups and Birdlife Australia on their seabird and shorebird programs. – **Trained community volunteers and indigenous rangers** may be provided with Turtle Conservation Collaborating Partner Authorisation to facilitate their application of the training in turtle conservation actions within their home beaches. – The Science and Knowledge Needs facilitates discussion between scientists and Marine Park managers about scientific projects that will help inform Marine Park management, especially high priorities. – Major Integrated Programs – Burdekin and Wet Tropics aim to reduce nutrient, sediment and pesticides loads into waterways in the Wet Tropics and Burdekin regions. Both groups have been engaged on behalf of a broader consortium			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		of partners, including industry groups, science institutions, and non-government organisations. – **Master Reef Guides Masterclasses** bring together key stakeholders and community to work with tourism operators and their guides to deliver current best practice tourism operations. Master Reef Guides are trained to a high standard and present the Reef's values, including its biodiversity, to the community and tourists regularly. – **RIMReP partners** provide a forum for cross-agency advice, coordination and input, including stakeholder advice. – LMAC supported projects. – Reef Guardians, including Reef Guardian Councils. – Eye-on-the-Reef. – Local governments and a range of sectors (agriculture, fishing, tourism) also involve stakeholders on issues relevant to biodiversity. – 4. less frequently involves 'collaborating' (partnering with relevant groups in each aspect of the decision – developing alternatives, identify preferred solution) and 5. "empowering' (to place final decision-making in the hands of others. – TUMRA Traditional Owners are engaged with the Reef Authority in planning and on-Country work.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		However, the links from the community, through their coordinators to the Reef Authority and relevant committees and boards could be strengthened. Non-TUMRA groups are less well engaged, lacking capacity and resources to access country and undertake planning and management. – Tourism operators work collaboratively with the Reef Authority to ensure best practice outcomes for biodiversity (refer Commercial Marine Tourism, Table 35). • Challenges – 'Deep, meaningful, respectful and consistent engagement with each community is essential. And it must be tailored to their specific characteristics … and (provide) real empowerment' (Chubb 2023:3). – Ensuring on-going and effective engagement with Traditional Owners. – Staff shortages limit the ability of Reef Authority officers and staff, including rangers to engage with stakeholders more fully. – COVID-19 impacted on the ability of rangers to access remote communities and undertake relevant work in relation to planning and Traditional use of marine resources.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PL7 **Sufficient policy** currently exists to effectively address biodiversity	3	• Refer PL2 where a range of policy documents are discussed (refer evidence also). • **Planning and Policy Roadmap** – will focus the Reef Authority's efforts to deliver a proactive, contemporary and risk-based approach to Marine Park policy, planning and regulation that will protect key values and enable ecologically sustainable use for a changed and changing Reef. This includes assessment and rationalisation of Reef Authority policies. Challenge: • Developing more effective policy in relation to climate change at a whole of government level that can inform action to enhance biodiversity outcomes for the Reef (refer Table 33). This may require consideration of more transformative governance and policy outcomes.		Adequate	Stable
PL8 There is **consistency across jurisdictions** when planning for biodiversity	3	• There are multiple actors and levels of planning related to biodiversity (refer CO5, PL6, PR1 about stakeholders) and hence multiple jurisdictional considerations. • The Intergovernmental Agreement for the Reef is the overarching coordination document ensuring consistency across jurisdictions. Schedules attached to the IGA provide for **consistent management for the RJFMP, fisheries and the** Reef 2050 Plan. There are many examples of consistency (e.g. complementary zoning, joint permitting, plans of management, port management plans, defence environmental planning, shipping planning).	RIMReP program governance RIMReP Business Strategy 2020-25	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Permits Online – recent enhancements allow for greater consistency and efficiency for permit applications including development of six Routine (standardised) permit examples for low-risk activities. Updated permission system policy and new guidance documents. • *Lack of consistency* is experienced in relation to the Queensland Fish Habitat Zone and Marine Park Authority Habitat Protection Zone. • Comprehensive strategic assessment provides strong alignment for planning. There are improved Assessment and decision guidelines. • The Reef 2050 Integrated Monitoring and Reporting Program (RIMREP) vision is to develop a knowledge system that enables resilience-based management of the Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing, i.e. progress towards targets and objectives under the seven themes. It takes place across jurisdictions from Paddock to Reef, including monitoring and reporting for paddock, catchment and marine. – The Paddock to Reef Integrated Monitoring, Modelling and Reporting program (Paddock to Reef Program) reports on the Reef 2050 Water Quality Improvement Plan targets and objectives. It takes place across jurisdictions from Paddock to Reef, including monitoring and reporting for paddock, catchment and marine.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– RIMReP's Reef Knowledge System and the Data Management System, aims to assist the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement – The RIMReP governance groups oversee the Program, setting strategy and direction and managing risk. Partners signed a RIMReP Collaboration Statement. **Challenge**: • "*Some gaps remain, particularly with local governments and catchment planning groups*" (Interviewee 2023).			
PL9 **Plans** relevant to biodiversity provide **certainty regarding where uses may occur**, the type of activities allowed or specifically disallowed, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.	3	• Refer PL2 for a discussion of key plans relevant to biodiversity (and related evidence). • **The zoning plans** (Reef Authority and GBRCMP) aim to provide certainty for what activities can occur in what zones. **Activities that require a permit** (e.g. **ports, dredging, pontoons, tourism** programs) are assessed on a case-by-case basis. – 'Caps' on certain activities are only enforced through an assessment where a site plan/plan of management exists. In those cases, the main type of activity managed in any 'cumulative manner' is tourism visitor numbers, vessel size and pontoons in high tourism areas. – Permits have spatial restrictions in their core matters, and additional conditions may be included based on the risk assessment of impacts of that activity.	Activity Assessment - Activity not mentioned or considered in the preparation of a Plan of Management (2021) Activity Assessment - No or low adverse impact activity under clause 2.3B of the Whitsundays Plan of Management 1998 (2021) Types of Permissions Fact Sheet (2022) Research Permissions Fact Sheet (2022)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Therefore, through the permissions system, 'circumstances where impacts are likely to be acceptable' are generally considered as part of the assessment processes. – Cumulative impacts of multiple permits are considered/addressed through site plans/site management arrangements. • **Scientific research**, especially around research stations is also managed on a case-by-case basis. Research station manages are engaged in site management in the relevant scientific research zones through joint Marine Parks permission system referrals. Conditions may be added to the permit, where appropriate to spatially and/or temporarily limit research activities. Station managers separately collect research activity information at the various sites/ – The Reef Authority also requests research collection reports. Current research take is generally unknown and is an identified gap (Workshop participant 2023). – All research permit activity reporting is done through Permits Online, generating a searchable database on reported take (or other research activity). – The Reef Authority is entering historical reported research activity data to integrate into a database and this may help in the assessment of cumulative take (Workshop participant 2023).	Fisheries Permissions Fact sheet (2022)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The joint Marine Parks permissions system provides better clarity to Permit applicants. – Permits Online - a new online portal to submit applications and manage all permissions and contact details; enhancements allow greater consistency and efficiency for permit applications, including development of six Routine (standardised) permits for low-risk activities. – Review of over 1,100 standard conditions in permit templates undertaken to ensure conditions are consistent, contemporary, enforceable, relevant and easy to understand for permit holders (2019-22; planned completion June 2023). Of these 1,100 conditions, 50 conditions related to commercial harvest fisheries will be reviewed. A jointly approved internal procedure with QPWS has been approved in 2022 to ensure the periodic review of conditions continues following completion of this work. • Preservation zones, dugong protection areas provide restrictions on activities that may impact on areas of particular biodiversity significance. – Updated and new guidance documents and permission system policy e.g. Policy on Great Barrier Reef interventions; Draft Artificial Reef Guidelines; a series of easy to read fact sheets for the permission system (e.g. types of permission, research, and fisheries).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Updated checklist of information required at the time of permit application. – Longer permit terms up to 20 years. – Improved Assessment and decision Guidelines (2019) – guidance about the application and interpretation of legislation and policy relevant to assessing and deciding Marine Park applications to use and enter the Marine Park. Targeted at Reef Authority staff and applicants, permission holders and the general public. The aim is to ensure decisions within the permission system are fair, transparent and consistent and contribute to achieving the objects of the Marine Park Act. – Two flexibility Guidelines - to assist with the assessment of new activities not previously considered in Plans of Management. • Four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi) have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. Challenge: • Ensuring flexibility in plans (i.e. in relation to where uses may occur) as the Reef changes as a result of climate change impacts.			
INPUTS					

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN1 **Financial resources** are **adequate and prioritised** to meet management objectives to address biodiversity	3	• Funding progress related to Reef 2050 Plan's biodiversity commitments are difficult to determine, with some lack of transparency in tracking not only government funding allocations, but also those from other management organisations and industry sectors. Assessing adequacy and prioritisation are difficult. • Increasing funds have been allocated by the Commonwealth Government to address a range of matters affecting the Reef. Adequate financial resources are needed to halt and reverse the downward trend in reef health, improve biodiversity knowledge and increase understanding of factors impacting on biodiversity and ecosystem processes. • The largest of the Commonwealth Government's environment measures in the 2022-23 budget is a $1.2 billion investment over nine years (to 2029-30) in the Reef (David & Bathgate 2023) – the. Previous funding amounted to $2.1 billion from 2014-24. Key components are listed below. What is missing from this tranche of money is **the absence of specific additional commitments to address climate change**, the key driver of reef decline (although perhaps some of the research funding may be applied to this). - $421.5 million is committed to 2025-26. - $30 m (2021-23) going to the Reef Trust Special account for Reef 2050 Plan.	Reef 2050 Integrated Monitoring and Reporting Program All Reef Trust investment Strategies Biodiversity Offsets Policy Reef Trust offsets calculator Field Management Plans Field Management Program Annual Report Summary Documents Australian Government Reef Program Reef 2050 Plan investment framework Reef Island Refuge Initiative Reef 2050 Plan – Implementation Strategy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		- The package focuses on (refer Budget measures: Budget paper no. 2): – **Water quality improvement** ($579.9 million) to reduce run-off and meet WQIP targets (refer Table 42); – **Reef management and conservation** ($253 million) for COTS control program ($161.4 million); remaining funds allocated to the Reef Authority to aid compliance and enforcement of regulations, expansion of TUMRAs and enhancing Traditional Owner engagement in Reef management; and reactivation of the Tourism Industry Activation and Reef Protection Initiative – supporting 17 tourism operators contracted to conduct site stewardship activities (e.g. coral healthy surveys and COTS control). – **Reef restoration and adaptation** (directed via the Reef Trust): $85m over 8 years for interventions at the reef scale aimed at artificially engineering reefs that are more resilient to warmer ocean temperatures e.g. seeding reefs with larvae of corals that show adaptation to warmer water and marine cloud brightening (to generate larger and more reflective clouds over the ocean to cool the water underneath; unspecified funding for research under the Reef 2050 Long-Term Sustainability Plan.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Strengthening partnerships and stewardship**: for Traditional Owner and community led projects ($35.9 million) including reef protection projects; investment in fisheries catch monitoring and validation; and other undeclared projects. • Other funding in this package includes: – $63.3 million to support research by AIMS, which includes: – $37.1 million over three years from 2021-22 to increase research capability – $26.5 million to remediate AIMS' Cape Cleveland wharf (south of Townsville). – $12.4 million to the Reef Authority to extend fee relief to local tourism businesses in the Marine Park impacted by Covid-19. • Reef Recovery 2030 fundraising campaign (Reef Trust Partnership) – aims to scale private investment in Reef protection efforts using the initial Australian Government grant as leverage to attract corporate partners and philanthropists. As of June 2022, $240m has been leveraged (67% of the target identified in the Collaborative Investment Strategy). • **Previous funding** (prior to 2022-23 FY) – The **Technology Transformation Program** is funded internally on an annual recurring basis for operations and capital. A further $1.5M for 2021-23 is provided for the AIMS/QPWS shared benthic survey technology			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		development project, mooring systems technology solutions and field monitoring technology solutions. – In 2022 the RJFMP finalised its five-year expansion implementing 12 key investment areas. Government base funding has doubled over five years from $17m to over $38m (Reef Annual Report, 2021-22). This will support up to 194 Program–funded staff, a fleet of 22 vessels and an improved capacity to deliver field operations and respond to incidents. – In 2022-23 the RJFMP will have oversight of over $60 million (around 31% is from other sources of funding). The anticipated RJMP funding available is $41,538,138. In addition the Program will oversee an anticipated $18,613,311 in funding from a number of other sources on behalf of QPWS and the Reef Authority. – Reef Restoration and Adaptation Program (RRAP) involves diverse partners to help resist, adapt and recover from impacts of climate change. The program supports 34 muti-institutional projects. $104.5 million is available through the Australian Government Reef 2050 budget for prioritised Reef 2050 Plan actions (through Reef Trust), and the Reef Foundation and research partners ($50 million), with a further $92.7 million committed over the next eight years. – Significant financial resources being allocated to addressing major threatening processes impacting on			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		biodiversity such as water quality, COTs and coral bleaching. – **COTS Control Program** (2012 to June 2020) - the Australian Government committed to invest $34.5 million; program aims to protect coral (with the majority of sites valued highly for tourism); included investment in culling vessels. A '**COTS strategic management and contingency plan'** has been drafted and is expected to be approved by the Reef Authority by the end of 2023. – Resources significant for water quality improvement through Reef Plan, management of COTS, but scale and scope of these impacts is whole-of-Region and very large. – A $225 million **Reef Trust** - delivered by the federal government in collaboration with Queensland government - to manage the Reef. – **Offsets** delivered through the Reef Trust aim to deliver an environmental outcome that maintains the condition of the impacted MNES. Offsets are required under the EPBC Act and associated Environmental Offsets Policy. (Note: there are no activities within the Marine Parks boundary that have been permitted and required offsetting). – **Considerable financial resources** are allocated to improve biodiversity knowledge and increase understanding of factors impacting on biodiversity and ecosystem processes through institutions such as			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		AIMS, National Ecosystem Research Program, Regional NRM bodies, Great Barrier Reef Foundation and other Commonwealth and Queensland Government programs. – Australian Government Reef Program – has six integrated components within the Reef catchments including: Water Quality Grants and Partnerships; Systems Repair and Urban Grants; Water Quality Monitoring and Reporting and Research and Development; Land and Sea Country Partnerships; Reef Authority Reef management system and reef resilience programs; Reef Island Refuge Initiative (island arks) (a network of climate change refuges will be established on five Reef islands (Australian Government has contributed $5 million for five years to this $14 million, 10-year program). Challenges: • "*We have good understanding (of biodiversity) and enough plans, but we don't have sufficient finances and staff resources to implement all of this*" (Workshop participant 2023). • "*Big dollars are needed. The cost of fixing biodiversity is high and the scale is big*" (Workshop participant 2023). • "*It will take decades to bring the Great Barrier Reef back to the resilience we would like…We need to maintain representative species and ecosystems in the decades to come…We are finding ways to enhance the recovery of*			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		some species (e.g. turtle) and systems (e.g. coral reefs) *while we deal with bigger problems such as climate change…We should have more emphasis on how to deal with issues today and take action to keep species and systems functional, while the bigger picture is corrected*" (Workshop participant 2023).			
IN2 **Human resources** within the **managing organisations** are adequate to meet specific management objectives to address biodiversity	3	• This indicator addresses the capacity of all the actors/managers to set and deliver policies, programs, instruments, programs and other activities to achieve the desired outcomes related to biodiversity. There is no overall monitoring of this indicator across all relevant Reef 'managing organisations' and it is difficult to assess effectiveness. • Based on the 2022 review of the RJFMP, increased joint base funding will now support up to **194 Program–funded staff**, including an improved capacity to deliver field operations and respond to incidents. Recruitment to the final 34 Program positions will be completed in 2023. • Since 2019 Reef Authority efforts have been refocussed to **priority management areas** (which encapsulate aspects of biodiversity), including: – Sustainable fishing (3 FTE) – Larger and stronger policy and planning section to support reforms (16 FTE and 9 temporary FTE staff) – Strategic advice (2 FTE) e.g. policy and position statements	`	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Reef intervention (4 FTE and 6 temporary FTE staff) and – Reef conservation actions (4FTE and 3 temporary FTE staff) – Tourism Reef Protection Initiative (3 temporary FTE). • Permits Compliance Team has maintained 3 x FTE staff. The team manages non-compliance on a daily basis through the implementation of the My Case Manager System and complimentary Managing Permissions Non-Compliance Procedure that were both effective from February 2021. • Other resourcing across the agency remains (since 2019) committed to meeting specific biodiversity management objectives, for example: – Environmental Assessment and Protection (permissions) section Science for Management section – Douglas Shoal Remediation section – TUMRA section **Challenge**: • Understanding human resourcing issues within all managing agencies that address biodiversity e.g. regional bodies, relevant industry sectors, research institutions.			
IN3 The **right skill sets** and expertise are currently available to the **managing**	3	• Skill sets vary across the managing organisations. However, as there is no overall monitoring of this indicator across all relevant Reef 'managing organisations' it is difficult to assess effectiveness.	eReefs Permission Systems and Compliance Program	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
organisations to address biodiversity		• Staffing within the Reef Authority has increased (referIN1, IN2). In 2022 the RJFMP implemented 12 key investment areas that arose from the 2017 periodic review of the Program. The review considered the skill set required to effectively manage the Reef. Increased joint base funding will now support up to 194 Program–funded staff. This will provide an improved capacity to deliver field operations and respond to incidents across the Reef. • Key **skill sets within the Reef Authority** include: – *chief scientist* (1 FTE) – *dedicated Science for Management section* (15 ongoing FTE and 5 temporary FTE) that focuses on increasing the Reef Authority's access to knowledge (socio-ecological) about the Reef through monitoring, interactive knowledge systems and evidence-based science communications. This includes: two dedicated Natural Scientists who engage regularly with natural scientists at numerous institutions (e.g. AIMS, JCU, CSIRO, UQ); two dedicated Social Scientist who engage regularly with social-ecological scientists at numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science Community for the Reef and Reef 2050 (Human Dimensions consortium) – Some report that the **Reef Authority does not have inhouse skill sets for making decisions in circumstances of high uncertainty** (e.g. due to climate			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		change) and that this limits the Reef Authority's ability to work effectively with a range of research-focused organisations (Interviewee 10, 2023). – There have been general challenges over the past two years (during Covid-19) in recruiting to positions at the Reef Authority. Many positions (including some described above) have remained vacant as a result (Workshop participants 2023). – Within the Reef Authority the biophysical science skills are adequate for planning and management tasks. Within the permitting area the Reef Authority's staff do not always have the necessary skills to assess applications (Interviewee 10, 2023). However, there is extensive collaboration with relevant scientists in AIMS, universities and CSIRO. – Refer to PR5 relating to training to improve the skill sets required to manage the Reef. • **Research and monitoring** skill sets are mostly secured through contractual arrangements with universities, AIMS, CSIRO, and consultants but specialist skills are required and available for project design, monitoring, evaluation, improvement and reporting. • Some **specialist skills have been lost** (e.g. taxonomy) and are not being readily replaced. • Agencies generally have the right expertise/skill sets reflected in position descriptions. **Challenge:**			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Retaining and attracting staff at all levels within the Agency and skilling staff for making decisions in circumstances of high uncertainty (e.g. in relation to climate change and related impacts on biodiversity).			
IN4 The necessary **biophysical information is currently available** to address biodiversity	3	• Extensive biophysical information is currently available (refer CO2, CO3, CO4 including evidence). "*The Reef is one of the most monitored coral reef ecosystems in the world*" (Workshop participant 2023). • Gaps in biophysical information are being identified, as outlined below. 'Better data and information are needed to set clear outcomes, effectively plan and invest' (Samuel 2020 – EPBC Act Review). • The information base for biodiversity management is slowly improving through research (based in universities and a range of research organisations) and investment into a number of programs (e.g. RJFMP), citizen science and a range of projects (refer IN1 where recent announcements have been made for investment in biophysical information to 2029-30). • The Australian Academy of Science (2023:34) notes that new interventions to address biodiversity in a climate-changed future 'will require expanded monitoring and modelling' to support decision making. Resilience indicators to be captured in future monitoring programs could include impacts of ocean currents, multiple and cumulative stressors, intensity of extreme events and the scale of and uncertainty in modelling.	Great Barrier Reef Strategic Assessment Report (Chapter 7, Section 7 – gaps) Improved dredge material management for the Great Barrier Reef Region: To provide improved information on which to base dredge spoil management decisions for the five major ports and one marina in the Great Barrier Reef World Heritage Area. Identification of impacts and proposed management strategies associated with offshore ship anchorages in the Great Barrier Reef World Heritage Area: To identify current and potential future environmental impacts of offshore anchoring for the	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Traditional Owner knowledge** relating to biodiversity is increasingly available to managers. Indigenous Ranger programs and strengthened communication between managers and Indigenous people through Land and Sea Country Partnership Program have improved the quality of biodiversity information. However, Samuel (2020) recommends reform to ensure Indigenous Australian are 'listened to'. The Australian Academy of Science (2023:34) calls for greater Indigenous participation 'to address the decline of GBR values in a more profound and connected way, using a collaborative approach founded in Traditional Knowledges.' • The **Scientific Consensus Statement** will be finalised in 2024. It synthesises current peer-reviewed scientific evidence pertaining to the water quality issues (including land-based run-off) in the Reef; and informs a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. It will identify knowledge gaps and limitations in the peer-reviewed scientific evidence, which will inform future iterations of the Reef 2050 Water Quality Research, Development and Innovation Strategy. It involved extensive consultation with policy, management, experts and stakeholders to identify and prioritise a series of specific questions (rather than broad chapters), that frame the scope of the evidence being gathered.	five major ports in the Great Barrier Reef World Heritage Area and potential management options. Coastal Ecosystems Assessment Framework http://www.gbrmpa.gov.au/__data/assets/pdf_file/0003/28254/Coastal-Ecosystems-Assessment-Framework.pdf: examined ecosystem services provided by coastal ecosystems in seven basins, impacts (present, past and future), and identification of areas important for protection or restoration. (provided) Integrated monitoring framework for the Great Barrier Reef World Heritage Area *(NESP funded)* Informing the Outlook for Great Barrier Reef coastal ecosystems (technical report on the		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• RIMReP aims to coordinate and integrate Reef-based monitoring and modelling programs and to develop a knowledge system that enables resilience-based management of the Reef so that mangers can easily access up-to-date information to inform management and reporting, including in relation to how the Reef 2050 Plan is progressing. The six priorities include: governance and program management; science; collecting information; accessing information; guiding management actions; and informing Reef 2050 and Outlook reporting. • The Priority Monitoring Gaps prospectus (2021) provides an overview of the priority monitoring gaps identified to support the implementation of the RIMReP. The gaps have been prioritised based on their utility to assess progress against the Reef 2050 Plan and to inform management of the Reef. The prospectus identified **11 priority monitoring gaps** for further investment including some related to biodiversity. These gaps have since been funded by the Reef Trust Partnership and RIMReP Partners (e.g. RTP-IMR Projects). Priority projects, all of which are relevant to biodiversity, include (estimated cost in brackets and funded by the Reef Trust Partnership and RIMReP Partners) include: – **Fish monitoring** ($9890K) – species of recreational, commercial, biocultural and ecological significance, including sharks and rays.	status of the catchment and the threats it faces). AIMS LTMP Reef Monitoring - AIMS RIMREP Significant Impact Guidelines 1.1 - Matters of National Environmental Significance /marine-turtle-conservation-strategy Significant Impact Guidelines 1.1 - Matters of National Environmental Significance Reports - Reef Restoration and Adaptation Program		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Inshore dolphin monitoring** ($900K) – distribution, threats, population demography and dynamics (includes snubfin and humpback dolphins) – **Sea cucumber monitoring** ($1,550K) – distribution, population demography and dynamics – Island habitat monitoring ($1,050K) – condition and trend of key values – **Biosecurity monitoring** ($900K) – early detection of pest flora and fauna incursions on islands and pest presence on vessels – **Seabird** monitoring ($1,250) – distribution, threats, population demography and dynamics – **Condition and recovery capacity** of the Reef ($790K) – indicators and framework to measure condition and recovery capacity of coral reef habitat – **Sustainable use and benefits** ($690K) – impacts of human use, vulnerability of Reef dependent and associated industries and users to changes in Reef health; benefits – **Stewardship** for the Reef ($725K) – actions reef users are taking to reduce negative impacts, stewardship activity outcomes, community engagement – **Governance** for the Reef ($625K) – policy and program coherence, impact and outcomes, community involvement and satisfaction, use of integrated knowledge sets including Traditional Owner knowledge			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Implementing the Strong People Strong Country framework ($1400K) – indicator selection, data capture and sharing protocols, co-interpretation of data. • The Reef Restoration and Adaptation Program (RRAP) is a collaborative long-term research and development program to develop, test and risk-assess novel interventions to help build resilience of the Reef under a changing climate. The RRAP aims to develop a toolkit of effective, at-scale Reef interventions that are feasible, safe, acceptable and affordable. The program is in the research and development phase, whereby interventions identified in an initial feasibility study are being developed, tested and risk assessed. As the program progresses, the focus may shift to deployment of larger-scale interventions. The Reef Authority are observers on the RRAP Steering Committee and the Board (refer IN1 for recent announcements on funding for RRAP to 2029-30). – There is broad agreement that conventional approaches (e.g. networks of protected areas, and a focus on local protection measures) are unable to mitigate global pressures. The knowledge to be gained through RRAP is essential to guide future management actions at a range of scales. '…success requires a new way of collaboration among scientists and the community' (Bay et al. 2023:5) (refer IN6).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Knowledge System hosts an internal-only interactive dashboard, the **Resilient Reefs Network Guidance Tool**, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park. – Links to biodiversity datasets for Queensland and the Reef from various reliable sources are publicly available via the Reef Knowledge System. It is the 'first stop shop' for up to-date information about the Reef to guide effective management decisions in a rapidly changing world. The Reef Knowledge System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken. – Monitoring the Great Barrier Reef provides links to up-to-date and accurate information: – **Reef Dashboard** – status and trends for individual reefs and regional summaries – **Reef reports hub** – reports and summaries on the state of the Reef – **AIMS Long term monitoring program** – long term monitoring data – **Monitoring reefs close to the coast** – data on inshore reefs			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– How we survey the reef – processes used and manuals. • Refer PL5 – Reef Knowledge System and Resilient Reefs Network Guidance Tool • Science and Knowledge Needs for Management (2021) aims to ensure scientific activities are relevant, targeted to address critical management issues, and that scientific outputs are easily accessible. The priority information needs form the focus of specific collaboration opportunities with science and knowledge providers. The document is supported by an interactive web-tool located on the Reef Knowledge System which identifies the specific collaboration opportunities and can be updated as needs are addressed or new needs identified. • The Queensland **Marine Turtle Conservation** Strategy identifies gaps in knowledge and prioritises actions for each stock/species. DES Threatened Species Operations provides most of the leadership in marine turtle monitoring, research and management advice. • eReefs aims to deliver **Reef water quality** information, enabling anyone to track the effects of storms, cyclones, floods, and other impacts on the Reef. The status of this is unclear, with some interviewees indicating that this was "not working". • New **Reef habitat mapping layers** have been developed: geomorphic, benthic, bathymetry and Sentinel mosaic maps are available on the Reef Knowledge System.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		However, there is a **lack of comprehensive habitat mapping across the Reef** and this has potential to limit effective planning and management. • National Environmental Science Program incorporates several research projects focused on managing the impacts of climate change, improving coral condition and compiling research efforts on COTs. – Resilience-Based management tools for the Great Barrier Reef (Mason et al 2020) (NESP Project 4.5): – Areas less impacted by disturbance can help other parts of the reef regenerate by supplying new coral larvae. Key source reefs in the Great Barrier Reef that are strongly connected to much of the reef but have a relatively low risk of experiencing coral bleaching or COTS have been identified. The top 100 key source reefs can disperse larvae to nearly half of the reefs within a single summer spawning event. – Field assessments are used to supplement the modelling data. A new citizen science initiative, the annual Great Reef Census (2020-23) is operational (by 2023, 510 (15%) of reefs surveyed; 4100 surveys completed; nearly 80,000 images collected; over 100 vessels and operators involved). Anyone can collect photos, share them and have them analysed, providing timely data to scientists and managers.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The project aims to develop tools to assist managers determine which interventions provide the greatest benefit in supporting ecosystem resilience. – Recommendations to maintain functioning of the Great Barrier Reef (Wolfe et al. 2019) (NESP Project 4.6) – Identifies taxa of functional importance; taxa and processes of outstanding value and/or threat; recommendations for enhanced and targeted protection; and informed scenarios for knowledge gaps, future research and management. – While there is room to increase monitoring the report found that current initiatives "effectively capture key groups with benefits to reef function" (Wolfe et al. 2019:4). – Knowledge gaps included: invertivory – a poorly understood link in the trophic chain; calculating the carbonate budget for the Reef; microbial communities; spatial patterns and functional impacts of recreational spearfishing; and juvenile COTS. • RJFMP, with JCU, is coordinating Reef Trust Partnership-funded work to *classify cays* based on their geomorphology and vulnerability to sea level rise. • Research funded by the Australian Government (2020) aims to improve understanding of marine heatwaves and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		provide advance warning of extreme weather events that can impact reefs, fish stock, migration patterns and biodiversity. This will assist marine decision makers prepare for rapid responses based on real-time observations as marine heatwaves evolve Challenges and key gaps in biophysical information include: • '*There is a wealth of knowledge out there, but when we start to apply this, we see that there are gaps – things that we don't understand'* particularly in relation to the uncertainty surrounding the impacts of climate change. '*The governance framework needs to be better'* (Interviewee 2023). • Australian Academy of Science (2023:20) identify a range of gaps: – Ecological knowledge related to fundamental ecosystem functions and processes – Individual species' interactions, tolerance to change, biological thresholds and ability to adapt – Effects of multiple or combined stressors – Climatological understanding of the impacts and intensity of future events – Uncertainty in models and the scale of modelling – The recovery potential and ecological functioning of new, low-coral-cover systems • Knowledge on ecosystem interactions, connectivity and potential tipping points, and species adaptations or			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		thresholds (e.g. what a loss of coral will mean for the ecosystem and ecosystem services). • Ensuring knowledge richness in relation to biodiversity i.e. incorporation of a wide range of diverse knowledge sets across multiple sectors - integration and co-production of knowledge can enhance biodiversity outcomes, ecosystem management and governance through generating 'enriched' understanding of particular issues • Inshore dolphins, snubfin dolphins, sharks, rays, long-lived sparse species (e.g. marine megafauna) and non-charismatic or taxa of no apparent economic value are poorly known • mesophotic reefs and deep-water habitats • **ecosystem processes and functioning and functional redundancy** in the Reef ecosystem (exceptions exist for some herbivores), including ecological processes such as groundwater inflows, sinks/sources • connectivity and trophic interactions and implications of deepwater upwellings, planktonic/larval movements • far north of the Reef • uncertainty around biodiversity condition (especially for some elements of biodiversity) due to impacts of climate change (bleaching events, cyclones) • addressing cumulative impacts • integration of knowledge across managers/management agencies and at multiple spatial scales, including			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		integration the perspectives of Traditional Owners and western science.			
IN5 The **necessary socio-economic** information is currently available to address biodiversity	3	• *'Continuing improvement in information and how it is pulled together and made accessible… As managers we can go to a data space to get the information we need'* (Workshop participant 2023). • *'Social science information for the Reef is improving. People are talking to each other. Before we had nothing like this'* (Workshop participant 2023). • **RIMReP** aims to coordinate and integrate Reef-based monitoring and modelling programs and to develop a knowledge system that enables resilience-based management of the Reef so that mangers can easily access up-to-date information to inform management and reporting, including in relation to how the Reef 2050 Plan is progressing. It is a partnership involving Australian and Queensland government entities, with Traditional Owners (four members sit on the RIMReP). The Governance groups provide guidance and advice on cultural, social, economic, and other matters, engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision. The six priorities include: governance and program management; science; collecting information; accessing information; guiding management actions; and informing Reef 2050 and Outlook reporting. • Priority Monitoring Gaps prospectus (2021) provides an overview of the priority monitoring gaps identified to	The economic and social impacts of protecting the environmental values of the waters of the Capricorn and Curtis Coasts Deloitte Access Economics Report Economic contribution of the Great Barrier Reef NESP projects: Project 4.11 – Review of sources, transformations and fate of particulate and dissolved organic carbon – implications for the GBR (2018) Project 4.12 – Measuring cost-effectiveness and identifying key barriers and enablers of lasting behavioural change in the cane industry (2021) Tropical Water Quality Hub	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		support the implementation of the RIMReP. The gaps have been prioritised based on their utility to assess progress against the Reef 2050 Plan and to inform management of the Reef. The prospectus identified **11 priority monitoring gaps** for further investment including some related to biodiversity. These gaps have since been funded by the Reef Trust Partnership and RIMReP Partners (e.g. RTP-IMR Projects). Priority projects, relevant to socio-economic issues, include (estimated cost in brackets and funded by the Reef Trust Partnership and RIMReP Partners): – Sustainable use and benefits ($690K) – impacts of human use, vulnerability of Reef dependent and associated industries and users to changes in Reef health; benefits – Stewardship for the Reef ($725K) – actions reef users are taking to reduce negative impacts, stewardship activity outcomes, community engagement – Governance for the Reef ($625K) – policy and program coherence, impact and outcomes, community involvement and satisfaction, use of integrated knowledge sets including Traditional Owner knowledge – Implementing the Strong People Strong Country framework ($1400K) – indicator selection, data capture and sharing protocols, co-interpretation of data. • **Social and Economic Long-Term Monitoring Program (SELTMP)** is being continually upgraded. Time series data:	2.2 A tradable permit scheme for cost effective reduction of nitrogen runoff in the sugarcane catchments of the Great Barrier Reef (2016) 3.9 Traditional Owners and Sea Country in the southern Reef -Which way forward? (2016) 3.10 Benchmarking costs of NRM improvements for the GBR (2016) 3.11 Monitoring and adaptively reducing system-wide governance risks to the Reef (2016) 2.1.3 Longitudinal study of farmer decision influencers for Best Management Practices (2019) 2.1.7 Engaging with farmers and demonstrating water quality outcomes to create confidence in on-farm decision-making (2019)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		2013, 2017, 2021, 2023 (planned) (Led by CSIRO). 2021 survey (3rd data point): addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Reef social-ecological system. The updated broad objectives of SELTMP are to: monitor ***changes in community attitudes*** towards the Reef, its values and management, and the perceived threats to those values; **predict *attitudinal and behavioural responses* to future management interventions** in the Reef, and changes in Reef health; monitor **changes in *social and economic well-being*** of Reef-dependent communities, and the benefits they derive from the Reef; and assess and monitor ***social and economic vulnerability, and adaptive capacity*** of Reef communities to changes in Reef condition and the wider system. – Currently, outcomes are limited in relation to broad stakeholder understanding the benefits/costs and ethics of a range of interventions/actions (or inaction) in relation to Reef health. Bay et al. (2023) and Australian Academy of Science (2023) identify the current lack of fully open and inclusive dialogue that comprehensively explores Reef matters, including impacts, and future Reef resilience and related social and economic sustainability. • The Reef Restoration and Adaptation Program (RRAP) (refer IN4) includes a 'Stakeholder and Traditional Owner	2.2.3 Early warning systems to minimize the risk of box jellyfish stings by empowering stakeholders (2018) 2.3.2 'The role of social media in sharing information about the Great Barrier Reef (2017) 2.3.3 Community-based evaluation, governance, and strategic planning for Indigenous Ecosystem Services in Eastern Cape York Peninsula (2017) 2.3.4 Sth Reef Coastal Habitat Archive and Monitoring Program: Developing a Mangrove Management Plan (2019) 3.1.3 Harnessing the science of social marketing in communication materials development and behaviour change for improved water quality in the GBR (2018)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Engagement Subprogram' which aims to ensure decisions about interventions are socially and culturally responsible and legitimate to stakeholders, rights-holders, managers and the public. The Reef Authority is an observer on the RRAP Steering Committee and the Board. • Toolkit for safeguarding Indigenous heritage and knowledge was released in 2020, available as a guidance tool for parties engaging with Reef Traditional Owners. • Sharing of Indigenous heritage information may be captured through the RIMReP Reef Knowledge System (as related to Reef 2050) and negotiated through Data Sharing Agreements with the knowledge holders. • The Reef Authority updated its Science and Knowledge Needs for Management (2021) (Refer IN4). **Key gaps in socio-economic information** include: • Australian Academy of Science (2023:20) identify a range of gaps including: – Impacts on social and cultural values that rely on the Reef's ecosystems, including impacts on Traditional Owner wellbeing – Inclusion of Traditional Knowledges and understanding of flow-on effects to coastal communities. • limited monitoring of Traditional Owner reef use and well-being	3.1.6 Exploring trading in water quality credits as a cost-effective approach for managing water quality in the Great Barrier Reef (2020) 3.1.8 Innovative economic levers: a system for underwriting risk of practice change in cane-farming (2020) 3.2.2 The IMS 2050 Human Dimensions Project: cost-effective indicators and metrics for key GBRWHA human dimensions 3.2.3 Monitoring aesthetic value of the Great Barrier Reef by using artificial intelligence to score photos and videos (2017) 3.2.4 Defining, assessing and monitoring Great Barrier Reef aesthetics (2017)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• gaps and reliability issues about data on extractive use, e.g. spatial precision of logbooks, data on recreational extraction • inconsistency in spatial information e.g. differing grid sizes and mixture of modelled and factual map data • while there has to be an emphasis on the threats that come from within the aquatic environment, the emerging significant issues of impacts from sky glow (related to expanding industrial and urban development of the Reef coastline and islands on a wide range of taxa (from turtles to corals) are less well addressed. • limited staff capacity – the Reef Authority has two staff dedicated (EL1 and APS6) to coordinate socio-economic science projects.	National Environmental Research Program (NERP) Tropical Ecosystems (TE) Hub 2.3 Monitoring the health of Torres Strait coral reefs 10.1 Social and economic long-term monitoring program (SELTMP) 12.1 Indigenous peoples and protected areas Stakeholder and Traditional Owner Engagement - Reef Restoration and Adaptation Program SELTMP Core module pilot data dashboard SELTMP Core Module Report SELTMP Core Module 2021 Survey dataset: Regional Report Cards social survey dashboard Regional Report Cards Module Report		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			Regional Report Cards 2021-22 Social Survey dataset Integrated Monitoring and Reporting - Great Barrier Reef Foundation Measures for Social and Economic Monitoring of the Australian Marine Parks (Navarro et al. 2020) RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System Toolkit for safeguarding Indigenous heritage and knowledge		
IN6 The necessary **Indigenous heritage** information is currently available to address biodiversity	2	• Indigenous Heritage is intrinsically linked to biodiversity values (refer Indigenous Heritage topic, Table 41). There have been improvements in Indigenous heritage information since 2019. • Delivery of the Reef 2050 Plan is underpinned by a partnership approach and this is reflected in the Plan's governance arrangements which include: Indigenous	Interim guidelines on the outstanding universal value of the GBRWHA – for proponents of actions	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		expertise on the Independent Expert Panel; Traditional Owner participation on the Reef 2050 Advisory Committee; and Traditional Owner participation on each of the Reef 2050 Integrated Monitoring and Reporting Program's working groups. • **Land and Sea Country Indigenous Partnerships Program** and TUMRAs provide the mechanism for Traditional Owners to apply their knowledge to biodiversity management in their land and sea country and has strengthened communications across the community to build a better understanding of Traditional Owner issues on the management of the GBR Marine Park. • The **Indigenous Reef Advisory Committee** is the key body that advises the Reef Authority on its management, programs and policies. Advice from the Committee ensures its management; programs and policies consider and include Traditional Owner aspirations and recommendations. • Indigenous rangers – working on country (began in 2007) supports Indigenous people to combine traditional knowledge with conservation training to protect and manage their land, sea and culture. • Traditional Owners are the main partners in **VBMF management planning**. They are always requested to participate in management planning and funds exist to pay for their participation.	Great Barrier Reef Coastal Zone Strategic Assessment: Independent Review Report Great Barrier Reef Strategic Assessment Report Traditional Use of Marine Resources Agreements Australian Government Reef Programme Reef 2050 Plan – Implementation Strategy Whitsundays Plan of Management Science and Knowledge Needs for Management (2021) Science and Knowledge Needs| Strong peoples - strong country: Indigenous heritage monitoring framework summary report		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Implementing the **'Strong Peoples-Strong Country Framework'** was identified as a Priority Monitoring Gap (Marine Park Authority' 2021 prospectus). The Framework aims to build capacity for Traditional Owner leadership of monitoring and reporting in the Reef. Phase 2 involves the development of a set of objective indicators, to provide information and insights about the condition and trends in Indigenous heritage values in the Reef and its catchments. • As an action under the Reef Authority's Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park (Action A3.1.1), some examples of Sea Country Values Mapping are now available, e.g. Mandubarra Sea Country Cultural Values: 2019-2020 mapping project. – There are four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi) committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals' (e.g. Impact Assessment Guidelines for the Woppaburra Heritage). – This work directly contributes to the Reef Authority's Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park objective O2.4– 'Integrate Traditional Owner knowledge and input into our environmental assessment and permitting process', and action A2.4.3 'develop guidance and	Traditional Owner and Marine Parks Management Portal - Overview		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		templates for applicants on expectations for Traditional Owner consultation. • Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes to better identify risks to relevant Indigenous heritage values for the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measures. • Developed a spatial representation for stakeholder of proposed permit areas relating to Native Title Claims, Determinations, TUMRAs etc within the Marine Parks. Challenges and gaps: • Australian Academy of Science (2023:20-21): – Lack of inclusion of Traditional Knowledges and appropriate cooperation with Traditional Owners – 'While Australian law and regulations support the rights of Traditional Owners, principles of free, prior and informed consent are often ignored, incomplete or undermined' (2023:21).			
IN7 The necessary historic heritage information is currently available to address biodiversity	NA			NA	NA
IN8 There are additional sources of non-	4	• Friends of the Capricornia Cays (conducted by QPWS) utilises volunteers to conduct weeding activities on the	Volunteer groups and events include:	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
government input (e.g. volunteers) contributing to address biodiversity		Capricornia Cays National Parks to reduce impacts of weeds on key vegetation communities. QPWS&P delivers a volunteer campground host program where volunteer maintain campground facilities and provide campers with information on low impact behaviours that encourage minimal impact from visitors on the Key values. • Sea Turtle Foundation (contracted by QPWS&P) coordinates volunteers to respond to strandings and has developed a stranding response training package for volunteers and staff. • Seabird and shore bird monitoring and management – cooperative engagement of QPWS/RJFMP, Birdlife Australia, The Queensland Wader Study Group, several academic institutions and Traditional Owners. • Eye on the Reef database holds Reef health information and is being upgraded to meet current and future needs. A new Eye on the Reef app will be released alongside the database to improve stakeholder engagement. • Great Barrier Reef Foundation projects (refer CO2) significantly add to the Reef Authority's and QPWS's ability to manage and protect biodiversity. • Landcare. • Coastcare. • Major input from university monitoring and research programs, CSIRO, AIMS etc.	Fisheries working groups Reef Authority partners Burnett Mary Regional Group Cape York NRM Fitzroy Basin Association NQ Dry Tropics Reef Catchments (Mackay Whitsunday Isaac) Terrain NRM		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Eco Barge, based in the Whitsundays is a volunteer service which aims to reduce debris in the Marine Parks to help protect biodiversity. • NRM groups have programs addressing biodiversity conservation and have volunteer networks which help achieve outcomes. • Cumulative impact management policy (2018) targeted at the Reef Authority and other government agencies. Encourages decision making that identifies past, present and reasonably foreseeable pressures; examines their combined effects on the Reef values; and designs and applies appropriate management measures to avoid and mitigate impacts. • Volunteer groups and events include: - Reefwatch - CapReef - Reef Guardian Schools - NGOs on Reef Advisory Committees - LMACs - Fisheries working groups - Mackay turtle watch - OUCH (Association of Underwater Coral Heroes) - Beach clean-up days - Seagrass Watch Research stations			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Much of the information on biodiversity comes from researchers outside the Reef Authority e.g. AIMS, universities, UQ, CSIRO. • Partnerships and collaborative Investments through the Reef Trust (Phase V Investments).			
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are **effectively engaged** in the ongoing management of biodiversity	3	• Stakeholders were addressed in CO5 and PL6. They are engaged to differing extents, often relating to particular issues. It is difficult to assess how effective this engagement is, without some form of stakeholder evaluation or assessment process associated with each of these engagement processes. Engagement ranges from informing, seeking advice, to consultation and co-management. • Expert advice is sought on biodiversity matters through the Reef's Advisory Committees. However, the extent to which the voices of the participants on these Committees is 'heard' is unclear (Interviewees 5, 12, 2023). • Relevant industries are engaged in planning processes for biodiversity protection throughout the Reef as outlined in the commitments in the Reef 2050 Plan and through commitments in the 25 Year Strategic Plan. • Scientific Advisory Group. • There are four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to	Great Barrier Reef Blueprint for Resilience Traditional Owner and Marine Parks Management Portal - Overview	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. This work directly contributes to the Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park objective O2.4– 'Integrate Traditional Owner knowledge and input into our environmental assessment and permitting process', and action A2.4.3 'develop guidance and templates for applicants on expectations for Traditional Owner consultation. • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs. A new Eye on the Reef app will be released alongside the database to improve stakeholder engagement. • Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes. This is to better identify risks to relevant values for the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measures. Challenges: • Providing opportunities for greater engagement of local governments in decision-making processes related to biodiversity. Local government planning schemes are an			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		important tool to assist in protecting and enhancing biodiversity values at local and regional scales. • Developing greater **cross-sectoral and cross-scale collaboration** among stakeholders and reduced reliance on 'siloed' decision making. • Effective engagement is often built on trusting relationships, and hence **developing trust among the stakeholders** is essential to build collaborative relationships and more equitable power sharing.			
PR2 The **local community** is **effectively engaged** in the ongoing management of biodiversity	3	• Local community is addressed in PL6. • Matters related to biodiversity are discussed at the Local Marine Advisory Committee (LMAC) meetings. Key stakeholders were encouraged to nominate for the 2021-24 LMAC term. There are currently over 220 active members and management partners involved in the LMAC network. – LMAC feedback on Reef Blueprint (March 2022). – Several Reef-wide presentations given to the LMAC network: COTS and Zoning impacts • Local communities are involved in biodiversity protection through planning processes for areas/specific places and public consultation occurs in relation to the permitting system. • **Community groups are engaged widely in monitoring and field management** activities in the Region. – Eye on the Reef program is a powerful monitoring program that enables anyone who visits the Reef to contribute to its long-term protection. The Eye on the		Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Reef database, which holds Reef health information, is being upgraded to meet current and future needs. The Sightings network enables Reef users to upload information about what they see in the Marine Park. – DES Wildlife and Threatened Species Operation maintains a hotline for reporting Marine wildlife strandings (Marine-strandings data) and QPWS has numerous community volunteers trained in first response to stranded wildlife and recording/reporting of the events for collation into StrandNet. – Turtle volunteers – Improvements in public reporting capacity for shipping and pollution incidents, and via mobile phone applications. – Reef Guardians is a voluntary stewardship program made up of schools, councils, fishers and farmers (Reef Guardian Schools; Reef Guardian Councils) • DES, Queensland Boating and Fisheries patrol (QBFP) and the Reef Authority have regional-based staff for engaging with local communities. • Reef Authority Regional Offices provide a point of contact. • Tools for the engagement of broader community in management of biodiversity are being improved. • Each year, the MMP team conduct a Monitoring, Evaluation, Reporting and Improvement (MERI) workshop which is structured around presentations outlining the latest information on the condition and trend of water			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		quality, coral and seagrass and the pressures that have affected them. • Partnerships for local actions initiative in Great Barrier Reef Blueprint for Resilience. • Targeted consultation also occurs through committee and stakeholder groups e.g. recreational fisheries. • DES Threatened Species Operations authorise trained members of local communities to undertake marine turtle monitoring and conservation action throughout much of the Reef Region and report their data back to collation within the Qld Marine Turtle Conservation Data Base (refer Nest to Ocean Turtle Protection Program). • Refer to topics on fishing (Table 41, Table 42), Commercial Marine Tourism (Table 38) and Recreation (Table 47). Challenges: • "*Ensuring the Authority proactively addresses efforts to engage the community rather than rely on others to do the engaging*" (Workshop participant 2023).'			
PR3 There is a **sound governance system** in place to address biodiversity	3	• The Reef 2050 Plan recognises the importance of good governance and requires that "governance arrangements are transparent and accountable" (p.36). However, there is no monitoring system in place to measure performance of Reef governance and immature understanding about what constitutes governance or how it can enhance decision making (Interviewees 2, 3, 2023).	Dale et al., 2013 A method for risk analysis across governance systems: a Great Barrier Reef case study Grech et al 2013 Guiding principles for the improved	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Governance assessments** have been undertaken by Dale et al. (2013, 2016), Craik, et al. (2017), Morrison et al. (2017, 2019, 2020), Turner (2022) and others. A common theme is the need to review governance systems, including in relation to biodiversity, to ensure that the systems are addressing a range of major threats, in particular climate change, and other impacts that occur at multiple scales. Governance needs to be 'fit for purpose' in addressing diverse pressures on the Reef's biodiversity. – "*There is an outward presentation of good governance, but an inward realisation that this is not the case*" (Interviewee 2023). – '..the GBR management system…is not built with the agility required to adapt to rapidly evolving climate impacts' (Australian Academy of Science (2023:33). Further, 'the decentralised model convolutes decision-making processes and impacts how the various management agencies communicate' (p.36). – "*From what I see, we are moving in the right direction* (in relation to governance improvements)" (Interviewee 2023). • The Reef Foundation is funding the development of a **governance monitoring program** for the Reef, including an assessment of key governance indicators to assess governance effectiveness in relation to Reef 2050 Plan objectives (2022-23). **Governance was identified as a critical monitoring gap in the RIMReP** (refer PL5).	governance of port and shipping impacts in the Great Barrier Reef Day and Dobbs. 2013. Effective governance of a large and complex cross-jurisdictional marine protected area: Australia's Great Barrier Reef Queensland Bilateral Agreement for environmental assessments See also review of Port of Gladstone, and Gladstone Healthy Harbours partnership Cvitanovic et al. 2015. Review: Improving knowledge exchange among scientists and decision-makers to facilitate the adaptive governance of marine resources: A review of knowledge and research needs Project 3-11_Final Report		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef has a **polycentric system of governance**. Biodiversity is a 'sub-system' within this overall system (along with tourism, fishing, ports etc). • Reef governance for biodiversity is a complex system with diverse stakeholders and partners and complex cross-scale and cross-sectoral dynamics (Turner 2022). '*The Reef is managed by broad, diverse actors that play different roles in decision making and delivery systems'* (Interviewee 2023) • There are **multiple governing authorities** with a **range of interests** that are involved in and make decisions about biodiversity issues, including the Reef Authority, State and Federal agencies such as DES, DCCEEW, local government, industry groups (QSIA, AMPTO), Advisory Committees, LMACs, biodiversity specific groups (e.g. Qld Wetlands Governance Group, GBR Wetlands Network); Technical Working Groups (Paddock to Reef); Steering Groups (e.g. Regional report card); community groups; research organisations, Regional NRM groups and others (refer CO5 – stakeholders, CO6 and PR1 – stakeholder engagement; PR2 local community). • Two Reef Advisory Committees (RACs): Indigenous and Tourism advise the Reef Authority in relation to actions that can be taken to address the risks to the Marine Park, including biodiversity. • Some arrangements among the key stakeholders are clearly defined, with streamlined processes (e.g. trying to	Integrated Monitoring and Reporting - Great Barrier Reef Foundation		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		avoid duplication of environmental assessment processes, strengthening intergovernmental cooperation and partnerships). However, gaps remain, particularly with local governments and catchment planning groups (Interviewee 2023). • **The structural elements of biodiversity governance** are well developed e.g. vision setting, decision-making processes, strategy development, implementation, monitoring and evaluation. – **Diverse array of legislation** (e.g. EPBC Act, Marine Park Act, Nature Conservation Act 1992), **plans, policies and programs** for the protection and sustainable use of the Reef, including its biodiversity and control of potential impacts on MNES (refer PL2). This provides a substantial basis for governing the Reef region in relation to biodiversity. – Some legislation (e.g. EPBC Act), plans, policies etc need review and updating to enhance more effective management. **'Policy is taking time to catch up'** to a rapidly changing reef environment (Australian Academy of Science (2023:33). – The Australian Academy of Science (2023:33) calls for the enforcement of 'a fuller suite of existing sections of legislation and policy' to support Reef management.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– 'There is **a lack of practical, implementable strategies** on the ground to deal with some of the big issues such as climate change. We don't need another planning document about how to do it. We need detailed granularity" (Interviewee 12, 2023). – **Focus on science and obtaining new knowledge** including investment into research and development, monitoring and evidence-based decision making to inform management and governance (refer PL5, IN4,5,6,7,8, PR9,10,11,12). – **IMR RTP Monitoring collective capacity and implementation (Governance)** (2021-2024) - will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. No results yet. • Some of the **targets/goals** in a range of documents in relation to biodiversity are **aspirational** and may not be responding to current and emerging threats/issues (e.g. climate change) • User/access rights to the Reef are mostly clearly defined in the Zoning Plan and relevant information is available through the permitting system. However, this does not mean that all groups are aware of their rights. • In relation to the **functional elements of governance:** – Recognition amongst key actors that Reef management is a **collaborative effort** as the scale of the issues and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		threats facing the reef are bigger than any individual actor can address alone (Interviewee 2023). – Long-standing **political commitment to the Reef and its formal governance arrangements**, which have been in place for over 20 years. The governance system is 'robust and mature' (Interviewee 2023). – the **decision-making powers** are distributed among the key actors in relation to biodiversity (e.g. between the Reef Authority, government and other key actors, including Traditional Owners). – However, '*the system is disaggregating and opportunities for collectively planning and aligning priorities is disaggregated – I feel lost as do lots of others in the governance system*' (Interviewee 2023). – The Intergovernmental Agreement provides the framework for the Australian and Queensland governments to work together to protect the Reef (and jointly issue permits). However, there are **gaps,** especially in relation to the ability of the EPBC Act to effectively protect some species and ecosystems (Samuel 2020), mainly in relation to terrestrial ecosystems (e.g. mangroves, wetlands, functional corridors). – There is less clarity concerning the decision-making powers of non-government actors in the governance system.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– There is less focus on regionalisation – "*we have lost the regional model and need to get it back*" (Interviewee 2023). – It is unclear whether the **representation** of all key players in addressing and making decisions concerning biodiversity is equitable. However, diverse groups are engaged in biodiversity matters. – A key barrier is '**Inclusive engagement** processes that fully encompass co-design, co-development and co-delivery, including FPIC (free, prior and informed consent) from Traditional Custodians' (Australian Academy of Science (2023:33). However, there is increasing focus on **Traditional Owner engagement** resulting in co-management arrangements, especially in TUMRA areas. – It is unclear as to whether all actors/stakeholders can **influence decision making**. However, many stakeholders are consulted for input into a range of plans, guidelines and strategies, while others are more effective partners with a role in decision making, e.g. Advisory Committees, and Traditional Owners with TUMRAs. 'Pathways for integrating Traditional Knowledges and social factors into decision making processes are less developed than the …scientific pathway for contemporary ecological knowledge, particularly for corals and reef systems' (Australian Academy of Science 2023:17).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The **strength of connections** among actors within the governance system is variable. Connections are strongest between the Reef Authority, Commonwealth and State governments. However, more recently external institutions (e.g. WHC/IUCN) have had a significant impact on policy, inputs, planning and management in relation to Reef biodiversity (refer CO2). There is some evidence of the governance system aligning itself in response to international frameworks that relate to biodiversity (e.g. in relation to climate change), but Morrison et al. (2019, 2020) and Turner (2022) suggest a more transformational governance approach is needed. – **Various knowledges** are incorporated into biodiversity planning and management (refer IN4,5,6,7), with a recent focus on research and investment into improving understanding in relation to climate change impacts and approaches to enhance reef resilience. – There are strong connections between **research and decision making,** including: – The Actor Mapping Project identified five MOUs between the Reef Authority and Universities (JCU, Sydney, Central Queensland, UQ and UTS) through which research helps inform management.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Reef 2050 Integrated Monitoring and Reporting Program partners include AIMS, CSIRO, IMOS, DCCEEW, DES and the Reef Authority – The Reef Authority's Science for Management team – purpose (in part) is as a knowledge brokering and engagement role with the research community – National Environmental Science Program - DCCEEW – There is developing a greater focus on outcome orientation, transparent governance and collaboration (Interviewee 2023). – **Compliance and law enforcement** for biodiversity are a key priority and in general this is well coordinated. – There is a **dispute resolution** system in place that includes documentation of processes, suitability of processes and success. However, it is unclear whether this system is widely supported by the stakeholders. – **Benefit sharing arrangements** are poorly developed, especially with Traditional Owners. – In relation to issues of **adaptability and effectiveness**, the governance system has overseen a continuing decline in biodiversity, particularly in relation to the impacts of climate change (refer OC1-7). There are varying views on the role of reef governance in addressing climate change. • Challenges:			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Reef governance in relation to biodiversity is widely acclaimed as world leading. However, outcomes are diminishing, perhaps indicating a level of **'drift'** in the governance system. "*This* (governance) *requires a more interventionist approach to achieve outcomes for the Reef. This represents a paradigm shift that is currently underway, but not yet achieved*" (Interviewee 2023). – The Reef Authority is "*uncomfortable about changing its governance…but in times of uncertainty this doesn't work…People deeper in the organisation are more adaptable, but they are constrained…New governance approaches are needed*" (Interviewee 2023). – Due to operational complexity and the large number of actors involved in the governance system, **changes to policy and operational matters can take a long time to deliver** and implement (Interviewee 2023). – The various governance components or sub-systems are '***siloed in a policy sense'*** (Interviewee 2023), with restrictions in connections between Reef policy, regional planning and the circular economy. The challenge is in ensuring that Reef decisions are made not in isolation, but in collaboration with diverse stakeholders and partners. – "***Governance is siloed in terms of its outcome orientation****…Cost-effective approaches are often driven by targets and this can often rule out more*			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		integrated approaches and may set up conflicts among key stakeholders…We need to look at how to reformulate the outcomes themselves" (Interviewee 2023). – Australian Academy of Science (2023:17) noted siloing of information at project or institutional levels by some Reef-focused institutions that 'patch protect' research data for commercial or other reasons. – Addressing **system flexibility** i.e. reassessing and updating the governance system to reflect changes in context and ensuring there is consistency with ancillary organisations and policies (including international policy, especially in relation to climate change). – Enhancing commitments to innovation and a willingness to trial and experiment, including institutional innovation e.g. governments are willing to focus on land use management, but are less focused on long-term structural adjustment in various industries to enhance Reef outcomes and sustainability (Interviewee 2023). – Maintaining the independence of the Reef Authority to make collaborative decisions that will improve biodiversity outcomes for the Reef. – Good governance also requires empowered and independent 'watchdogs' to ensure outcomes are achieved (Morrison 2017).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR4 There is effective **performance monitoring**, including. regular assessment of appropriateness and **effectiveness of tools, to gauge progress towards the objective**(s) for biodiversity	4	• In general there is little coordinated monitoring of tools based on reliable indicators that assess effectiveness in relation to stated objectives. Hence it is difficult to easily address this indicator. The IMR RTP Governance Project (2021-24) will develop a monitoring framework to assess how different components of the governance system are working together to achieve improved Reef health, including relevant management tools. No results yet • At the international level, DCCEEW is responsible for reporting Australia's environmental performance and progress towards sustainable development commitments to international agencies such as: Organisation for Economic Cooperation and Development (OECD); United Nations Commission on Sustainable Development. • Delivery of annual workplans is tracked across the year and reported to the executive quarterly. • Reef 2050 Plan – presents actions to protect the values, health and resilience, while allowing ecological sustainable use. The Reef 2050 Integrated Monitoring and Reporting Program (RIMREP) tracks the progress of outcomes outlined in the Plan including objectives under the plan's seven themes: ecosystem health, biodiversity, heritage, water quality, community benefits, economic benefits, governance and reporting. – The design phase of RIMReP was completed in 2019. It delivered the structure, program and monitoring design,	Great Barrier Reef Coastal Zone Strategic Assessment: Independent Review Report Reef 2050 Plan Annual Report and Implementation Strategy Australian Government Reef Programme RIMReP Web pages RIMReP – Reef Knowledge System RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23 RIMReP Annual Business Plan 2021-22 RJFMP Annual Reports and 5 yearly periodic review. Field management of the Great Barrier Reef Marine Park	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		an implementation roadmap, and an initial release of the Reef Knowledge System. – Implementation phase of RIMReP is progressing with the greatest effort directed toward continuing the scoping and implementation of a fit for purpose Data Management System, progressing the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement. • The annual reports of Commonwealth departments, Parliamentary departments, Commonwealth authorities, Commonwealth companies and other Commonwealth agencies, must under Section 516A of the Environment Protection and Biodiversity Conservation Act 1999, include a report on environmental matters. • Strategic Assessment and Outlook Reports are undertaken at regular intervals • Monitoring, Evaluation, Reporting and Improvement Plan are required six monthly under the Australian Government Reef Programme. • Under the EPBC Act all cetaceans (whales, dolphins and porpoises) are protected in Australian waters. The Act contains notification obligations if a vessel collides with a cetacean that must be done within specified timeframes. The notice should contain specifics such as date of incident, location, outcome of the collision and contact details. The Australian Marine Mammal Centres has	Reef Authority Annual Report 2021-22 Evaluation and reporting | Parks and forests | (DES) Reef 2050 Plan Progress Reports - DCCEEW Outlook Report 2019 Queensland's Protected Area Strategy 2021 Report Card | Parks and forests | DES		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		developed an online National ship strike database and questionnaire which is now live. • Annual RJFMP Thematic Reviews (internal to the Reef Authority) - COTS Response, Seagrass Watch, Pests, Island Health, Marine Megafauna, Fire, Coastal Birds, Technology Transformation, Reef Interventions, NGBR Green Turtle Research, VBMF) Uses IUCN methodology.			
PR5 Appropriate **training** is available to the managing agencies to address biodiversity	3	• **Reef Authority staff have a good base level of training**. – There is limited on-the-job training for field staff in biodiversity management issues (restricted to a few staff who go into the field regularly). Some staff participate in workshops, conferences, steering committee meetings. There is informal mentoring across agencies and also cross-decking in the RJFMP. – Capacity needs for all RJFMP/QPWS' natural resource management are monitored by coordinators. (Refer training for RJFMP staff in evidence). Training packages for RHIS, seabirds, strandings exist and all staff participating in fire and pest management have the appropriate qualifications and licences. – The Environmental Assessment and Protection section has developed a series of training modules and fact sheets to train new permit assessment officers. These are available to the staff of the Reef Authority more broadly through a new Learning Management System. – Cultural competence training is being implemented in DES.	Training (related to biodiversity) that staff of the RJFMP are expected to complete: Foundation Program – overview to provide context about roles in the RJFMP Incident response training – all RJFMP staff are encouraged to complete the training (provided by AMSA or MSQ): AIIMS (Australasian Inter-Service Incident Management System) BEO (Basic Equipment Operator)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Ranger training is expanding. – In 2021-22 15 Indigenous Rangers and one Program staff member from 10 different First Nations groups completed diver training (RJFMP Annual Report 2021-22). • Tourism industry is engaged in training of staff, including the Master Guides Program. • Reef Discovery Course (2020) aims to improve knowledge and understanding of the WHA, its cultural connections, biological diversity and management protection and inspire participants to take action to protect the Reef (originally designed for the tourism industry, but now available to interested individuals) – 421 users (to 2023).	AEO (Advanced Equipment Operator) OSECK (Oil Spill Evidence Collection Kits) Shoreline Response Shoreline Clean up and Assessment Technique SAD (Site assessment of damage) AMSA courses (5-day courses for Incident Management teams) MIDO training (Maritime Incident Duty Officer) (in-house)		
PR6 Management of biodiversity is **consistently implemented** across the relevant jurisdictions	3	• This indicator addresses, in relation to biodiversity, the alignment of priorities among the Reef actors, the level of cooperation, and integration or coordination of strategies across multiple levels to achieve the desired collective outcomes (as stated in the Reef 2050 Plan). Connectivity is enhanced by the policies and related documents (refer PL2) that work to enhance cross-sectoral coherence among the actors/institutions at various levels. However, the extent to which consistent implementation is evident in	Coastal protection State Planning Regulatory Provision 2013 Framework announced for 'one stop shop' environmental approvals Coastal Ecosystems Assessment Framework	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the Reef is difficult to assess due to the limited monitoring data related to this indicator. • The IIntergovernmental Agreement (refer PL2) provides a framework for the Australian and Queensland governments to work together to protect the Reef. • There are many examples of consistency (e.g. Joint permitting under the IGA), complementary zoning between state and commonwealth Marine Parks, port management plans, defence environmental planning, shipping planning) but examples also exist of a lack of consistency (e.g. Qld Fish Habitat Zone and Marine Park Habitat Protection Zone). • RIMReP tracks progress towards objectives under the Reef 2050 Plan. • Queensland Assessment Bilateral Agreement provides for the accreditation of certain Queensland environmental assessment processes, i.e. project proposals that require both state and Commonwealth approval are assessed using a single set of project documentation. • The Samuel (2020) review of the EPBC Act, highlights limitations in the Act that affect joint planning and decision making (refer PL2). Challenges: • Enhancing communication and institutional linkages among institutions relevant to biodiversity (e.g. *"gaps*	Review right processes as part of the permit application assessment State Planning Policy 2017 RIMREP Queensland Assessment Bilateral Agreement http://elibrary.gbrmpa.gov.au/jspui/bitstream/11017/3204/1/GBR-Summit-background-paper-and-workbook.pdf RIMReP Web pages RIMReP – Reef Knowledge System RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23 RIMReP Annual Business Plan 2021-22		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		remain, particularly with local governments and catchment planning groups" Interviewee 2023). • Reducing the legislative and regulatory constraints that limit integration and coordination.			
PR7 There are effective processes applied to **resolve differing views/ conflicts** regarding biodiversity	3	• Limited mechanisms in place to effectively resolve differing views / conflict regarding biodiversity in relation to permitted access under the Zoning Plan, specifically on a range of issues where consideration of tangible and intangible cultural heritage values of the Marine Parks are made through the joint permission system to enable transparent and defendable decisions. • There are four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals' to minimise conflicts with a ranger of users. Public comment processes for permit applications expected to impact on other users. The number of applications open for public comment has increased since 2009. • The Permissions system has been upgraded to provide greater clarity to permit holders and thus avoid conflicts in terms of where activities can occur: – Permits Online - a new online portal to submit applications and manage all permissions and contact details; and longer permit terms up to 20 years	Reef Knowledge System – Resilient Reefs Network (gbrmpa.gov.au) RIMReP Web pages RIMReP – Reef Knowledge System RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23 RIMReP Annual Business Plan 2021-22	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– updated permission system policy and improved assessment guidelines and a checklist of information required at the time of application..			
PR8 **Impacts** (direct, indirect and cumulative) of **activities** associated with biodiversity are **appropriately considered**.	2	• Direct impacts are generally well considered. • Cumulative impacts are considered to some extent - refer Cumulative impact management policy (2018) and Net Benefit Policy (2018) • Refer PL2 for a diverse range of legislation, strategies, policies and other documents where impacts associated with biodiversity are considered. For example: – The **Zoning Plan** spatially manages impacts from direct use; all permitted activities are subject to assessment in accordance with the Mandatory assessment criteria (Section 103) in the **Marine Park Regulations**. These criteria are outlined in assessment guidelines and include consideration and mitigation of impacts. – The Reef 2050 Plan (2021) identifies specific priority areas for action that align with impacts outlined in Strategic Assessment and each Outlook Report. – Strategic objectives are outlined in the Reef Authority's Corporate Plan 2022-2023, e.g. 'enhancing reef resilience by providing expert knowledge to advise key decision makers on reducing or avoiding significant threats to the Reef'	Integrated Monitoring Framework for the Great Barrier Reef WHA (2013) Planning for priority ports (2017) Reef Trust offsets calculator Corporate Plan 2022-2023: at a glance. Planning and prioritisation (DES) Crown of Thorns Starfish Program The Reef Authority is dedicated to gaining real-time information on Reef health throughout summer to better understand reef health impacts. This information helps the Reef Authority and its partners to prepare for any management response	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Values-Based Management Framework (DES) – focuses on protecting park values, including strategies that address threats and impacts on biodiversity, including: – fire strategies for priority island National Parks guide the use of fire as a conservation tool for the protection and recovery of Key Values on National Park Islands. – pest strategies for priority island National Parks guide pest activities to ensure protection and enhancement of key habitats and species on National Parks. – Monitoring and Research Strategies (M&RS) for several priority island National Parks under the VBMF detail what monitoring needs to occur in the park for the assessment of Key values. It also identifies specific research needs where more detailed scientific knowledge is required. The M&RS captures all the monitoring (including Health Checks) and research that is required, or desired, on a park. The need for comprehensive assessment and survey may also be captured in the M&RS. – **Vulnerability assessments for several key species and habitats** document key risks to biodiversity. – Plans of Management and Special Management Areas identify and address issues of biodiversity management.	actions, such as planning surveys by vessel or aircraft. Aerial Survey SOP - Edition 3 (Apr2022)_NC_JM-upload (aims.gov.au) Pre-Summer Workshop at the Reef Authority each year plans for Reef Health Incident Response over summer for monitoring and responding to any potential incidents (bleaching, cyclones, etc) Emergency Special Management Area may be considered as a management tool after severe coral bleaching to limit coral extraction. Lady Elliot Island ecosystem resilience plan manages vegetation, pests and provides 10yr plan to manage ecosystem. Network of No Anchoring Areas for Reef Protection –		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Strategic assessments outline impacts to biodiversity. • Permits Online - a new online portal to submit applications and manage all permissions and contact details. Enables longer permit terms up to 20 years – Improved assessment guidelines – A checklist of information required at the time of application. – Updated permission system policy and new guidance documents. – Permission statements express the Reef Authority's position on various issues that are outside its direct regulatory control (refer PL2) e.g. fishing, water quality, climate change, coastal ecosystems, marine debris. – eReefs is delivering Reef water quality information online, enabling anyone to track the effects of storms, cyclones, floods, and other impacts on the Reef – NESP projects – Project 1.6 - Multiple and cumulative impacts on the Reef: assessment of current status and development of improved approaches for management – Project 2.1 - Assessing the cumulative impacts of climatic disturbances on inshore Reef coral reefs, identifying key refuges and testing the viability of manipulative reef restoration	refer to the CMT evidence table Raine Island Recovery Project aims to protect and restore the island's critical habitat to ensure the future of key marine species, including green turtles and seabirds. Macroalgae Removal Trials Magnetic Island – Interim Report		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Project 2.1.6 - From exposure to risk: novel experimental approaches to analyse cumulative impacts and determine thresholds in the WHA – Project 2.3.1 - Benthic light as ecologically validated Reef wide indicator for water quality: drivers, thresholds and cumulative risks. • Actions under the Reef joint Management Program Business Strategy Summary 2022 to 2026, e.g. strengthen **biosecurity** measures and enhance **pest and fire** management to maintain island habitats. QPWS has biosecurity risk prevention protocols in place to prevent the introduction of pests and diseases by QPWS and management partners onto and between islands (regardless of tenure) within the QPWS Great Barrier Reef and Marine Parks Region. • Various **Programs, including monitoring** programs (**refer PL5**) address threats and impacts, including: – Crown-of-thorns starfish control program directly manages this high-risk impact to the Reef. Targets reefs of high ecological and economic value for pest management. Uses a reef prioritisation tool, based on several criteria, to inform prioritisation for the program. – Resilient Reef Network (RRN) tool, COTS Prioritisation model, and UQ's Reefmod are used to inform the Reef Authority of preferred			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		locations for deployment of intervention trials under RRAP (2023). These take into consideration threats and disturbance history – Various research projects (2021-24), e.g. ReefScan automated benthic survey technology (jointly funded by RJFMP; eDNA detection of COTS, biocontrol using chemical attractants and deterrents, and updated COTS and coral larval dispersal and connectivity modelling; Leaf to Reef program Lady Elliot Island (funded by Great Barrier Reef Foundation) – Turtle stocks at greatest risk from climate change (DCCEEW) (2022+) – National Guidelines for the Survey of Cetaceans, Marine Turtles and the Dugong (2023) • The **Reef Knowledge System** hosts an internal-only interactive dashboard, the Resilient Reefs Network Guidance Tool, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park. Challenges: • Consideration of the usefulness of defining 'Limits of acceptable change'.			
PR9 The best available biophysical research and/or monitoring	4	• The National Environmental Science Program (NESP) is a long-term commitment by the Australian Government to support research into environment and climate science. NESP projects deliver collaborative, practical and applied	National Environmental Research Program	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
information is applied appropriately to make relevant management decisions regarding biodiversity		research to inform decision making and on-ground action. The program connects scientists, policy makers, Indigenous people and communities. Three NESP hubs are undertaking research that directly or indirectly relate to biodiversity in the Reef: – The Tropical Water Quality Hub is researching coastal water quality and coastal management focused on the Reef and other tropical waters. This research is also providing critical information for decision makers involved in delivering against the targets and outcomes of the Reef 2050 Plan (refer http://nesptropical.edu.au/). – The Marine Biodiversity Hub is researching Australian oceans and marine environments, including temperate coastal water quality and marine species. The Hub's research provides nationally consistent scientific information to support evidence-based decision making about marine species, marine protected areas, and pressures on the marine environment. – The Northern Australia Hub is researching practical solutions to support the region's natural and cultural environments. The Hub's research is delivering new knowledge, tools and partnerships and focuses on landscape-scale studies covering savanna, rainforest and aquatic ecosystems and biodiversity; land and water planning for urban, agricultural, and infrastructure development; and Indigenous land	Coastal Bird Monitoring and Information Strategy 2015-2020 Significant Impact Guidelines 1.1 - Matters of National Environmental Significance Hemson et al, 2017 Autonomous Monitoring of Seabird Breeding Sites – available on external portal		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		management including Indigenous Protected Areas (refer http://www.nespnorthern.edu.au/). • The Reef Restoration and Adaptation Program (RRAP) is collaborative long-term research and development program to develop, test and risk-assess novel interventions to help build the resilience of the Reef under a changing climate. It aims to develop a toolkit of effective, at-scale Reef interventions that are feasible, safe, acceptable and affordable. The program is currently in the research and development phase. – The 'Ecological Intelligence for Reef Restoration' sub-program aims to fill key foundational knowledge gaps essential for the interventions – including data on region-, temperature- and species-specific coral life-histories. • About 19 in-water **coral reef restoration projects** (since 2017) **and a growing field of research** into coral restoration and adaptation on the Reef (including RRAP above). – Many projects in their infancy and will require assessments of cost-effectiveness, scalability and socio-economic impacts (McLeod et al. 2022). – Australian Academy of Science (2023:23) notes: – Coral interventions include: small scale coral gardening, hardy corals, coral rubble stabilisation, genetic diversity in asexual propagation and artificial reefs.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Water-focused interventions include: solar radiation management (e.g. shading, fogging, cooling); assisted gene flows, cryogenic and biobanks; rubble stabilisation, COTS control; larval collection and settlement; artificial habitat; probiotics; heterotrophic feeding/food manipulation; alkalinity manipulation; microbiome manipulation; manipulation of symbionts; coral breeding for enhanced tolerance and transplanting corals from warmer climates. • The Eye on the Reef Program database, which holds Reef health information, is being upgraded to meet current and future needs. The program incorporates surveys by field staff with data collected by researchers, the tourist industry and stakeholder observations, to detect and assess impacts from extreme weather events, warm water bleaching, flood plumes, Crown-of-Thorns Starfish, ship and smaller vessel groundings and disease. The system enables a range of users to contribute to Reef management through: – Reef Health status reporting – Reef-wide early warning system – Reef-wide and local incident response – Increased stewardship. • The Scientific Consensus Statement is in development and due to be finalised in 2024. It is a synthesis of current peer-reviewed scientific evidence pertaining to the water			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		quality issues (including land-based run-off) in the Reef. It informs a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. It has included extensive consultation with policy, management, experts and stakeholders was undertaken to identify and prioritise a series of specific questions (rather than broad chapters), that frame the scope of the evidence being gathered. The Statement will also identify knowledge gaps and limitations in the peer-reviewed scientific evidence, which will inform future iterations of the Reef 2050 Water Quality Research, Development and Innovation Strategy. • Biophysical information is extensively used in the EIS and permit assessment process. • Analysis of the "GBR Seabird Atlas" identifying trends of declining seabird breeding in several seabird species. The analysis combined with research observations of poor breeding during warm water events has led to the development and implementation of a **new seabird monitoring strategy** targeting species and issues of greatest concern. – QPWS leads or contributes to mot seabird related monitoring and management actions in the Reef 2050 Plan. • Information from targeted projects (e.g. NESP, AIMS LTMP, Marine Monitoring Program, Sustainable Regional			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Development Program) guides development of plans, policies and guidelines (e.g. Hydrodynamic modelling guidelines, management of dredge spoil material and ship anchorages, and cumulative impacts policy development) (refer PL2, PL5 and PR8). • eReefs is delivering Reef water quality information online, enabling anyone to track the effects of storms, cyclones, floods, and other impacts on the Reef. • The significant impact guidelines provide overarching guidance on determining whether an action is likely to have a significant impact on a matter protected under national environment law — the Environment Protection and Biodiversity Conservation Act 1999 • Biosecurity of the islands aims to limit the spread of weeds, invertebrates and other animal pests from the mainland to islands, and between islands. • DES QPWS Threatened Species Operations leads or contributes to most turtle related monitoring and management actions in Reef 2050. • The Rivers to Reef to Turtles project aims to identify and measure the key pollutants in rivers, the Reef and in green turtles themselves. • Monitoring Reef health over summer (2019-22) – Snapshots summarised the conditions, impacts and health of the Reef over the summer. The most recent Snapshot was released in 2022 and informs AIMS's annual reporting on coral reef			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		condition, informs management partners, researchers and others about reef health status and conditions. Challenges: • "*The monitoring program is suitable for previous times when the reef experienced a more steady-state…The* ***modelling approaches used now won't work…The existing planning and decision-making framework doesn't deal well with uncertainty…The biggest weakness with the Reef 2050 Plan is that there are no methods or agreed processes to make decisions in times of high uncertainty****…We run the risk that a lot decisions will be too little and come too late*" (Interviewee 2023). – Australian Academy of Science (2023:23) identified: – Interventions are about buying time for reef ecosystems to adapt, but no known interventions are holistic and at-scale for a sustainable and resilient Reef. At the individual reef scale there is evidence of successful rehabilitation – but scalability remains unknown. 'Interventions are unlikely to preserve the current reef state in entirety' (p.26). – Interventions may require trade-offs between target and location of intervention and evaluation of the potential loss of other parts of the system. These trade-offs have the potential to lead to conflict and present risks to an evidence-based prioritisation process aligned with public support for actions.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– 'The tools we have had that served us well over the past four decades need to be amplified and applied based on what is likely to happen rather than what has happened' (e.g. coral gardening may not be an effective method for restoration at scale). – Gaps in intervention knowledge and practice include: in approaches, field trials, efficacy, risk appetite and acceptance, implementation, cost-benefit feasibility and scalability. There are gaps in intervention effectiveness and prioritising what to protect with interventions; and in fundamental ecological research e.g. Reef ecosystem, species and land-sea connectivity. – Improving the current modelling, monitoring and integration of existing datasets (e.g. RIMReP, Integrated Ocean Stewardship (CSIRO), RRAP, Integrated Marine Observing System (CSIRO) and others) may support better management decisions. Agreements among research groups regarding data standards and sharing are challenging.			
PR10 The best available **socio-economic** research and/or monitoring information is applied appropriately to make relevant management	3	• Refer IN5 which outlines available socio-economic data. • **Social and Economic Long-Term Monitoring Program (SELTMP).** Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great	Report Card 2020 NESP Project: 1.17 Integrated data requirements for natural resource management (2022) Traditional Owner and Marine Parks Management Portal	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
decisions regarding biodiversity		Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: – Monitor changes in community attitudes towards the Reef, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the Reef. – Assess and monitor social and economic vulnerability, and adaptive capacity of Reef communities to changes in Reef condition & the wider system. • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment: This project reviewed common frameworks that conceptualise the relationship between people and nature to identify which parts of the system influence environmental outcomes, and factors relevant to designing policy or influencing behaviours. • Developed a spatial representation for stakeholder of proposed permit areas relating to Native Title Claims, Determinations, TUMRAs etc within the Marine Parks. • There are four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. • Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes to better identify risks to relevant Indigenous heritage values for the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measures. • RIMReP's vision is to develop a knowledge system that enables resilience-based management of the Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing.			
PR11 The best available **Indigenous heritage** information is applied appropriately to make relevant management decisions regarding biodiversity	2	• Refer Heritage (Indigenous) topic (Table 44)., in particular the Traditional Owner heritage assessment and Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park • Developed a spatial representation for stakeholders of proposed permit areas relating to Native Title Claims, Determinations, TUMRAs etc within the Marine Parks • There are four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'.	Traditional use of marine resources Impact Assessment Guidelines for the Woppaburra Heritage National Environmental Science Program (NESP) projects of particular relevance include: Tropical Water Quality Hub Project 3.9 Indigenous capacity building and	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes to better identify risks to relevant Indigenous heritage values for the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measures. • Land and Sea Country Indigenous Partnerships Program and TUMRAs provide the mechanism for Traditional Owners to apply their knowledge to biodiversity management in their land and sea country.	increased participation in management of Queensland sea country vulnerability assessments Traditional Owner and Marine Parks Management Portal		
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding biodiversity	NA			NA	NA
PR13 Relevant **standards** are identified and being met regarding biodiversity	3	• There are various international standards relevant to biodiversity e.g. UNDP Standards –Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management. This includes a series of objectives related to conserving biodiversity and ensuring fair and equitable benefit sharing • National Environmental Standard (NES) (Matters of National Environmental Significance) 2021 (under review) includes: Standard for all matters of NES, including biodiversity; World Heritage (i.e. OUVs are protected, conserved,	A critical review of environmental management of the 'not so Great' Barrier Reef (Brodie & Waterhouse 2012) GBRMP Water quality guidelines Great Barrier Reef Biodiversity Conservation Strategy 2013	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		presented and transmitted); National Heritage (natural, historic and Indigenous places of outstanding heritage significance); Ramsar wetlands; threatened species and ecological communities; migratory species; Commonwealth Marine environment; Great Barrier Reef Marine Park. New Standards are required to improve decision making to ensure that outcomes for biodiversity are delivered (Samuel 2020). – NES is being reviewed to ensure that developments that impact on habitats/ ecosystems are consistent with achieving outcomes for MNES. – They clarify existing settings of the EPBC Act to define clear limits of acceptable impacts while allowing flexibility for development. – Currently there are opaque rules and unfettered discretion in decision making that can result in poor environmental outcomes (Samuel 2020). • Nature Positive Plan (2022) addresses the need for new NESs which will be for: MNES; First Nations engagement and participation in decision making; community engagement and consultation; regional planning; and environmental offsets. • Wetlands GBR Management Strategy outlines a number of objectives, targets and standards • Various standards relating to: Reef discharge (2022); Water Quality Guidelines.	Reef 2050 Water Quality Improvement Plan 2017-2022 RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Various standards are being developed through RIMReP. The vision is to develop a knowledge system that enables resilience-based management of the Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. • Explicit desired outcomes and targets linked to current condition assessment are being established as part of the Strategic Assessment Program Report (Tables 3, 4 and 5) and through the identification of MNES and their relationship to the management programs of the Reef Authority. • Standards and thresholds being developed through RIMReP. • Reef WQIP has clear water quality targets, and catchment and land management targets.			
PR14 **Targets** have been established to benchmark management performance for biodiversity	4	• Update of Reef 2050 Water Quality Improvement Plan 2017-2022 targets are currently under review to be finalised in 2023/2024. There are clear catchment and land management targets. • Refer Program Reports, Biodiversity Conservation Strategy and management of tourism, recreation and fishing. • Wetlands GBR Management Strategy outlines a number of objectives, targets and standards.	The need for broader ecological and socioeconomic tools to evaluate the effectiveness of coral restoration programs, *Restoration Ecology* (Hein et al. 2017)	Adequate	Stable
OUTPUTS					
OP1 To date, the actual **management program**	3	• Management programs within the Reef Authority and related government agencies have progressed. However,	RRRC website http://www.rrrc.org.au/	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
(or activities) has progressed in accordance with the planned **work program** for biodiversity		delays have been experienced due to COVID-19 restrictions that prevented access to TUMRA area and other remote locations. It is less clear how well management programs of other organisations that also manage biodiversity have progressed. • Reef 2050 Plan work program is progressing but timeframes are lagging in some areas. • EPBC fisheries accreditation timelines being met. • Annual research plans and timelines largely met. • See progress of research funded through NERP, Caring for Our Country • The **Reef Joint Field Management Program** is responsible for the planning and delivery of in-field activities and field operations within the WHA, including Commonwealth and state marine parks and Commonwealth islands and state island protected areas. RJFMP Annual Business Plan Summaries outline the activities and priority projects the Program will undertake to protect the WHA from threats, build resilience for marine habitats, islands and species, strengthen partnerships with Traditional Owners and support ecotourism opportunities. – RJFMP Program Business Strategy Summary 2022-2026: framed around five Program priorities and two overarching activities – Annual RJFMP Thematic Reviews conducted to assess effectiveness of programs (internal): COTS Response, Seagrass Watch, Pests, Island Health, Marine	Great Barrier Reef Coastal Zone Strategic Assessment: Independent Review Report Great Barrier Reef Strategic Assessment Report, Sections 4.3.1, 4.6, 4.7 and 4.8 Great Barrier Reef Biodiversity Conservation Strategy 2013 COTS control program Reef Authority – Strategic Plan 2013-2017 Vulnerability Assessments Annual Operating Plan Wescott G, Fitzsimons J, 2016 Big, Bold and Blue : Lessons From Australia's Marine Protected Areas Reef Trust Investment Strategies 2020 — Fish Aggregation Devices and Artificial Reef Interim policy		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Megafauna, Fire, Coastal Birds, Technology Transformation, Reef Interventions, Northern Great Barrier Reef Green Turtle Research, VBMF). • **Marine Monitoring Program** outputs include: – Annual Marine Results reports which provide the marine information in the Report Cards. This includes information on key water quality indicators in the inshore regions of the Reef. – Annual Summary Report, which provide a short overview of the key findings. – Annual technical reports provide detailed scientific information on the condition and trend of inshore water quality, coral reefs and seagrass meadows. • Regional Report Cards and Reef Water Quality Report Cards are published. • Crown of thorns starfish Control Program: the strategic framework outlines the outbreak management cycle, monitoring methods and how research and innovation informs management. • Northern GBR Green Turtle Program: – Great Barrier Reef Green Turtle Research Project: a three-and-a-half-year, $5.93 million research program proposes a series of activities to improve understanding of this turtle population and to inform management activities, including how best to respond to the impacts of climate change.	2020 Lady Elliot Island ecosystem resilience plan 2020 Crown-of-thorns starfish Strategic Management Framework 2021 Science and Knowledge Needs for Management (2021)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Macroalgae Removal Trials Magnetic Island – Interim Report outlines actions (in order of priority) for the 2019-2020 financial year to develop larger scale restoration techniques to protect/restore coral reefs. • Raine Island Project Report. • Mass Coral Bleaching Report outlines results from aerial surveys along the Reef to assess the extent of coral bleaching in 2022. • Various QPWS projects completed e.g. habitat protection fence at Bowling Green Bay Spit installed (2020) - the number of non-breeding little terns compared to breeding little terns is significantly greater; Far Northern Inshore Dolphin Project Update reports (2021 and 2022); Macroalgae Removal Trials Magnetic Island (Draft Final Report). • Values based management program (DES), includes: eight management statements prepared under the Nature Conservation Act 1992, including one co-designed with a first nations partner; 23 island protected areas had a values assessments undertaken, including five assessments completed with first nations partners for Cape York Peninsula Aboriginal Land (CYPAL). • DES and QPWS have initiated several projects and programs, including: – Reintroduction of traditional burning practices to North Keppel Island with First Nation Partners.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Curtis Island systematic ignition landscape fire mitigation program have demonstratable change in reducing the impacts of bushfire on sensitive ecosystems. – Whitsunday Islands National Park aerial ignition program promoting healthy ecosystems (Paul Williams Review paper). – QPWS has implemented **feral animal control program** on Curtis Island. The program aims to reduce impacts on threatened species and key habitat. Significant progress has been made in achieve this outcome. – Under the QPWS **pest program goats** have been eradicated from Orpheus Island. No sightings for two years, continuing monitoring phase to confirm eradication. – QPWS implemented a **mouse eradication program** to protect nesting seabirds on North West Island. Eradication was confirmed in August 2022.			
OP2 **Implementation** of management documents and/or programs relevant to biodiversity have progressed in accordance **with timeframes** specified in those documents	3	• COVID-19 has impacted on the progression of some projects and programs. • Refer to Reef Authority Strategic Plan, Great Barrier Reef Coastal Zone Strategic Assessment and Annual Operating Plans and OP1. RRRC annual research plans and timelines largely met. • The Reef Restoration and Adaptation Program (RRAP) is collaborative long-term research and development program to develop, test and risk-assess novel	Whitsunday Plan of Management amendment Great Barrier Reef Blueprint for Resilience Reef 2050 Plan – Implementation Strategy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		interventions to help build resilience of the Reef under a changing climate. It aims to develop a toolkit of effective, at-scale Reef interventions that are feasible, safe, acceptable and affordable. The program is currently in the research and development phase. • The 'Ecological Intelligence for Reef Restoration' sub-program aims to fill key foundational knowledge gaps essential for the interventions – including data on region-, temperature- and species-specific coral life-histories. • EPBC fisheries accreditation timelines being met. • Reef Plan is progressing as planned. • Marine Monitoring Program Annual Reports includes information on key water quality indicators in the inshore regions of the Reef. • Governments response to Samuel Review of EPBC Act (2020) and corresponding actions implemented, including development of the Nature Positive Plan: better for the environment, better for business - DCCEEW (2022) • Annual RJFMP Thematic Reviews – Programs include: COTS Response, Seagrass Watch, Pests, Island Health, Marine Megafauna, Fire, Coastal Birds, Technology Transformation, Reef Interventions, NGBR Green Turtle Research, VBMF). • Mass Coral Bleaching Report outlines results from aerial surveys along the Reef to assess the extent of coral bleaching in 2022.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Other specific projects include: – Resilience network initiative post the Summit / Blueprint and related research programs are in progress. – Raine Island Project report – Great Barrier Reef Green Turtle Research Project – In September 2020, QPWS Rangers installed a habitat protection fence at Bowling Green Bay Spit, with the aim to protect and increase habitat for nesting little terns. With the fencing, the number of non-breeding little terns compared to breeding little terns is significantly greater. – Far Northern Inshore Dolphin Project Update reports on field trip results in Nov 2021 and May 2022. – Macroalgae Removal Trials Magnetic Island – Draft Final Report describes trials of a prototype air-lift pump system (to aid macroalgae removal). It also provides an update on relevant research being led by James Cook University and ongoing engagement with the Magnetic Island community on potential rehabilitation projects. Challenge: • Little data readily available to assess the diverse range of managers and managing organisations that implement biodiversity plans and programs.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OP3 The **results** (in OP1 above) have achieved their **stated management objectives** for biodiversity	2	• Refer PL2 (list of relevant documents), PL4 (clear, measurable objectives), PL5 (monitoring), PR8 (impacts), OP2 (implementation timeframes) and relevant evidence. • In general the management objectives for biodiversity stated in relevant plans and programs are assessed and are generally achieved or on target. (*Note*: this assessment does not address the relevance of these objectives). – "*We are ticking off these objectives*" (Workshop participant 2023). – "*Results in workplans are delivered but not all objectives in all plans are delivered*" (Workshop participant 2023). • The Marine Monitoring Program's achieves its stated objective - which is to assess trends in ecosystem health, and resilience indicators for the Reef in relation to water quality and its linkages to end-of-catchment loads. • **Challenge**: – Publicly available data on Reef 2050 Plan implementation (DCCEEW) is dated (available to 2016 and last updated 2021), although annual Activity Reports are available to the public.	Reef report Card, Progress Reef 2050 Plan reports	Adequate	Improvin g
OP4 To date, **products or services** have been produced in accordance with the stated	3	• Reef Water Quality Report Cards released for 2019, 2020. The 2021 and 2022 Report Card will be finalised in late 2023. The Reef report cards track 'Inshore marine condition' that includes water quality, coral and seagrass condition, and freshwater wetland condition. Indicators of land management impacts on water quality, catchment		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
management objectives for biodiversity		condition, and wetland and inshore marine ecosystem condition, are reported in the Reef Water Quality Report Cards. • Reef HQ Aquarium provides both products and services and is an avenue to enhance community understanding of the Reef; offers high-quality products and promotes the values of the Reef, the threats its facing and the role people can play in protecting it. The products on offer have consistently met visitor expectations. Over 186,000 visitors from January 2019 to February 2021; closed during 2020 due to COVID-19 restrictions. – Reef HQ Aquarium reopened its doors following the temporary closure and remained operational until 1 February 2021. The Aquarium then closed and will be rebuilt to ensure compliance with building code, WHS and accessibility. – The Reef Education team are still delivering educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its sustainable future and to encourage participation by taking action to address threats to the Reef. Reef HQ Aquarium continue to engage with the public and promote educational messages through social media channels and local community events. • Permits online - enhancements allowing for greater consistency and efficiency for permit applications including			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		development of six Routine (standardised) permits for low-risk activities. – Updated permission system policies. • Policy on Great Barrier Reef interventions. • RIMReP's vision is to develop a knowledge system that enables resilience-based management of the Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. Implementation has been delivered in accordance with the RIMReP Business Strategy 2020-25 and delivered under the agreed RIMReP Annual Business Plans. • Refer PL2 (a range of policies, plans and other documents that have been produced), PL5 (monitoring products and services), PR9,10,11 (biophysical, socio-economic, heritage products).			
OP5 Effective **knowledge management systems** regarding biodiversity are in place within agencies	3	• The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs. • Reef Knowledge System • Ongoing enhancements to RMS and Permits Online. • ANAO audit recommendation - review and finalise internally managed business procedures, including establishing relevant documents as controlled documents, in order to fully implement Recommendation no.1 from Auditor-General Report No.3 2015–16 Regulation of the Great Barrier Reef Marine Park Permits and Approvals.	Integrated Eye on the Reef database Reef Explorer tool Permits database RIMREP AIMS water quality chlorophyll and turbidity time series data AIMS eAtlas	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		External documents are being reviewed and established as controlled documents where relevant. • QId DAF maintains eResearch archive of scientific and research publications and datasets including many items of relevance to biodiversity in the Reef. • DES maintains database of biodiversity records from protected areas including islands within the Reef and adjacent coastal areas; and maintains a relational database (StrandNet) that collates reports of strandings of sick, dead, injured marine Megafauna (Cetaceans, dugong, pinnipeds, turtles) within Queensland with capacity for analysis of distribution, abundance of strandings in response to threatening processes. • Permits Online - a new online portal to submit applications and manage all permissions and contact details; Improved assessment guidelines; A checklist of information required at the time of application; Updated permission system policy and new guidance documents. • All Reef Plan data is saved on SSIMR database (DARTS/SKIP). Challenges: • Potential gap - The knowledge of biodiversity held in systems are yet to translate directly to inform decisions made in the permits compliance and to a lesser extent permit application assessment processes.	SSIMR Reef explorer | Reef Knowledge System RMS Assessment and decision Managed document procedure - Procedures/Manuals (sharepoint.com) Regulation of Great Barrier Reef Marine Park Permits and Approvals — Follow-up | Australian National Audit Office (ANAO)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Limited spatial tools available for use, although the Reef Knowledge System aims to provide spatial tools and make information accessible to decision makers (this may help permit compliance and permit assessment decisions). • Limited cumulative information in relation to permitted used and actual use within the marine parks remains (although some work in progress to fill this gap) (Workshop participant 2023). • **Greater alignment of communication strategies** among organisations that research and manage the Reef to facilitate enhanced public understanding of a range of issues (e.g. climate change) i.e. including data sharing and standard formats (Australian Academy of Science 2023)…. "'*there remain difficulties associated with integration and access to knowledge system across managing agencies*' (Workshop participant 2023).			
OP6 Effective systems are in place to **share knowledge** on biodiversity with the community	4	• Matters related to biodiversity are discussed at the Local Marine Advisory Committee meetings. Key stakeholders were encouraged to nominate for the 2021-24 LMAC term. There are currently over 220 active members and management partners involved in the LMAC network. • Reef HQ **Aquarium** reopened its doors following the temporary closure due to COVID-19 and remained operational until 1 February 2021. The Aquarium then closed and will be rebuilt to ensure compliance with building code, WHS and accessibility.	COTS updates Coral bleaching updates NESP Reef 2050 Plan Reef 2050 Plan – Implementation Strategy Whitsundays Plan of Management RIMReP Business Strategy 2020-25	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The Reef Videoconferencing program is Reef HQ Aquarium's outreach education program which informs people around the world about the Reef . • The **Reef Education** team are still delivering educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its stainable future and to encourage participation by taking action to address threats to the Reef. Reef HQ Aquarium continue to engage with the public and promote educational messages through social media channels and local community events. (refer Education at Reef HQ). • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs. It enables anyone who visits the Reef to contribute to its long-term protection. It brings together five assessment and monitoring programs (Sightings network; Rapid Monitoring ; Tourism Weekly Monitoring ; Reef Health and Impact Surveys ; Eyes and Ears Incident Reporting Network) The Reef Health and Impact Survey sub-program is run in partnership with the Queensland Parks and Wildlife Service. • RIMREP's vision is to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. A centrepiece of RIMReP is the interactive online Reef Knowledge System — the 'first stop shop' for up to-date	RIMReP Annual Business Plan 2022-23 RIMReP – Reef Knowledge System		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		information about the Reef to guide effective management decisions in a rapidly changing world. The Reef Knowledge System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken. • Reef Health Updates: - Over the summer, the Reef Authority issue weekly public reports on the conditions of the Reef (website, social media and occasionally through conventional media outlets such as radio & TV). These updates are based on forecasts, water temperature heat mapping, in-water surveys, citizen science and aerial surveys. The updates are available on Reef health and past Reef health updates are also available. - The Reef Authority, together with AIMS and CSIRO, publish an annual 'Reef snapshot' that provides a concise, easy-to-understand summary of how the Reef has fared over the past summer, what this means for coral and the actions being taken to help coral health. - The five- yearly Outlook Report that examines the Reef's health, pressures, and likely future is publicly available and shares up-to-date knowledge on biodiversity with the community. It also informs other communication products such as the Reef Authority's education			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		programs, Reef HQ material, Reef Beat education series: junior outlook etc. • Communication through plain-English products summarising outcomes of scientific research is undertaken to some extent, but not systematically. • e-Library (Reef Authority external website) provides access to publications. • DAFF staff eResearch Archive • The scientific community is engaged in issues-specific workshops and forums and RACs. • The http://elibrary.gbrmpa.gov.au/jspui/handle/11017/2787?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwjS78qd0Y_WAhVFNbwKHVhZDGEQFggmMAA&url=http://www.gbrmpa.gov.au/our-partners/reef-guardians&usg=AFQjCNGEKbYrzPkYqTHSQGSLshYNFwaaIQReef Guardian Schools initiative – the focus since 20219 has been on citizen science and the role of individuals in protecting the Reef. Schools from around Australia and the world participate in the program. • The non-scientific community is engaged via the Reef Authority's LMACs, magazines – e.g. Reef Beat, media releases etc • Information is updated frequently through the Wetlands information website. • Reef Explorer.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Reef Report Cards are available annually. • Marine Monitoring Program outputs are published, including: annual Marine Results reports which provide the marine information in the Report Cards; annual Summary Report, which provide a short overview of the key findings; Annual technical reports provide detailed scientific information on the condition and trend of inshore water quality, coral reefs and seagrass meadows. • Regional Report Cards are published. • NESP research outcomes are shared via The CHIRP weekly e-newsletter, through hub newsletters, and are made available on Hub websites. NESP researchers are required to make all NESP research outputs publicly available on websites with a persistent and enduring link. Providing open-access to the data and information products derived under the NESP will provide up-to-date, high-quality data and information to decision-makers, environmental managers, other scientists, and to the community. • Tourism RAC is a competency-based committee with members providing a cross-section of stakeholder expertise and interests in areas relevant to tourism on the Reef. Challenge: • Australian Academy of Science (2023) noted: researchers need to be 'honest brokers' and present all lines of evidence and communicate the reality of the Reef's future in the face of			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		climate impacts. '…although consistent and clear government messaging is needed, the government is not necessarily a trusted voice in many public spaces. Embedding key messages into grassroots communications is needed for efficacy' (p.29)			
OUTCOMES					
OC1 The relevant managing agencies are to date **effectively addressing biodiversity** and moving towards the attainment of the **desired outcomes**.	2	• Previous indicators highlight a range of plans, strategies, programs and actions directed to enhancing biodiversity (refer PL2, all Inputs, and all Outputs) and achieving desired outcomes, related to a health Reef (refer CO1 for a discussion of values). • Outcomes, in relation to the condition and trend (CO2) and impacts (CO3) on biodiversity, indicate that desired outcomes of a healthy Reef that is resilient to a range of threats and sustainable into the future, may be limited. • 'We are not effectively managing biodiversity and moving towards attaining the desired outcomes. At this point the **big weakness is that people do not know if the management carried out is enough to protect corals and other biodiversity'** (Interviewee 12, 2023). • Queensland's State of the Environment Report (2020) provides detailed information on the condition of many ecological processes and concludes, "The deteriorating condition of many ecological processes has affected the integrity of the Reef's Outstanding Universal Value. **Ecological processes are expected to continue to decline** due to climate	RIMREP COTS Strategy and Contingency Plan Mellin et al 2016, Marine protected areas increase resilience among coral reef communities Reef 2050 plan Reef 2050 Plan – Implementation Strategy Whitsundays Plan of Management Houston W. and Black, R. (2021) Monitoring of Feral Horse Impacts on Curtis Island: Report to Queensland Department of Environment and Science. Department of Agriculture,	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		change impacts and inshore land-based run-off". **Population recruitment is reduced for many species** (e.g. corals, fish, some marine turtles, seabirds due to chronic and acute disturbances). – "**Ecological processes**, including microbial processes, particle feeding, primary production and competition remain **poorly understood**". " Ecological processes are expected to continue to decline due to climate change impacts and inshore land-based run-off". – "Population recruitment is reduced for many key species, in particular, corals, fishes and some marine turtles and seabirds, largely due to chronic and acute disturbances" – "Reef building has deteriorated, largely due to the combined effects of unprecedented declines in coral cover and crustose coralline algae in some areas in response to thermal bleaching events". – **For some species and ecosystem processes** confidence around condition status is limited due to lack of long-term data over a broad area. • **2022 Joint WHC/IUCN mission** assessed whether the Reef 2050 Plan adequately addresses threats posed by climate change and provides a pathway for accelerated actions in other areas affecting conservation of the Reef. Key findings: – **OUV significantly impacted by climate change factors**; resilience to recover from climate change	Science and the Environment, School of Health, Medical and Applied Sciences, Central Queensland University, Rockhampton. Houston et al. 2021. Assessment of Yellow Chat (Capricorn subspecies) population and associated marine plain habitat on Curtis Island: Progress Report 2015 to October 2021: Report to Queensland Parks and Wildlife Service. School of Health, Medical and Applied Sciences, CQUniversity, Rockhampton. RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System RIMReP Annual Business Plan 2022-23		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		impacts is **substantially compromised** in part due to degraded water quality. – **Management frameworks, strategies and plans in place to protect OUV: lack of clear climate change targets and implementation measures** are not fully implemented, particularly in relation to water quality and fisheries activities. – Reef 2050 Plan promotes advancement of climate change mitigation commitments under the Paris Agreement target (1.5°C), but **associated plans and strategies referred to in the Plan do not provide any clear pathway to avoid significant negative impacts to the OUV.** – Increasing investment in research (e.g. coral restoration). – **Need more concrete actions** that are sufficient to conserve the OUV under global temperature increase scenarios. – **Recommend Reef be inscribed on List of World Heritage in Danger.** – **Decision** by WHC in **September 2023 recommended not to list as in Danger.** • State Parties response – have implemented policies and committed new funding to address recommendations;			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– $1.2 billion of new funding to help build Reef resilience, improve water quality and protect marine life (total investment of >$4.4B); – committed to "ambitious action on climate change and increased investments to protect Reef"; – legislated 2030 target to reduce GHG emissions to 45% and net zero emissions by 2050 (refer IN1). • Reef management has been in place for many decades and many current successes are underpinned by effective long-term management (e.g. whale numbers have increased and some species are no longer threatened; sediment impacts on seagrass and inshore reefs is being addressed through ongoing catchment management). "*We have come a long way*" (Workshop participant 2023). Some effective outcomes are outlined below. • **Knowledge** of the Reef and its catchment is much improved (refer IN 4,5,6,7 and PR9.10,11,12). Expanded **monitoring programs** provide up-to-date information to guide planning and management (e.g. AIMS LTMP and MMP). – Marine Monitoring Program (Annual Report 2021-2022 for inshore marine habitats): Water Quality (p140 for key conclusions) - every summer satellite images of floods and river plumes entering the Reef are monitored for pollutants. These and other pressures are linked to effects observed on inshore Coral (p.82) and Seagrass meadow (p.122). This has improved			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		scientific understanding of how the Reef is affected by pressures (e.g. cyclones, floods, rising ocean temperatures and land-based run-off), and informed management decisions. – The Reef Water Quality Report Card 2020: continued progress towards the water quality targets; more than halfway to the sediment target and almost halfway to the dissolved inorganic nitrogen target; close to achieving the particulate nutrients targets (e.g. phosphorus and nitrogen); overall inshore marine condition improved to moderate in 2019–2020, with water quality improving to good and coral and seagrass remaining in poor condition. • The **Zoning Plan** helps to protect biodiversity within the Marine Park, including diverse species and ecosystems, including threatened species such as dugong and marine turtles. It ensures that industries that rely on the health of the Marine Park continue to provide social and economic benefits to local communities and the wider economy. • **Many threats to the reef are being addressed** (refer CO3) – COTS control – Positive results for inshore water quality in the Reef for the 2021–22 sampling period. Long-term trends of stability or improvement in water quality were observed in all focus regions			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– NESP project – Hazard map for the Reef to predict regions with a lower risk of persistent warning and coral bleaching. – National Park Island pests (biosecurity) and fire – No-anchoring areas – Before 2019 about 33% of no-anchoring areas within the Marine Park were enforceable through legislation. By June 2021 this increased to about 58%. The Reef Authority continues to progress towards the target of all no-anchoring Areas within the Marine Park legislated. – Some improvements in key values since 2019 - coral reefs, islands, mangroves, coastal wetlands and seagrasses, conditions have either improved or remained stable (State Party Report on the state of conservation of Australia's Great Barrier Reef – DCCEEW 2022) • There is some evidence of **recent coral recovery** (refer Coral cover across time in several dashboards) (refer CO2): – AIMS LTMP (2022) registered the highest levels of coral cover yet recorded in the Northern and Central regions over the past 36 years of monitoring; recovery continued on many Southern reefs, although regional coral cover declined slightly due to ongoing outbreaks of COTS in the Swains reefs. **Trends of coral cover are highly variable** across the Reef, and most reefs had between 10-50% hard coral cover.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Species management and recovery plans are progressing e.g. marine megafauna, coastal birds and Green turtle • Research to inform planning and management e.g. RJFMP Trial of Restoration Activities: – Project Reefresh: Bait Reef rehabilitation - improve coral cover in Bait Reef. – Yarul Dhingiga: Keppel Bay reef rehabilitation project – Green Island reef rehabilitation project – Coral Nurture Program (replant coral fragments) – Habitat mapping (Chris Roelfsema) - map of mid-/outer shelf reefs that has seamless satellite imagery of reef. Geomorphic, benthic, depth and predicted coral types. This will be used to inform future planning (e.g. Southern POM). – NESP project – Hazard map for the Reef to predict regions with a lower risk of persistent warning and coral bleaching. • Expansion of the Reef protected areas - Island Arks project - by 2024 about 150 islands/parcels will be added to the protected area estate (total area of 5,563 hectares) • Extensive on-ground work: – Habitat Protection Fence for Nesting Little Terns - the number of non-breeding little terns compared to breeding little terns is significantly greater after fencing. – Macroalgae Removal Trials Magnetic Island - use of a surface supplied (compressed air) venturi pump			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		system increased the rate that hand collected macroalgae could be removed from the water (to a collection point onboard a vessel) and allowed underwater work to occur more safely. – Paddock to Reef program. Challenges: • "*There is a notion that the values of the Reef are static and unchanging and that the job of the Authority is to preserve and protect these values for all time. The reality is dawning that this is no longer possible. The challenge will become* ***what outcomes and values are we managing for*** *– what are realistic ecological, social and cultural outcomes under climate change and the likelihood that ecosystem function decline appears to be inevitable*?" (Interviewee 2023). • **Developing outcomes that are not asset based**, but rather reflect a range of other criteria, including: is reef governance delivering justice to reef communities and owners; are we utilising best decision-making practices under high levels of uncertainty; are we supporting communities and industries to adapt and thrive in the face of highly changed ecosystem functioning (Interviewee 2023). • Workshop participant comments varied: – *'We have the right kind of things in place for the problems we have – some investment is happening.'* – *'There are successes for some aspects of biodiversity'.*			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– *'There is a disconnect between the rest of the management cycle and outcomes. We (Government agency) know the context, have good plans that are well resourced and implemented'. The participant questions whether there 'is a lag between delivering the elements and seeing outcomes' (Workshop participant 2023).* – *'If outcomes are bad, it may well be that we need to look at what we have missed. Understanding is imperfect and we will continue to learn'.* – *'Threats are being reduced but is this fast enough and well enough to reach the outcomes stated in various plans? This is questionable'.*			
OC2 The **outputs** relating to biodiversity are on track to ensure the **values** of the Great Barrier Reef are protected (refer CO1)	1	• Despite extensive and intensive local effort (resilience and adaptation), the **major risk remains continuing widespread emission of greenhouse gases**, although recent improved emissions reductions targets (national and state levels) are a positive step forward. Refer CO1 where values are listed; CO2, CO3 where condition and trend and impacts are discussed, including climate change and related coral bleaching and cyclones and the status of species and ecosystems; PL2 for diverse plans, strategies and programs to address biodiversity; OC1 in relation to addressing desired outcomes). • **2022 Joint WHC/IUCN mission** to assess whether updated Reef 2050 Plan adequately addressed threats posed by climate change and provides a pathway for	Reef 2050 Integrated Monitoring and Reporting Program Field Management Annual Business Strategy New dugong survey report for southern GBR expected April 2023	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		accelerated actions in other areas affecting conservation of the Reef. Key findings: – **OUV significantly impacted by climate change factors**; resilience to recover from climate change impacts is substantially compromised in part due to degraded water quality. – Reef 2050 Plan promotes advancement of climate change mitigation commitments under the Paris Agreement target (1.5oC), but **associated plans and strategies referred to in the Plan do not provide any clear pathway to avoid significant negative impacts to the OUV**. – **Need more concrete actions** that are sufficient to conserve the OUV under global temperature increase scenarios. • Land-based run-off, including nutrients, sediments, pesticides and other pollutants are affecting marine ecosystems. In combination with other severe threats (cyclones, rising acidity, higher water temperatures) and coastal development, the health of the Reef continues to be impacted. The quality and magnitude of the benefits derived from the Reef are declining as a result of declining condition of the Reef's values. Coral cover is impacted by climate change factors and COTS. Fishing, both legal and illegal are impacting on several species. As a result the biological, natural, aesthetic and geomorphic values of the Reef are negatively impacted.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Cumulative impacts management policy has been developed. Cumulative impacts remain a priority for the Reef to ensure that multiple stressors are effectively managed to better protect biodiversity. • Challenges: – *'We have not yet seen the worst of the changes that are occurring… In the context of the future, we are miles off ensuring that the values of the Reef are protected'* (Interviewee 2023). – *'We have made investments into management, but we don't see evidence that this has empowered management to deal with the problems facing the Reef'* (Interviewee 12, 2023) – "***Programmatic innovation,*** *including structural industry adjustment, rather than institutional or policy innovation is needed to address the major challenges that affect Reef values…the Federal and State agencies and the Authority need to work down through the system to get change. It can't be top-down decision making any longer. Subsidiarity should be the key principle*" (Interviewee 2, 2023). – Enhancing understanding of the direct, indirect and cumulative effects of climate change, particularly on the function and behaviours of species and ecosystem processes. – Development and application of models that assist in understanding the impacts of threats and the ways in			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		which systems recover from direct, indirect and cumulative impacts. – While addressing climate change requires collaborative effort on an international scale, agreed actions are required at all levels within Australia (refer Climate change topic).			
OC3 The **outputs** (refer OP1 and 3) for biodiversity are **reducing the major risks** and the threats to the Great Barrier Reef	1	• Refer CO2 and CO3 for detailed findings on the current condition and trends and impacts; PR3 for a review of governance arrangements; OC1 and 2 for outcomes in relation to desired outcomes and protection of values. • Extensive pressures on the reef were outlined in CO2 including from climate change, land-based run-off, coastal development, ports and shipping. Many of these threats are increasing and are cumulative in nature. – "*The major threats are not under control*" (Interviewee 2023) – 'For water quality – we are not really reducing the major risks and threats. For climate change, no, the outputs are not reducing the major risks and threats' (Interviewee 12, 2023). • **2022 Joint WHC/IUCN mission** assessed whether the updated Reef 2050 Plan adequately addressed threats posed by climate change and provided a pathway for accelerated actions in other areas affecting conservation of the Reef. Key findings: – **OUV significantly impacted by climate change factors: resilience to recover from climate change**	Great Barrier Reef Strategic Assessment Report, Chapter 11 Strategic Assessment Demonstration case studies and technical reports Sobtzick et al. 2017. Distribution and abundance of dugong and large marine turtles in Moreton Bay, Hervey Bay and the southern Great Barrier Reef. A report to the Great Barrier Reef Authority. Centre for Tropical Water & Aquatic Ecosystem Research (TropWATER) Publication 17/21, James Cook University, Townsville COTS program	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		impacts is substantially compromised in part due to degraded water quality. – **Management frameworks, strategies and plans in place to protect OUV: lack of clear climate change targets and implementation measures** are not fully implemented, particularly in relation to water quality and fisheries activities. – Reef 2050 Plan promotes advancement of climate change mitigation commitments under the Paris Agreement target (1.5°C), but **associated plans and strategies referred to in the Pan do not provide any clear pathway to avoid significant negative impacts to the OUV.** – **Need more concrete actions** that are sufficient to conserve the OUV under global temperature increase scenarios. • COTS Control Program has been significantly expanded (refer IN1) and impacts are being reduced in mainly high tourism visitation sites (about 7% of the Reef). The Relative efficacy of three approaches to mitigate Crown-of-Thorns Starfish outbreaks on Australia's Great Barrier Reef - findings support manual control as the most direct, and only effective, means of reducing COTS densities and improving hard coral cover. • Land-based run-off continues to impact many Reef species and ecosystems, which are in poor condition and continue to decline.	Brodie, Jon, and Richard G. Pearson. 2016. "Ecosystem health of the Great Barrier Reef: Time for effective management action based on evidence." *Estuarine, Coastal And Shelf Science* 183, no. Part B: 438-451. *ScienceDirect*, Rivers to Reef to Turtles vulnerability assessments		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– There may be gains from addressing nutrient input. For sediments, this is a legacy issue whereby sediment gets resuspended and impacts on the Reef. We need long time scales to improve this. The evidence isn't there yet to invest further in sediment reduction. Even if we achieve the Reef 2050 Plan targets, this may mean only a small improvement in water quality. Money would be better spent on addressing other issues on the Reef (Interviewee 12, 2023). • The **current management regime and outputs in relation to climate change are inadequate to prevent further declines in biodiversity**. '*We do not yet have a specific actionable strategy to deal with climate change. The degree to which current actions can help reefs adapt to climate change is unclear*' (Interviewee 12, 2023). – '..increasing frequency and severity of pressures has eroded (Reef) resilience, and the **outlook for most coastal and marine ecosystems is generally poor**' (Bay et al. 2023:1) • About 19 in-water **coral reef restoration projects (**since 2017) **and a growing field of research** into coral restoration and adaptation on the Reef (including RRAP refer PR9, interventions to enhance coral performance under climate change and research into socio-cultural perspectives). – In water projects include coral gardening, substrate stabilisation, coral repositioning, macro-algae removal			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and larval-based restoration techniques. "There are positive signs that coral restoration can be a valuable tool to improve resilience at local scales (i.e. high early survival rates across a variety of methods and coral species, strong community engagement with local stakeholders)" McLeod et al. 2022:1). However, 'to date, restoration and adaptation have been undertaken at relatively small scales and at a high cost' (Bay et al. 2023:2) – Many projects are in their infancy and will require assessments of cost-effectiveness, scalability and socio-economic impacts (McLeod et al. 2022). "Australia has about 50,000km^2 of coral reefs and no existing techniques could possibly be scaled up to cover even a fraction of this area" (McLeod et al. 2022:15). – 'Multigenerational studies, spanning several years to decades, are needed to determine how heat tolerance and other coral fitness-related traits are maintained under field conditions' (Bay et al. 2023:2). • Fisheries – Species Of Conservation Concern reporting requirements: The threatened, endangered and protected animal (TEP) logbook is used to report interactions with protected animals. Under the *EPBC Act*, commercial fishers must report all interactions with protected species to the Department of Agriculture, Fisheries and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Forestry. There is increased Intelligence capacity through VMS, which is reducing illegal extractive use. Challenges: • Refer Challenges outlined in OC2. • Selecting the most appropriate management intervention strategies that enhance Reef resilience and functioning. • Progressing relevant research (e.g. in relation to coral restoration) to the point where interventions at scale will bring the required results for improved Reef health.			
OC4 **Use** of the Great Barrier Reef relating to biodiversity is demonstrably **environmentally sustainable**	1	• Key uses relating to biodiversity include activities within: - the Reef catchment e.g. agriculture, pastoralism, mining, coastal and urban development and ports - the marine environment e.g. fishing (commercial and recreational), tourism, recreation Traditional use of marine resources, shipping, research and defence activities • Most uses of the Reef rely on healthy Reef ecosystems e.g. tourism, recreation, Traditional Use, research, fishing. Various stressors (refer CO2, CO3), particularly climate change, will impact the environmental sustainability of these uses and various planning documents are in place to manage biodiversity in relation to use (refer PL2). • Recent reports e.g. **2022 Joint WHC/IUCN mission,** Queensland's State of the Environment Report (2020) indicate that the Reef's OUV is impacted by climate change and its resilience to recover from climate change impacts is	Great Barrier Reef Strategic Assessment Report, Chapter 11 Strategic Assessment Demonstration case studies and technical reports World Seagrass Atlas (Short & Green) COTS vulnerability assessments	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		compromised. The health of the Reef is declining in part due to the cumulative impacts of multiple stressors including outbreaks of crown-of-thorns starfish, input of sediment and nutrients, and legacy issues such as catchment clearing and commercial harvesting of iconic species (refer CO2, CO3, PR3, PR8, OP3, OC1, OC2, OC3). - Mass coral bleaching - Cyclones and other extreme weather events, resulting in floods - Ocean acidification • The Reef ecosystems' resistance and capacity to recover is varied. The extent of loss varies between ecosystem components (for example, dugong compared to some fishes) and between localities (for example, the inshore southern two-thirds of the Region compared to places offshore and further north). • AIMS LTMP 2021-2022 report. In 2022, the Reef continues to recover, registering the highest levels of coral cover in the Northern and Central regions over the past 36 years of monitoring. While recovery continued on many Southern reefs, regional coral cover declined due to ongoing outbreaks of COTS in the Swains reefs. The trends of coral cover are highly variable across the Reef. Most reefs had between 10-50% hard coral cover. • Cumulative bleaching undermines systemic resilience of the Great Barrier Reef (Cheung et al. 2021) (Note: addresses coral bleaching in 2016, 2017 and 2020)			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		- The Reef is being damaged by expanding coral bleaching events, with reduced opportunity for recovery in susceptible areas. - The cumulative impact of recent bleachings may have **reduced larval supp**ly by 71%. Most severely bleached reefs (75%) are predicted to have experienced 80-100% loss of larval supply. - **Coral connectivity** is likely to become increasingly disrupted due to the escalation of climate-driven disturbances. - **About 13% of the Reef are potential refugia that avoid significant warming, with 14% within protected areas**. Refugia have the potential to deliver coral larvae to 58% of the Reef (i.e. about 2,185 reefs), although not in the far northern sections of the Reef. These may provide pockets of systemic resilience in the near-term. - Predict brooding corals are likely to increase their dominance in severely bleached areas and profound reduction in spawner larval supply. The ecological consequences of these community shifts are not yet clear, although similar shifts in the Caribbean have reduced ecosystem functions (Alvarez-Flip et al. 2013). - 'Theories of conservation planning for climate change will need to consider a shifting portfolio of thermal environments over time' (p.5385). • RJFMP trial of restoration activities to increase resilience of reefs in face of threats:			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		- Project Reefresh: Bait Reef rehabilitation - Yarul Dhingiga: Keppel Bay reef rehabilitation project - Green Island reef rehabilitation project • The Reef Island Arks project - by 2024 another ~150 islands/parcels to be added to the protected area estate (i.e. expansion of about 5,563 hectares) (refer PL2 for acquired island parcels). Can provide safe refuge as places that are remote and more removed from impacts common on the mainland. This is a key strategy to enhance ecological resilience of the WHA. - However, Bay et al (2023) note that existing management strategies and expanded networks of protected areas may be insufficient to slow long-term decline and loss of socio-ecological value and identify an urgent need to undertake research to explore the benefits of adding different combinations of active interventions (e.g. modelling and decision support tools). • MMP Annual Report 2021-2022 for inshore marine habitats and RKS dashboard: - Water Quality (refer p.140) - Seagrass (refer p.122) - Coral (refer p. 82) • The Reef Zoning Plan helps to manage direct use and limit impacts on biodiversity: - Prohibiting spearfishing boosts conservation outcomes for partially protected areas			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		- Conservation benefits of no-take marine reserves outweigh modest benefits of partially protected areas for targeted coral reef fishes - Impact evaluation and conservation outcomes in marine protected areas: A case study of the Great Barrier Reef Marine Park. • The impact of uses on biodiversity varies: - **Commercial marine tourism and recreational** activities have a minor and localised impact on biodiversity values and are rated as environmentally sustainable (refer Table 35 and Table 44) - **Fishing** impacts on biodiversity can be significant (e.g. coral trout and other commercial fish species) but strategies are in place to limit some of the impacts on biodiversity e.g. Turtle exclusion devices (refer below). - **Coastal development and ports** have various impacts on biodiversity (refer Tables 34 and Table 43) including impacts from runoff and loss of coastal ecosystems and connectivity. - **Traditional use** of marine resources is thought to have a low impact on biodiversity (refer Table 47). - **Shipping and defence** activities have a low impact on biodiversity (refer Table 46 and Table 37) • There has been **some improvement in species and ecosystems**, including: - While the mainland loggerhead turtle nesting populations have shown appreciable recovery since the			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		introduction of compulsory use of Turtle exclusion devices in trawl fisheries in 2001, there has been only minor recovery of nesting populations on the southern Reef island which used to support the main loggerhead nesting populations in eastern Australia. Collectively the current loggerhead turtle nesting population of eastern Australia is 70% less that the nesting population of the 1970s. - Loggerhead turtle population has increased at Wreck Island - Humpback population has increased - The number and size of coral trout in no-take zones has increased. - Some key habitat areas are being managed (e.g. for dugong). The Reef Authority and QPWS operate a RJFMP for the marine and island national parks, encompassing the Marine Park and the Reef Coast Marine Park. – Through the Joint Field Management Program, the managing agencies have in place an ongoing compliance program that prioritises compliance risks. Risks specific to dugongs considered in this framework include commercial mesh netting and illegal hunting. – The Program is assisting the Marine Monitoring Program in improving the assessment of seagrass condition across the Reef by trialling			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		monitoring techniques and sites. In 2023 sub-tidal seagrass sampling methods were consolidated and two new sites were established bringing the total to 10 sites monitored to improve the assessment of seagrass condition across the Reef. – **Vessel transit lane markers** are in place in the Hinchinbrook Area and Maritime Safety Queensland is responsible for maintenance. The RJFMP regularly checks that the markers are in place and advises Maritime Safety Queensland if any are missing. – The program continues to support the Marine Animal Stranding Program with volunteer involvement in response to marine turtle strandings increasing. • Multi-decadal stability of fish productivity despite increasing coral reef degradation (Yan & Bellwood 2023) used a 26-year dataset of benthic reef fishes to track trends in fish biomass production through time. Following mass coral bleaching in 1998 the abundance, standing biomass and productivity of fish communities remained relatively constant despite multiple stressors. Species richness declined but rebounded. Species composition changed over time but maintained a steady level of fish biomass production. While these highly dynamic and increasingly degraded systems can still provide some critical ecosystem			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		functions, it is unclear whether these patterns will remain stable over future decades. (*Note*: this study did not address the impact of the four major mass bleaching events in 2016, 2017, 2020 and 2022). • The 2022 Scientific Consensus Statement (due to be finalised in 2024) is a synthesis of current peer-reviewed scientific evidence pertaining to the water quality issues (including land-based run-off) in the Reef. - It informs a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. In the design of the 2022 Scientific Consensus Statement, extensive consultation was undertaken to identify and prioritise specific questions that frame the scope of the evidence being gathered. - It will identify knowledge gaps and limitations in the peer-reviewed scientific evidence, which will inform future iterations of the Reef 2050 Water Quality Research, Development and Innovation Strategy. Challenge: • Under current trajectories, it is unlikely that the coral reefs of the future will resemble those of the past. As multiple stressors, such as climate change and coastal development, continue to impact coral reefs, understanding the changes in ecosystem functioning is imperative to protect key ecosystem services (Yan & Bellwood 2023).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC5 **Use** of the Great Barrier Reef relating to biodiversity is demonstrably **economically sustainable**	1	• Refer CO4 in relation to uses taking place in the Reef Region. • There have been some improvements in environmental indicators in relation to the Reef in the past few years. Refer: – Marine Monitoring Program – Reef Water Quality Report Card 2020 – Multi-decadal stability of fish productivity despite increasing coral reef degradation (Yan & Bellwood 2023) – Cumulative bleaching undermines systemic resilience of the Great Barrier Reef (Cheung et al. 2021) • **The condition of Reef's biodiversity is variable** depending on the ecosystem, species, location and related threats and stressors and their impacts. For example, in relation to the inshore Reef region: – 'Overall, marine condition in the inshore Reef improved to moderate in 2019-2020, with seagrass and coral remaining in poor condition and water quality improving to good. The Cape York and Mackay Whitsunday inshore regions remained in poor marine condition. The Burdekin and Fitzroy inshore regions improved to moderate, and the Wet Tropics and Burnett Mary inshore regions remained in moderate condition.' – 'Moderate' progress towards the dissolved inorganic nitrogen and sediment targets, 'Very good' progress	Great Barrier Reef Strategic Assessment Report, Chapter 11 Sustainable Fisheries Strategy 2017-2027 Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef Deloitte Access Economics Report Economic contribution of the Great Barrier Reef (2013) Ban on capital dredge material disposal	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		towards particulate nutrient targets and 'Good' for pesticides. However, these outcomes are influenced by the level of discharge from catchments. In the 2021-22 wet season, the Mackay-Whitsunday region had a discharge of around half the long-term median, while the Burnett-Mary region had a very high discharge. Thus weather/climate events can influence these results. The Marine Monitoring Program: Annual Report for Inshore Water Quality Monitoring 2021-2022 report (Moran et al. 2023:140) notes that the relatively stable or improving water quality indicators are 'likely a product of near-or below-median river discharge over the last ~3 years, with no major flood events impacting most of the Reef catchments in recent years'. • Declines in the condition of inshore waterways and reefs will impact the economic sustainability of the commercial marine tourism industry, recreation, fishing and Traditional use of marine resources. These uses are underpinned by healthy ecosystems and biodiversity. – The commercial marine tourism industry in the past has contributed significantly to the Queensland and Australian economy. However, the industry reports that it is economically sustainable in the near future (12 months) but is unable to predict economic sustainability into the medium or long-term future due to complex factors that may impact the industry (e.g.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		declines in Reef biodiversity, listing as 'in danger', pandemics, social media posts relating to possible shark attacks and poor reef health) (Interviewee 2023). • Modifying terrestrial habitats that support the Reef is likely to continue, based on the expected increase and **intensification of agriculture and projected increases in urban and industrial development**. – Queensland Agriculture Strategy: A 2040 Vision to double agricultural production (2013) "has set a clear, ambitious target to double Queensland's agricultural production by 2040" (p.9), including expansion of the land under agriculture (p.13). Agricultural expansion in northern Australia (CSIRO) is planned, with much of this development expected to take place in northern Queensland (Interviewee 2023). – The flow-on effects, especially in areas close to the coast may **present a very high risk to the Region's values, including biodiversity, for example through changes to water quality and connectivity**. (Note: there have been updates to the Vegetation Management Act that may reduce these impacts, resulting in declines in land clearing). • With continued **pesticide use** in the catchment, it is almost certain they will also be a component of catchment run-off over the next quarter of a century. Of major concern is the effect that pesticides will have on freshwater and estuarine			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		systems in the catchment that support the biodiversity of the Reef. • The impacts of **incidental catch** continue to have a major impact on species of conservation concern although the trawl fishery has significantly reduced its incidental catch of marine turtles and other non-retained bycatch species by using improved equipment. Death of discarded and incidentally caught species of conservation concern across all fisheries and the Queensland Shark Control Program is almost certain, with major consequences for their populations. As most species discarded are significant for Traditional Owners either as food, a totem or for customary practice, this impact is likely to have a major effect on their cultural values. • The Zoning Plan provides for a range of ecologically sustainable recreational, commercial and research opportunities and for the continuation of traditional activities. Challenges: • Systems are in place to provide an environment capable of economic sustainability, however, the economic externalities may determine the final outcome.			
OC6 Use of the Great Barrier Reef relating to biodiversity is demonstrably **socially**	2	• Climate change remains the most serious long-term risk facing the Reef and is likely to have far reaching consequences for the region's environment and the people who derive benefits from the Reef as well as related	Great Barrier Reef Strategic Assessment Report, Chapter 11	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
sustainable, in terms of understanding and/or enjoyment		industry sectors including tourism and recreation, fishing as well as traditional use. • Extensive relationships have been developed with local communities and stakeholders (refer CO5 and OC7). Uptake of the Reef Guardian program within the community is indicative of community interest in and concern for the Reef. • Under the CYPAL the QPWS follow a 'Permits to take, use, keep or interfere with Natural Resources Protocol' (PTUKI) where researchers want to take things within a Traditional Owners land/sea country. This protocol implements respectful governance arrangements where there is formal notification, involvement and data sharing between western science and Traditional owners. Information Sheets produced by Traditional Owner groups advise visitors and researchers on how to conduct their activities within their land and sea country (Stanley Islands). • Woppaburra Guidelines is the first of its kind and was built form developing effective partnerships with Woppaburra Traditional Owners. It is currently being implemented throughout the permit system for any activities that meet the trigger points for referral in the Keppel Island group. • New Darumbal TUMRA enables a community-based plan for management of traditional resources which are accredited in legislation and have proved a successful mechanism for joint management of the Reef.	Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef SELTMP Experimental Environmental-Economic Accounts for the Great Barrier Reef, 2017 vulnerability assessments		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• POMs help protect and conserve the values of the Reef while allowing for a range of experiences and uses in the Marine Park. • Protecting, conserving, and enhancing the protected area estates and the species and ecological processes that they support in partnership with First Nations Peoples is a key activity within the RJFMP. Increasing the island protected area estate within the WHA helps to enhance ecological resilience and provide a safe haven away from impacts and influences. • In 2019, the RJFMP moorings projects installed 34 new public moorings and 15 Reef Protection Markers (RPMs) from Cooktown to the Whitsundays and at project completion installed 114 new public moorings and 90 RPMs in the Reef. In 2022-23, a further 42 new public moorings are to be installed within the Townsville and Whitsunday regions. This is a significant contribution to protecting marine ecosystems from anchor damage by the installation of additional reef protection markers and public moorings at popular reef and island locations. Challenges: • Addressing gaps in knowledge in the 'high-emission scenario' related to the predicted impacts of climate change, including improved understanding of how different ecological functions might be impacted and thus enabling communities to be better prepared for possible			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		disruptions to lives and livelihoods (Australian Academy of Science 2023). • Developing frameworks based on technical and social understanding of risks and evaluating the range of potential consequences - intended, unintended, positive and negative (Bay et al. 2023). • Incorporating Traditional Knowledges to provide a framework for managing and adapting to climate change impacts on the Reef (Australian Academy of Science 2023). • Improving alignment of communication strategies to assist public understanding of climate impacts and the risks of intervening and not intervening to build public trust and social licence for higher-risk interventions (Australian Academy of Science 2023). • Engaging with communities to understand what values, regions or functions are most important for preservation in a possible future where not all of the Reef can be 'saved' (Australian Academy of Science 2023:37).'Truthful, open and clear communication with the public is needed to prepare Australians for what is to come, given the GBR will continue to change as the environment becomes more challenging for its habitats and species'.			
OC7 The relevant managing agencies have developed **effective partnerships** with local	4	• Partnerships represent discernible, formalised and regularised relationships between organisations that see themselves as partners, and are characterised by mutuality (i.e. interdependence, negotiation of agreed objectives,	Reef Guardian Schools Reef Check Seagrass Watch Marine Monitoring Program	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
communities and/or stakeholders to address biodiversity		joint decision making, mutual accountability, equitable and mutually beneficial outcomes) (Brinkerhoff 2002). • Partnerships form a strong foundation on which to advance outcomes for biodiversity across the Reef. They support program delivery and build an enabling environment for a range of actions or strategies e.g. collecting data -Tourism industry; providing information – research organisations; financial incentives – from government and others; enabling innovation etc. • **Trends** (Interviewee 2, 2023): – Partnerships in general are viewed as necessary to make progress on diverse issues surrounding biodiversity. Working together provides benefits (see below) – Increasing number of partnerships over time and greater partner diversity, contributing to more complex arrangements – Partnerships have focused on planning and policy consensus (co-design, alignment, high level program coordination (e.g. IGA), but are moving to greater involvement of various sectors (e.g. tourism, fishing, agriculture); regional reporting (e.g. coral cover – N,C,S) and integrated delivery partnerships (e.g. with Traditional Owners) – Increasing institutional complexity in partnering e.g. nesting of partnerships – especially in relation to	RAC's: http://www.gbrmpa.gov.au/about-us/reef-advisory-committee Our Partners: http://www.gbrmpa.gov.au/our-partners Local Marine Advisory Committees Great Barrier Reef Blueprint for Resilience Reef 2050 Long-term sustainability plan Reef 2050 Plan – Implementation Strategy Whitsundays Plan of Management Reef 2050 Traditional Owner Implementation Plan https://reefto.au/wp-content/uploads/2022/10/DES_GBR_TO-Report_WEB.pdf Animation https://youtu.be/GdIRwn6QINc		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		terrestrial issues (NRM arrangements with regional bodies, local governments, NGOs) – Locus of investment and brokerage has diversified e.g. Reef Trust Partnership Grant Agreement – Reef Foundation and State Government operate as influential investors and program managers – Partnerships characterised by mix of collaborative and contracting mechanisms and require the capacity of the partners to balance the demands of these different, but often nested and competing modes of interaction. • **Various types of partnerships have been formed to enhance biodiversity outcomes** (Interviewee 2, 2023). These include the following: • *(a) knowledge-based/reporting* – provide report cards and information on condition and trend which helps to increase awareness among partners and the public on Reef condition e.g. universities, research institutions, governments at all levels, NRM groups, industry groups including tourism, NGOs, commercial partners – The National Environmental Science Program (NESP) is based on partnerships and collaboration. The NESP Tropical Water Quality Hub connects Reef managing agencies, scientists, Indigenous people and communities. The independent Hub Steering Committee includes stakeholder representatives from industry and community groups. – Research organisations e.g. AIMS, CSIRO	Timeline https://reefto.au/timeline/ Traditional Owner and Marine Parks Management Portal Reef Authority ELibrary: Applications for joint permissions (Document No. 100440)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– RJFMP Trial of Restoration Activities: – Project Reefresh: Bait Reef rehabilitation (2021) - multi-stakeholder team - to improve coral cover in two small sections within Bait Reef. – Yarul Dhingiga: Keppel Bay reef rehabilitation project - a multi-stakeholder team (Reef Authority, QPWS as part of the RJFMP, the Woppaburra TUMRA Aboriginal Corporation (WTAC), Mars Incorporated, Keppel Dive and Freedom Fast Cats - trials techniques on two of the inshore fringing reefs of Great Keppel Island and at a smaller site at Humpy Island Reef (Burye). – Green Island reef rehabilitation project (2020-25) joint initiative between the Reef Authority, QPWS, Mars Incorporated, Quicksilver Cruises and Big Cat Green Island Cruises, the Coral Nurture Program and Gunggandji Traditional Owners to attach live coral fragments – Northern Great Barrier Reef Research program has specific partnerships with Traditional Owner groups; providing employment and knowledge sharing. – Reef Credit Scheme is a market-based approach to improve water quality entering the Reef and enhance biodiversity outcomes (stemming from the Major Integrated Projects initiative with government and other partners). It is encouraging diverse and direct			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		investment, addressing matters of importance to the Reef, while meeting the individual policy, investment and corporate responsibilities of various companies and individuals that invest. – Master Reef Guides (102) share up-to-date scientific and management information about the reef and explain what people can do to protect biodiversity. – Refer OC 6 in relation to Guidelines/protocols and data sharing to protect species and habitats. • *(b) integrated delivery* (more recent focus) - Partnerships are both formal and ad hoc and include: – Sector oriented e.g. with industry (QSIA) – Place based or regional delivery e.g. NRM groups – Local issue specific delivery e.g. with community groups and NGOs – New delivery approaches e.g. RJFMP (Reef Authority and QPWS) – Reef Authority has engaged several tourism operators (AMPTO) to undertake site stewardship activities. – research providers (AIMS, JCU, UQ, CSIRO, NOAA, BoM) – Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes. This is to better identify risks to relevant values for the purpose of assessing potential impacts from proposed			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		activities on those values and implement appropriate avoidance or risk mitigation measures. – **Schools, including Reef Guardian** School curriculum resources are designed to fit the Australian Curriculum. • *(c) Policy and planning* – e.g. Intergovernmental Agreement enables a partnership approach to management by the Australian and Queensland governments in relation to biodiversity. Partnerships with government agencies are both formal and informal : – Partners in the Australian Government e.g. the Reef Authority, DCCEEW (MOU with DCCEEW relating to the integration and application of the EPBC Act and Marine Park Act 1975). – Partners in the Queensland Government e.g. DES, QPWS, State Development, Infrastructure, Local Government and Planning, Department of Agriculture and Fisheries, Qld Water Police, Department of Premier and Cabinet – Local government – responsible for local planning and development decisions and providing public services e.g. water treatment in catchment; Reef Guardian Councils – Reef Advisory Committees are a partnership approach to management involving a range of partners. – Matters related to biodiversity are discussed at the LMAC meetings. Key stakeholders were encouraged to nominate for the 2021-24 LMAC term. There are			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		currently over 220 active members and management partners involved in the LMAC network. • *Working with Traditional Owners* – Supported by the Joint Reef 2050 Secretariat, Traditional Owners on the multiple Reef governance groups came together to develop the Reef 2050 Traditional Owner Implementation Plan (November 2022). The Plan builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products including an animation and timeline were also produced to inform community and government of the long history and desired path forward. – There are now four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. – The Reef Authority works with Traditional Owners under TUMRAs to identify, maintain and transfer traditional ecological knowledge within their Sea Country and to research priorities to address key			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		knowledge gaps. The Reef Authority has development the Cultural Knowledge Management System to allow appropriate collection, storage and use of information from Traditional Owners and engagement with Traditional Owners. – Indigenous Training within COTS Program for COTS control and active employment of Traditional Owners by contractors in COTS control activities. – Far Northern Inshore Dolphin Project - meetings with Gudang Yadhaykenu Traditional Owners to discuss threats to dolphins in their Sea Country; Traditional Owners also supported the project with Traditional Knowledge and participated in the vessel surveys and Passive Acoustic Monitoring (PAM) deployment. • Protecting, conserving, and enhancing the protected area estates and the species and ecological processes that they support in partnership with First Nations Peoples is a key activity within the Reef Field Management Program. Islands can provide safe refuge as places that are remote and more removed from impacts common on the mainland such as weeds, pest animals, frequent wildfires, illegal dumping and visitor impacts. Increasing the island protected area estate within the GBR World Heritage Area is a key strategy to enhance ecological resilience and provide a safe haven away from impacts and influences • Blueprint for Resilience (Partnerships for local action initiative).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Diverse benefits** are evident from a range of more formal partnerships including: access to diverse skills and resources, including funding; improved mutual understanding; building trust; developing complimentary data sources; opportunities for joint planning and action (Interviewee 2, 2023). However, the effectiveness of the more informal partnerships is not easily measured (Seagrass Watch is an exception with regular performance assessment and continuous improvement). Challenges: • Aligning goals of government and related agencies with those of partner organisations may require reconsideration of partner goals and roles to enhance outcomes for biodiversity and improve mutuality (Interviewee 2, 2023). • Making high-level goals and objectives (as described in Reef 2050 Plan and related strategies and plans) relatable and beneficial to partners and their constituents. • Addressing ambiguity in roles and balancing accountability to a partners' constituents with responsibility to other partners (CSIRO 2023).			

Climate Change

Table 36: Calculation of grades for Climate Change

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The values of the Great Barrier Reef relevant to climate change are understood by managers	3	• The values for the GBR are well understood and are clearly articulated in Great Barrier Reef Outlook Report 2019 and the Reef 2050 Plan • However, information from expert interviews revealed that the values of the Reef are primarily understood by managers as being static in nature across time; and there is a lack of appreciation regarding shifting values in response to dynamic future conditions, particularly as a result of climate change. • The Marine Park Authority has a position statement on climate change that includes description on GBR values and the impacts of climate change on these values. • The Blueprint for Resilience identifies • Climate Change in Australia provides a comprehensive national assessment of future climate change, including for the GBR region and catchments. This resource provides a number of tools to help managers understand and assess the implications of projected climate change for the GBR.	• Workshops and interviews • Outlook Report 2019 (Chapters 6, 9 and 10) • Position Statement Climate Change • Reef Blueprint: Great Barrier Reef Blueprint for Resilience • Reef 2050 long-term Sustainability Plan • Climate Change in Australia (CSIRO and BOM) • Queensland Climate Adaptation Strategy 2017-2030 • Biodiversity and Ecosystem Climate Adaptation Plan • Climate Change and the Great Barrier Reef: A vulnerability Assessment	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Climate change risks to the values of the GBR are recognised in the Queensland Climate Adaptation Strategy, which establishes sector adaptation plans. • The Biodiversity and Ecosystems Climate Adaptation Plan, established under the Queensland Climate Adaptation Strategy, recognises the Reef as particularly vulnerable to climate change and high risk of loss even under low emission scenarios. • Climate Change Vulnerability Assessment predictions of impacts to Reef values have proven to be correct since its publication in 2007. This document would benefit from updating in line with current science and knowledge.			
CO2 The current condition and trend of values relevant to climate change are known by managers	3	• The condition and trend of values relevant to climate change are described in the GBR Outlook report 2019 (section 6.3) • The Outlook Report 2019 assessed two of the Region's most important habitats, seagrass meadows and coral reefs, which support a high diversity of species, and concluded to be in poor and very poor condition, respectively. One third of the ecosystem processes assessed were in poor to very poor condition, including several critical processes essential for whole-of-system functioning (recruitment, symbiosis and reef building). • Since 2019 assessment, the Reef has been subjected to several large-scale disturbances:	• Interviews and workshops • Outlook Report 2019 (section 6.3) • Queensland Reconstruction Authority Website • AIMS Long-term Reef Monitoring Program: Annual Summary Report on Coral Reef Condition 2020/21 • Queensland State of the Environment Report 2020 • Biocondition Reference Site (Queensland Government)	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– 2020 – Queensland Monsoonal Flooding – 2021 – Tropical Cyclone Imogen (category 1) – 2021 – Severe Tropical Cyclone Niran (category 5) – 2022 – Tropical Cyclone Tiffany (category T2) – The individual and cumulative impacts of these disturbances have negatively affected values, but effects are not fully known. • The Australian Institute of Marine Science (AIMS) have found that over the past 36 years coral reefs in the GBR have shown an ability to begin recovery after disturbances. However, it is generally agreed that the reef has limited capacity to the current rate of climate change and associated impacts. • BioConditon reference site benchmarks are in place for the Capricorn Cays; 59 reference sites in 21 communities were surveyed. This will help assess the response to the vegetation communities to climate change (and other disturbances). • Queensland's State of the Environment Report (2020) provides detailed information on the condition of many ecological processes and concludes, "The deteriorating condition of many ecological processes has affected the integrity of the Reef's Outstanding Universal Value. Ecological processes are expected to continue to decline due to climate change impacts and inshore land-based run-off"			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CO3 Impacts (direct, indirect and cumulative) associated with climate change are understood by managers.	2	• In the Outlook Report 2019 the outlook for Great Barrier Reef was assessed to be "very poor" due to the impacts of anthropogenic global warming. The threats affecting the Region's ecosystem (natural heritage values) are increasing, compounding, and expanding in scale. This assessment takes into account the current impacts of climate change being experienced, and the resultant lower resilience of the Reef. • Reefs continue to be exposed to cumulative stressors (i.e. climate change, severe weather, land-based run-off), and prognosis for the future disturbance regime is one of increased and longer lasting marine heatwaves and greater proportion of severe tropical cyclones (Carter & Thulstrup 2022) • The direct and indirect impacts of climate change over the past few years (thermal stress events, severe cyclones and consequent loss in coral habitat) have likely impacted many species, particularly habitat-associated or those with narrow thermal tolerance. Rising sea-levels threaten coastal and island communities. Increased erosion and inundation may lead to significant changes in estuarine habitats, with turtle nesting sites vulnerable due to greater beach erosion and inundation of nests. Seabird nesting and shorebird roosting sites are also at risk (Richards & day 2018)	• Workshops and interviews • Australia falls short in Great Barrier Reef efforts - Carter and Thulstrup (2022) • Biodiversity of the Great Barrier Reef—how adequately is it protected? - Richards and Day (2018) • Outlook Report 2019 • Intergovernmental Panel on Climate Change Sixth Assessment Report (IPCC AR6)	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Intergovernmental Panel on Climate change Sixth Assessment Report concludes that climate change risk is likely to increase in future due to emission trajectories and unavoidable future climate change, locked in by past emissions. • The Outlook Report 2019, future climate change risk to the Reef is likely to increase due to unavoidable climate change.			
CO4 The broader (national and international) level influences relevant to climate change are understood by managers.	2	• Strategic Assessment Reports identify broader national and international level influences relevant to climate change. However, these reports are nearing a decade old and do not consider progress in international negotiations and agreements, nor advances in knowledge and information post 2007. • The Reef 2050 Plan acknowledges the Paris Agreement and Australia's commitment to reducing emissions under the agreement. • The Reef Authority's Climate Change Position Statement acknowledges that climate change is a global issue and only urgent global action will protect the values of the Reef. • Several threats that impact the Reef occur at international and national scales and are impacting Reef resilience. While managers may have some understanding of these issues, matters such as climate change and the specific impacts likely to be experience	• Workshops and interviews • Great Barrier Reef Strategic Assessment 2014 • Reef 2050 Long-term Sustainability Plan • Position Statement Climate Change • The Paris Agreement	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		across the Region are less well understood, with the governance system struggling to identify and implement effective responses (Expert interviews) • Gaps and challenges • The managing agencies are so focused on reacting to current threats that there hasn't been more of a strategic view of how you tackle climate change over time (Interviewee)			
CO5 The stakeholders relevant to climate change are well known by managers.	3	• The Reef Guardian Council program consists of 19 Councils that are working to address climate change through their operations and community • Great Barrier Reef Marine Park Authority Actor Network Mapping project maps the existing actors and agreements between the Marine Park Authority, partners, stakeholders and community. • The Reef 2050 Plan (2021-2025) recognises relevant stakeholders and has specific actions to build the capacity of Reef communities, Traditional Owners and industries to adapt to a changing climate (Actions 1.3, 1.4, 1.2) • Established Advisory Groups under the Reef 2050 Plan include relevant stakeholders who are engaged in discussing and addressing climate change relevant to the Reef. These include the Independent Expert Panel and the Reef 2050 Advisory Committee. The Climate Change Authority also engages with a broad array of	• Workshops and interviews • GBRMPA ELibrary: Reef Guardian Councils Climate change initiatives snapshot 2022 • Reef Advisory Committees • Reef 2050 Advisory Bodies • GBR Intergovernmental Agreement • Great Barrier Reef Marine Park Authority Actor Network Mapping Project	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		stakeholders and provides independent advice to government. • The GBR Intergovernmental Agreement provides a framework for the Australian and Queensland governments to work together to protect the Reef			
PLANNING					
PL1 There is a planning system in place that effectively addresses climate change	3	• A planning system that effectively addresses climate change requires the alignment, coordination and integration of the relevant climate change adaptation and mitigation policy instruments between all relevant scales (i.e. national, state and local) and sectors of government (i.e. environment, transport, primary industry). • Planning and policy action on climate change falls into two main categories: climate change mitigation and climate change adaptation. Climate change mitigation addresses limiting greenhouse gas emissions in the atmosphere to prevent further global warming. Climate change adaptation aims to adjust to the effects of climate change to limit and moderate harm to environmental, social, and economic systems. • The National Climate Resilience and Adaptation Strategy 2021-2025 positions Australia to better anticipate, manage and adapt to climate change. The Strategy sets out how Australia is managing climate risks for the	• Workshops and interviews • Expert comments on draft Management Effectiveness Report 2024 and topic Evidence Table • National Climate Resilience and Adaptation Strategy 2021-2025 • Queensland Climate Adaptation Strategy 2017-2030 • Queensland Climate Action Plan • Reef 2050 Long-term Sustainability Plan • State Planning Policy 2017 • Draft Great Barrier Reef Blueprint for Resilience (under development and	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		benefit of the community, economy and environment. It identifies a set of principles to guide effective adaptation practice and resilience building, and outlines the Government's vision for the future. The Strategy highlights the Reef 2050 Plan as the overarching plan protecting the GBR. • The focus of the Reef 2050 Plan is on reducing local and regional pressures to support the Reef's health while adapting to climate change.	unavailable for to be viewed at time of this assessment • Queensland Climate Resilient Councils Program Qcoast2100		
PL2 The planning system for climate change addresses the major factors influencing the Great Barrier Reef Region's values.	2	• The updated Reef 2050 Plan released in December 2021 improves upon earlier versions of the Plan in the treatment on climate change and includes a specific work area, and associated goals and strategic actions, which deals with climate change. • Under the Reef 2050 Plan considerable efforts are being made to reduce the impacts of other pressures, which will enhance the resilience of the Reef to disturbances, shocks, and stressors to the system. Current and future risks of climate change are not being appropriately considered in planning processes in part because of the retrospective nature of most established adaptive management processes. • The Queensland State Planning policy ensures that state's interests are protected in planning decisions across Queensland. Climate change risk and impacts are incorporated into the State Planning Policy 2017.	• Workshops and stakeholder interviews • Reef 2050 Long-term Sustainability Plan • State Planning Policy 2017 • Frieler K., Meinshausen M., Golly A., Mengel M., Lebek K., Donner S. D. & Hoegh-Guldberg O., 2013. Limiting global warming to 2 °C is unlikely to save most coral reefs. Nature Climate Change. doi: 10.1038/nclimate1674. http://www.nature.com/nclimate/journal/v3/n2/abs/nclimate1674.html.	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Gaps and Challenges • Current and future risks of climate change are not being appropriately considered in planning processes. This is partly due to the perception of the static nature of values of the Reef and retrospective monitoring within adaptive management processes. Dynamic and shifting values, properties and indictors within adaptive management systems must now account for dynamic and uncertain future due to climate change.			
PL3 Actions for implementation regarding climate change are clearly identified within the plan	3	• The updated Reef 2050 Plan released in December 2021 improves upon earlier versions of the Plan in the treatment on climate change and includes a specific work area, and associated goals and strategic actions, which deals with climate change. • The *Climate Change Act 2022* sets standards for greenhouse gas reduction targets. • The Australian Government has a number of programs and incentives to encourage businesses, industries and consumers to reduce their emissions, including the Emissions Reduction Fund, Climate Active and the Renewable Energy Target Scheme. Foor example, Australia has specific emissions reduction incentives around agriculture and land sector emissions.	• Workshops and interviews • *Climate Change Act 2022* • Emissions Reduction Fund • Climate Active • Renewable Energy Target Scheme • Reef 2050 Long-term Sustainability Plan	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Under the Queensland Climate Action Plan, the Queensland Government set bold but achievable targets: – 50% renewable energy target by 2030 – 30% emissions reduction below 2005 levels by 2030 – 75% emissions reduction below 2005 levels by 2035 – Zero net emissions by 2050.			
PL4 Clear, measurable and appropriate objectives for management of climate change have been documented	3	• Australia has made commitments to reduce its greenhouse gas emissions and track how we're progressing. We report each year on Australia's greenhouse gas emissions. • Reef 2050 Integrate Monitoring and reporting Program's (RIMReP) vision is to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. • The design phase of RIMReP was completed in 2019. It delivered the structure, program and monitoring design, an implementation roadmap, and an initial release of the Reef Knowledge System. Implementation phase of RIMReP is progressing with the greatest effort directed toward continuing the scoping and implementation of a fit for purpose Data Management System, progressing the Reef 2050 Plan reporting framework, enhancing	• Workshops and interviews	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement. • The RKS is the centrepiece of RIMReP. It is the interactive 'first stop shop' for up to-date information about the Reef to guide effective management decisions in a rapidly changing world. The Reef Knowledge System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken. Gaps and challenges • Measuring adaptation challenges. Australia has made commitments to reduce its greenhouse gas emissions and track how we're progressing. We report each year on Australia's greenhouse gas emissions. • The Australian Prime Minister is a member of the 17-nation High Level Panel for a Sustainable Ocean Economy (Ocean Panel), which is working to accelerate and amplify action to help the world transition to a sustainable ocean economy. • At the UNFCCC COP27 in November 2022, the Ocean Panel released Advancing Ambitious Ocean-based Climate Action which showcases strong, practical ocean-based climate actions being taken by member countries.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Australia has committed to sustainably manage 100 per cent of the ocean area within our national waters, guided by a sustainable ocean plan, by 2025. • The new Biodiversity Conservation Strategy sets out an overarching vision for the future of biodiversity in Queensland, outlining the goals and objectives for biodiversity conservation including building resilience and supporting adaptation to climate change. • RIMReP's vision is to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. • The design phase of RIMReP was completed in 2019. It delivered the structure, program and monitoring design, an implementation roadmap, and an initial release of the Reef Knowledge System. Implementation phase of RIMReP is progressing with the greatest effort directed toward continuing the scoping and implementation of a fit for purpose Data Management System, progressing the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement. • The RKS is the centrepiece of RIMReP. It is the interactive 'first stop shop' for up to-date information about the Reef to guide effective management decisions			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		in a rapidly changing world. The Reef Knowledge System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken.			
PL5 There are plans and systems in place to ensure appropriate and adequate monitoring information is gathered in relation to climate change	2	• The Great Barrier Reef Climate Change Adaptation Strategy and Action Plan 2012-2017 was defunded early in the implementation phase and as a result many targets were not met • Australia's National Greenhouse Accounts are published, which track national emissions from 1990 onwards. • Australia's greenhouse gas emissions are estimated as a nation, by state and by industry. • The Department of Environment and Energy's Emissions projections will incorporate mangroves and saltmarshes in GHG calculations per the IPCC recommendations • The Reef monitors and in partnership with QPWS surveys impacts of cyclones, coral bleaching, coral disease and crown-of-thorns predation • The Reef Authority partners with the Bureau of Meteorology (BOM) and the US National Oceanic and Atmospheric Administration (NOAA) to monitor environmental conditions that may increase the risk of an impact to the GBR and discuss these risks with	• Great Barrier Reef Blueprint for Resilience (DRAFT) • Australia's emissions projections 2021 • State of the Climate 2022 • GBRMPA Annual operating plans • Reef 2050 Long-Term Sustainability Plan • State Planning Policy 2017 • Reef 2050 Integrated Monitoring and Reporting Program	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		science/management/tourism partners to ensure adequate information is gathered. • The Bureau of Meteorology and CSIRO play an important role in monitoring, analysing and communicating observed changes in Australia's climate in the State of the Climate report • The Bureau of Meteorology and CSIRO play an important role in monitoring, analysing and communicating observed changes in Australia's climate in the State of the Climate report • The National Environmental Research Programme (2011-2015) • The National Environmental Science Program (NESP) projects deliver collaborative, practical and applied research to inform decision making and on-ground action. NESP funding of $145 million over the six years from 2015 to 2021 supports six themed research hubs, along with projects to address emerging environmental research needs. • eReefs is a collaboration between the Great Barrier Reef Foundation, Bureau of Meteorology, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australian Institute of Marine Science and the Queensland Government. • The Marine Water Quality Dashboard which provides real-time information about water quality, sea			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		temperature and the effects of floods and storms on the Reef and is accessible publicly on the Bureau of Meteorology website. • There is an aspiration for RIMReP to draw together relevant information to inform management however the realisation of that program will be dependent upon multiple factors including funding and human resourcing. • A comprehensive monitoring, evaluation and reporting framework for the Queensland Climate Change Response is in development. Challenges • Tracking and monitoring and evaluating adaptation responses difficult due to retrospective nature of traditional adaptive management processes • "The managing agencies are so focused on reacting to current threats that there hasn't been more of a strategic view of how you tackle climate change over time." (Interviewee)			
PL6 The main stakeholders &/or the local community are effectively engaged in planning to address climate change	3	• The 19 Reef Guardian Councils include actions to address climate change in their Reef Guardian Council Action Plans. • Significant programs and communication sources are available to engage and involve the community and	• Great Barrier Reef foundation – climate change • Reef Blueprint: Great Barrier Reef Blueprint for Resilience	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		industry in planning and actions to address climate change. Grants and opportunities • Climate active program - Certification showcases carbon neutral status and helps the community take individual action by selecting brands showing climate leadership. • Emissions Reduction Fund – Carbon Credits Scheme – recently reviewed by Prof Ian Chubb and a Panel found the ACCU scheme arrangements are essentially sound, incorporating mechanisms for regular review and improvement, and recommends a number of changes to clarify governance, improve transparency, facilitate positive project outcomes and co-benefits, and enhance confidence in the integrity and effectiveness of the scheme. Under this scheme participants can earn Australian Carbon Credit Units (ACCUs) for every tonne of tonne of carbon dioxide equivalent (tCO2-e) emissions stored or avoided by a project. • The Australian Government has a suite of programs to support the development and deployment of technologies to reduce methane emissions from livestock. These programs will support Australia's efforts to identify opportunities to reduce methane emissions under the Global Methane Pledge. • Improving soil carbon storage and measurement programs -improving soil carbon storage can help	• Queensland Climate Adaptation Strategy 2017-2030 • Reef Guardian Councils | gbrmpa		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		reduce Australia's greenhouse gas emissions. Incentivising farmers to increase soil carbon through the ERF, the Australian Government is funding programs to lower the cost of soil carbon measurement and improve understanding of soil carbon sequestration potential. • Supporting farmers and land managers - providing $20.3 million over 4 years from 2022–23 to establish the Carbon Farming Outreach Program. The program will support Australian farmers and land managers, including First Nations peoples, to participate in carbon markets and integrate low emission technologies and practices into their operations. • In June 2022 the Tourism Industry Reference Panel's Final Action Plan (PDF, 18.1MB) was released. This action plan engaged over 250 stakeholders and recommends the development of Sustainability and Climate Adaption Plans for Queensland's visitor economy (and local variations) that encompass: actions on climate change adaptation and transition and actions to reduce carbon emissions to net -zero by 2050. • Aligning to that recommendation the Queensland Regional Tourism Network (QRTN) (collective of thirteen destination management organisations in Queensland) commissioned EarthCheck and Griffith University to examine the carbon footprint of the tourism sector in Queensland with the intent of developing a pathway to net-zero – the QRTN Climate Action Project. From this			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		project the Queensland Tourism Climate Action Plan is expected to be released in 2023 • A joint partnership between the Queensland Government and Griffith Institute for Tourism produced an industry first research report, Carbon footprint of tourism destinations in Queensland (PDF, 623KB) • As part of its climate change response, the Queensland Government is partnering with the Local Government Association of Queensland to work with local governments to plan for and better manage climate risks and build resilience. This helps to ensure that climate risks are considered in planning and development decisions across Queensland, and that local governments are well positioned to support climate action within their local communities. o The Queensland Climate Resilient Councils program helps local governments to strengthen their capability and governance mechanisms to manage climate risks. o The QCoast2100 program helps coastal local governments and communities to prepare Coastal Hazard Adaptation Strategies that address hazards including beach erosion, storm surges and other coastal hazards associated with climate change. • The industry-led Building a resilient tourism industry: Queensland Tourism Climate Change Response Plan (PDF, 3.3MB) launched by the Queensland Tourism Industry Council in May 2018, provides a roadmap for			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the tourism industry to respond proactively to climate change, and to lead the way as a steward for the environment and a key contributor to community wellbeing. • Since 2018, the $1.73 million Decarbonisation of the Great Barrier Reef islands program worked with island resorts and their communities to deliver sustainability audits, analyse options and develop business cases for decarbonisation. • The Queensland Government's Great Barrier Reef Island Resorts Rejuvenation program commits $25 million to rejuvenate island resorts, including 'greening' and 'cleaning' initiatives to improve sustainability practices.			
PL7 Sufficient policy currently exists to effectively address climate change	3	• The Reef Authority's Planning and Policy Roadmap has been developed to focus the Authority's efforts to deliver a proactive, contemporary, and risk-based approach to Marine Park policy, planning and regulation that will protect key values and enable ecologically sustainable use for a changed and changing Reef. This includes assessment and rationalisation of Reef Authority policies. • The Reef Authority has implemented a sustainability strategy and roadmap to Net Zero by 2030 for the delivery of all Reef Authority services. • Reef Authority 'Interventions Policy' aims to enable restoration and/or adaptation interventions designed to	• Powering Queensland Plan: an integrated energy strategy for the state • Review of Australia's climate change policies • National Energy Guarantee • Finkel Review: Independent Review into the Future Security of the National Electricity Market • Finkel review at a glance • Reef Trust offsets calculator	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		directly support and build ecosystem resilience and provide conservation benefits, at a range of scales, now or in the future, to the Great Barrier Reef. This policy is supported by guidelines on how to assess the applications for permission to conduct these types of activities. The Reef Authority acknowledges mitigating human-induced climate change through effective global emissions reduction remains the most urgent and critical need for the Great Barrier Reef's future, irrespective of the success of any Reef restoration and/or adaptation interventions (see interventions policy and climate change position statement) • In 2022 DCCEEW commenced a project to be led by the Australian Academy of Science that will develop recommendations for actions to address climate change impacts on the Reef. The recommendations will ultimately be put to Minister Plibersek through the Reef 2050 IEP. This project will likely yield outputs relevant to this assessment but is not due to be finalised until mid-2023, • Mitigation: Establishment of the *Climate Change Act 2022* and related strategies. • Adaptation: Plans to increase the country's capacity to adapt to the climate crisis are in place: • The Roles and Responsibilities for Climate Change Adaptation in Australia 2012 outlines the responsibilities	• Great Barrier Reef Marine Park Authority 2014, Great Barrier Reef Region Strategic Assessment: Program report, GBRMPA, Townsville. • Great Barrier Reef Marine Park Authority 2017, Cumulative impact management policy • Great Barrier Reef Marine Park Authority 2017, Net Benefit Policy • Queensland Climate Adaptation Strategy 2017-2030 • Reef 2050 Long-Term Sustainability Plan 2021-2025 • Queensland Climate Action Plan • Queensland Energy and Jobs Plan • Queensland Resource Industry Development Plan		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		of each level of Australian government to plan and implement adaptation activities. • The National Climate Resilience and Adaptation Strategy 2021 – 2025 outlines how the Australian Government will fulfil its 2012 COAG Roles and Responsibilities. • See PL1 • In 2022 the Queensland Government released the Queensland Energy and Jobs Plan which committed an extra $4 billion to renewable energy transformation and set two new renewable energy targets of 70 per cent renewable energy by 2032 and 80 per cent by 2035. • DCCEEW and DFAT are working together to meet Australia's obligations under the Paris Agreement. This includes managing domestic policies that support Australia to meet its targets. • The Queensland Climate Action Plan (incorporating the Queensland Climate Adaptation Strategy) was released in July 2021. The Queensland Climate Action Plan provides a framework for coordinated climate action, including targets of reducing emissions by 30% below 2005 levels by 2030, 75% below 2005 levels by 2035, Zero Net Emissions by 2050 and 50% renewable energy by 2030, as well as initiatives to manage the multiple risks associated with climate change. • The Queensland Resources Industry Development Plan 2022 has a focus on climate change and how the			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		resources industry can reduce its impacts. There is a focus on decarbonisation. • DES has updated its environmental impact statement (EIS) terms of reference approved form to include requirement for decarbonisation plans. Challenges • AIMS interview about shifting underlying values, not static values			
PL8 There is consistency across jurisdictions when planning for climate change	3	• Improved consistency in climate change mitigation and adaptation planning policy across Queensland and Federal Governments since mid-2022. • Ongoing improvements to GBRMPAs permission system in effect from 4 October 2017 provide greater clarity and guidance for permissions applicants, accredited institutions and assessors and implement recommendations from the Australian National Audit Office and the Australian Parliament's Joint Committee of Public Accounts and Audit • The Roles and Responsibilities for Climate Change Adaptation in Australia 2012 outlines the responsibilities of each level of Australian government to plan and implement adaptation activities. • The National Climate Resilience and Adaptation Strategy 2021 – 2025 outlines how the Australian Government will fulfil its 2012 COAG Roles and Responsibilities.	• Advancing Climate Action in Queensland Making the transition to a low carbon future 2016 • Managing cumulative impacts and achieving no net loss and net benefit outcomes for the Great Barrier Reef: a review of current understanding and application for management, GBRMPA, Townsville. • McGrath, C. Federal environmental laws consider direct and indirect impacts of an action. Accessed 08 June 2016 from: http://envlaw.com.au/nathan-dam-case/	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Australian and Queensland Governments work closely and collaboratively on impacts the Reef including Climate Change under the joint Executive Steering Committee for the Reef 2050 Plan. • Significant investments across both the Federal and State governments into climate change mitigation, adaptation and renewables were announced in 2022 – with close alignment on policy, plans and strategies. • Great Barrier Reef Intergovernmental Agreement – provides a mandate for the Australian Government to work together with the Queensland Government to protect the Reef. It recognises the pressures and provides schedules to deliver co-funding and management for a range of topics and programs including climate change, water quality, joint field management etc. This provides a coordinated approach to protect the Reef. • On 08 December 2022, the Queensland and Australian governments signed a memorandum of understanding to work together on three initial Queensland bioregional plans to help protect, restore and manage the environment in three areas of Queensland.	• Gunn, J., and Noble, B.F., 2010. Conceptual and methodological challenges to integrating SEA and cumulative effects assessment. Environmental Impact Assessment Review 31, pp.154-160. • Noble, B., 2008. Strategic approaches to regional cumulative effects assessment: a case study of the Great Sand Hills, Canada, Impact Assessment and Project Appraisal 26(2): 78-90. • GBRMPA ELibrary: Managing cumulative impacts and achieving no net loss and net benefit outcomes for the Great Barrier Reef: A review of current understanding and application for management • GBRMPA ELibrary: Net benefit policy		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• GBRMPA ELibrary: Cumulative impact management policy • Climate adaptation in Australia – DCCEEW • DCCEEW – Australia's climate change strategies • Queensland Climate Adaptation Strategy 2017-30 • Governance and our partners – DCCEEW • Great Barrier Reef Intergovernmental Agreement - DCCEEW		
PL9 Plans relevant to climate change provide certainty regarding where uses may occur, the type of activities allowed, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.	2	• Climate change is identified as a key influence on the Reef and reef-wide / regional-scale environmental event(s) including climate change impacts are a key a strategic risk to the Authority under the 2022-23 Reef Authority Corporate Plan. • Reef Authority Climate Change Position Statement (18 July 2019): • Climate change is the greatest threat to the Great Barrier Reef. Only the strongest and fastest possible actions to decrease global greenhouse gas emissions will reduce the risks and limit the impacts of climate	• GBRMPA ELibrary: Routine permit examples • GBRMPA ELibrary: Policy on Great Barrier Reef interventions (Document no. 100513) • GBRMPA ELibrary: Fish Aggregating Devices and Artificial Reefs. Literature review of benefits and negative impacts for the Great Barrier Reef?	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		change on the Reef. Further impacts can be minimised by limiting global temperature increase to the maximum extent possible and fast-tracking actions to build Reef resilience. • Permits Online - - enhancements allowing for greater consistency and efficiency for permit applications including development of six Routine (standardised) permits for low-risk activities. • Updated permission system policies • Policy on Great Barrier Reef interventions			
INPUTS					
IN1 Financial resources are adequate and prioritised to meet management objectives to address climate change	4	• The National Environmental Science Program (NESP) is the Australian Government's long-term commitment to environment and climate research. Through an investment of $145 million from 2014–15 to 2020–21, and a further $149 million from 2020–21 to 2026–27, NESP supports decision-makers by providing them with the best available information, based on world-class science. This helps Australian decision-makers to better understand, manage and conserve Australia's environment. The NESP Climate System Hub was established under phase 2 of the Australian • Th Australian Prime Minister is a member of the 17-nation High-Level Panel for Sustainable Ocean Economy (Ocean Panel). At the UNFCCC COP27 in 2022. the	• National Environmental Science Program • Advancing Ambitious Ocean-based Climate Action, Department of Climate Change, Energy and Environment and Water • Reef Restoration and Adaptation Program (RRAP) • Planning for Climate Change in Natural Resource Management • Clean Energy Finance Corp-Reef Funding Program	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Ocean Panel released the Advancing Ambitious Ocean-based Climate Action, which showcases ocean-based climate action undertaken by member countries. Australia is investing in climate adaptation resilience efforts (i.e. ocean protection, blue carbon and coral reefs) through: – $10.8 million to improve ocean and marine park management. – $500m+ investments in ocean adaptation and resilience, including long-term investments to fund environment and climate research supporting science-based solutions to environmental issues, and investments to address the challenge of ghost nets and plastic litter in the Gulf of Carpentaria – which is also relevant to the Reef. • Reef 2050 Long-term Sustainability Plan includes action on climate change. The Australian and Queensland Governments are investing $4.4 billion from 2014-15 to 2029-30 to implement the Plan. • In October 2022, the Reef Restoration and Adaptation Program (RRAP) saw a boost of A$20 million to advance its actions. RRAP is the world's largest effort to help a significant ecosystem survive climate change. It brings leading experts together to investigate new ways to help coral reefs adapt to climate change • The Queensland Government, in partnership with the Local Government Association of Queensland, is	• The Great Barrier Reef Foundation's Annual Report 2015 • Current projects funded under the National Environmental Science Program • Crown-of-thorns starfish : strategic management and contingency plan / Great Barrier Reef Marine Park Authority. • Reef Island Refuge Initiative • About - NESP 2 climate • Great Barrier Reef Foundation | gbrmpa • Reef Trust Partnership - Great Barrier Reef Foundation		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		investing $16.2 million in QCoast2100 to help coastal councils and their communities plan and prepare for storm tide, coastal erosion and rising sea levels resulting from climate change. • In 2022 the Queensland Government released the Queensland Energy and Jobs Plan which committed an extra $4 billion to renewable energy transformation and set two new renewable energy targets of 70 per cent renewable energy by 2032 and 80 per cent by 2035.nge.			
IN2 Human resources within the managing organisations are adequate to meet specific management objectives to address climate change	3	• The Marine Park Authority has a full-time Chief Scientist, and a dedicated Science for Management section (15 ongoing full-time equivalent and 5 temporary full-time equivalent). This section covers a diverse range of functions, focusing on increasing the Agency's access to knowledge (socio-ecological) about the Reef through monitoring, interactive knowledge systems and evidence-based science communications. This includes: – two dedicated Natural Scientists who engage regularly with natural scientists at numerous institutions (e.g. AIMS, JCU, CSIRO, UQ). – two dedicated Social Scientists who engage regularly with social-ecological scientists at numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science	• Workshop and interviews • Marine Park Authority and Government Agency expert comments on draft 2024 Management Effectiveness Reports and Justification Tables • Department of Climate Change, Energy the Environment and Water webpage • Net Zero Economy Taskforce | PM&C (pmc.gov.au) • Organisations listed here: https://www.dcceew.gov.au/climate-change/strategies	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Community for the Reef and Reef 2050 (Human Dimensions consortium). • Commonwealth Government established Department of Climate Change, Energy, the Environment and Water (2022) with divisions dedicated to Emissions Reduction, Adaptation and new industries, international climate and net zero pathways, energy etc. • In the 2022 Budget–- creation of a Net Zero Taskforce. • Following May 2022 election – establishment of a Department of Climate Change, Energy, the Environment and Water (Ministers Bowen & Plibersek) with divisions dedicated to Emissions Reduction, Adaptation and new industries, international climate and net zero pathways, energy etc. • The Climate Change Authority is an independent body established under the *Climate Change Authority Act 2011* – employing 10 ongoing employees in 2022. • Eight agencies/organisations and partnerships are in place in 2023 to implement climate change initiatives. These include the Australian Energy Infrastructure Commissioner, the CSIRO, the Climate Change Authority and the Clean Energy Regulator. • The Climate Action and Sustainable Planning branch in the Department of Environment and Science leads climate policy development in Queensland.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• To support successful implementation of the QCAP MERI Framework across government, the Climate Action and Sustainable Planning branch in the Department of Environment and Science has employed a permanent MERI Officer. • The Queensland Government has re-prioritised climate change work, with the Queensland Climate Action Plan (QCAP) released in 2021, incorporating the core values initially described in the Queensland Climate Change Response (2017)			
IN3 The right skill sets and expertise are currently available to the managing organisations to address climate change	2	• The RJFMP is actively developing the skill set of field staff to respond to the impacts of climate change (using specific management tools). Strategic Action 1.5. • The Australian Government has a large contingent of highly qualified, dedicated staff which are working to address climate change. It also outsources and procures expert advice from highly qualified experts including the Independent Expert Panel, the Australian Academy of Sciences, and the Climate Change Authority. • Government agencies are increasingly working together to enhance resources and expertise. For example, in 2022 the Department of Environment and Science established a temporary Climate Science Knowledge Broker role in the Science Division, to facilitate access to current climate science data and information.	• GBRMPA ELibrary: Reef Joint Field Management Program: Business Strategy Summary 2021-2025 • Green Island reef rehabilitation project • Bait Reef rehabilitation project • Coral-clips / training	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Queensland Government maintains the Queensland Future Climate Science Program that produces downscaled, high-resolution climate projection data and services to support assessments of climate risk and management decisions. • The Queensland Government is establishing permanent emissions modelling capability to ensure progress to targets can be tracked and projected, enable robust decision making on proposed policies or programs though an understanding of their projected impact on emissions, and support future target setting.			
IN4 The necessary biophysical information is currently available to address climate change	3	• Links to climate datasets for Queensland and the Reef from various reliable sources are publicly available via the Reef Knowledge System. • The Australian Government investments in climate science include long-term support to our national institutions and programs such as the National Environmental Science Program, Bureau of Meteorology Research and Climate Services Programs and the Australian Antarctic Science Program, and initial investments in world-leading initiatives including the Australian Climate Service and related initiatives, including the CSIRO Climate Resilient Enterprise. There are also significant climate science contributions from our university sector, and significant service and climate	• Climate change science resources | Environment, land and water | Queensland Government (www.qld.gov.au) • Queensland Future Climate Science Program • Queensland Future Climate Dashboard • State Heatwave Risk Assessment 2019 • Severe Wind Hazard Assessment for Queensland • Tropical Cyclone Hazard Dashboard	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		risk advice capabilities within state and territory governments and the private sector. • The department is responsible for climate science coordination. By working together, governments and researchers can support improved understanding and assessment of climate risk, advances in climate science and provide information tailored to support climate action in Australian circumstances. • The Queensland Future Climate Dashboard provides easy access to regionalised climate projection, heatwave and rainfall information for Queensland. The dashboard allows users to explore, visualise and download the latest high-resolution climate modelling data for specific regions, catchments, disaster areas, local government areas and grid squares. • The Queensland Government's State Heatwave Risk Assessment 2019 features long-term climate change projections as part of its analysis of future climate risks in Queensland. Queensland Fire and Emergency Services partnered with the Department of Environment and Science and Queensland Health to produce the assessment. • The Severe Wind Hazard Assessment for Queensland (SWHA-Q; Queensland Fire and Emergency Services and Geoscience Australia) provides information on the potential impacts of current and future modelled Tropical Cyclones across Queensland's regions.	• Climate Change in Australia • State of the Climate 2022 • Australian Climate Service • NESP Climate Systems Hub and Marine and Coastal Hubs, including the knowledge brokering network service.		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Tropical Cyclone Hazard Dashboard is an interactive visualisation platform for current and future tropical cyclone wind hazard that supports the SWHA-Q. • RIMReP's vision is to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. • A centrepiece of RIMReP is the interactive online Reef Knowledge System — the 'first stop shop' for up to-date information about the Reef to guide effective management decisions in a rapidly changing world. The Reef Knowledge System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken. • The first phase of RIMReP systematically identified critical monitoring activities needed to support an integrated program. Through Phase 2 of the Reef Trust Program (RTP), funding was available (through GBRF) to make a signification contribution to address priority gaps as identified within the Priority monitoring gaps prospectus for RIMReP (2021). A total of $13.1 million for 11 projects was funded in 2021. The projects cover the biophysical, cultural and socio-economic contexts of the Reef, including inshore dolphins, seabirds, island			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		habitats, including invasive species and seabirds and Reef fish. Support through the RTP will continue to deliver project outcomes that fill critical monitoring gaps identified during the Program design phase.			
IN5 The necessary socio-economic information is currently available to address climate change	3	• The Reef Authority 'Science and Knowledge Needs for Management' (2021) – refer IN4. • Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: – Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. – Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system.	• GBRMPA ELibrary: Science and Knowledge Needs for Management • Science and Knowledge Needs | Reef Knowledge System (gbrmpa.gov.au) • Social and Economic Long-Term Monitoring Program (SELTMP) o SELTMP Core module pilot data dashboard o SELTMP Core Module Report o SELTMP Core Module 2021 Survey dataset: - Regional Report Cards social survey dashboard - Regional Report Cards Module Report - Regional Report	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Restoration and Adaptation Program (RRAP) is collaborative long-term research and development program to develop, test and risk-assess novel interventions to help build resilience of the Great Barrier Reef under a changing climate. The RRAPs aim is develop a toolkit of effective, at-scale Reef interventions that are feasible, safe, acceptable and affordable. The program is currently in the research and development phase, whereby interventions identified in an initial feasibility study are being developed, tested and risk-assessed. The program includes a 'Stakeholder and Traditional Owner Engagement Subprogram' which aims to ensure decisions about interventions are socially and culturally responsible and legitimate to stakeholders, rights-holders, managers and the public.	Cards 2021-22 Social Survey dataset - Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects)		
IN6 The necessary Indigenous heritage information is currently available to address climate change	2	• 2019 Outlook Report is publicly available and includes some relevant Indigenous heritage information. However, many data and knowledge gaps remain about how climate change will impact indigenous heritage. • TOs involved in coral bleaching reporting in the Far Northern GBR during the 2016 mass bleaching event. • Raine Island CC adaptation has very high engagement and information sharing with Traditional Owners. • Wuthathi TUMRA CC considerations. Extent to which 'traditional knowledge' was drawn on in this not clear.	• Reef 2050 Long Term Sustainability Plan: Traditional Owner Implementation Plan • Girringun Sea Country Forum FINAL REPORT – see page 18 • GBRMPA ELibrary: Science and Knowledge Needs for Management	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Some traditional knowledge used in development of TUMRA's and QDPIF work. • Assigning protected area boundaries based on traditional knowledge is rare. • 2016 Girringun Sea Country Forum (funded through the GBRMPA TUMRA program) had a focussed session on the impacts of CC to indigenous heritage.	• Science and Knowledge Needs | Reef Knowledge System (gbrmpa.gov.au)		
IN7 The necessary historic heritage information is currently available to address climate change	1	• Knowledge of many historic places or events is limited • Information on the current condition is virtually unknown • Outlook Report 2014 identified that some historic values (e.g. shipwrecks) had been damaged by cyclones. • The Reef Authority 'Science and Knowledge Needs for Management' (2021) – refer IN4. There are several current research needs that relate to historic heritage. • 2019 Outlook Report is publicly available and has some relevant historic heritage information. However, data and knowledge gaps remain about how climate change has/will impact historic heritage. • Shipwrecks create their own reefs within the GBR. Climate change (ocean acidification, water temperature increase, invasive species, damaging weather events) is a huge risk to Underwater Cultural Heritage and the loss of the Underwater Cultural Heritage would also impact tourism and the socio-economics.	• Outlook Report 2019 • GBRMPA ELibrary: Science and Knowledge Needs for Management • Science and Knowledge Needs | Reef Knowledge System (gbrmpa.gov.au)	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN8 There are additional sources of non-government input (e.g. volunteers) contributing to address climate change	3	• The Great Barrier Reef Foundation runs a ZooX Ambassadors Program, providing an opportunity for investors in Great Barrier Reef Research to identify and develop in-house sustainability champions (ambassadors) • Marine aquarium industry peak body (Pro-vision Reef) developed a Stewardship Action Plan to articulate climate change response strategies and stewardship activities. This included a self-imposed moratorium on coral collection in the remote far north during the 2016 mass bleaching event. • GBRMPA, in conjunction with the QPWS, run the Eye on the Reef Program, an umbrella project which includes several monitoring and assessment methods. This information is gathered in partnership with a range of stakeholders, such as Marine Park rangers, tourism operators, reef visitors, fishers and the broader community. The program was vital in understanding the temporal and spatial distributions of coral bleaching observations during the 2016 and 2017 mass bleaching events. The Eye on the Reef Program collects information through various methods including: – Sightings Network – Eyes and Ears Incident Reporting Network – Rapid Monitoring – Reef Health and Impact Surveys	• Workshops and interviews • Stewardship Action Plan 2013 Mitigating Ecological Risk in a Changing Climate • Provision Reef Stewardship Action Plan (2009) • Stewardship Action Plan — Pro-vision Reef Inc. (provisionreef.org.au) • Eye on the Reef https://www2.gbrmpa.gov.au/help/eye-on-the-reef • Reef Guardians program – fishers (inactive), schools, councils • GBR foundation – climate change • GBR Blueprint for Resilience	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Tourism Weekly Monitoring • The information collected is combined in a data management system to produce a Reef-wide picture of ecosystem health. GBRMPA uses this information to map and assess the impacts of incidents on the Marine Park such as cyclones, flood plumes, coral bleaching, and disease and crown-of-thorns starfish outbreaks under the Reef Health Incident Response System. The data improves our knowledge of Reef ecosystem resilience and the risks to that resilience. A better long-term understanding of Reef impacts and ecosystem function aids the development of actions to support Reef resilience under a changing climate. • Other volunteer groups include: – Reef Guardian Schools – NGO's on RACs – LMACs – fisheries working groups – Mackay and district turtle watch – O.U.C.H. volunteers – Beach clean-up days • Research stations are diligent in reporting observations of coral bleaching, disease or cyclone impacts • One of the key initiatives in the Blueprint for Resilience is 'Accelerating actions to address global climate change' which aims to see the Great Barrier Reef and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		coral reefs globally as a focus of policy discourse and programs to reduce carbon emissions, and Great Barrier Reef communities and industries demonstrate leadership in emission reduction efforts and climate change adaptation • Trials and small-scale reef rehabilitation projects led and facilitated by the RJFMP are undertaken in partnership with non-government partners (tourism industry, private corporations, research institutes). Significant resources (human, technical, financial) have been provided by partners on in-water projects designed to address climate change impacts. Strategic Action A.2 (foster partnerships for Reef protection). • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs • A new Eye on the Reef app will be released alongside the database to improve stakeholder engagement • In addition to the above, see responses against IN6.			
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of climate change	3	• GBRMPA no longer has staff specifically addressing climate change and hence engagement with stakeholders has declined • Great Barrier Reef Climate Change Adaptation Strategy and Action Plan 2012-2017 did include several activities	• Workshops and interviews • SELTMP • Eye on the Reef program	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		designed to engage local stakeholders in plan to adapt to a changing climate and support ecosystem resilience, but was not fully implemented due to withdrawal of funding early in the implementation phase. This is limited since the cessation of the CCAP. • The SELTMP engages with stakeholders and monitors human use of and dependency on the GBR, human and community well-being (as they relate to the GBR), as well as a range of socio-cultural drivers such as perceptions, values, attitudes and behaviours. • For the marine aquarium industry, this is through their peak body (Pro-vision Reef) Stewardship Action Plan - which articulates climate change response strategies and stewardship activities. This included a self-imposed moratorium on coral collection in areas heavily impacted by bleaching in 2016. • Eye on the Reef Program: GBRMPA, in conjunction with the QPWS, run the Eye on the Reef Program, an umbrella project which includes several monitoring and assessment methods. The Eye on the Reef Program provides status snapshots and early warning information on water quality, the presence of protected and iconic species and the health of the Reef. This information is gathered in partnership with a range of stakeholders, such as Marine Park rangers, tourism operators, reef visitors, fishers and the broader community.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• GBRMPA holds annual pre-summer workshops to bring together key researchers and stakeholders to discuss the outlook for the summer, especially around bleaching risk etc.			
PR2 The local community is effectively engaged in the ongoing management of climate change	3	• Key environmental stakeholders were encouraged to nominate for the 2021-24 LMAC term. LMAC meetings provide a forum for a range of stakeholders to share their sector's views and provide collective input to Reef management. • For example: In March 2022, the LMAC community were asked for their advice on updating the Blueprint for Resilience. There are currently over 220 active members and management partners involved in the LMAC network. • In April 2022, the Reef Authority provided a presentation on Intervention and Adaptive Management. • In September 2022, JCU gave a presentation on how communities are being effected by climate change. • In October 2022, the Reef Authority provided a presentation on reef health and the Long-Term Monitoring Program results. • Reef HQ Aquarium closed in March 2021 and is being rebuilt. Education at Reef HQ Aquarium is now pushed through the Reef Education portal and outreach programs, as well as Reef HQ Aquarium's social media	• Local Marine Advisory Committees | gbrmpa • Reef Guardians • http://www.gbrmpa.gov.au/our-partners/reef-guardians/reef-guardian-schools/ripples-of-change-2017 • http://www.reefhq.com.au/education-at-reef-hq-aquarium/reef-research-and-internships/past-research-programs/energy-management • Reef Blueprint: Great Barrier Reef Blueprint for Resilience • Reef snapshot | gbrmpa	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		channels. Resources and educational materials can be found on the Reef Education portal. • Annual Reef Health Snapshots provide a summary of conditions on the Great Barrier Reef (the Reef) throughout summer, how these conditions impact coral and actions underway to help coral reefs. This is a publicly available report and the target audience is general public/local community. • Briefings and engagement with the Reef 2050 Reef Advisory Committee on World Heritage and updates to the Blueprint for Resilience. • Master Reef Guides are provided with the latest information in regards to climate change through closed Facebook groups and Masterclasses held twice a year. • During the summer months, the Reef Authority provides weekly Reef Heath updates via its website and videos on Facebook/YouTube. • For a list of community engagement projects, refer to Australia's 8th National Communication on Climate Change- section 4.3.9.4 Community engagement, mobilisation and support • The National Climate Resilience and Adaptation Strategy 2021-2025 was informed by engagement across all levels of governments, key stakeholders in industry and academia, and community groups			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Australian Government recognises the role of public participation in responding to climate change, and meaningful public engagement is central to Australia's climate change policy development and decision-making processes. The *Climate Change Act 2022* (Cth) requires the Climate Change Authority to provide advice to the minister on Australia's emissions reduction targets, and to include public consultation as part of the development of advice • The Queensland Government's Decarbonisation of the Great Barrier Reef Islands program, which started in 2018, supports businesses and communities of the Great Barrier Reef islands to transition to a low-carbon future and build resilience to the impacts of climate change. • In developing the Net Zero Plan, detailed consultation will be undertaken with the states and territories, business, industry bodies, communities and First Nations people. • The Queensland Climate Action Plan website provides a number of useful resources for communities and individuals to take climate action. • In 2019 the Queensland Government hosted Climate Week Queensland 2019, which included a series of forums and events to engage people in the Climate Change conversation and energise local and global action on climate change.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR3 There is a sound governance system in place to address climate change	2	• The GBRMPA is an observer on both the RRAP Board and Steering Committee. • In 2022, the Australian Government combined climate change, energy, environmental and water policy responsibility under a single agency, the Department of Climate Change, Energy, the Environment and Water (DCCEEW). • The Climate Change Authority (CCA), created on 1 July 2012, is an independent statutory agency established by the *Climate Change Authority Act 2011* (Cth) ('CCA Act'). The CCA provides independent, expert advice to the Australian Government on climate change policy. • The Clean Energy Regulator (CER) is an independent statutory authority established on 2 April 2012 under the *Clean Energy Act 2011* (Cth). It is responsible for administering schemes legislated by the Australian Government for measuring, managing, reducing or offsetting Australia's carbon emissions. • DCCEEW and DFAT are working together to meet Australia's obligations under the Paris Agreement. This includes managing domestic policies that support Australia to meet its targets. • The QCAP set up significant governance arrangements across Queensland Government departments and Cabinet to support whole of government coordination.	• Morrison et al. 2020. (Advancing coral reef governance into the Anthropocene https://doi.org/10.1016/j.oneear.2019.12.014) • *Climate Change Act 2022* • Blueprint for Resilience	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Queensland Government is partnering with the Local Government Association of Queensland to work with local governments to plan for and better manage climate risks and build resilience. This helps to ensure that climate risks are considered in planning and development decisions across Queensland, and that local governments are well positioned to support climate action within their local communities. • The revised Great Barrier Reef Blueprint for the Resilience concentrates on climate change adaptation and, to the extent of the Marine Park Authority's jurisdiction, climate change mitigation (source: expert comment on draft Management Effectiveness Report 2024) • The Queensland Climate Adaptation Strategy includes an action to ensure climate change is considered in state and regional planning instruments. • The Queensland Government is partnering with the Local Government Association of Queensland to work with local governments to plan for and better manage climate risks and build resilience. This helps to ensure that climate risks are considered in planning and development decisions across Queensland, and that local governments are well positioned to support climate action within their local communities. Gap and challenges			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Strong focus on climate change mitigation need more on adaptation measures			
PR4 There is effective performance monitoring, including. regular assessment of appropriateness and effectiveness of tools, to gauge progress towards the objective(s) for climate change	2	• The Reef 2050 Integrated Monitoring and Reporting Program's (RIMReP) vision is to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. • The design phase of RIMReP was completed in 2019. It delivered the structure, program and monitoring design, an implementation roadmap, and an initial release of the Reef Knowledge System. Implementation phase of RIMReP is progressing with the greatest effort directed toward continuing the scoping and implementation of a fit for purpose Data Management System, progressing the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System (RKS) and Traditional Owner engagement. • The RKS is the centrepiece of RIMReP. It is the interactive 'first stop shop' for up to-date information about the Reef to guide effective management decisions in a rapidly changing world. The Reef Knowledge System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful and interactive ways.	• Reef 2050 Integrated Monitoring and Reporting Program (RIMReP) • Reef Knowledge System	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Demonstration site was released in 2020, with further enhancements being undertaken. • The need for monitoring and evaluation of adaptation responses is recognised at the Commonwealth level – National Climate and Resilience Strategy 2021-2025, set a high-level, overarching objective to assess progress and improve adaptation over time – In the 2022-23 October Budget, the Australian Government committed $9.3 million over four years to address climate risks, including for co-design and scoping of a national climate risk assessment. This will improve our understanding of Australia's greatest climate change risks. A national climate risk assessment will also include a monitoring and evaluation framework that will track adaptation progress. Gaps and Challenges • Monitoring of adaption over time, limitations. Unclear if effectively resolved for the barrier reef (Interviewee) • The managing agencies are so focused on reacting to current threats that there hasn't been more of a strategic view of how you tackle climate change over time (Interviewee).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR5 Appropriate training is available to the managing agencies to address climate change	3	• Eye on the Reef training program in place (face to face plus online materials) as a tool to consistently detect impacts to the Reef • Turtle and dugong necropsy and sample collection training provided to management agency staff and veterinarians along the GBR coast in connection with strandings program and extreme weather response work. • The Government Adaptation Action Plan (in development) will address capacity building requirements related to climate risk management across government agencies • The Reef Guardian Councils program includes networking and professional development to share knowledge, best practice and information to assist our local government partners to help manage catchment impacts on the Reef. • Master Reef Guides • Refer Field Management Training at IN3. • Climate compass: a climate risk management framework for Commonwealth agencies. Climate Compass is a framework designed to help Australian public servants manage the risks from the changing climate to policies, programs and asset management. It includes step-by-step instructions, guidance and information to develop an understanding of climate change risks. The Australian	• Eye on the Reef • Reef Guardian Councils program • Climate Compass: a climate risk management framework • Queensland Future Climate Science Program • The Queensland Climate Ready Program	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Government is continuing to implement the framework across all agencies, and supporting training and capability development of officials to fulfil these responsibilities. • The October 2022–23 Budget provides $9.3 million over four years to address climate risks, including to develop and implement a Commonwealth Climate Risk and Opportunity Management Program. This will support and improve how the Government manages climate risks to policies, programs, operations, assets and services delivered to the Australian community. • This includes a number of key components: – The development of a Climate Risk and Opportunity Strategy to help coordinate, report, evaluate and prioritise management of climate risks at a whole-of-government level. – A new climate risk assessment and management framework and digital risk assessment toolkit. This will build on the existing Climate Compass, be aligned to international best practice and provide an easy-to-use method for public agencies to identify, assess and manage climate-related risks and opportunities using the best climate change science. – Implementing a climate disclosure framework for the APS and Australian Government entities based on best practice international standards already being followed by much of corporate Australia.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– A learning and development package and a capability uplift program across the APS will improve understanding and consideration of climate risk in the specific context of people's work. • The Australian Government's Diplomatic Academy has launched a Climate, Energy and Environment Toolkit to provide online on-demand training for APS staff and development assistance delivery partners. The toolkit covers climate science, climate adaptation and resilience, clean energy and emissions, environment and international climate engagement. • Under the Queensland Future Climate Science Program, the Queensland Government provides a climate science knowledge brokering service to help agencies access, select and apply relevant climate change projection data and information. • The Queensland Climate Ready Program (QCR) is a multi-year program supporting Queensland Government agencies to deliver a consistent, whole-of-government approach to climate risk management across policies, processes, investments, services and actions.			
PR6 Management of climate change is consistently implemented across the relevant jurisdictions	2	• The management of climate change has varied as government priorities have changed for each relevant jurisdiction.	• Great Barrier Reef Intergovernmental Agreement – Climate Change Schedule	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Great Barrier Reef Intergovernmental Agreement – Climate Change Schedule – guides joint management and coordination across the State and Commonwealth • See Australia's Annual Climate Chane Statement 2022 – Section 3.2 Australian Government adaptation action • National Energy Transformation Partnership - Energy Ministers across all jurisdictions recently established the National Energy Transformation Partnership. This is the first fully integrated energy and emissions agreement in Australia that commits the Australian and state and territory governments to work together and drive down emissions. • Several cross-jurisdictional working groups exist dedicated to knowledge sharing on various climate related topics such as: adaptation, government operations and treasury and carbon accounting. • The Government committed in the October 2022–23 Budget to making climate change a national health priority by allocating $3.4 million to establish a National Health Sustainability and Climate Unit and develop Australia's first National Health and Climate Strategy.	• National Energy Transformation Partnership • Queensland Climate Adaptation Strategy 2017–2030		
PR7 There are effective processes applied to resolve differing views/ conflicts regarding climate change	3	• RIS and EIA processes are designed to incorporate conflict resolution elements • Evaluation mechanisms for conflict resolution are lacking • No adequate process or mechanism to do this	• Interview and workshops	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Decision support work (e.g. under RIMReP or as applied in COTS control) would likely contribute to this by providing a systematic and objective way of guiding management decisions.			
PR8 Impacts (direct, indirect and cumulative) of activities associated with climate change are appropriately considered.	2	• The Reef Knowledge System hosts an internal-only interactive dashboard, the Resilient Reefs Network Guidance Tool, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park. • *Environment Protection and Biodiversity Conservation Act 1999* provides processes through which activities that may have an impact on the environment, and matters of national environmental significance are assessed and managed – including climate change. • An independent review of the EPBC Act was undertaken in 2020 by Prof Samuel's and the government responded to this in Dec 2022 with a reform agenda to occur in 2023. • EPBC Act reform - DCCEEW was released in Dec 2022 setting out the processes the Government is and will take to address the Samuel review. See page 18 of the Nature Positive Plan indicating the processes the government is putting into place in 2023 to increase consideration of climate change in assessments. • The Department of Environment and Science developed a Climate EIS information guideline Introduction This	• National Climate Resilience and Adaptation Strategy 2021-2025 • Reef Knowledge System – Resilient Reefs Network (gbrmpa.gov.au) • Final report | Independent review of the EPBC Act (environment.gov.au) • Nature Positive Plan • Samuel Review	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		guideline advises proponents about the information requirements in relation to climate when preparing an environmental impact statement (EIS). • In 2022, Australia submitted an updated Nationally Determined Contribution (NDC) to the UNFCCC, committing to reducing emissions to 43% below 2005 levels by 2030, and reaffirming a target to achieve net zero emissions by 2050.			
PR9 The best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding climate change	3	• BoM, CSIRO and NOAA provide a range of relevant climate information • Information from ReefTemp and NOAA Coral Reef Watch is used to inform the Coral Bleaching Response Plan (information below) • See info under PL1 regarding incident response plans • Coral Bleaching Response Plan 2013 - outlines a strategic approach for monitoring bleaching risk and has four components: – Early warning system – Incident response – Management Actions – Communications Strategy • The Blueprint for Resilience was developed in response to the declining condition of the Reef including from bleaching. • High-resolution climate datasets for Queensland are publicly available via the Terrestrial Ecosystem Research	• ReefTemp project • NOAA Coral Reef Watch • Reef Blueprint: Great Barrier Reef Blueprint for Resilience • Queensland Future Climate Science Program • High Resolution Climate Change Projection Data for Queensland • Queensland Future Climate Dashboard	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Network (TERN) portal. New since 2019 assessment • COTS Control Program data manta tow and RHIS data are contributing to broadscale assessments of coral bleaching, cyclone and other cumulative impacts. • Pre-summer workshop in November 2022 and summer health team assembled to monitor reports from the GBR. • The Climate Change Authority is required by law to provide advice to the Australian Government on how Australia's emissions reduction target takes into account the goals of the Paris Agreement.			
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding climate change	2	• Government Statistician, Queensland Treasury and Trade, provides socio-economic data over time for regional areas of Queensland. • In 2017, GBRMPA commissioned a socio-economic long-term monitoring program (SELTMP) to collect and interpret socio-economic data for integration into the Reef 2050 Integrated Monitoring and Reporting Program (RIMReP). These monitoring tools will enable managers to understand people's values and perceptions in relation to the impacts of climate change on the GBR. The SELTMP will also track the adaptive capacity of Reef-dependent industries (commercial fishing and tourism) in the face of climate change over time. This will help managers understand the capacity of	• Key demographic and socio-economic indicators • Preliminary SELTMP Report 2017 • Social and Economic Long-Term Monitoring Program (SELTMP) - SELTMP Core module pilot data dashboard - SELTMP Core Module Report - SELTMP Core Module 2021 Survey dataset: - Regional Report Cards	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		these industries to adapt to climate-related policy changes. • Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: – Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. – Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system. • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment: This project reviewed common frameworks that conceptualise the relationship between people and nature to identify which parts of the system	social survey dashboard - Regional Report Cards Module Report - Regional Report Cards 2021-22 Social Survey dataset - Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment: Project 1.17 | Marine and Coastal (nespmarinecoastal.edu.au)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		influence environmental outcomes, and factors relevant to designing policy or influencing behaviours.			
PR11 The best available Indigenous heritage information is applied appropriately to make relevant management decisions regarding climate change	2	• Limited • Traditional Owners involved in coral bleaching reporting in the Far Northern GBR during the 2016 mass bleaching event • Raine Island climate change adaptation has very high engagement and information sharing with Traditional Owners. • Wuthathi TUMRA CC considerations. Extent to which 'traditional knowledge' was drawn on in this not clear. • Some traditional knowledge used in development of TUMRA's and QDPIF work	• Workshop discussions	Adequate	Stable
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding climate change	2	• Knowledge of many historic places or events is limited • Information on the current condition is virtually unknown	• Workshop discussions	Adequate	Stable
PR13 Relevant standards are identified and being met regarding climate change	3	• Some objectives and targets have been proposed for the Strategic Assessment report. • Eco-certification programs that include climate change elements - tourism industry. New since 2019 assessment • See PR 8 – In particular the National Environmental Standards process underway.	• Workshop discussions • Queensland Climate Action Plan • Queensland Energy and Jobs Plan • *Climate Change Act 2022*	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Australia has regulated its climate commitments under the *Climate Change Act 2022*, and is a signatory to the Paris Agreement. Australia submitted its first Nationally Determined Contribution (NDC) to the UNFCC in 2015 and an updated version of this NDC in 2022. The update commits Australia to reducing its emissions to 43% below 2005 levels by 2030. Australia will submit its second NDC to the UNFCCC in 2025. • Under the Queensland Climate Action Plan, the Queensland Government set bold but achievable targets: – 50% renewable energy target by 2030 – 30% emissions reduction below 2005 levels by 2030 – 75% emissions reduction below 2005 levels by 2035 – Zero net emissions by 2050. • The Queensland Energy and Jobs Plan, released in 2022, introduced two further renewable energy targets: – 70% renewable energy by 2032 – 80% renewable energy by 2035 • The Queensland Climate Action Plan (QCAP) Monitoring, Evaluation, Reporting and Improvement (MERI) Framework, finalised in 2022, was developed to support ongoing evaluation of the effectiveness of the QCAP and support evidence-based policy and program design.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR14 Targets have been established to benchmark management performance for climate change	3	• Reef 2050 Plan has no specific targets for climate change. The Reef Authority corporate plan states "The Reef Authority is developing the Climate Resilience Management Strategy (the Blueprint), which is the key strategic document that signals the actions we will take with our partners to strengthen Reef resilience in the face of a changing climate and the other pressures on the Reef. We are updating the Blueprint to be more targeted on our strategy and management on a changing climate." • See PR13 • Under the Queensland Climate Action Plan, the Queensland Government set bold but achievable targets: – 50% renewable energy target by 2030 – 30% emissions reduction below 2005 levels by 2030 – 75% emissions reduction below 2005 levels by 2035 – Zero net emissions by 2050. • The Queensland Energy and Jobs Plan, released in 2022, introduced two further renewable energy targets: – 70% renewable energy by 2032 – 80% renewable energy by 2035 • The Queensland Climate Action Plan (QCAP) Monitoring, Evaluation, Reporting and Improvement (MERI) Framework, finalised in 2022, was developed to	• Workshops • Queensland Climate Action Plan • Queensland Energy and Jobs Plan	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		support ongoing evaluation of the effectiveness of the QCAP and support evidence-based policy and program design.			
OUTPUTS					
OP1 To date, the actual management program (or activities) have progressed in accordance with the planned work program for climate change	3	• The Reef 2050 Plan was released by the Australian and Queensland governments in March 2015 and is the overarching framework for protecting and managing the Reef until 2050. The Plan identifies climate change as the biggest threat to the reef, but does not specifically address climate change. Rather, it focused on other measures aimed to boost Reef resilience to all stressors. • While ultimately the fate of the world's reef will be determined by the global community's actions to reduce greenhouse gas emissions, the future for coral reefs is also dependent upon actions to enhance the resilience of coral reefs. • Following unprecedented back-to-back coral bleaching on the Reef, the Marine Park Authority brought together 70 leading marine experts for the first Reef Summit in May 2017. The key objective of the summit was to develop a blueprint for the Great Barrier Reef Marine Park Authority and its partners in response to mass bleaching and cumulative impacts on the Great Barrier Reef. An important part of this was to develop resilience initiatives focusing on coral reef habitats. The blueprint is currently in development.	• Reef 2050 Long-Term Sustainability Plan • Reef Blueprint: Great Barrier Reef Blueprint for Resilience • COTS Control Program	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• COTS funding is a resilience support / climate adaptation approach. Targeting to protect reefs that are important sources of coral larvae to aid recovery from disturbance events including those caused by climate change. • COTS control is a resilience support climate adaptation action. Targeting to protect reefs that are important sources of coral larvae to aid replenishment and recovery from climate-induced disturbance events. • The Australian Government has committed to more ambitious emissions reductions. In September 2022, the Government successfully legislated an emissions reduction target for the first time. This target of 43 per cent of 2005 levels by 2030 is a floor not a ceiling. The Government has also committed to greater protection of the natural environment through generational reform of Australia's national environmental laws.			
OP2 Implementation of management documents and/or programs relevant to climate change have progressed in accordance with timeframes specified in those documents	3	• Resilience work is progressing under other plans including Reef 2050 Plan and the Joint Field management Program (Raine Island project, COTS surveillance). • Development of cumulative impact management and net benefit policy paper was published in 2017. Critically, it identified that managing cumulative impacts needs to be improved and mechanisms	• Great Barrier Reef Region Strategic Assessment: Program Report • Managing cumulative impacts and achieving no net loss and net benefit outcomes for the Great Barrier Reef: A review of current understanding and application for management	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Resilience network initiative post the Summit / Blueprint and related research programs are in progress • RJFMP projects (under the Reef Rehabilitation Thematic) have implemented many of the priority initiatives of the Reef Blueprint including 'delivering on-ground action to enhance resilience', 'empowering people to be part of the solution', and 'fostering change' • The COTS Control Program has expanded and developed since 2012. It is now delivering COTS outbreak suppression and coral protection benefits across hundreds of reefs.	• Reef Rehabilitation Thematic (Project Brief) • Green Island reef rehabilitation • Bait Reef rehabilitation • Yarul Dhingiga (Keppel Bay reef rehabilitation) • COTS Control Program - GBRMPA		
OP3 The results (in OP1 above) have achieved their stated management objectives for climate change	2	• The COTS Control Program is effectively suppressing outbreaks and delivering coral protection benefits. The Program is helping to secure important sources of coral larvae that drive replenishment of impacted reefs.	• Reef 2050 Long-Term Sustainability Plan • Great Barrier Reef Blueprint for Resilience	Limited	Improving
OP4 To date, products or services have been produced in accordance with the stated management objectives for climate change	3	• Reef Health Impact Surveys (RHIS) conducted by GBRMPA staff, stakeholders and the Joint Field management Program. In 2020-21 the Joint Field management Program conducted 1256 RHIS Surveys across 178 reefs, including 479 RHIS assessments associated with crown-of-thorns starfish (COTS). • Increased resourcing for the COTS Control Program is delivering unprecedented capacity to provide broadscale reef health data that augments data	• Reef Health Incident Response and associated plans • Crown-of-thorns starfish management programme: Case study • Joint Field management Program Annual Reports.	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		provided by other reef monitoring and assessment programs (AIMS LTMP & MMP, RJFMP).			
OP5 Effective knowledge management systems regarding climate change are in place within agencies	2	• ANAO audit recommendation - review and finalise internally managed business procedures, including establishing relevant documents as controlled documents, in order to fully implement Recommendation no.1 from Auditor-General Report No.3 2015–16 Regulation of the Great Barrier Reef Marine Park Permits and Approvals. External documents are being reviewed and established as controlled documents where relevant. • The Department of Environment and Science maintains a Mendeley library with relevant climate change related publications.	• Regulation of Great Barrier Reef Marine Park Permits and Approvals — Follow-up | Australian National Audit Office (ANAO) • Managed document procedure - Procedures/Manuals (sharepoint.com)	Adequate	Stable
OP6 Effective systems are in place to share knowledge on climate change with the community	2	• Master Reef Guides • Reef Health Updates • Under the Queensland Future Climate Science Program, the Queensland Government provides a climate science knowledge brokering service to help the community and stakeholders access, select and apply relevant climate change projection data and information. • The Queensland Future Climate Dashboard provides easy access to climate projection, heatwave and rainfall information for Queensland. The dashboard allows users to explore, visualise and download the latest high-	• Climate action resources • Future Climate Dashboard | LongPaddock | Queensland Government • State Heatwave Risk Assessment 2019 • Climate Change in Queensland map application	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		resolution climate modelling data for specific regions, catchments, disaster areas, local government areas and grid squares. • The Queensland Government's State Heatwave Risk Assessment 2019 features long-term climate change projections as part of its analysis of future climate risks in Queensland. Queensland Fire and Emergency Services partnered with the Department of Environment and Science and Queensland Health to produce the assessment. • The Climate Change in Queensland map application provides an interactive online interface to regional climate projection data for the years 2030, 2050, 2070. • High-resolution climate datasets for Queensland are publicly available via the Terrestrial Ecosystem Research Network (TERN) portal.			
OUTCOMES					
OC1 The relevant managing agencies are to date effectively addressing climate change and moving towards the attainment of the desired outcomes.	1	• Governmental focus on climate change risks and adaptation shifted to strengthening ecosystem resilience. This does not proactively adequately address the risks posed by climate change to the Reef. • Evaluation of the AIMS long-term monitoring program results demonstrates that no-take protections in the GBRMPA support the resistance and consequently	• Mellin, C., Aaron MacNeil, M., Cheal, A. J., Emslie, M. J. and Julian Caley, M. (2016), Marine protected areas increase resilience among coral reef communities. Ecol Lett, 19: 629–637. doi:10.1111/ele.12598	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		recovery rates of fish and coral communities (Mellin et al. 2016). • GBRMP zoning and the GBRMPA compliance program is delivering resilience benefits to climate change driven impacts (e.g. coral bleaching). • Several research articles suggest actions are not moving towards the attainment of desired outcomes. • The Outlook Report is published by the Reef Authority every 5 years and assesses the management effectiveness of climate change. In 2019 this was assessed as very poor. • According to the most recent data from the National greenhouse Gas Inventory on total Queensland annual emissions, Queensland's 2020 emissions were 19% below 2005 levels, which is almost two-thirds of the way to the 2030 emissions reduction target.			
OC2 The outputs relating to climate change are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	1	• Outlook 2019 • Additional vulnerability assessment to be included in updated Blueprint. • The Reef Trust-funded Restoration of Reef Islands project aims to restore island habitats and improve their long-term resilience. • RTP-IMR 'Island Habitat Monitoring' project will use on-ground and remote sensing methods to monitor how island habitats are changing from climate change, severe weather events and biosecurity risks. It will	• Interviews and workshops • Outlook Report 2019 • Reef Trust -Restoration of the Reef • RTP-IMR 'Island Habitat Monitoring' project	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		gather critical information on various islands' regional ecosystems, fauna and cays to guide future management decisions and rehabilitation efforts.			
OC3 the outputs (refer OP1 and 3) for climate change are reducing the major risks and the threats to the Great Barrier Reef	1	• While actions to reduce pressures and build resilience remain crucial, environmental management efforts can only compensate for reduced coral reef resilience in the face of climate change to a limited extent and over a limited timeframe. • Modelling shows that preserving 10 per cent of coral reefs worldwide would require limiting global warming to below 1.5degrees Celsius relative to pre-industrial levels (Frieler et al 2013) • The 2019 Outlook Report assessed climate change as having very high impact on ecological values, heritage values, and social values of the Region. Climate change is having a high impact on economic values. Climate change is the single most pervasive and persistent influencing factor, with four climate change related threats posing very high risk (and one posing high risk). Refer Chapters 6 and 9. • See OC2	• Lewis, S. C., King, A. D., & Mitchell, D. M. (2017). Australia's unprecedented future temperature extremes under Paris limits to warming. Geophysical Research Letters, 44, 9947–9956. https://doi.org/10.1002/2017GL074612 • Frieler K., Meinshausen M., Golly A., Mengel M., Lebek K., Donner S. D. & Hoegh-Guldberg O., 2013. Limiting global warming to 2 °C is unlikely to save most coral reefs. Nature Climate Change. doi: 10.1038/nclimate1674. http://www.nature.com/nclimate/journal/v3/n2/abs/nclimate1674.html. • Outlook Report 2019	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC4 Use of the Great Barrier Reef relating to climate change is demonstrably environmentally sustainable	1	• In 2022 Australia's Minister for the Environment and Water rejected the Central Queensland Coal Mine development proposal due to its potential significant impacts to the Reef. This is the first time a coal mine has ever been rejected by the Australian Government under national environmental law. • Changing the long-term outlook for the Great Barrier Reef will take time. We have likely already seen some adaptation in the Reef system, and our progress towards advancing adaptation through the Reef Restoration and Adaptation Program is particularly encouraging but the measure of Australia's success in managing the Reef should be judged over an appropriate time frame. Australia proposes 2026 as our next year for formal reporting to the World Heritage Committee.	• Interviews and workshops	Limited	Stable
OC5 Use of the Great Barrier Reef relating to climate change is demonstrably economically sustainable	1	• Difficult to provide a clear response to this. The GBR supports many industries directly and indirectly. Climate change is not economically sustainable for the Reef as many of the reef-dependent industries will suffer significantly. • Economic evaluation of the Great Barrier Reef conducted by Deloitte in 2017. • Coral reefs protect millions of people world-wide from storm impacts reducing wave energy by 97% and average wave height by 86%. In the GBR the protective	• Climate Change | GBRMPA • At what price? The economic, social and icon value of the Great Barrier Reef • Ferrario, F., Beck, M. W., Storlazzi, C. D., Micheli, F., Shepard, C. C., & Airoldi, L. (2014). The effectiveness of coral reefs for coastal hazard risk reduction and	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		effect of the Barrier Reef has not been fully calculated however it is evident in the lack of surfable waves between 1770 and the Torres Strait. • Coral reefs provide the most valuable ecosystem services on the planet, valued at $352,000 USD / ha/yr. This is due to storm protection, erosion protection, and recreation. GBR value $852 B per annum (Costanza et al 2014)	adaptation. Nature communications, 5, 3794. • Costanza, R., de Groot, R., Sutton, P., van der Ploeg, S., Anderson, S. J., Kubiszewski, I., ... & Turner, R. K. (2014). Changes in the global value of ecosystem services. Global environmental change, 26, 152-158 https://www.sciencedirect.com/science/article/pii/S0959378014000685		
OC6 Use of the Great Barrier Reef relating to climate change is demonstrably socially sustainable in terms of understanding and enjoyment	1	• Unclear, given the continuing threat posed by rising atmospheric CO2 concentrations that will ultimately jeopardise the community, heritage and cultural values of the GBR.	• Workshop discussions • Climate Change | GBRMPA • Outlook Report 2019 • NESP Tropical Water Quality Hub funding project 3.2.3: "Monitoring aesthetic value of the Great Barrier Reef" • NESP Tropical Water Quality Hub funding project 3.2.4: "Defining, assessing and monitoring Great Barrier Reef aesthetics" (Completed)	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC7 The relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address climate change	3	• In 2020 the Reef Guardian Council stewardship program provided a Climate Change snapshot of council efforts to mitigate greenhouse gas emissions • RJFMP 'reef rehabilitation' projects (trials of macroalgae removal, 'reef-stars', 'coral-clips', 'reef-bags') have all been developed and undertaken in partnership with stakeholders and local businesses. • Master Reef Guides. • Commitment by Commonwealth, State and Territory Energy Ministers to work collaboratively on a new agreement for the coordinated and orderly transformation of Australia's energy sector to net zero by 2050. • The Queensland Government has partnered with Chamber of Commerce & Industry Queensland to deliver the Ecobiz program, a free program for small to medium businesses to support them to reduce their energy, water usage and manage their waste.	• GBRMPA ELibrary: Reef Guardian Councils Climate change initiatives snapshot 2022 • Reef Rehabilitation Thematic (Project Brief) • Green Island reef rehabilitation • Bait Reef rehabilitation • Yarul Dhingiga (Keppel Bay reef rehabilitation)	Limited	Improving

Coastal Development

Table 37: Calculation of grades for Coastal Development

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The values of the Great Barrier Reef relevant to coastal development are understood by managers	2	• The 2019 Outlook Report is published by the Reef Authority and includes information about coastal development – refer section 6.4. • Values of the GBR relevant to coastal development are clearly articulated in the Informing the Outlook for Great Barrier Reef coastal ecosystems document, the Great Barrier Reef Strategic Assessment, and the Scientific Consensus Statement • Information about Coastal Development and impacts on the values of the Reef are addressed in the Great Barrier Reef Coastal Zone Strategic Assessment; however, this report is approximately 10 years old and does not include advances in knowledge since 2014. • The 19 Reef Guardian Councils include actions to address coastal development in their 2020-24 Reef Guardian Council Action Plans, demonstrating understanding of the values of the Reef relevant to Coastal Development. • Work Area 2 of the Reef 2050 Long-term Sustainability Plan (Reduce impacts from land-based activities) considers relationship between coastal processes and	• Interviews and workshops • 2019 Outlook Report • Great Barrier Reef Coastal Zone Assessment (2014) • Reef Guardian Council Action Plans 2020-2024 • Coastal Ecosystem Position Statement	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the Reef and the impact of coastal development on Reef values. • The coastal ecosystem position statement identifies significant environmental values and functions of coastal ecosystems relevant to Reef values. Challenges • Interview participants expressed that there can be inconsistencies and different interpretations of legislation across State Government Departments, and this affects outcomes from State interest checks under the State assessment and referral process. This was seen to be indicative of broader issues concerning the lack of on-ground knowledge and understanding of coastal development issues relevant to central and northern Queensland Councils and the relationship between coastal development and Reef values.			
CO2 The current condition and trend of values relevant to coastal development are known by managers	2	• Informing the Outlook for the Great Barrier Reef coastal ecosystem is a technical report on the current status. • The Report cards provides data on the condition and trend of wetlands. • The Scientific Consensus statement looks at the trends of the values associated with coastal ecosystems. • The Queensland Government's QCoast 2100 program provided funding to local governments to develop Coastal Hazard Adaptation Strategies, which enabled	• Interviews and workshops • 2019 Outlook Report • Reef 2050 WQIP Report Cards • 2017 Scientific Consensus Statement • QCoast 2100 • Statewide Landcover and Trees Study 1988-2018 - Dataset - Open Data	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		local government to improve their understanding of the vulnerabilities and risks to the environment, infrastructure, and communities from current and future coastal hazard risks.	Portal | Queensland Government • Great Barrier Reef Coastal Zone Strategic Assessment 2014 • Remnant Regional Ecosystem Vegetation in Queensland, Analysis 1997-2013.		
CO3 Impacts (direct, indirect and cumulative) associated with coastal development are understood by managers.	2	• Cumulative impacts are not well understood, but are considered in the Coastal Development Position Statement • Vulnerability assessments that seek to identify current threats and pressures on coastal ecosystems, and their impacts on the Reef, have been developed for at-risk coastal ecosystems under the Coastal Ecosystem Assessment Framework 2014 • The Queensland Government's QCoast 2100 Program provided funding to local governments to develop Coastal Hazard Adaptation Strategies, which enabled local government to improve their understanding of the vulnerabilities and risks to the environment, infrastructure, and communities from current and future coastal hazard risks. • Coastal development generally requires assessment under the *Planning Act 2016* (Planning Act) to ensure it	• Interviews and workshops • Coastal Ecosystem Position Statement • The Coastal Ecosystem Assessment Framework • QCoast 2100 • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Integrated Reef stewardship monitoring project (PROTECT):	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		is managed to protect and conserve environmental, social, and economic coastal resources and enhance the resilience of coastal communities to coastal hazards. Challenges • Poor integration between land-based coastal development planning, management and assessment processes and their relationship to Reef • Poor co-ordination between Federal and State assessment frameworks on matter of environmental significance • Lack of understanding of direct, indirect and cumulative impacts on the Reef associated with coastal development by key management bodies (i.e. local governments).	Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Monitoring collective capacity and implementation (Governance): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects)		
CO4 The broader (national and international) level influences relevant to coastal development are understood by managers.	2	• The Report of the Reactive Monitoring Mission to the Great Barrier Reef provides a series of recommendations based on an assessment of Australian management arrangements that were in place in March 2022. This includes the following high priority recommendations: – P1: Identify priority areas of grazing land for gully repairs and associated remediation activities, and significantly scale-up activities – P2: Require proposed and in-progress dam developments to show clear alignment with water quality improvement for the GBR	• Report on the Reactive Monitoring Mission to the Great Barrier Reef 2022 • State Party Report on the state of conservation of Australia's Great Barrier Reef 2022 • Australian Treaty Series • The RAMSAR Convention on Wetlands	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– P3: Increase significantly the scale and pace of adoption, monitoring and enforcement of best management practice in sugarecane and banana farming – P4: Prioritise the protection of remnant native vegetation across the GBR – P7: Ensure that the carbon and water quality related credit schemes being deployed in the GBR catchments deliver overall net benefits to the OUV • The State Member Party Report to the World Heritage Committee on the state of conservation of Australia's Great Barrier Reef describes how coastal development activities are managed through Reef 2050 Plan. • There are a range of conventions, partnerships, agreements, legislation and strategies that relate to the protection and management of waterbirds and their habitats, such as Bonn, JAMBA, CAMBA, RAMSAR	• Australian National Guidelines for RAMSAR Wetlands • Convention on the Conservation of Migratory Species of Wild Animals • Japan-Australia Migratory Bird Agreement • China-Australia Migratory Bird Agreement • Australian National Report to the 18th JAMBA, 12th CAMBA and 5th ROKAMBA Consultative Meeting, 2016		
CO5 The stakeholders relevant to coastal development are well known by managers.	3	• The Reef 2050 Plan Independent Expert Panel provides scientific and expert advice related to the Great Barrier Reef, including support for the implementation and review of the Reef 2050 Plan, Reef 2050 WQIP and other matters. • The Reef 2050 Advisory Committee meets regularly to discuss the implementation of Reef 2050 actions, stakeholder priorities, and highlight any emerging cross sectoral issues that need to be addressed.	• Reef 2050 Plan Independent Expert Panel • Reef 2050 Advisory Committee • Local Marine Advisory Committees • Reef Guardian Councils • Actor Network Mapping Project	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Local Marine Advisory Committee's (LMAC) program is a network of 154 members and 70 management partners, including Traditional Owners, state, and local governments which provide advice to the Reef Authority on Marine Park issues and management proposals. The LMAC provides contact with stakeholder groups at the regional level. • The Authority has two Reef Advisory Committees (RACs) Indigenous; and Tourism. A key role for the RACs is to advise the Authority in relation to actions that can be taken to address the risks to the Great Barrier Reef Marine Park identified in the Great Barrier Reef Outlook Report 2009 • Great Barrier Reef Marine Park Authority Actor Network Mapping project: Mapping working agreements between the Authority, partners, stakeholders, and community of practice. This project maps the existing actors within a network that connects the Authority to the organisations and institutions they engage for research and management practice. This project has three overarching goals. First, to provide information to the Authority's science for management sector that will help inform future work. Second, to identify gaps in existing Reef management partnerships. Third, to help inform management decision-making process by identifying actors in the Reef management landscape solely from an Authority centric perspective.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There are 19 Councils between Bundaberg and Cooktown in the Reef Guardian Councils program undertaking various actions to help reduce impacts on the Great Barrier Reef.			
PLANNING					
PL1 There is a planning system in place that effectively addresses coastal development	3	• A planning system that effectively addresses coastal development requires the alignment, coordination and integration of the relevant planning instruments between different scales (i.e. national, state and local) and sectors of government (i.e. environment, transport, primary industry). • The *Planning Act 2016* set the statutory policy framework for land-based development in the GBR catchment. • The *Planning Act 2016* provides a framework for planning and development in Queensland and sets out the framework for the integration and coordination between the various planning and development instruments. • *The Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the central piece of Australia's environmental protection framework. The EPBC Act's intended purpose is protect nationally significant places, ecosystems and wildlife such as world heritage areas, species at risk of extinction, the Great Barrier Reef and internationally significant wetlands.	• Interviews and workshops • Environmental Protection and Biodiversity Conservation Act 1999 • Planning Action 2016 • State Planning Policy July 2017 • Queensland Vegetation Management Act 1999 • Queensland Fisheries Act 1994 • Sustainable Ports Development Act 2015 • State Development Assessment Provisions • Reef Guardian Council Action Plans • Guideline for Coastal Development • Nature Positive Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There are numerous pieces of state legislation that provide additional protection for the Outstanding Universal Value of the Reef. These include: – Queensland *Vegetation Management Act 1999* that regulates land clearing and development activities; – Queensland *Fisheries Act 1994*; – *Sustainable Ports Development Act 2015* (which provides a legislative framework to balance the protection of the Reef with the development of major bulk commodity ports in the GBR region), and more recently the Queensland government reef protection regulations. • The State Development Assessment Provisions define state interest in development assessment. These were updated in 2022 to reflect contemporary drafting principals, improve clarity and address some known issues. • Relevant State Development Assessment Provisions to coastal development include: – State Code 8 Coastal Development and tidal works – State Code 7 Maritime Safety – State Code 12 Development in a declared fish habitat area. • Further clarity was added to the State Code 8 guideline for coastal development and tidal works to ensure that coastal resources are not impacted by dredging or disposal of dredged material in tidal waters.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Performance outcome 22 intends to ensure that increased turbidity or contaminant release limits to not adversely impact reef and seagrass communities and that benthic communities are not smothered by sediments. • The State of Queensland has a suit of State codes aimed at controlling coastal development. Implementation from an environmental bet practice point of view is on a case-by-case basis. Relevant codes include: – 9 – Great Barrier Reef wetland protection areas – Aquaculture state code – Constructing or raising waterway barrier works in fish habitats state code – Development in a declared fish habitat area state code – Particular development on strategic cropping land – Queensland vegetation management state code – Referable dams state code – Stormwater and drainage impacts of state transport infrastructure state code – Tidal works, or development in the coastal management district state code – Wetland protection state code • The *Wetlands in the Great Barrier Reef Catchments Management Strategy 2016-2021* supports the Reef 2050 Long-term Sustainability and the Reef Water Quality Improvement Plan 2013, setting out a framework			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		for the improved management of the wetlands for the Great Barrier Reef catchments. The Strategy outlines an integrated approach to catchment and coastal environmental management that considers the multiple values of wetlands and the role they play in ecosystem health of the World Heritage Area. • The Reef 2050 Plan includes a number of actions that are relevant to coastal development. • The 19 Reef Guardian Councils include actions to address coastal development in their 2020-24 Reef Guardian Council Action Plans. • Part of the *Environmental Protection Biodiversity Conservation Act 1999* reform will be the establishment of National Environmental Standards which will include Regional Planning. • The Nature Positive Plan is a policy initiative by the Australian government to reform the Australia's environmental laws and regulations. Further clarity was added to the State Code 8 guideline for coastal development and tidal works to ensure that coastal resources are not impacted by dredging or disposal of dredged material in tidal waters. Performance outcome 22 intends to ensure that increased turbidity or contaminant release limits to not adversely impact reef and seagrass communities and that benthic communities are not smothered by sediments. Challenges			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• A Key issue raised by participants in the coastal development topic workshops and interviews was the challenges faced within the current planning system to effectively integrate and coordinate land-based planning matters and marine based-based planning matters. • Reef Guardian Action Plans lack integration with statutory planning processes at local government level.			
PL2 The planning system for coastal development addresses the major factors influencing the Great Barrier Reef Region's values.	2	• The State Planning Policy 2017 is applied to regional planning and local government planning scheme making. However, in the main, is not relevant to individual development applications, although the SPP has formed the basis for the performance outcomes set in the SDAP. This includes fisheries species protection. • Coastal development generally requires assessment under the *Planning Act 2016* (Planning Act) to ensure it is managed to protect and conserve environmental, social and economic coastal resources and enhance the resilience of coastal communities to coastal hazards. • The Coastal Ecosystem Position Statement prioritises areas for protection and restoration to improve ecosystem services • The 2016 Reef 2050 Policy Guideline for Decision Makers is for all government, community and industry decision makers who are updating or creating policies, plans, strategies, program or partnerships that affect the Great Barrier Reef. The purpose of the Guideline is to	• Interviews and workshops • Coastal Ecosystem Position Statement • State Planning Policy July 2017 • Reef 2050 Policy Guideline for Decision Makers • PFAS National Environmental Management Plan • Nature Positive Plan	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		help these decision makers to understand the Reef 2050 Plan and consider its targets and objectives in their decisions. • The 19 Reef Guardian Councils include actions to address coastal development in their 2020-24 Reef Guardian Council • Queensland is working with other jurisdictions to develop the PFAS Nation Environmental Management Plan 3.0. • Part of the EPBC Act reform will be the establishment of National Environmental Standards which will include Regional Planning. See Nature Positive Plan on the department's website • A compliance program and permitting system is in place to implement the strengthened Reef protection regulations.			
PL3 Actions for implementation regarding coastal development are clearly identified within the plan	3	• The State Planning Policy clearly identifies actions for implementation regarding coastal development. • State development area development schemes do not clearly identify actions for implementation but plan for management of impacts and have assessment processes in place that manage impacts that arise from coastal development. Pursuant to the *State Development and Public Works Organisation Act 1971* (Qld) declared state development area establishes a	• Coastal Ecosystem Assessment Framework • State Development Area Development Schemes • State Planning Policy July 2017 • Reef 2050 Long-term Sustainability Plan 2021-25	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		framework of compliance and management in accordance with conditions of approval. • Coastal Ecosystems Assessment Framework defines each coastal ecosystem and document the vulnerabilities to known pressures identify present management tools and appropriate and practical management actions that could be taken to mitigate risk and enhance coastal ecosystem resilience • Reef 2050 Long-term Sustainability Plan set specific goals and strategic action to improve coastal development – Integrated catchment-to-reef management reduces cumulative impacts (Strategic Action 2.2). – Lighting and recreational impacts on sensitive shoreline ecosystems and cultural sites are reduced Strategic Action 2.3). • The *Wetlands in the Great Barrier Reef Catchments Management Strategy 2016-2021* identifies actions and assist in decision making, on-ground activities and monitoring and evaluation.	• Reef Guardian Council Action Plans • Wetlands in the Great Barrier Reef Catchment Management Strategy 2016-2021		
PL4 Clear, measurable and appropriate objectives for management of coastal development have been documented	3	• Through the Reef 2050 Plan and the GBR coastal zone strategic assessment the QLD government committed to ensuring the development in the GBR coastal zones occurs in an ecologically sustainable manner and that negative impacts are avoided. Reef 2050 outlines a number of clear, measurable and appropriate	• State Planning Policy July 2017 • Reef 2050 Long-Term Sustainability Plan 2021-25	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		objectives. For example, BA11 - Identify, protect and manage key seabird nesting islands, and key habitats that support foreshore and pelagic foraging. • Coastal Ecosystems Assessment Framework defines each coastal ecosystem and document the vulnerabilities to known pressures identify present management tools and appropriate and practical management actions that could be taken to mitigate risk and enhance coastal ecosystem resilience. • The Strong Peoples – Strong Country Framework forms part of the Reef 2050 Integrated Monitoring and Reporting Program being led by the Great Barrier Reef Marine Park Authority. It is a Traditional Owner-led Indigenous Monitoring Framework which aims to measure progress towards achieving a Healthy Reef and Healthy People and Traditional Owner actions in the Reef 2050 Plan. Its design was completed in the 2019 as part of the first Reef 2050 Plan and its further development is being informed through a series of community-based pilot projects which are outlined in the Reef 2050 Traditional Owner Implementation Plan. • A compliance program and permitting system is in place to implement the strengthened Reef protection regulations.	• Great Barrier Reef Coastal Zone Strategic Assessment 2014 • The Strong Peoples – Strong Country Framework • Informing the Outlook for Great Barrier Reef coastal ecosystems		
PL5 There are plans and systems in place to ensure appropriate and adequate	3	• The Outlook Report is updated and published every 5 years and includes an assessment of the value, condition, trend, impacts, effectiveness of management	• Outlook Report 2019	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
monitoring information is gathered in relation to coastal development		and risks of threats associated with coastal development. • Regional ecosystem, essential habitat and wetland mapping is regularly reviewed and updated, which is used to measure the change in extent of these environmental values. • The Reef 2050 Integrated Monitoring and Reporting Program (RIMREP) is being used to track the progress of outcomes outlined in the Reef 2050 Plan. Reef 2050 Plan – presents actions to protect the values, health and resilience, while allowing ecological sustainable use. RIMREP will help track progress towards targets and objectives under the plan's seven themes: ecosystem health, biodiversity, heritage, water quality, community benefits, economic benefits, governance and reporting. • The Strong Peoples – Strong Country Framework forms part of the Reef 2050 Integrated Monitoring and Reporting Program being led by the Great Barrier Reef Marine Park Authority. It is a Traditional Owner-led Indigenous Monitoring Framework which aims to measure progress towards achieving a Healthy Reef and Healthy People and Traditional Owner actions in the Reef 2050 Plan. Its design was completed in the 2019 as part of the first Reef 2050 Plan and its further development is being informed through a series of community-based pilot projects which are outlined in the Reef 2050 Traditional Owner Implementation Plan.	• The Reef 2050 Integrated Monitoring and Reporting Program • The Strong Peoples – Strong Country Framework • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects). • IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Monitoring collective capacity and implementation (Governance): Integrated Monitoring and Reporting		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The design phase of RIMReP was completed in 2019. It delivered the structure, program and monitoring design, an implementation roadmap, and an initial release of the Reef Knowledge System. Implementation phase of RIMReP is progressing with the greatest effort directed toward continuing the scoping and implementation of a fit for purpose Data Management System, progressing the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement. • RIMReP will determine the business requirements for the design of an online Reef 2050 reporting platform through the Reef Knowledge System (RKS). To be an online progress report that provides an indication of whether the Reef 2050 Plan is tracking towards its objective and targets is needed. Scoping is progressing for this framework under the RIMReP Annual Business Plan priority project work. • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): This project (2021-2024) will design a monitoring program to help managing agencies make informed decisions about striking the right balance between sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values.	- Great Barrier Reef Foundation (Human dimensions Monitoring projects) • Regional Report Card Partnerships and Report Cards: Wet Tropics, Dry Tropics, Mackay-Whitsunday-Isaac, Fitzroy Basin, Gladstone Healthy Harbour		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Community members have an important role to play in contributing to the protection the Great Barrier Reef and maintaining its World Heritage Values. This project (2021-2024) will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes. No results yet. • IMR RTP Monitoring collective capacity and implementation (Governance): There are multiple programs, plans and policies underway for the protection and sustainable use of the Reef under the Reef 2050 Plan. This project (2021-2024) will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. No results yet.			
PL6 The main stakeholders &/or the local community are effectively engaged in planning to address coastal development	2	• Protection and management of the Gret Barrier Reef is a partnership between many government agencies, stakeholders and community members, with activities both on water and in the catchment. • The Reef Authority works with local governments through the Reef Guardian Councils. • Primary audience of the costal ecosystem position state is natural resource managers, decision makers (Commonwealth, Queensland and local government).	• Reef Guardians • Coastal Ecosystems – position statement • QCoast2100 • Reef Integrated Monitoring and Reporting Program (RIMReP)	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Secondary audience is Traditional Owners, private and public industry, landholders and land managers, research and education institutions and members of the community. • The QCoast2100 program was launched in 2016 to assist councils in coastal hazard adaptation planning. QCoast2100 is governed by a Board comprising members from the Local Government Association of Queensland (LGAQ), the Department of Environment and Science (DES) and the Department of State Development, Infrastructure, Local Government and Planning. The program is assisting councils to implement cost-effective mitigation measures with a focus on nature-based solutions that address coastal hazard risks whilst maintaining or enhancing coastal resources • Reef Integrated Monitoring and Reporting Program have established a number of expert working groups under the program design. These groups are working to understand the links between environmental drivers, external impacts. Stakeholder involved in these groups include, GBRF, BOM, CSIRO, research institutions, universities, GBRMPA.			
PL7 Sufficient policy currently exists to effectively address coastal development	3	• Queensland's State Planning Policy has a wide range of planning and development policies that have statutory support under SPA that aim to minimise impacts on the natural environment in the GBR coastal zone region.	• State Planning Policy July 2017 • Cumulative Impact Management Policy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• GBRMPA also has a number of policies and draft policies that address coastal development.	• Reef 2050 Plan Net Benefit Policy • Dredging Coral Reef Habitat Policy 2016 • National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds		
PL8 There is consistency across jurisdictions when planning for coastal development	2	• Great Barrier Reef Intergovernmental Agreement 2009, signed by the Prime Minister and Queensland Premier (June 2009), provides a framework for the Australian and Queensland governments to work together to protect the Great Barrier Reef. • Poor linkage between major programs (e.g. Queensland Wetland Program) and key management agencies (e.g. Department of Resources, Department of Regional Development, Manufacturing and Water) exists. • Jurisdictional limitation across territories creates a complexity and add to potential uncertainty of minimising impacts to the Reef. • There is inconsistency between Australian and Queensland environment and development assessment frameworks. • The binding nature of standards applied in the Great Barrier Reef catchments and Region vary between	• Interviews and workshops • Great Barrier Reef Intergovernmental Agreement 2009	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Commonwealth and Queensland jurisdictions. Queensland operates in a regulatory space with statutory codes incorporating mandatory and prescriptive provisions. Queensland also applies collaborative tools such as non-statutory guidelines and policy statements similar to the Reef Authority. The legal status of the respective 'standards' in not uniform, which may reflect on consistency and outcomes achieved.			
PL9 Plans relevant to coastal development provide certainty regarding where uses may occur, the type of activities allowed, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.	3	• Local Government Planning Schemes and Codes are statutory documents that manage and regulate land-use, future development and planning for local government areas in Queensland. Planning schemes set out policies, codes and maps that define how land can be used, what can be built where, and what standards can be used. They also provide guidance on issues such as heritage protection, environmental management, and infrastructure provision. • Under the *State Development and Public Works Organisation Act 1971*, State development area schemes provide guidance (through maps) and supporting text about suitable locations for different activities and policies to support their assessment. Prohibited development is also prescribed. • The *Planning Act 2016* is the preeminent instrument that governs coastal development (in accordance with the State Planning Policy). Coastal hazard areas that are considered not appropriate for development are	• Local Government Planning Schemes • State Development and Public Works Organisation Act 1971 • Planning Act 2016 • State Planning Policy July 2017 • Refer above, especially PL7 & 8	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		incorporated into local government planning schemes via overlays. Prohibited development is generally not prescribed in planning schemes; applications are assessed on merit at discretion of assessment managers. Assessment of appropriate uses is often coupled with ecological assessments given the sensitive nature of costal and tidal areas.			
INPUTS					
IN1 Financial resources are adequate and prioritised to meet management objectives to address coastal development	3	• Non-statutory planning is not resourced to its full potential (e.g. Regional NRM planning, and implementation, coastal planning). • The state coastal management plan is not well applied, and lacks a compliance loop to determine effectiveness of the act and its associated plans • Lack of dedicated resourcing especially at a local govt scale • Compliance on development is inadequate to ensure effective environmental protection • Resources have been reallocated based on the fact that: GBRMPA now has a position statement on coastal ecosystems; (BlueMaps has been adopted and operationalised by the Qld Govt through Qspatial and Aquatic Biodiversity Assessment Mapping Method; Queensland has the primary legislative responsibility for	• Interviews and workshops • QCoast2100 • Coastal Ecosystems – Position Statement	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		management of coastal ecosystems. The objectives of GBRMPA involvement in coastal ecosystem management have been met. • The Queensland Government's QCoast 2100 Program provided funding to local governments to develop Coastal Hazard Adaptation Strategies, which enabled local government to improve their understanding of the vulnerabilities and risks to the environment, infrastructure, and communities from current and future coastal hazard risks.			
IN2 Human resources within the managing organisations are adequate to meet specific management objectives to address coastal development	2	• Current resource levels in the environment assessment and protection area and planning are not adequate to address the increase in coastal development/marine development and changes to the EBPC/GBRMP/Coastal Planning (i.e. more high level assessments have arisen for GBRMPA (since 2009) with the GBRMP being made a matter of National environmental Significance).	• Interviews and workshops • GBRMPA Annual Operating Plan 2017-2018	Adequate	Stable
IN3 The right skill sets and expertise are currently available to the managing organisations to address coastal development	2	• The GBRMPA employs two dedicated Social Scientists and engages regularly with social-ecological scientists at numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science Community for the Reef and Reef 2050 (Human Dimensions consortium) • A formal panel of providers has been established to support marketing	• Interviews and workshops	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Relevant expertise and skills can be outsourced through consultation with Industry and/or other Government and research agencies. • The Reef Guardian Councils program includes networking and professional development to share knowledge, best practice and information to assist our local government partners to help manage catchment impacts on the Reef. • Specialised training has been undertaken in behaviour change and community based social marketing. • Permits Compliance Team regularly delivering training to FM and QPWS authorised inspectors who are in the field liaising with permit holders including commercial marine tourism operators. • Training modules for new GBRMP permission system developed and implemented in 2022. • Social science information is completed for inclusion in the Reef Joint Field Management Program's foundation training program in March 2023 and then every foundation program thereafter. • EAP and People Services are also developing a workflow that will track EAP delegation levels and approvals in the Reef Authority's Learning Management System - due for implementation early 2023.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN4 The necessary biophysical information is currently available to address coastal development	3	• The Strategic Assessments, Scientific Consensus Statement 2017, Outlook Report 2019, vulnerability assessments, basin assessments, informing the Outlook for the GBR Coastal ecosystems, have all complied latest information and made it accessible to managers. • Mapping of terrestrial habitats exists and regional ecosystem and wetlands data is of high reliability. • Groundwater Dependant Ecosystem conceptual models and interactive mapping has been completed for large parts of the catchment. • Walking the landscape processes have been run with GBRMPA, EHP and NRM groups to understand the influence of geology and land use on hydrological flows and prioritisation of actions in line with the Queensland Wetlands Strategy are being developed by many NRM groups. • Paddock to Reef program is dedicated to monitoring catchment loads, paddock monitoring and modelling, marine monitoring, wetlands and ground cover and provides an opportunity for adaptive management.	• Interviews and workshops • Outlook Report 2019 • Great Barrier Reef Strategic Assessment • Great Barrier Reef Coastal Zone Strategic Assessment 2014 • Coastal Ecosystem - position statement • *Wetlandinfo* and NRM group catchment story maps • Reef Knowledge System	Adequate	Stable
IN5 The necessary socio-economic information is currently available to address coastal development	3	• Government Statistician, Queensland Treasury and Trade, provides population, projections and other demographic and socio-economic data over time for regional areas of Queensland, enabling measurement of socio-economic implications of coastal development.	• Social and Economic Long-Term Monitoring Program (SELTMP) • RIMReP • Outlook Report 2019	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Socio and economic research were brought into the RIMReP Human Dimensions expert working group to inform the RIMReP Program design. • Section 6.4 of the 2019 Outlook Report includes some relevant socio-economic information. • The Reef Authority 'Science and Knowledge Needs for Management' (2021) – refer IN4. • Refer also PR10 • Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: – Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR.	• Marshall et al. 2016. Advances in in monitoring the human dimension of natural resource systems: an example from the Great Barrier Reef. Environ. Res. Lett. 11 (2016) 114020 • Gooch et al. 2017 Assessment and Promotion of the Great Barrier Reef's Human Dimensions through Collaboration. Coastal Management, DOI: 10.1080/08920753.2017.1373455 • Waltham, N. J., & Sheaves, M. (2015). Expanding coastal urban and industrial seascape in the Great Barrier Reef World Heritage Area: Critical need for coordinated planning and policy. Marine Policy, 57, 78–84.		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system.	DOI:https://doi.org/10.1016/j.marpol.2015.03.030 • GBRMPA ELibrary: Science and Knowledge Needs for Management		
IN6 The necessary Indigenous heritage information is currently available to address coastal development	2	• Coastal planning processes have included engagement with Traditional Owners • 2019 Outlook Report is publicly available and includes some relevant Indigenous heritage information. However, many data and knowledge gaps remain about how coastal development will impact indigenous heritage. • Implementing the 'Strong Peoples-Strong Country Framework' was identified as one of the Priority Monitoring Gaps in the Reef Authority's prospectus in 2021. The prospectus provides an overview of the priority monitoring gaps identified to support the implementation of the Reef 2050 Integrated Monitoring and Reporting Program. The prospectus identified 11 priority monitoring gaps which have since been funded by the Reef Trust Partnership and are being progressed by RIMReP Partners. The Strong Peoples-Strong Country Framework aims to build capacity for Traditional Owner leadership of monitoring and reporting in the Great Barrier Reef (GBR). Phase 2 of the Strong People Strong Country framework builds on the work undertaken in Phase 1 and involves the development of	• Interviews and Workshops • Outlook Report 2019 • GBRMPA ELibrary: Science and Knowledge Needs for Management • Science and Knowledge Needs | Reef Knowledge System (gbrmpa.gov.au) • GBRMPA ELibrary: Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park • GBRMPA ELibrary: Monitoring the Indigenous heritage within the Reef 2050 Integrated Monitoring and Reporting Program: final report of the Indigenous Heritage Expert Group	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		a set of objective indicators, which aim to provide information and insights about the condition and trends in Indigenous heritage values in the Reef and its catchments.	• GBRMPA ELibrary: Strong peoples - strong country: Indigenous heritage monitoring framework summary report		
IN7 The necessary historic heritage information is currently available to address coastal development	2	• Coastal planning takes historic heritage into consideration • The Outlook Report 2019 has some relevant historic heritage information. However, data and knowledge gaps remain about how coastal development has/will impact historic heritage.	• Interviews and workshops • Outlook Report 2019 • Queensland Heritage Act 1992	Limited	Declining
IN8 There are additional sources of non-government input (e.g. volunteers) contributing to address coastal development	3	• There are a number of volunteer organisations that input in various ways to address coastal development. These include: – ReefCheck Australia – Landcare Australia – Conservation Volunteers Australia – Seagrass Watch – Wildlife Preservation Society of Queensland – Coastcare – Queensland Conservation Council – Queensland Water and Land Carers – Greening Australia – Sunfish – Clean Up Australia Day	• GBRMPA webpage Join a community organisation includes several links: • ReefCheck Australia • Landcare Australia • Conservation Volunteers Australia • Seagrass Watch • Wildlife Preservation Society of Queensland • Coastcare • Queensland Conservation Council	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Reef Guardian Program includes councils and schools. However, Reef Guardian Farmers and Reef Guardian Fishers program is no longer active. • There are mechanisms in planning legislation (i.e. EPBC Act and State legislation) that allow third parties intervention i.e. Adani and Australian Conservation Society	• Queensland Water and Land Carers • Greening Australia • Sunfish • Clean Up Australia Day • Reef Guardian Program		
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of coastal development	3	• Types of engagement ranges from informing, seeking advice, to consultation and co-management. There are varying extents of engagement between different stakeholders and contexts for coastal development. • There is sound engagement of stakeholders through Reef Gaurdian Schools and Councils, Qld Wetlands Program, Reef Advisory Committees, the Authority's regional offices, NRM bodies. • The Reef 2050 Traditional Owner Implementation Plan released November 2022 builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products including an animation and timeline were also produced to inform community, government and stakeholders of the long	• Interviews and workshops • Reef Guardian Program • Qld Wetlands Program	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		history and desired path forward. Further detail is provided in Topic 13 Heritage (Indigenous).			
PR2 The local community is effectively engaged in the ongoing management of coastal development	3	• See PR1 and IN8 above. • *EPBC Act 1999* requires public engagement when proposals are referred	• Interviews • EPBC Act 1999	Limited	Stable
PR3 There is a sound governance system in place to address coastal development	2	• The Reef has a polycentric governance system, coastal development is one sub-system, or sub-domain, within the overall system. • Governance of coastal development is an on-going issue and this is highlighted extensively in academic literature (see Dale 2013; 2016; 2017, Fraser et al 2017).	• Governance of coastal development is an on-going issue and is highlighted extensively in academic literature (see Dale 2013; 2016, 2017, Fraser et al 2017) • Dale et al, 2017 Avoiding implementation failure in catchment landscapes: A case study in Governance of the GBR, Environmental Management • Fraser, K. A., V. M. Adams, R. L. Pressey and J. M. Pandolfi (2017). Purpose, policy, and practice: Intent and reality	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			for on-ground management and outcomes of the Great Barrier Reef Marine Par Reef Plan committees		
PR4 There is effective performance monitoring, including. regular assessment of appropriateness and effectiveness of tools, to gauge progress towards the objective(s) for coastal development	3	• Statewide Landcover and Trees Report monitors the extend of vegetation clearing in GBR catchments. • The Outlook Report is published by the Reef Authority every 5 years and assesses the management effectiveness of coastal development. In 2019 this was assessed as poor. • Reef 2050 WQIP and Reef 2050 Plan have clear water quality targets, and catchment and land-management targets.	• Statewide Landcover and Trees Report • Outlook Report 2019 • Reef 2050 Plan • Reef 2050 WQIP	Adequate	Stable
PR5 Appropriate training is available to the managing agencies to address coastal development	2	• The Reef Guardian Councils program includes networking and professional development to share knowledge, best practice and information to assist our local government partners to help manage catchment impacts on the Reef. • Insufficient training opportunities, particularly at local government level, to better understand and integrate planning matters relevant to the terrestrial-marine interface into statutory planning instruments (i.e. planning schemes and codes).	• Interview and workshops • Reef Guardians Program	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR6 Management of coastal development is consistently implemented across the relevant jurisdictions	2	• There is good coordination and integration between jurisdictions during the development assessment processes, which is coordinated by the State Agency Referral Agency (SARA). • SARA uses criteria from the State Development Assessment Provisions (SDAP) to ensure a coordinated, whole-of-government approach to the state's assessment of development applications, including those relevant to coastal development. • The GBR intergovernmental agreement provides a framework for the Australian and Queensland governments to work together to protect the GBR. • There is inconsistency between Commonwealth and State assessment frameworks for environmental matters.	• Interviews and workshops • Great Barrier Reef Intergovernmental Agreement • Nature Positive Plan • SARA • State Development Assessment Provisions	Limited	Declining
PR7 There are effective processes applied to resolve differing views/ conflicts regarding coastal development	3	• Legislation allows for reconsideration of decisions including Administrative Appeals Tribunal/ Federal Court. • Judicial review applies to government decisions at all levels. • There are mechanisms in planning legislation (i.e. EPBC Act and State legislation) which allows third parties intervention (e.g. Adani and Australian Conservation Society).	• GBRMPA ELibrary: Applications for joint permissions (Document No. 100440) • EPBC Act 1999 • State Development and Public Works Organisation Act 1971 (Qld) • Environmental Protection Act 1994	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority and the Queensland Parks and Wildlife Service (QPWS) operate a joint Marine Parks permit process that generally is administered by the GBRMPA. • Applications made under these statutes require statutory public consultation where differing views can be consider: – Discretionary: – EPBC Act, State Development and Public Works Organisation Act 1971 (Qld), – Mandatory based on triggers: – *Sustainable Ports Development Act, Planning Act, Regional Planning Interests Act 2014* – in the main do not requires statutory public consultation • *Environmental Protection Act 1994*, *Vegetation Management Act and Coastal Protection and Management Act* (Qld)	• Regional Planning Interests Act 2014		
PR8 Impacts (direct, indirect and cumulative) of activities associated with coastal development are appropriately considered.	2	• Cumulative impacts Management Policy provides a systematic and consistent approach to managing and reducing cumulative impacts on the GBR. • At a development assessment level (external to major projects that trigger EIS), the practicality to impose cumulative impacts and net benefit assessment is dubious under Qld legislation is nominally unreasonable.	• Cumulative Impact Management Policy • Coastal Ecosystem – position statement • State Planning Policy July 2017 • The State Planning Policy, the Wetlands in the Great	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The State Planning Policy, the *Wetlands in the Great Barrier Reef Catchments Management Strategy 2016-2021* consider impacts associated with coastal development. • GBRMP Regulations 88Q and 88R (assessment criteria for identifying and analysing impacts) provides head of power to assess all potential impacts which (including cumulative impacts). • Planning legislation outlines acceptable outcomes. • Where a permission to conduct a particular activity is required under the Great Barrier Reef Zoning Plan, the permission system outlines how impacts must be considered to decide on the permit application.	Barrier Reef Catchments Management Strategy 2016-2021 consider impacts associated with coastal development. • Permission system policy and guidance documents. In particular note: o Policy - Environmental Impact Management: Permission System (Document No. 100430) o Guidelines - Applications for joint permissions (Document No. 100440) o Guidelines - Assessment and decision (Document No. 100439) o Internal Procedure – Risk Assessment – Permisison System (Document No. 100429)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR9 The best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding coastal development	3	• Information contained in the Informing the Outlook for Great Barrier Reef coastal ecosystems Report. • The 2017 Scientific Consensus Statement is a synthesis of current knowledge pertaining to the water quality issues (including coastal development) in the Great Barrier Reef to inform a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. • Outcomes from NESP projects delivering information on cumulative and interactive effects are incorporated into policy and reports where appropriate. • Paddock to Reef Program provides data that has been used to adaptively improve management decisions • Refer also IN4	• Informing the Outlook for Great Barrier Reef coastal ecosystems • Reef 2050 WQIP • Queensland Wetlands program • 2017 Scientific Consensus Statement • NESP • Queensland Herbarium • Paddock to Reef Program	Adequate	Stable
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding coastal development	3	• The Queensland Government Statistician and Queensland Treasury, provide socio-economic data over time for regional areas of Queensland. • Socio and economic research was included in the RIMReP Human Dimensions expert working group to inform the RIMReP Program design. • RIMReP human dimensions monitoring framework encompasses a range of indicators associated with coastal development and populations (see Gooch et al 2017).	• Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef. • Gooch et al. 2017 Assessment and Promotion of the Great Barrier Reef's Human Dimensions through	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Where a permission to conduct a particular activity is required under the Great Barrier Reef Zoning Plan, the permission system outlines the information that must be applied to decide on the permit application, and socio-economic issues are considered in the decision process. • Linkage to social socio-economic data to management of coastal ecosystems is less developed for issues such as tourism and fishing. • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment: This project reviewed common frameworks that conceptualise the relationship between people and nature to identify which parts of the system influence environmental outcomes, and factors relevant to designing policy or influencing behaviours. • Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: – Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values.	Collaboration. Coastal Management, DOI: 10.1080/08920753.2017.1373455 • Experimental Environmental-Economic Accounts for the Great Barrier Reef, 2017 • Reef 2050 Integrated Monitoring and Reporting Program • Social and Economic Long-Term Monitoring Program (SELTMP) • Regional Report Cards 2021-22 Social Survey dataset • Integrated Monitoring and Reporting – Great Barrier Reef Foundation (Human dimensions Monitoring projects) • NESP Project 1.17: Research needs for a national approach to socio-economic values of		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. – Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system. • Refer also IN5	the marine		
PR11 The best available Indigenous heritage information is applied appropriately to make relevant management decisions regarding coastal development	2	• Reef 2050 Traditional Owner Implementation Plan was released in November 2022. The Implementation Plan built on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products including an animation and timeline were also produced to inform community, government and stakeholders of the long history and desired path forward. • There is a need to better integrate Traditional knowledge into management of coastal ecosystems. • Where a permission to conduct a particular activity is required under the Great Barrier Reef Zoning Plan, the permission system outlines the information that must be	• Interviews and workshops • Reef Traditional Owner Implementation Plan • Permission system policy and guidance documents – Traditional Owner Heritage Assessment (Document No. 100434) • Woppaburra Traditional Owner heritage assessment • Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		applied to decide on the permit application. Traditional knowledge is considered when relevance is obvious; however Traditional knowledge is not a routine consideration in planning and management of coastal ecosystems. • Refer also Indigenous History table.			
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding coastal development	2	• There is a need to better develop and integrate historic heritage into the management of coastal ecosystems. • Where a permission to conduct a particular activity is required under the Great Barrier Reef Zoning Plan, the permission system outlines the information that must be applied to decide on the permit application. • Refer Historic Heritage table	• Workshop discussions • Permission system policy and guidance documents: o Historic heritage assessment: other places of historic and social significance (Document No. 100437) o Historic heritage assessment: maritime cultural heritage protection special management area (Document No. 100436)	Limited	Stable
PR13 Relevant standards are identified and being met regarding coastal development	2	• Regarding Environmentally Sustainable Development principles annual reports of Commonwealth departments, Parliamentary departments, Commonwealth authorities, Commonwealth companies and other Commonwealth agencies must under Section	• Environmental Protection and Biodiversity Conservation Act 1999 • Queensland Bilateral Agreement	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		516A of the *Environment Protection and Biodiversity Conservation Act 1999*, all now include a report on environmental matters in their annual reports. • The binding nature of standards applied in the GBR catchment and Region vary in Commonwealth and Queensland jurisdiction (see PL8).	• Coastal Ecosystem – position statement • State Planning Policy July 2017		
PR14 Targets have been established to benchmark management performance for coastal development	3	• State Planning Policy provides an overall benchmark (i.e. health and resilience of biodiversity is maintained or enhanced to support ecological integrity. • Reef 2050 plan sets clear actions, targets, objectives and outcomes to drive and guide the short, medium and long-term management of the Reef. The Plan firmly responds to the pressures facing the Reef and will address cumulative impacts and increase the Reef's resilience to longer term threats such as land-based activities and development and climate change. • The first Reef 2050 annual report shows that 19 per cent of the actions are completed or in place and over 65 per cent are underway of the 151 actions.	• State Planning Policy July 2017 • Great Barrier Reef Strategic Assessment Report • Great Barrier Reef Coastal Zone Strategic Assessment 2014 • Reef 2050 Long-Term Sustainability Plan • Reef 2050 Plan Annual Report and implementation Strategy	Adequate	Stable
OUTPUTS					
OP1 To date, the actual management program (or activities) have progressed in accordance with the planned	3	• As per the annual reports of Commonwealth departments, Parliamentary departments, Commonwealth authorities, Commonwealth companies and other Commonwealth agencies must under Section 516A of the *Environment Protection and Biodiversity*	• Informing the Outlook for Great Barrier Reef coastal ecosystems • State Planning Policy July 2017	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
work program for coastal development		*Conservation Act 1999* – all now include a report on environmental matters in their annual reports. • The State Planning Policy establishes clear policies to be included in planning schemes and achieved through development decisions – guidance is available to councils on how the policies can be integrated into their planning schemes. • Reef 2050 WQIP related actions aimed at improving the management of agricultural land are being actively implemented. Reef 2050 WQIP is undergoing review and new plan is expected to be released in December 2017. • There has been progress made towards implementing the 151 actions under the Reef 2050 Plan. The first annual report shows that 19 per cent of the actions are completed or in place and over 65 per cent are underway.	• Environmental Protection and Biodiversity Conservation Act 1999 • Reef 2050 WQIP Report Cards • Great Barrier Reef Marine Park Authority Annual Reports • Outlook Report 2019		
OP2 Implementation of management documents and/or programs relevant to coastal development have progressed in accordance with timeframes specified in those documents	3	• There has been progress made towards implementing the 151 actions under the Reef 2050 Plan. The first annual report shows that 19 per cent of the actions are completed or in place and over 65 per cent are underway. • Reef 2050 WQIP related actions aimed at improving the management of agricultural land are being actively implemented. Reef 2050 WQIP is undergoing review	• Reef 2050 WQIP • Reef 2050 Plan Annual Report and Implementation Strategy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and new plan is expected to be released in December 2017.			
OP3 The results (in OP1 above) have achieved their stated management objectives for coastal development	2	• Key Great Barrier Reef ecosystems continue to be in poor condition. This is largely due to the collective impact of land run-off associated with past and ongoing catchment development, coastal development activities, extreme weather events and climate change impacts such as the 2016 and 2017 coral bleaching events.	• Scientific Consensus Statement 2017	Adequate	Stable
OP4 To date, products or services have been produced in accordance with the stated management objectives for coastal development	3	• Products and services have been produced in accordance with Reef 2050 WQIP objectives. • Associated guidelines and mapping are available for State Planning Policy. • Whole of systems management framework as detailed in the Queensland Wetlands strategy (incorporating the walking the landscape process) and Reef 2050 Wetlands Strategy.	• Reef 2050 WQIP • State Planning Policy July 2017 • Wetlands Strategy • Reef 2050 Wetlands Strategy	Adequate	Stable
OP5 Effective knowledge management systems regarding coastal development are in place within agencies	3	• All Reef 2050 WQIP data is saved on SSIMR database (DARTS/SKIP) • The changes, which are based on two rounds of consultation with permit holders and other key stakeholders, include: – Permits Online - a new online portal to submit applications and manage all permissions and contact details – Longer permit terms up to 20 years	• AIMS eAtlas • SSIMR • Reef 2050 Integrated Monitoring and Reporting Program • Queensland Wetlands Mapping • Land use summary data	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Improved assessment guidelines – A checklist of information required at the time of application – Updated permission system policy and new guidance documents. o GBRMPA spatial data centre – Queensland Wetlands Mapping – Land use summary data	• Queensland Herbarium vegetation data • Regulation of Great Barrier Reef Marine Park Permits and Approvals — Follow-up | Australian National Audit Office (ANAO) • Annual-Permissions-Compliance-Plan-2021-2022 • Managed Document Procedure		
OP6 Effective systems are in place to share knowledge on coastal development with the community	3	• Paddock to Reef Monitoring Program and the Reef 2050 WQIP Report Card are designed to be user friendly • Wetlandinfo is a central repository for catchment related information including wetlands, groundwater dependant ecosystems, policy, projects and conceptual models. Story maps show the 'whole of systems' understanding developed by the Queensland Wetlands Program	• AIMS eAtlas • SSIMR • Reef 2050 Integrated Monitoring and Reporting Program • Queensland Wetlands Mapping • Land use summary data • Queensland Herbarium vegetation data (survey and mapping ecosystems) • Regulation of Great Barrier Reef Marine Park	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			Permits and Approvals — Follow-up | Australian National Audit Office (ANAO)		
OUTCOMES					
OC1 The relevant managing agencies are to date effectively addressing coastal development and moving towards the attainment of the desired outcomes.	2	• There is poor coordination and integration between land-based coastal development planning and development matters and marine protection management issues, this may affect Reef values. • The Outlook Report is published by the Reef Authority every 5 years and assesses the management effectiveness of coastal development. In 2019 this was assessed as poor for outcomes. • Reef 2050 WQIP Report Cards • Tree clearing that has occurred since the changes to the *Vegetation Management Act 1999* may lead to further decline in Reef	• Interviews and workshops • Outlook Report 2019	Adequate	Stable
OC2 The outputs relating to coastal development are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	2	• Past land use practices have led to degradation of coastal ecosystems and water quality, and very marked declines in inshore biodiversity • See OC1	• Interviews and workshops • Brodie, Grech, McCook, 2017, The new Great Barrier Reef pollution plan is better, but still not good enough, The Conversation	Adequate	Declining
OC3 the outputs (refer OP1 and 3) for coastal development are	2	• Key Great Barrier Reef ecosystems continue to be in poor condition. This is largely due to the collective	• Interview and workshops	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
reducing the major risks and the threats to the Great Barrier Reef		impact of land run-off associated with past and ongoing catchment development, coastal development activities, extreme weather events and climate change impacts such as the 2016 and 2017 coral bleaching events. • Current initiatives will not meet the water quality targets. To accelerate the change in on-ground management, improvements to governance, program design, delivery and evaluation systems are urgently needed. This will require greater incorporation of social and economic factors, better targeting and prioritisation, exploration of alternative management options and increased support and resources.	• Great Barrier Reef Strategic Assessment Report • Great Barrier Reef Coastal Zone Strategic Assessment 2014 • Reef 2050 Plan Annual Report and Implementation Strategy • Outlook Report 2019		
OC4 Use of the Great Barrier Reef relating to coastal development is demonstrably environmentally sustainable	2	• The 2019 Outlook Report identified coastal development as having a high impact to the Region's ecosystem values. • Past development and land use practices, primarily agricultural development, have led to degradation of coastal ecosystems and water quality, and very markedly declines in inshore biodiversity • There is a lack of knowledge regarding integration between terrestrial and marine environments for coastal development matters • There is a lack of knowledge regarding the synergistic impacts of increase extreme events of climate change on coastal development and their interactions with the Reef	• Interviews and workshops • Outlook Report 2019 • Waltham, N. J., & Sheaves, M. (2015). Expanding coastal urban and industrial seascape in the Great Barrier Reef World Heritage Area: Critical need for coordinated planning and policy. Marine Policy, 57, 78–84. DOI:https://doi.org/10.1016/j.marpol.2015.03.030	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Tree clearing that has occurred since the changes to the *Vegetation Management Act 1999* may lead to further decline in Reef values • Tree clearing that has occurred since the changes to the *Vegetation Management Act 1999* may lead to further decline in Reef values	• Brodie, Grech, McCook, 2017, The new Great Barrier Reef pollution plan is better, but still not good enough, The Conversation • Reside April E., Beher Jutta, Cosgrove Anita J., Evans Megan C., Seabrook Leonie, Silcock Jennifer L., Wenger Amelia S., Maron Martine (2017) Ecological consequences of land clearing and policy reform in Queensland. Pacific Conservation Biology, 23 (3).		
OC5 Use of the Great Barrier Reef relating to coastal development is demonstrably economically sustainable	2	• Population growth is driven by national and international economic cycles (resources and tourism sectors primarily) • Ther continues to be history of failed development along the coast with negative implications for the Region (e.g. Queensland Nickel)	• Interviews and workshops • Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef • Outlook Report 2019 • Experimental Environmental-Economic	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			Accounts for the Great Barrier Reef, 2017		
OC6 Use of the Great Barrier Reef relating to coastal development is demonstrably socially sustainable understanding and/or enjoyment	2	• High level of volunteer activity and community understanding of monitoring and education activities through Reef Guardian programs and GBRMPA education and communication products	• Interviews and workshops • Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef • Bohensky, E., Marshall, N., Currnock, M., Gillet, S., Goldberg, J., Gooch, M., Pert, P., Scherl, L., Stone-Jovicich, S., Tobin, R. (2014) The Social and Economic Long Term Monitoring Program (SELTMP) 2013, Coastal Communities in the Great Barrier Reef. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns (35pp.).	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC7 The relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address coastal development	3	• There are many examples of partnerships with local communities and stakeholders: – Reef Guardian Program – LMACs and RACs – Eye on the Reef program • Existing liaison arrangements and specialist staff with the Reef Authority to manage these relationships • Refer CO5, PL6, PR1, PR2 and IN8	• Interviews and workshops • Local Marine Advisory Committees • Reef Guardian Program • Eye on the Reef program	Adequate	Stable

Commercial Marine Tourism

Table 38: Calculation of grades for Commercial Marine Tourism

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The **values** of the Great Barrier Reef relevant to commercial marine tourism are **understood by managers**	4	• The Great Barrier Reef Marine Park Act 1975 (Section 2A) allows for ecologically sustainable use that includes **public enjoyment and appreciation, public education** about and understanding of the Reef Region and **recreational, economic and cultural activities**. Section 2A calls for long-term protection and conservation of the environment, biodiversity and heritage values of the Reef Region. • The value of Commercial Marine Tourism (CMT) is also acknowledged in the Great Barrier Reef Marine Park Zoning Plan 2003 (Zoning Plan) (s32), which **provides for the conduct of a tourist program** (with permission) in certain zones of the Marine Park. • CMT on the Reef is based on and supports many of the values that have been outlined in several key documents including in the Reef 2050 Plan. • The Tourism Reef Advisory Committee (TRAC) and Local Marine Advisory Committees (LMACs) comprises tourism operators and tourism stakeholders, who share their expertise and views about the Reef's values with managers.	2019 Outlook Report – Chapter 5 (The economic, social and icon value of the Reef) Defining the aesthetic values of the Reef (Context Pty Ltd 2013)	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• The industry is almost exclusively nature-based, with coral reefs and islands as the focus. It offers a wide range of **tourism experiences**, including cruise ships, live-aboard vessels, bareboat charters, scenic flights, self-sail charters, ay trips on high-speed catamarans and other types of boats to reef pontoons, day trips to islands, snorkelling, diving, fishing charters, kayaking tours, island resorts and island camping. • Indigenous tourism on the Reef includes tourism specifically to interpret Indigenous cultures and stories; Indigenous people directly operating or investing in tourism operations; business partnerships between Indigenous organisations and tourism operators; Indigenous people employed in tourism operations; mainstream tourism incorporating Indigenous culture and stories; and Indigenous input into the way tourism is managed. • The industry makes specific areas of the Reef accessible to visitors and helps to fulfill Australia's World Heritage obligation to 'present' the World Heritage Area (WHA). Tourism visitation occurs throughout the Reef, but over 85% of all tourism activity occurs in about seven or eight percent of the Region. • The strongest values of the Reef among tourists are: 1. **biodiversity,** 2. **aesthetic beauty,** 3. **World Heritage status** and 4. **scientific** and **educational** values (SELTMP Tourist survey 2021). Values relevant to tourism are similar to values that underpin MNES including the Reef's			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		Outstanding Universal Value and these values are generally understood by managers. However, this understanding may be spatially restricted: '*Tourism operators know their patch…but across the board, operators do not understand the values as much as they could*' (Interviewee 5, 2023). • **Research/scientific values** - the CMT industry undertakes in-water actions such as reef restoration, COTS/*Drupella* control, sightings, compliance reports and the presentation of World Heritage values to domestic and international visitors. This partnership offers opportunities for interactions that build understanding of tourism-relevant values of the Reef (refer PR1 for additional information). • **Educational values** - most tourism programs involve education and interpretation activities, aimed at increasing appreciation and understanding of the natural environment and sustainable practices that support the Reef. In 2020, the Reef Authority conducted a 'roadshow' visiting tourism operators throughout the Marine Park and offering an opportunity for managers to build their understanding of the changing values of the Reef relevant to CMT and for operators to raise any concerns with the Reef Authority. - Eye on the Reef (significant increase in the number of operators engaging in this program) and Be a Marine Biologist for a Day (package of educational resources			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		to facilitate high-quality experiential learning excursions) – both programs include data collection on protected and iconic species and provide a record of Reef values important to the tourism industry and its sustainability. - Reef Discovery Course – an online education package that aims to improve knowledge and understanding of the WHA, its cultural connections, biodiversity, management, protection and how to interpret this information to visitors. The course synthesises the WHA values and latest science and management information. • Master Reef Guides Program trains Master Reef Guides to be world leading reef guides and interpreters of the WHA. They impart up-to-date scientific and management information about the Reef and its values and explain what people can do to protect the Reef. There are currently 102 Master Reef Guides located across the Marine Park. '*Those operators with master reef guides are engaging strongly*' and understand the Reef values (Interviewee 5, 2023). • High Standard Tourism Operators – the program is linked to a regulatory incentive of a 20-year permit extension and operators are audited against environmental sustainability criteria and thus understand the diversity of Reef values.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• **Economic values** - reef managers understand that CMT is the largest Reef-dependent industry within the Region, contributing significantly to the economy and providing access for more than two million tourists each year. The industry is based on the Reef's reputation as the world's largest and best-known coral reef, its almost exclusively nature-based focus and high standard tourism operations and its operation within a protected area environment. Tourism in the Reef Region generated approximately $5.7 billion to the Australian economy (2022) and one of the largest employers in the Region. On behalf of the Reef Authority, the industry collects an Environmental management charge (EMC) from tourists. These funds directly contribute to management of the Marine Park. A waiver on EMC has been in place since 2020. **Challenges**: • Ensuring effective incorporation of Indigenous cultural heritage values in tourism offerings, as appropriate. - Consideration of a body or organisation to promote and market Indigenous tourism on the Reef, including relevant values.			
CO2 The current **condition and trend** of values relevant to commercial marine	3	• Managers have the following knowledge that speaks to their understanding of the condition and trends of values relevant to tourism:	Austrade Opportunities for Visitor Economy Tourism Monitoring Effort | Reef Knowledge System	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
tourism are **known** by managers		– CMT began on the Reef in the 1890s. Since that time vessels and technologies available for viewing the Reef environment and enjoying the Region have changed substantially. – Tourism operators and stakeholders are represented on Local Marine Advisory Committees (LMACs) and the Tourism RAC and share their expertise and views about the condition and trend of values with managers. – The current condition and trend of **biophysical and ecological values** relevant to CMT are well known by managers, but generally only in the more heavily used parts of the Region. – **Social and aesthetic values** that underpin MNES relevant to CMT are poorly known. – **Economic values** of reef tourism have been heavily impacted during the COVID-19 pandemic due to decreased tourist numbers and shortages of skilled staff; the slow return of international tourists; and high fuel costs. – Tourism visitation to the Marine Park in 2022 was approximately 2 million visitor days, a 61.4% increase on 2021. Visitation in 2022 was 15% less than the seven-year pre-pandemic average of 2.45 million visits.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Domestic visitor nights and expenditure have begun to recover within the region; however, this visitation is not directly reflected in Reef specific tourism as the largely domestic market prefers lower price point products. – Forecast revenue from the EMC over the forward estimates of approximately $11 million (Portfolio Budget Statements, Table 2.1.1). is approximately half its normal amounts pre-COVID-19. It is expected to take several years before visitation to the Reef returns to that experienced prior to the pandemic. – Since 2014, the Reef has experienced significant and unprecedented impacts from cyclones, coral bleaching (2016, 2017, 2020 and 2022) and a crown-of-thorns starfish outbreaks. These have impacted on corals in general and some tourism sites in particular. Media releases of bleaching events have lowered visitor numbers. • Monitoring programs (refer PR9,10,11) – The Eye on the Reef database allows sharing of observations, photographs and video recordings taken by visitors to the Reef, including sightings of coral bleaching, COTS and other environmental values, especially around tourism sites. These sightings are submitted to the Reef Authority and			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		help build knowledge about the diversity, abundance, habitats and range of marine animals. It also provides up-to-date information on the distribution of protected and iconic species such as marine turtles and Maori wrasse. In 2021-22 > 4812 surveys of reef health and 3299 sightings of protected species and significant events were received from tourism operators. About 70 percent of visitors and operators engage in reef monitoring (Workshop participant 2023). – Reef snapshots (e.g. Reef Snapshot Summer 2022-23) provide a summary of conditions on the Reef throughout summer, how these conditions impact coral and actions to help coral reefs (the health of other habitats or species is not assessed). – IMR RTP Sustainable use and benefits monitoring project (SEABORNE) (2021-2024) will help managing agencies make informed decisions about sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values. – IMR RTP Integrated Reef stewardship monitoring project (PROTECT) (2021-24) will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		stewardship activities and desired Reef outcomes. No results yet. – IMR RTP Monitoring collective capacity and implementation (Governance) (2021-2024) will develop a monitoring framework to assess how different components are working together to achieve improved Reef health. No results yet. – Human Use Dashboard: This Reef Authority project (2021-2023) aims to produce a prototype dashboard that will provide access to human use data to Reef managers. The user-friendly interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs. It uses the IT Cloud environment to allow for data flow. It will be made available on the Reef Knowledge system in 2023. • Tourism management action strategy has been introduced to focus the Reef Authority's effort to review and adapt its approach to management of CMT in response to changes (e.g. climate change, COVID-19). • Master Reef Guides strive to be world leading reef guides and interpreters. They share information, including on condition and trend to visitors (refer CO1). There is room for expansion of this program across the industry. Many operators 'may not be aware of this program' (Workshop participants 2023).			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• The tourism industry has significant value through contribution to management including in-water actions such as reef restoration, COTS/*Drupella* control, sightings, compliance reports and the presentation of World Heritage values to domestic and international visitors. This partnership offers additional opportunities for interactions that maintain or build understanding of tourism-relevant values of the Reef. – Tourism Reef protection initiative – as part of the Australian Government's $1.2 billion Reef protection package, $15.1 million was allocated to activate marine tourism assets to deliver reef protection and conservation services at high value tourism reef sites for the Reef Authority (to 30 June 2024) • In 2020, the Reef Authority conducted a 'roadshow' visiting tourism operators throughout the Marine Park and offering an opportunity for group and one-and-one discussions between operators and the Reef Authority. This provided an opportunity for managers to build their understanding of the changing values of the Reef relevant to CMT and for operators to raise any concerns with the Reef Authority. • Attitudes towards interacting with wildlife have changed over the decades. Visitors are now much **more aware of restrictions on their interactions with wildlife** (refer PL2			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		for new guidelines for emerging technology e.g. drones) and the best environmental practices for viewing these animals. At the same time, management arrangements have addressed many interactions (such as approaching whales, visiting important seabird rookeries or approaching critical migratory shorebird roosts). Challenges: • Expanding knowledge in relation to ecosystem processes, historic information and Indigenous engagement in the Reef. • Expanding the Master Guides program to increase participation across the CMT industry.			
CO3 **Impacts** (direct, indirect and cumulative) associated with commercial marine tourism are **understood** by managers.	3	• Outlook Reports include an assessment of the impacts associated with CMT and these are generally low **impact**. However, '*environmental impacts relevant to the industry are accelerating, compared to the past*' (Interviewee 2023). • The **cumulative impact of tourism** in high use locations in addition to other uses can be high risk. This is managed through a combination of permits, plans of management, site management arrangements, policies, strategies and guidelines (refer PL2) to reduce impacts. – At a local scale tourism can cause impacts through **anchor damage to coral reefs and seagrass meadows** (refer Permitted-Moorings-Compliance-Procedure), poorly supervised activities, such as	Great Barrier Reef Foundation - Year-In-Review-2020-21 Tourism operators key to large-scale coral restoration - Great Barrier Reef Foundation GBRF-Year-In-Review-2021-2022.pdf (barrierreef.org) IMR RTP monitoring projects (refer CO1) Marine tourism impacts and their management on the Great Barrier Reef (Harriott	Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		diving and snorkelling, and **disturbance to wildlife including whales, marine turtles and seabirds**, some of which are MNES. Tourists can also impact coastal vegetation and dunes. These impacts have been largely reduced by: – regulation (for example, whale approach distances and no-anchoring areas), site management arrangements (such as group size limits at locations, use of moorings, seasonal seabird closure areas); – permit arrangements (for example, fish feeding guidelines); – education; – compliance action (e.g. prosecution of masters of tourism vessels that impact the reef) and – the adoption of best practices for activities (such as diving and snorkelling). – Tourism use of the Region can also have **social impacts** including the potential to impact on or **displace other users**, such as commercial fishers and recreational users, particularly in high use areas (e.g. Vlassof Cay). This may include crowding, conflict and loss of core community values and amenities. • CMT activities may impact on Traditional Owners, including:	2002) *CRC Reef Technical Report No. 46*, Impacts of climate change on World Heritage coral reefs: a first global scientific assessment, (Heron et al. 2017).		

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Actions of tourists and local residents may impact on cultural values and interrupt the ability to practice and enjoy culture. Some species may be impacted e.g. turtle vulnerability to increasing numbers of high speed boats, impacts on turtle and dugong migrations and feeding and breeding patterns (McLean et al 2020). – some examples of conflict between the activities of tourism operations and those of Traditional Owners exercising their traditional hunting rights (Interviewee 12, 2023) – Limited sharing of tourism benefits. • To minimise impacts on the Reef, **sewage discharge standards** for all users, including tourism operations, have been improved. – For vessels that carry 16 or more persons they cannot discharge untreated sewage within Queensland waters. – For vessels that carry 15 or fewer persons set back requirements differ for reefs and the mainland, and for aquaculture and people. – Discharge at sea (more than one nautical mile from any reef or island and the mainland) remains necessary for many tourism operations as there **are insufficient land-based facilities to service the fleet's pump-out requirements**. Ministerial correspondence from stakeholders concerned about			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		the impact of sewerage release on the Reef is forwarded to Reef Authority section Directors for review and reply. • A number of **compliance incidents** involving the tourism industry are reported annually, particularly from the more intensively used Cairns and Whitsunday areas. Reports are typically about breaches of marine parks permits, unpermitted activity, plan of management offences (such as undertaking activities not in accordance with group and vessel size limits), issues around payment of the environmental management charge, groundings and moorings offences. Since 2014, the Reef Authority has invested heavily in permit compliance particularly around marine tourism structures to ensure permitted structures are maintained in good condition to reduce risks to values. Several policies have also been updated to manage potential impacts from tourism: ***Moorings policy***; *Environmental Impact Management Policy*. Prior to 2019 approximately 33% of no-anchoring areas within the Marine Park were enforceable through legislation. Legislative changes led to approximately 58% of no-anchoring areas legislated within the Marine Park by June 2021. The Reef Authority continues to progress towards the target of all no-anchoring areas within the Marine Park legislated. • Through the Reef Trust Partnership, the Great Barrier Reef Foundation is delivering the largest reef restoration			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		program in the world. The **Moving Corals program** is utilising tourism operators in collaboration with scientists to restore local reefs that were tourism hot spots and which have been damaged by cyclones and or coral bleaching. • **Economic impacts** on the tourism industry resulting from Covid-19 resulted in EMC, fees, and mooring certificates being waived. • Implementation of the Central Region Field Operation Team based in the heart of commercial marine tourism - Airlie Beach. • **Monitoring** (refer CO1) – Understanding Marine Park use – tourism industry data analysis of EMC visitation Challenges: • Prioritising response to a range of threats that impact the reef, including: – managing sewage discharge from vessels to incorporate increased provision of port-based disposal facilities; – review of local government planning arrangements to support more sustainable standards for sewage disposal especially in marinas • Vessel monitoring in real time is needed in relation to sewage disposal (Workshop participant 2023)			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Identifying tourist hotspots and focussing on reducing impacts by utilising a range of appropriate strategies (e.g. reducing contact between tourists and sensitive environments, marketing lower significance 'sacrificial' tourist hotspots, closing access to some sites etc) (Reef Resilience Network 2023). • Enhancing communication between local operators/planners and marine managers.			
CO4 The **broader (national and international) level influences** relevant to commercial marine tourism are understood by managers.	4	• Reef-dependent activities including CMT are vulnerable to the negative effects from wider influences including ocean acidification, sea level rise, more frequent extreme weather and warming sea temperatures. These impacts can affect businesses sustainability and livelihoods, including degradation of reef sites, poor recovery of bleached sites, COTS predation and sedimentation. • International – The United Nations Declaration on the Rights of Indigenous Peoples 2007 – many aspects are relevant to Indigenous tourism e.g. rights to lands/seas and cultural resources, involvement in decision making and development and employment opportunities and supporting cultural heritage traditions and revitalisation. – Global Code of Ethics for Tourism (UN World Tourism Organisation) 1999 – tourism activities… should promote the rights of indigenous peoples and 'local	Tourism visitation data	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		populations should be associated with tourism activities and share equitable in the economic, social and cultural benefits they generate, and particularly in the creation of direct and indirect jobs resulting from them (Article 2.2). – Convention on Biological Diversity has created a platform for the regulation of Indigenous tourism through several guidelines (McLean et al 2020). – Many countries (e.g. New Zealand, Canada, USA) support strong partnerships and organisations to drive the growth of Indigenous tourism. These are largely lacking in the Reef context in Australia (McLean et al 2020).. • National – The Marine tourism coordination framework for environmental incidents sets out a mechanism for the coordination and facilitation of responses to an environmental incident relevant to the marine tourism industry (e.g. bleaching). – Reef Authority contributed to the development of the Nature-based Tourism Strategy 2021-2024 - to support the revitalisation of the Queensland nature-based tourism to capitalise on the growing and evolving consumer demand more effectively for experiences in nature and to maximise Queensland's natural and cultural assets.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– The Reef Authority contributed to THRIVE 2030 (2023), a national strategy for Australia's visitor economy recovery – highlighting the importance of growing the visitor economy in an environmentally sustainable manner. – Master Reef Guides influence a global audience by providing first-hand encounters and storytelling across their social media channels. These are shared across the Reef Authority's platforms. • The Australian approach to Indigenous tourism, compared to other countries, is limited in how it supports Indigenous entrepreneurs and is a 'limiting factor in Australia' (Morton 20019, cited in (McLean et al 2020). Challenges: • Stimulating culturally appropriate Reef tourism development for Indigenous operators that will promote local culture and protect heritage (as operates in many countries internationally). • Developing a strong Indigenous tourism advocacy organisation to support Indigenous Reef tourism.			
CO5 The **stakeholders** relevant to commercial marine tourism are well **known by managers.**	4	• The Reef Authority has a strong focus on ensuring tourism stakeholders are well known and engaged in the management of the Reef.	Tourism partners	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Reef tourism is managed by a range of stakeholders, including the Reef Authority, government agencies, AMSA, MSQ, QBFP, and Qld Water Police. • Partnerships with other agencies involved with tourism include Australian Government Department of Industry, Tourism Australia, Tourism Queensland (TQ) and industry associations such as the Queensland Tourism Industry Council (QTIC), Ecotourism Australia (EA), EarthCheck, the Association of Marine Park Tourism Operators (AMPTO), Whitsunday Charter Boat Industry Association (WCBIA) and Whitsunday Bareboat Owners Association (WBOA). • The Reef Authority works in partnership with the tourism industry to improve standards for the protection and presentation of the Reef. Operators who are independently certified with Ecotourism Australia or EarthCheck must meet best practice standards when undertaking their tourism operations and are recognised as high standard operators by the Reef Authority. In 2023 there were 72 operators, who carry approx. 63% of tourists visiting the Reef. • Traditional Owners are involved in CMT operations: they own and manage major tourism assets such as National Parks, run hospitality and accommodation services and are regulators of tourism activities on their			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		lands and waters. Tourism products and services are delivered by commercial for-profit small, medium and large First-nation-owned business operators, but also by local Aboriginal Shire Councils, Registered Native Title Body Corporates and others. Tourism provides economic benefit and a mechanism for truth-telling, education and reconciliation. Some examples include: – Dreamtime Dive and Snorkel (Cairns) markets itself as the only Indigenous Reef tour operator with engagement of Traditional Owners. The company spent one year working with local elders to devise a tour that represented the four local tribes and ensured social and economic benefits to local communities. The business offers various strategies, guides, training and employment. – Ngardu Cultural Heritage Tours (an Indigenous owned business) operates along the coast from Gladstone to Cairns providing a range of tourism products, including boat trips to various islands and reefs. – Best Practice Guide for Working with First Nations Tourism in Queensland (2022) assists in understanding First Nation's perspectives on tourism and their aspirations and strengthens the relationship between Indigenous Australia and Queensland's tourism industry.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Towards Tourism 2032 establishes the goal of 100% of Queensland destinations have a First Nations Tourism Plan by 2025; double the number of market-ready Indigenous tourism businesses owned and operated by Traditional Owners. • Consultation with the industry occurs through the Tourism Reef Advisory Committee (TRAC) (includes 15 tourism stakeholders and management partners who attend at least two two-day meetings a year) advises the Reef Authority and the Reef Authority Board on reef tourism related matters (e.g. plans, policies). In 2023, a new TRAC will be selected for a three-year term commencing July 2023. • Consultation occurs through Local Marine Advisory Committees that provide a direct link with stakeholders (currently 22 LMAC members representing tourism). • In 2021, the Reef Authority adopted the *Tourism management action strategy* to guide the review, development and implementation of responsive, culturally appropriate and contemporary management tools for the Commonwealth and State Marine Parks. This will deliver a lower regulatory and administrative burden, greater compliance and more certainty, clarity and stability for Reef tourism industries, the communities it contributes to and the Reef ecosystem it relies on. Some guiding principles of the strategy include the			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		engagement and consultation of Traditional Owners, the tourism industry and other stakeholders in the implementation of this strategy and its actions. • Liaison with tourism permit holders through newsletters, workshops and one-on-one meetings • Eye on the Reef Program involves tourism operators and their staff in monitoring reef health. Participation in the program has expanded to include a number of operators using the Rapid Monitoring protocol as a sellable product with guests now completing monitoring of Reef health as part of their visit to the Great Barrier Reef. A number of operators have continued to provide weekly data since 2007. In addition, there are in-water training days every year in Port Douglas, Cairns and the Whitsundays to train tourism crew who are involved in the Eye on the Reef. • The industry encourages best practice operations by rewarding operators who are independently certified as high standard. • The Reef Authority facilitated an engagement event, where the newly appointed Minister for the Environment attended a reef visit with Directors and key stakeholders from the tourism sector, including AMPTO and the Tourism Regional Advisory Committee (15-16 June 2022).			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Currently there are **102 Master Reef Guides** located across the Great Barrier Reef Marine Park, from the Ribbon Reefs in the north to Lady Elliot Island in the southern Great Barrier Reef. • **The Reef Authority** Actor Network Mapping Project: Mapping working agreements between the Reef Authority, partners, stakeholders, and community of practice: This project maps the existing actors within a network that connects the Reef Authority to the organisations and institutions they engage for research and management practice. The goals are to: provide information to the Reef Authority's science for management sector that will help inform future work; identify gaps in existing Reef management partnerships; and inform management decision-making process by identifying actors in the Reef management landscape solely from a Reef Authority centric perspective. • The **Reef Knowledge System** hosts a dashboard that highlights the contribution of commercial marine tourism operators to the Eye on the Reef Program.			
PLANNING					
PL1 There is a **planning system** in place that effectively addresses	3	• There is a **complex planning system** spanning marine and terrestrial environments, incorporating multiple jurisdictions (from international to local) and an extensive number of plans, strategies, policies, and other		Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
commercial marine tourism		documents (refer PL2) that guide the location, use, intensity and timing of activities, and regulate and guide the placement of related infrastructure (jetties, moorings). • The **Reef 2050 Plan** provides an overall vision, goal, objectives, targets and actions to manage the reef including the activities of the CMT industry. • The Great Barrier Reef Marine Park Zoning Plan 2003 provides spatial control of tourism uses (an access) and establishes the framework for permits, mainly associated with tourism related infrastructure and tourism activities. • **Various policies** and plans address the impacts from and vulnerability of the Reef to CMT, including species-related tourism, research/ intervention and plans of management. • **Policy and Planning Strategic Roadmap** has been developed to focus the Reef Authority's efforts to deliver a proactive, contemporary and risk-based approach to Marine Park policy, planning and regulation. • **Strategies** include the Tourism management action strategy (2021) which guides the review, simplification, deregulation and rationalisation of tourism policies and other management tools; and further strengthens the joint management arrangements between the Reef Authority and the Queensland Government (DES through QPWS) by increasing the alignment and streamlining of			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		processes and resources in regard to tourism management. • Guidelines help to improve management (e.g. Cruise Ship Operations Dredging coral reef habitat, activity impact assessment guidelines, e.g. Moorings, Superyacht Cruising Guide, Joint Guide for Current Permit Holders, *Best environmental practices* for diving and snorkelling, Fish Feeding • There is a comprehensive permissions system which is being updated. • A range of programs are in place including the **High standard Tourism, Reef Guides Program, Reef Joint Field Management Program.** Challenges: • '*There is a diversity of plans that make up this* ***planning system****. It implies there is a comprehensive, visible set of planning tools that are operational. This may be the case for the Authority, but it is* ***not clear to the CMT operators***' (Interviewee 12, 2023). • *For the Authority, planning and management are focussed on the now. Today this is good, but we need to* ***plan for the future in an holistic way****. Planning and engagement with the CMT industry and other stakeholders is not as comprehensive as it could be*' (Interviewee 12, 2023).			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Industry initiatives at times make **slow progress** with the relevant government agencies – '*we have been working on this (project) for three years and it has gone nowhere*' (Interviewee 5, 2023). • Members of the TRAC meet twice per year and receive occasional presentations on the elements of the planning process, but '*I don't think we have a comprehensive understanding or engagement in strategic planning processes*' (Interviewee 12, 2023).			
PL2 The **planning system** for commercial marine tourism **addresses the major factors** influencing the Great Barrier Reef Region's **values**.	3	• Major risks of tourism to Reef values include overcrowding, displacement of users, loss of amenity and impacts on species and the environment are addressed in **permitting arrangements, zoning, plans of management, site management arrangements and supporting infrastructure** (refer below). • There is no active internal Reef Authority program to address climate change specifically with tourism operators. However, the High Standard Tourism program requires operators to address climate change standards as part of their independent certification (refer below). • Improvements in technology are likely to enhance access to the Reef by an increasing number of tourists and this may place increased pressure on natural systems and social experiences. Increasing pressures to provide tourism-related facilities in the coastal zone and islands, will require consideration of a range of planning tools to	Refer PL1 Tourism visitation data	Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		ensure ecologically sustainable development in the future. • Indigenous marine tourism plans and strategies are outlined in Indigenous heritage (Table 44). **Key components of the planning system** relating to CMT include: *Legislative and Regulatory provisions:* (Legislation and polices) • The Commonwealth Zoning Plan 2003 provides spatial control of use and, to a lesser extent, access within the Marine Park. It establishes the framework for extractive use and the need for permits for some uses, such as tourism, associated infrastructure and tourism activities, providing certainty to the industry. Zoning plans are developed under Part 5 Division 2 of the *Great Barrier Reef Marine Park Act 1975*. Complementary arrangements are in place in adjacent areas under Queensland jurisdiction e.g. and Queensland Marine Parks (Great Barrier Reef Coast) Zoning Plan 2003. • The Queensland Coastal Protection State Planning Regulatory Provision 2013 (SPRP) contains policies for coastal-dependent land uses and developments, which includes commercial marine tourism - required to take precautionary measures when developing in sensitive marine and coastal environments.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Local government planning schemes can provide for appropriate tourism opportunities in their planning schemes (for example, a regional plan for Cape York). • The State Planning Policy (SPP) includes policies that promote access to coastal waters and the foreshore as a means of providing significant benefits to the community through a number of recreational uses and for commercial operations (e.g. tourism). • Regulation of sewage discharge. *Plans of Management* • Identify arrangements for activities, areas, species or ecological communities, including with community groups with a special interest in an area, including some form of Native Title; and complement zoning and permitting arrangements. Some components are legally binding. Plans of Management are developed under Part VB of *the Great Barrier Reef Marine Park Act 1975* e.g. Cairns (1998), Hinchinbrook (2004), Shoalwater Bay (Dugong) (1997) and CAPOM currently being considered by the State. • Accreditation of the Whitsundays Plan of Management (2020) – complementary management, simplification of permits and consistent rules for Marine Parks users. • Any new POM will include MERI framework to assess effectiveness of POM strategies.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Activity Assessment - Activity not mentioned or considered in the preparation of a Plan of Management (2020) • Activity Assessment - No or low adverse impact activity under clause 2.3B of the Whitsundays Plan of Management 1998 (2021) *Special Management Areas (SMAs)* • Manage access and use of a specific area (i.e. in addition to zoning and are marked on zoning maps) • Natural resources conservation (Lizard Island); Seasonal closure (Offshore ribbon reefs); public appreciation (e.g. Fitzroy Island Reef, Yonge Reef, Lizard Island Reef, North Opal Reef, Flynn Reef); and Maritime cultural heritage protection (e.g. Catalinas) Policies (include strategies, policies, site management arrangements, position statements and guidelines) (Policies, plans and position statements) • Strategies – Tourism management action strategy (2021) is an overarching strategy for management of tourism. It guides the review, simplification, deregulation and rationalisation of tourism policies and other management tools under the Reef Authority's Policy and Planning Strategic Roadmap; and further strengthens the joint management arrangements between the Reef Authority and the Queensland Government (DES through QPWS) by increasing the			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		alignment and streamlining of processes and resources in regard to tourism management. – The Queensland Government is supporting the tourism industry to recover post COVID-19. Towards Tourism 2032 – Transforming Queensland's visitor economy future – developed in conjunction with regions and key tourism partners, provides the framework to deliver long-term growth and success for Queensland tourism. Its vision: By 2032 Queensland will be Australia's destination of choice for domestic and global visitors seeking the world's best experiences. – Thrive2030 - The Re-imagined visitor economy is a national strategy to grow the visitor economy. It has three themes (collaborate, modernise and diversity) and seven policy priorities and outcomes. While not addressing the Reef individually, the broad framework can be applied to enhancing tourism outcomes for the Reef. – Developing a Commercial Aviation Plan and a Queensland Drive Tourism Strategy. – Definitions – policy and plan (2023) identify the functions of a policy and plan as related to how the Reef Authority manages the Marine Park. – 25-year strategic plan for the Great Barrier Reef 1994-2019			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– 2020: Year of Indigenous Tourism – to support the growth of Indigenous business and partnerships and participation and support Indigenous tourism development and growth. • Policies – Draft policy on artificial reefs and FADs. This policy may affect tourism operations related to charter fisheries, underwater artwork and the interaction between the CMT industry and restoration actions by tourists. – Cruise shipping policy for the Great Barrier Reef Marine Park (2018) – Net benefit policy (2018) – Cumulative impact management policy (2018) – Dredging and spoil disposal – Dredging coral habitat (2017) – Environmental impact management (2017) – Commenced review of the policy Managing tourism permissions to operate in the Great Barrier Reef Marine Park (2003) (including allocation, latency and tenure) – Policy on Managing Bareboat Operations in the Great Barrier Reef Marine Park – Managing scientific research in the Great Barrier Reef Marine Park – Policy on Moorings in the Great Barrier Reef (2019)			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Operational policy on whale and dolphin conservation in the Great Barrier Reef Marine Park – Sewage discharges from marine outfalls to the Great Barrier Reef Marine Park – Structures – Environmental impact management - permission system Policy (2017) – Permission system policy – Policy on Great Barrier Reef interventions • The http://www.gbrmpa.gov.au/2019/RoadMap/Policy and Planning Strategic Roadmap- focus effort to deliver a proactive, contemporary and risk-based approach to Marine Park policy, planning and regulation that will protect key values and enable ecologically sustainable use for a changed and changing Reef. The Roadmap will focus effort to contemporise policies and plans about direct use of the Marine Park, including the impacts from and vulnerability of the Reef to CMT. • An internal risk tolerance analysis has considered whether the Reef Authority's tools are fit-for-purpose to address the threats to the Region's values. This work has manifest in several priority policy reviews, including species-related tourism, research/ intervention and plans of management. • Cruise Ship Operations in the Great Barrier Reef (2019) - guides protected area managers making decisions on			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		cruise ship operations within the Reef and informs cruise ship operators, booking agents and tourists of management arrangements. • Moorings in the Great Barrier Reef (2019) provides a framework for the management and use of tourism and recreational vessel moorings that protects the environment and promotes ecologically sustainable access to the Reef. Moorings maintenance has improved through auditing. New reef protection infrastructure and public moorings have been provided (State funded through the QPWS). • Dredging coral reef habitat (2016). This policy is a pre-emptive planning tool sets out to ensure that development of new marine infrastructure or the expansion of existing marine infrastructure does not have an adverse environmental impact on coral reef habitats in the Marine Park. This provides increased certainty to commercial tourism operators and provides guidance to delegates and certainty for operators because it details what is activities are unlikely to be granted a permission (e.g. capital dredging of live coral reef habitat). • *Other plans, guidelines and educational material* – The Marine Tourism Contingency Plan for the Great Barrier Reef Marine Park update- focuses on assisting tourism operators to temporarily relocate to an alternative site following a severe environmental incident (e.g. bleaching, cyclone events). Reviews			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		have commenced on the Plan but have not progressed due to competing Reef Authority priorities and lack of resources. – Marine Tourism Contingency Plan application (2019). Five applications were received and considered. – Joint (Reef Authority/QPWS) Guide to tourism operations in the Whitsundays – a comprehensive one-stop shop for information on the Marine Parks and Island National Parks, with information for tourism operations and other commercial activities in the Whitsundays (2022). The Cairns Guide is almost finished – The Reef Authority is developing a new spatial plan in southern region to be implemented by 2026. – The Ecotourism Plan for Queensland's Protected Areas 2023-2028 (EPPA) is in development and requires final approval from the Qld Minister for the Environment and the Great Barrier Reef and Minister for Science and Youth Affairs. A priority area in the plan is to enhance ecotourism in Queensland's iconic marine environments through new public facilities to support experiences e.g. to improve responsible access to the Reef in the Whitsunday and Townsville areas through the Reef Trails project – installing new public moorings and no-anchoring areas to reduce impacts on coral ecosystems.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Queensland First Nations Tourism Plan (2020-2025) (Qld Tourism Industry Council) – Great Barrier Reef Indigenous Tourism. Translating Policy into Practice (2020) – Queensland Ecotourism Plan 2016-2020 – showcase the Reef and expand authentic Indigenous ecotourism experiences – Responsible Reef Practices – Tourism on the Reef – how it is managed – Marine Tourism Coordination Framework – Position Statement on the management of tourism flights in the vicinity of Magnetic Island – John Brewer Reef site plan (2021) – Woodwark Bay South location site plan (2018) – Hill Inlet site plan (2007) – Eshelby Islands site plan (2007) – Haslewood and Lupton Island site plan (2007) – Cow and Calf Islands site plan (2007) – Double Bay (East) site plan (2007) – Deloraine Island site plan (2007) – Marine tourism coordination framework for environmental incidents (2012). • Guidelines – Facilities activity assessment guidelines and pontoon assessment guidelines (in development)			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Guide to tourism operations and other commercial activities in the Cairns area…Marine Parks and island national parks (2023) – Dugong assessment guidelines (being finalised) – Seagrass assessment guidelines (being finalised) – Guide to tourism operations and other commercial activities in the Whitsundays – Great Barrier Reef Marine Parks and Island National Parks (2022) – Visiting the Whitsundays in the Great Barrier Reef World Heritage Area: A guide for recreational visitors (2021) – A guide for current permit holders: essential reading for Great Barrier Reef Marine Parks permit holders (2021) – Permits for fireworks information sheet (2021) – A Guide for Current Permit Holders (2021) to help current permit holders navigate permits, understand how to be a responsible permit holder and know the general requirements when operating in the Marine Parks. – Two Flexibility Guidelines developed (2021) to assist assessments in relationship to activities within the Plans of Management. – A Statement of Management Arrangements in the Great Barrier Reef Marine Park for Super-yacht Operations – Superyacht guide to the Whitsundays (2020)			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Great Barrier Reef: Superyacht Cruising Guide (2020) - ensuring a strategic approach to cruise shipping and superyacht priorities, infrastructure and supply chains – Best practice development guidelines - Ecotourism facilities on national parks (2020) – Implementation Framework - Ecotourism Facilities on National Parks (2020) – Activity Assessment: tourism program involving whale watching or swimming with whales (2019) – Historic heritage assessment: lightstations and aids to navigation (2019) – Fish Feeding (2016) – Activity Assessment - Activity not mentioned or considered in the preparation of a Plan of Management – Activity Assessment for Photography, filming and sound recording – Activity assessment guidelines - fixed facilities (in development) – Activity impact assessment: Pontoons (2019) – Good practice management for the Great Barrier Reef (2018) – Seagrass value assessment (2018) – Applications for restoration/adaptation projects to improve resilience of habitats in the Great Barrier Reef Marine Park (2018)			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Reef 2050 Plan Policy Guideline for Decision Makers (2016) – Activity Assessment - No or low adverse impact activity under clause 2.3B of the Whitsundays Plan of Management (1998) – Application guidelines – Assessment guidelines – Risk assessment procedure – Maritime Cultural Heritage Protection SMA assessment guidelines – WWII features and sites, and voyages and shipwrecks assessment guidelines – Other places of significance assessment guidelines – Social value assessment guidelines – COTS control Guidelines - developed as a holistic plan to ensure every person who applies for a permit to Cull COTS does so in an effective and safe manner: – *Best environmental practices* for diving and snorkelling - communicate preferred behaviours and are available for tourists and recreational users. – The Next Generation Tourism Planning (2017) is a guideline for planners in Queensland. – Indigenous participation in tourism and its management (2005) – to facilitate Indigenous people owning, operating and being involved in tourism operations. Indigenous Special Tourism Permissions			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		apply to Cairns (5 permits), Hinchinbrook (3 permits), Whitsundays (5 permits). • Working with agencies to ensure tourism is considered in developing government plans and programs of economic and community infrastructure priorities. • Marine Tourism Coordination Framework for Environmental Incidents • World Heritage poster and talking points has been provided to operators. Bookings Online Manual • Routine tourism and charter permit: information • Public moorings and anchoring in the northern Great Barrier Reef – educational material on low impact strategies for boats. • Be a Marine Biologist for a Day (2021) is a package of educational resources to assist marine tourism operators and reef guides to facilitate high-quality experiential learning excursions for students visiting the Reef. This includes customisable teaching, instructional resources and activities that are curriculum-linked and aligned with specific stages of learning from prep through to year 12. This toolkit is based on the Eye on the Reef - Rapid Monitoring reef health survey and builds students' citizen science skills. • CSR project to establish an AIS subscription commencing early 2023, which will include DCV's with AIS and allow analysis of usage in the Marine Park including high use areas.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		Permits • All CMT activities and operations in the Marine Park require a permit to operate. The Reef Authority notifies all registered native title holders or claimants of any activity requiring permission that is proposed to occur on or near their claim or determination area. • The Reef Authority has set aside 18 Indigenous Special Tourism Permissions under the POMs for Cairns (5), Hinchinbrook (3) and Whitsundays (10) – intended for traditional inhabitants who have traditional affiliations with the relevant planning area and are allocated through an expression of interest process. They are intended to provide an opportunity for Traditional Owners to build marine tourism businesses and build relationships with existing operators. As of 2020 none of these permissions had been allocated (McLean et al 2020) • Entry into protected zones under the Australian *Underwater Cultural Heritage Act 2018* (Cth) is controlled by a permitting system, which is managed in Queensland by DES. • EAP administers the Permission System on behalf of the Reef Authority and QPWS. To support this, EAP developed internal documents such as templates, guidelines and procedures which are used only to administer the Permission System.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• The Reef Authority launched online permit application process for commercial tourism operators (2017) (Permits online). • Ongoing improvements to the Reef Authority's permission system provide greater clarity and guidance for permissions applicants, accredited institutions and assessors and implement recommendations from the Australian National Audit Office and the Australian Parliament's Joint Committee of Public Accounts and Audit. This includes: – updated risk assessment procedure to consistently consider all values of the Marine Park (biodiversity, heritage and social values); – guidelines for considering indirect impacts that may be caused by a proposal; – guidelines on the use of drones and assessing potential impacts to social, historic heritage and Indigenous heritage values; – developed opportunities for tourism-related whale-watching, provided they comply with existing approach distances and other whale protection regulations; – introduced longer-term permits where risks are deemed acceptable (such as tourism programs); – developed checklists of information that needs to be submitted before an application can be accepted;			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– establishing a guideline for facility holders to reflect risk-based approach to the types and frequencies of inspections required for fixed facilities; • Updated marine Tourism Contingency Plan permit application • A current bareboat briefers register is maintained on the website at all times. • Permission system service charter • EPBC referral deemed application information sheet • Location-specific assessment information sheet • Application checklists • Routine tourism and charter permit information sheet • Routine tourism and charter permit example • Strengthening Permissions Compliance Action Plan 2015-2020 *Programs* • High standard Tourism Program - operators continue to join the program and demonstrate their best practice. The number of operators involved has steadily increased to 69 in 2017 and 64 in 2018 and 72 in 2023; longer term permits are available (advice was provided for 15-year permit terms for high standard operators); and the Reef Authority ensures Deed of Agreement requirements are met by the recognised certification schemes (Choosing a high standard tourism operation).			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• **Master Reef Guides Program** - focuses on quality interpretation, storytelling and presentation of the values of the World Heritage Area (refer. CO1). Tier 1 includes a baseline level of training delivered through the online Reef Discovery Course and Tier 2 includes a nomination process and a field-school based masterclass for specialist training to become a certified Reef Guide. The Master Reef Guides program has produced 102 Master Reef Guides, with the sixth field training school held in 2022. • The **Reef Joint Field Management Program** (RJFMP) maintains a five-year capital rolling investment plan. It identifies public tourism infrastructure to be created, upgraded and decommissioned based on utilisation, and risk posed by visitors to underlying values. New assets guidelines identify the considerations pertinent to the development of new public tourism infrastructure and clarify the process of implementing the developments sustainably. • The RJFMP compliance program risk assesses and manages a range of risks associated with the tourism industry. These risks are included in surveillance planning, with high tourism activity periods (e.g. holidays) seeing greater focus. The Permissions Compliance Team also manage a range of compliance issues and risks around the tourism industry.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• The Crown-of-thorns starfish Strategic Management Framework (2020) – the program expanded with five to seven vessels delivering Program operations between 2019 and 2022. Reef Protection Package funding of approximately $161m was allocated for COTS Program delivery from 2022 to 2030. This investment has secured Program capacity and will facilitate continued deployment of six to eight vessels to suppress COTS outbreaks and protect coral across approximately 150 reefs per year. This will deliver protection of 400-500 reefs from COTS predation across the 15–20-year outbreak cycle. The COTS Control Program is working with tourism industry stakeholders to inform strategic planning and tactical deployment of Program resources. Over 95% of high value tourism reefs are included as Priority Reefs for the COTS Control Program. The COTS Control Program is leading a tender process in 2023 to establish a panel of vessel contractors to deliver on-water operations from 2024 to 2030. • Eye on the Reef - an upgrade of the database and software platform is nearing completion (2023). Tourism Monitoring Effort dashboard in the Reef Knowledge System draws on Eye on the Reef data to showcase the contribution made by the tourism industry. It shows that by October 2022, the number of surveys received from the tourism industry had grown to over 35,000.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Tourism Industry Activation and Reef Protection Initiative (TIARPI) ($3.2m) and **Tourism Reef Protection Initiative** (TRPI) ($15.m). In 2021, the investment supported 4,815 employment days. The 26 successful tourism operators with TRPI undertook work on: reef health and impact monitoring; facilitation of on-country visits for Traditional Owners to support reconnecting with country (179 visits); COTS control (1081 culled); *Drupella* snail removal (63,342 removed); EoTR surveys (2141); planting coral fragments (22,212); reef education resources; development of interpretation content, talks and tours that better connects visitors to the World Heritage Area; and permitted site-intervention activities such as coral gardening. • Joint Guide for Current Permit Holders - developed with QPWS in 2021 to help current permit holders navigate the complexities of permits, understand how to be a responsible permit holder and know the general requirements when operating in the Marine Parks. Challenges: • Undertaking regular **review of 'dated' plans, policies**, strategies, legislation and guidelines to ensure that they are 'fit for purpose' (e.g. Bareboat policy) and in particular work towards **minimising impacts and addressing new emerging issues** including climate change (Workshop participants 2023). '*The system is*			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		pretty good overall but where it doesn't hit the mark is in relation to new and emerging issues and a changing climate' (Interviewee 2023). • '*While the planning system has enabled the CMT industry to operate sustainably in the Marine Park, the system is* ***complex to navigate****. The system* ***needs to be more agile and adaptable*** *to continue to maintain positive environmental outcomes while allowing the industry to build its businesses within a changing environment. The system is* ***rigid to navigate through and slow***' (Interviewee 12, 2023). • 'The planning system has played its role historically. Now it **needs updating**' (Interviewee 12, 2023). • Improving education and information around governance requirements (e.g. underwater heritage including permits for wrecks in protected zones) • Effectively resourcing the development and implementation of the Southern Region Plan of Management • Possible gaps – allocation of tourism moorings and pontoons outside Plans of Management areas; carrying capacity/limits of acceptable change at tourism sites; commercial jet-ski operations; fish feeding; and reef walking.			
PL3 **Actions** for implementation	3	• Actions are identified in a range of documents (refer PL2), including the Zoning Plan and joint Tourism		Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
regarding commercial marine tourism are **clearly identified** within the plan		management action strategy (2021), which outlines action to review all tourism policy and plans. Priority was allocated to the review of the 'Managing tourism permissions (including allocation, latency and tenure)' and the Marine tourism contingency Plan. Both reviews have commenced but have not progressed due to competing Reef Authority priorities and lack of resources. • Plans of Management (refer PL2) identify specific arrangements for activities, areas, species or ecological communities. They complement zoning and influence permitting arrangements. • The draft Ecotourism Plan for Queensland's Protected Areas 2023-2028 (EPPA) is in development and may contain a priority area: Enhance ecotourism in Queensland's iconic marine environments through new public facilities to support experiences. • Tourism management arrangements have been largely implemented within the high use areas of the Reef with implementation strategies and amendment processes to these arrangements clearly defined including the engagement of the industry, local communities and other stakeholders. • Great Barrier Reef Blueprint (2017) details ten focus areas for strengthening, several of which include actions regarding better management of commercial marine tourism (e.g. strengthened compliance) as well as greater			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		protection of values important to tourism (e.g. coral cover, reef restoration, COTS control). • Whitsundays POM - There are strategies in Part 1 of the WPOM in response to identified threats on values. However, the POMs don't specify what will form part of implementation in the actual Plan. • All tourism policies reviewed since mid-2014 outline actions for implementation. These policies relate to the marine tourism contingency plan, moorings, and cruise ships. • In relation to responsible access to the Reef, the Reef Trails project is installing: – moorings for smaller vessels and non-anchor zone markers and A-D class moorings and non-anchor markers (Whitsundays); – 12 new public moorings in the Townsville region; – two new public mooring lines at Davies Reef. These help to reduce impacts on coral ecosystems.			
PL4 Clear, **measurable and appropriate objectives** for management of commercial marine tourism have been documented	3	• The objectives of Plans of management (POM) are set out in the Great Barrier Reef Marine Park Act 1975. POMs are generally prepared for intensively used, or vulnerable groups of islands and reefs, and for the protection of vulnerable species or ecological communities. They provide clear, measurable and appropriate objectives for the management of tourism in these areas. There are three tourism-related POMs within the Marine Park (refer		Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		PL2). Updated objectives may be needed for the Whitsundays POM (Workshop participants 2023). • The Reef Authority's Corporate Plan 2022-23 specifies specific, measurable and appropriate objectives to manage commercial marine tourism across three of its four program areas: – Regulating and ensuring Marine Park user compliance – Educating and fostering stewardship to enhance protection of the Reef – Enhancing Reef resilience through continuous improvement and new initiatives across all aspects of management • The joint Tourism management action strategy (2021) adopted by the Commonwealth and Queensland governments is an action plan to focus the review of existing tools and update existing policies to ensure contemporary management, reduce administrative burden and promote environmental outcomes, starting with review of the Managing Tourism Permissions to Operate in the Great Barrier Reef Marine Park. • Management objectives clearly defined within all Site Plans (e.g. the John Brewer Reef Site Plan) to manage commercial tourism at relevant sites. • 25-year strategic plan for the Great Barrier Reef 1994-2019 has clear objectives across a number of themes.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		Challenge: • Environmental impacts are happening faster than in the past and this requires adaptive planning and management and increased flexibility (Workshop participants 2023).			
PL5 There are plans and systems in place to ensure **appropriate and adequate monitoring** information is gathered **in relation to commercial marine tourism**	4	• No provisions in the PoMs or site management plans to ensure appropriate, adequate and systematic monitoring information (of the values) is gathered to assess the efficacy of the planning arrangements to protect the underlying values of the area. There are a few examples where the Reef Authority has implemented **trigger limits** that would lead to a review of the plan or to adaptive management responses to address cumulative impacts. • As part of implementing the Policy and Planning Strategic Roadmap, the Reef Authority completed a comprehensive review of the POMs as a management tool (2021-22). This process identified the ideal future state for these plans and recommendations for improvement. One recommendation was to evaluate the management effectiveness of the tool and its individual management actions. • The Whitsundays POM (clause 1.18) states that the plan's effectiveness will be captured in the Reef 2050 Integrated Monitoring and Reporting Program Strategy.	Environmental management charge Coronavirus Economic Response Package Permits online A Guide for Current Permit Holders	Adequate	Improving

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Information is collected to assist with the review of key planning and policy documents, including: – Use of Environmental Management Charge visitation data by the Reef Authority - the data provides insights into tourism visitation trends and changes overtime which can be used to inform planning and policy development and implementation. The data is available to a locational level to determine heavily used locations where additional management may be required; and to review use of tourism permissions as part of implementing and reviewing the latency aspect of the policy on managing tourism permissions. To ensure EMC visitation data is sourced, analysed and interpreted accurately and consistently for internal use, an internal procedure was developed in 2022. – Using the Reef Management System to monitor the number of special tourism permissions as part of implementing and reviewing the allocation aspect of the policy on managing tourism permissions. – **Eye on the Reef** information – condition of the reef in certain locations. – **AIMS Long-term Monitoring Program** data – condition of reef in certain locations. – **Field Management Program Reef Health Surveys** assist with informing condition of the reef which can be used to inform planning.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• RJFMP monitors the use of several pieces of public tourism infrastructure including walking trails and toilets across the WHA. The information is used to inform plans to upgrade or decommission infrastructure. • Development of a MERI (Monitor, Evaluate, Report and Improve) framework to be implemented in all new Plans of Management and amendments to existing Plans of Management. • The John Brewer Reef Site plan (2021) includes trigger limits for private moorings and for the first time in a Site Plan also includes a trigger limit for tourism visitation. Clause 40-41 – '*To ensure a balance of use is maintained into the future, a trigger limit for tourism visitation exists at the site. 41. The Authority will monitor tourism visitation data annually and if use exceeds 15,000 visitors annually (~ 280 people per week) for two consecutive years, this site plan will be reviewed in collaboration with Manbarra Peoples and input from regular users. The review of the site plan will evaluate whether existing values and the balance of use has been maintained or if further management action is required.*' • CSR project to establish an AIS subscription commencing early 2023, which will include DCVs with AIS and allow analysis of usage in the Marine Park including high use areas.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• **Human Use Dashboard:** Reef Authority internal only dashboard that will be made available on the Reef Knowledge System in 2023. • Integrated Monitoring and Reporting (Human dimensions Monitoring projects) (refer CO2). **Challenge:** • An internal assessment of the Reef Authority's risk tolerance identified a **gap in the Reef Authority's ability to capture data about use without technology uplift.** For example, vessel tracking technology could be used in a number of ways to capture access, noncompliance and facilitate agile management after disasters.			
PL6 The main **stakeholders** &/or the local community are **effectively engaged** in planning to address commercial marine tourism	3	• Diverse stakeholders are engaged in planning processes through the Tourism Reef Advisory Committee (TRAC), Local Marine Advisory Committees (LMACs) and other consultative mechanisms including public consultation processes to manage threats to the Reef's resilience e.g. climate change, water quality, coastal development, fishing etc (refer CO5 – key stakeholders). • Engagement (IAPP 2018, based on Arnstein 1969) **can involve a spectrum of activities** that require different levels of engagement, timeframes, resources and concern about the decisions that are made. 'Differing levels of participation are legitimate and depend on the		Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		goals, time frames, resources and levels of concern in the decision to be made' (IAPP 2018). Engagement of stakeholders and the local community in relation to the CMT: 1. *often consists of 'informing'* (providing balanced, objective information to assist in understanding a problem, alternatives, opportunities and/or solutions): – Targeted education and stewardship programs assist the Reef Authority to establish mutually beneficial relationships with the CMT industry, the community and others at all stages of learning. – Reef HQ Great Barrier Reef Aquarium, the Reef Authority's national education centre for the Reef fosters community and stakeholder behaviour change and participation in actions to address threats to the Reef by ensuring they have a clear understanding of the value of the Reef, the threats to its sustainable future and the actions they can take to protect it. This is primarily done through the Reef Education team's virtual connections program and local community events. – The Reef Authority's Education, Stewardship and Partnership Section build capacity, partnerships, voluntary compliance and innovation amongst Reef users.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– The **Reef Education** team are delivering educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its stainable future and to encourage participation by taking action to address threats to the Reef. – Reef Knowledge System – available to all stakeholders to raise awareness of relevant CMT issues. – Tourism Reef Advisory Committee involvement in Policy and Planning Strategic Roadmap implementation involved numerous briefings. – Reef HQ volunteer program. *2. often consists of 'consulting'* (to obtain feedback on analysis, alternatives and/or decisions, including providing feedback on how public input influenced a decision) (refer Public consultation) – the **Tourism Reef Advisory Committee** (TRAC) advises the Minister for the Environment in the operation of the Environment Protection and Biodiversity Act 1999 (EPBC Act); and advises on ways to facilitate partnerships, enhance engagement and build capacity of tourism operators in the management of the Reef. However, '*if often feels like they haven't heard what we have said. We need to have more structured engagement… and stronger*			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		knowledge in the Authority about the CMT industry' (Interviewee 12, 2023). – CSR project engaged TRAC in June 2022 to inform the development of options to apply a charge to the tourism industry. This has informed the development of the Marine Park Pass which is proposed for implementation in 2023 and will attract a charge by 2025, fully replacing EMC. – Information/data collection - through various programs and a range of sources that inform management decisions and provide evidence-based advice to the government, the public and stakeholders. Information is shared with various stakeholders, through publications such as the Reef summer snapshot and Marine Monitoring Program reports, along with briefings and engagement opportunities. – RJFMP undertakes extensive consultation with stakeholders and industry representatives around major new tourism infrastructure e.g. the Magnetic Island trails network and the Reef Trails moorings project. – The joint Tourism Management Action Strategy (2021) was developed using a cross-agencies policy working group, targeted consultation meetings with the Tourism and Indigenous Reef Advisory Committees, and tourism industry bodies, plus a 2-month public			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		consultation. Twelve submissions, including 230 detailed comments of substance, were received from Traditional Owner representatives, tourism industry, Reef Guardian Councils, Local Marine Advisory Committees and state government agencies. – There is a high-level regulatory requirement for stakeholder engagement and education through zoning plans, policy and Plans of Management, e.g. **public submission requirements** exist for policy development and public meetings for site planning. – The development of the **John Brewer Reef Site Plan** included targeted consultation with stakeholders and users of the site. All commercial dive operators operating out of the Townsville region were invited to participate in the targeted consultation process as well as the public consultation process. – LMAC supported projects incorporate consultation. – Development of the new southern POM will include formal public consultation and targeted consultation with the tourism industry. *3. may incorporate 'involving'* (work directly throughout the process to ensure relevant concerns/aspirations are understood and considered, including how the input provided, influenced the decision) – **Master Reef Guides Masterclasses** bring together key stakeholders and community to work with			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		tourism operators and their guides to deliver current best practice tourism operations. Master Reef Guides are trained to a high standard and present the Reef's values to the community and tourists regularly. – RIMReP partners provide a forum for cross-agency advice, coordination and input, including stakeholder advice. – Reef Guardians, Eye-on-the-Reef, High Standard Tourism Program 4. *less frequently involves 'collaborating'* (partnering with the CMT industry in each aspect of the decision – developing alternatives and identifying the preferred solution) 5. *Rarely involves 'empowering'* (placing the final decision making in the hands of the industry by implementing what the industry decides) Challenges: • Ensuring effective engagement of Traditional Owners, both within TUMRA areas and non-TUMRA areas to ensure relevant issues are addressed in relation to CMT activities. • Ensuring relevant Committees, including the TRAC are involved in high level engagement, including agenda setting, providing advice, and overseeing effective Committee processes.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Assisting Traditional Owners to have strong decision-making roles within the Reef CMT industry. • Engaging stakeholders across sectors early and often to align values from these different sectors (Reef Resilience Network 2023).			
PL7 Sufficient **policy** currently exists to effectively address commercial marine tourism	3	• Refer PL2 for relevant policies (including guidelines and best practice) relating to CMT. This includes a policy on moorings, permit related environmental impact policies, Cruise ship policy, policy on Managing Tourism Permissions. • Most of the tourism-related policies reviewed after 2014 have been approved as joint Marine Parks policies e.g. the Marine Tourism Contingency Plan; the policy on Moorings in the Great Barrier Reef; and the Cruise ship policy. • Best Practice Development Guidelines ensure that new and expanded ecotourism opportunities on Queensland national parks achieve industry best practice. • Policy on Great Barrier Reef interventions. • There will continue to be a need to develop policy on emerging issues such as reef restoration at tourism sites and planning for regional growth in tourism. Challenges: • Ensuring that policy reflects the key threats and impacts that are predicted to occur in coming decades (e.g.		Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		climate change, increasing demand for tourism and interactions within sensitive environments) • Addressing environmental limits to minimise and/or avoid impacts from tourism activities. • Many of the tourism-related policy and plans are dated and until they are streamlined, aligned and contemporised their efficiency will remain low.			
PL8 There is consistency across jurisdictions when planning for commercial marine tourism	3	• There is no overarching planning strategy in place for tourism management across all government agencies engaged in tourism. In the main, policy, plans, programs and systems are approved/adopted jointly, including by statutory accreditation. Yet, each jurisdiction retains their independent decision-making and this can reduce consistency. • The Intergovernmental Agreement outlines joint arrangements for permits, policies, compliance as related to CMT. • Duplication between jurisdictions (Australian and Queensland governments) is minimised through the joint permit system and joint policy. – Joint permits are maintained and streamlined through Permits Online – a permit system and bookings database for commercial marine operators in high use areas. This allows for greater consistency and efficiency for permit applications including development of six Routine (standardised) permits	Bookings Online Manual Applications for joint permissions	Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		for low-risk activities. The online system covers bookings for both the Commonwealth Marine Park and the Queensland Great Barrier Reef Coast Marine Park. • Most of the tourism-related policies after 2014 have been approved as joint Marine Parks policies, including: The Marine Tourism Contingency Plan; the policy on Moorings in the Reef; and the Cruise ship policy. • The Ecotourism Plan for Queensland's Protected Areas 2023-2028 (EPPA) is in development and requires final approval from the Qld Minister for the Environment and the Great Barrier Reef and Minister for Science and Youth Affairs. It includes actions specific to the Marine Park and commits to collaborate with the tourism industry and management authorities when planning ecotourism experiences in marine environments. A priority is to enhance ecotourism in marine environments through new public facilities to support experiences e.g. to improve responsible access to the Reef in the Whitsunday and Townsville areas through the Reef Trails project – installing new public moorings and no-anchoring areas to reduce impacts on coral ecosystems. • The Tourism Management Action Strategy (2021) was jointly badged by the Reef Authority and QPWS. • Plans of Management are not currently accredited by Queensland (except Whitsundays POM). State required conditions are added (which significantly increases the			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		length and complexity of permits). DES is considering accreditation of CAPOM. Commencement of development of southern POM co-designed with Traditional Owners in partnership with the State. • **Co-location of staff is aiding consistency** e.g. a Reef Authority Planning team position in Airlie Beach has been co-located in QPWS offices. • There is **joint Qld/Reef Authority approval process for information material, guides, policies** etc and this assists in achieving consistency. • **Jointly signed Annual Permissions Compliance Plans** now include resourcing commitments from the Reef Authority and QPWS for joint management responsibilities. • **Joint Field Management Program** aids consistency in on-ground management.			
PL9 Plans relevant to commercial marine tourism provide certainty regarding **where uses may occur, the type of activities allowed, or specifically disallowed,** conditions under	3	• All relevant plans are explained in PL2 e.g. the Zoning Plan sets the framework for extractive use and establishes the need for tourism permits; Plans of Management for specific localised areas identify arrangements for activities, areas, species or ecological communities; and Traditional Use of Marine Resources Agreements (TUMRAs) and their related plans can identify areas were tourism activities are restricted, including in relation to the take of species, anchoring and protection of Indigenous heritage values.	Environmental Impact Management: Permission System (2017) Permits Types of Permissions Fact Sheet (2022) Research Permissions Fact Sheet (2022)	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
which activities may proceed and circumstances where impacts are likely to be acceptable.		• As part of Queensland's Values Based Planning Framework, planning is well progressed for National Park islands and their surrounding (State) Marine Park e.g. Management Plans for a cluster of National Park islands in the Whitsundays and Magnetic Island, as well as values assessments for a number of smaller National Park islands. A shift to more 'Island based' above water experiences, particularly in the Whitsundays is on the rise – particularly as reef condition declines from multiple impacts (coral bleaching and cyclones). • Planning outcomes and certainty are related to the effectiveness of the permissions system, including the policy and plans to be considered and applied. – Between 2019-2021, four new routine permits were jointly approved for low-risk commercial tourism activities including: Tourism and Charter Permit; Cruise Ship Permit; Barge Permit; and commercial COTS and/or *Drupella* Removal Permit. – Between 2019-2022, over 1,100 standard conditions within permit templates were reviewed, including 860 conditions related to commercial marine tourism, to ensure conditions are consistent, contemporary, enforceable, relevant and easy to understand for permit holders (planned completion date of June 2023). A jointly approved internal procedure with QPWS has been approved in 2022 to	Fisheries Permissions Fact sheet (2022)		

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		ensure the periodic review of conditions continues following completion of this work. – Permits Online – enhancements allow for greater consistency and efficiency for permit applications including development of six Routine (standardised) permits for low-risk activities. The Reef Authority has reviewed its Responsible Reef Practices and identified key messages that all tourism operators, their visitors and recreational users should be addressing and implementing. These have been converted into visual icons to enhance recognition and understanding. • Structural tools (e.g. POMs, Zoning Plan), as well as non-statutory tools (e.g. policies and plans) are often accompanied by reference to specific guidelines or best practices to ensure activities are environmentally sustainable with minimal or no impact on the environment, including biodiversity, cultural heritage values, aesthetic values and the like, e.g. diving and snorkelling best practices that minimise impact on marine species and in particular the reef environment. • In some areas, especially in the Whitsundays, which experienced significant impacts from Cyclone Debbie, there are now sites where fishing and snorkelling are undertaken and this presents safety threats to snorkellers/divers from sharks (Interviewee 5, 2023). Solving these differing views about where uses may			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		occur is somewhat problematic with some in the CMT industry recommending that the Whitsundays Plan of Management may need review to address issues related to the shared use of zones and the reduction in sites available due to the impacts of cyclones and the changing seascape in some areas, while fishing interests, in general, prefer the status quo (Workshop participants 2023). Challenges: • Ensuring effective engagement with Traditional Owners in TUMRA and non-TUMRA areas to ensure that tourism activities do not impact on Indigenous cultural heritage, including the Traditional use of marine resources, while providing increased certainty for the CMT industry. • Addressing potential safety issues in situations where uses are shared in some zones, including ensuring that zoning plans are sufficiently flexible and timely to address emerging issues (Interviewee 2023). • Many statutory and non-statutory tourism-related tools are dated. Also, whilst the statutory tools (e.g. POM, Zoning Plan) provide certainty through enforceable provisions, the interpretation of some provisions is unclear. Until the suite of tools is streamlined, aligned and contemporised their ability to provide a high level of certainty about the rules applying to CMT will remain low. Further, until more of Queensland's statutory tools and			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		tourism-related policy and plans are contemporised and/ or published, the certainty, consistency and efficiency in interpreting and implementing rules jointly, will be reduced.			
INPUTS					
IN1 **Financial resources are adequate and prioritised** to meet management objectives to address commercial marine tourism	2	• Since February 2020, the COVID-19 global pandemic has played a significant part in the **decline of visitor numbers and tourism income**. Tourism visitation to the entire Marine Park for the financial year ending 30 June 2022 was reported as 1,391,231 visitor days. This is a 22.11 percent increase on 2020-2021 financial year. Yearly visitation to the entire Reef Marine Park has however decreased by around 41 per cent when compared to the previous eight financial years pre-pandemic average (2012-13 to 2019-20). • Funding is provided by a range of partners including: the Reef Authority, Australian and Queensland governments, Australian Marine Safety Authority (AMSA), Maritime Safety Queensland (MSQ), Qld Boating and Fisheries Patrol (QBFP), Ecotourism Australia (EA), Tourism and Events Qld, Queensland Tourism Industry Council (QTIC), Association of Marine Park Tourism Operators (AMPTO), CSIRO and James Cook University (JCU). • Within the Reef Authority, tourism management is funded largely through the Tourism and Stewardship Group, with contributions from Reef HQ, Reef Guardians,	See Annual Report Links in CO1. Reef 2050 Plan Investment framework Reef protection package funding	Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		Environmental Assessment and Protection (permits area) and Field Management (activities are prioritised in the Annual Operating Plan). • Some financial resources have been provided from all managing agencies, most notably QPWS, to educate tourism operators through a variety of mediums (e.g. welcoming people on the water, on-park education, public moorings and no-anchoring areas, maintenance of website, publications). • $124 million Commonwealth funding boost for the Reef Authority (2016-26) to manage the Marine Park and World Heritage Area, including the condition of the Reef. • In 2022 the Australian Government committed $15.1m to the Tourism Reef Protection Initiative, activating marine tourism assets to deliver Reef protection and conservation services. • In response to COVID-19, the Australian Government contributed significant funds to support frontline jobs in the Reef tourism industry and simultaneously help to conserve high-value tourism sites: $3.2 million (2021) and $253 million (2022) (Coronavirus Economic Package). The services are delivered by a diverse array of tourism operations, from island based to long-range expedition style operations including small to medium sized business through to large multi-faceted marine tourism operations.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Reef Joint Field Management Program (RJFMP) - The Reef 2050 Plan Investment Framework endorses the RJFMP as one of six investment priorities to achieve Australia's commitments to the Reef 2050 Plan. – The investment framework highlights a funding gap in the RJFMP to 2020 of $41–$92 million. The Australian and Queensland governments each invest half of the annual contribution into the RJMP. – The FJFMP has a base $1.8 million per annum budget for capital investment in visitor infrastructure and additional funds for maintenance and this is regularly increased through limited life budgets from the State and Commonwealth Government such as those used for the development of the Magnetic Island and Ngaro trails. – In 2020 the RJFMP was allocated the Reef Trails election commitment of $2.5 million for a 4-year expansion of the Reef Protection Program. During 2021, 31 new public moorings were added to the Whitsundays to support the local tourism industry and improve access for visitors. In 2022-23, a further 42 new public moorings are to be installed within the Townsville and Whitsunday regions. • Environmental Management Charge (EMC). Almost everyone entering the Marine Park, including tourists carried by a commercial operator must pay the EMC. The CMT industry, is the only Reef-based industry that collects			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		fees. The fee is from $6-10 for each visitor per day and is considered to be an efficient tax (Farr 2011). On behalf of the Reef Authority, the industry collects the EMC from tourists. Due to the increase in tourism visitation and increase in the charge due to CPI, the amount collected has grown from $5.7 million in 2014–15 to $12.1 million in 2016–17 but was suspended during the COVID-19 period. These funds directly contribute to management of the Marine Park. In March 2020 the Australian Government implemented a support package for Reef Marine tourism operators significantly affected by COVID-19. This included the waiver of the EMC and Permit Application and Assessment Fees (PAAF). This initial waiver has been extended to the end of June 2023. • The Crown-of-thorns starfish Strategic Management Framework (2020) incorporates the COTS Control Program, which has continued to expand with five to seven vessels delivering Program operations between 2019 and 2022. Reef Protection Package funding of approximately $161m was allocated to secure Program capacity from 2022 to 2030. The COTS Control Program is working with tourism industry stakeholders to inform strategic planning and tactical deployment of Program resources. Over 95% of high value tourism reefs are included as Priority Reefs for the COTS Control Program. • In 2019, during the last phase of the $2.375M Significant Regional Infrastructure Projects Program (SRIPP), 34			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		new public moorings and 15 NAA (formerly referred to as Reef Protection Markers) were installed in the Northern Reef from Cooktown to the Whitsundays. This project delivered 114 new moorings and 90 RPMs. • The review of the 'Managing tourism permissions (including allocation, latency and tenure)', in 2022, secured additional funding for new full-time positions to progress this priority work. The recruitment processes for these new positions are pending. • The **functional efficiency assessment** undertaken within the Reef Authority as part of the charging structure review identifies some areas of internal efficiencies that could help reallocate resources to priority management areas. • **Funding is insufficient to assist the industry to transition to more renewable approaches**, including improved vessels, alternative fuels. Transitioning to a more sustainable future requires planning and on-going investment. '*We need to prepare for the upcoming changes that will be required by the industry*' (Interviewee 2023). **Challenges**: • Working collaboratively with the industry to develop a range of transition strategies to achieve greater sustainability.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Whilst new resources have been allocated there are long-standing legacy issues specific to the management of tourism that have not been addressed including dated policy, planning and permissions arrangements.			
IN2 **Human resources** within the **managing organisations** are **adequate** to meet specific management objectives to address commercial marine tourism	2	• Managing organisations incorporate the Authority, related government departments and agencies and tourism related organisations that manage visitation to, and activities on the Reef. – Human resources within the Reef Authority and QPWS have improved – In the CMT industry, '*human resourcing is a big issue*' (Interviewee 5, 2023), with lack of skilled staff across all areas of the industry and the need for new approaches to address training and staff retention. – Indigenous peoples' engagement in CMT is limited. • The **Reef Authority/QPWS** (through RJFMP), Australian Government, AMSA, MSQ, QBFP contribute human resources to tourism monitoring and management. – **RJFMP** (2022) finalised its five-year expansion implementing 12 key investment areas. Increased joint base funding will now support up to 194 Program–funded staff, a fleet of 22 vessels including two vessels 24 metres in length and an improved capacity to deliver field operations and respond to		Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		incidents across the WHA. Recruitment to the final 34 Program positions will be completed in 2023. A dedicated Field Operations Team was established in Airlie Beach (2022). – 0.5 FTE appointed to manage the Tourism Industry Activation and Reef Protection Initiative (TIARPI). – 2 FTE appointed to manage the Tourism Reef Protection Initiative (TRPI) to the end of 2024 under NPP funding. – Two new APS6 Senior Planning Officer positions created, APS4 Planning Officer position made ongoing. – One new APS6 Senior Policy Officer Position created. – **Permits Compliance Team** has maintained 3 x FT equivalent staff. The team manages non-compliance on a daily basis through the implementation of the My Case Manager System and complimentary Managing Permissions Non-Compliance Procedure that were both effective from February 2021. – Historical allegations of non-compliance managed prior to 2021 and back to 2015 were integrated into the new system to assist in effective management of non-compliance.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Jointly signed Annual Permissions Compliance Plans now include resourcing commitments from the Reef Authority and QPWS for joint management responsibilities. • There have been general challenges over the past two years in recruiting to positions at the Reef Authority. Many positions (including some described above) have remained vacant as a result. This places burdens on the Reef Authority's assessment team (Workshop participant 2023). Challenges: • Expanding Traditional Owner employment, particularly with on-ground operations to work with tourism operators and the industry to enhance outcomes across the Reef and particularly in TUMRA areas. • Addressing strategies to enhance Traditional Owner engagement in CMT activities – very few Traditional Owner groups currently offer CMT activities directly (Workshop participant 2023). This may require relevant marketing strategies to enhance demand for those services and capacity building to facilitate start-up operations.			
IN3 The **right skill sets and expertise** are	2	• Staff within the Reef Authority and related agencies are improving the competence and capacity of their		Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
currently available to the managing organisations to address commercial marine tourism		workforce through a range of programs. However, it is less clear whether other managing organisations have the 'right skill sets and expertise'.5, The industry reports that '*we don't have staff on-ground…human resourcing across the industry is a problem*' (Interviewee 5, 2023). • RJFMP (QPWS and Reef Authority staff) has employed 2 x OO6, 2 x AO5 and 1 x AO6 dedicated project officers to deliver significant visitor infrastructure projects. It comprises a **highly skilled and motivated workforce**, with targeted strategic training. High levels of in-house skills in impact assessment and marine tourism management and close working relationships with the marine tourism industry. • Within the **Reef Authority**: – **In policy and planning there are high levels of expertise and skills** to progress priority projects. However, the number of resources is insufficient. NPP funding has allowed for an increase in resources. – The human resources of the Tourism and Stewardship Section and Environmental Assessment and Protection Section possess high levels of expertise and skills in marine tourism management and impact assessment.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Employs two dedicated **Social Scientists** and engages regularly with social-ecological scientists at numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science Community for the Reef and Reef 2050 (Human Dimensions consortium) – EAP and People Services are developing a workflow that will track EAP delegation levels and approvals in the Reef Authority's Learning Management System - due for implementation early 2023. Environmental Assessment and Protection section, retains a focus on tourism policy within a dedicated policy and planning section and maintains some tourism engagement in the Reef Education and Engagement. – Refer to relevant **training provision in PR5**. • The CMT industry: – Is experiencing shortages in staff (refer IN2) and lacks sufficiently trained personnel to undertake relevant activities – Foundational capacities are limited in relation to Indigenous economic participation in the Reef tourism industry (McLean et al 2020). • Indigenous commercial marine tourism has a limited profile, lacks coordination and an appropriately trained workforce (QTIC 2020). Challenges			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Determining the competence and capacity of people engaged in planning and delivering tourism activities within the industry and operations. • Considering ways to support an increase in Indigenous tourism experiences, including a more enabling business environment (McLean et al. 2020) and upskilling the workforce (QTIC 2020). • **Developing shared skills sets** (e.g. in research, planning and management) among staff within the Reef Authority, other government agencies and the CMT industry (as occurs with the Master Reef Guides program) (Interviewee 12, 2023).			
IN4 The necessary **biophysical information** is currently available to address commercial marine tourism	3	• There is **extensive biophysical information relating to tourism and the key sites that are visited by tourists**, as much research and monitoring effort is focussed on areas of high visitation (refer Biodiversity topic CO1,2,3 and PR9, Table 32). There is less data and information for many other parts of the Reef. Cumulative impacts on the Reef and its species and ecosystem from diverse threats including tourism activities and infrastructure are less well known. • Eye on the Reef data (refer CO2). • AIMS Long Term Monitoring Program surveys about 100 reefs each year to provide a representative sample across the Reef. This includes reefs used by the CMT industry.	Informing the Outlook for Reef coastal ecosystems Reef Authority research priorities Marine Monitoring Program Reef report cards – 2019, 2020 Tourism Reef Protection Initiative Reef explorer | Reef Knowledge System Science and Knowledge Needs for Management	Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• The Marine Monitoring Program (MMP), which is a key component of the Reef 2050 Integrated Monitoring and Reporting Program (RIMReP), is managed by the Reef Authority. It provides the marine information for the Reef Report Cards, which include the detailed marine results at Reef-wide and regional scales (e.g. the program has monitored 31 inshore reefs since 2005 to detect changes in reef communities). An overview of the results for water quality, seagrass and coral is provided on the Marine Monitoring Program webpage. A short summary of key findings for the inshore marine environment in each region is available to download. The detailed annual technical reports are made available in the Reef Authority's eLibrary when they are published (e.g. Marine Monitoring Program: Annual Report Inshore Seagrass Monitoring 2020-21). • The Reef Authority's **spatial mapping tool** enables managers to spatially map important data layers relevant to management, including biophysical information to help address CMT (e.g. location of high standard tourism operators, marine monitoring sites, coral bleaching survey sites). The **Reef Explorer** tool is used internally, and certain data layers are also available externally to the public.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Reef Health Impact Surveys (RHIS) are used regularly as impact assessments for hotspots to effectively allocate resources and assess the effectiveness of management strategies. • TRPI – site stewardship monitoring plans for long-term monitoring of tourism sites • Tourism Industry Activation and Reef Protection Initiative (TRPI) (ended June 2022), 17 marine tourism operators undertook work on: reef health and impact monitoring; facilitation of on-country visits for Traditional Owners to support reconnecting with country (179 visits); COTS control (1081 culled); *Drupella* snail removal (63,342 removed); EoTR surveys (2141); planting coral fragments (22,212) and other work. RHISs will be used to capture information on impacts locally and nearby commencing early 2023. • Resilient Reef Network (internal only tool) to assist operators with decision making and site stewardship. • Habitat mapping layers developed for the Reef Knowledge System • COTS Control Program RHIS, manta tow and cull data is available on the EoTR database. • Environmental Impact Management: Permission System			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• The **Reef Knowledge System** hosts: new coral reef habitat mapping layers through the Reef Explorer interface: geomorphic, benthic, and bathymetry (to 20m depth) maps and a satellite image mosaic; and an internal interactive dashboard, the Resilient Reefs Network Guidance Tool, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park. • AusSeabed Marine Data Portal and Geoscience Australia host a very high-resolution bathymetry map of the Reef, including the continental shelf. • **Reef Hub** hosts inter Reefal and continental slope data for identifying plane/slope. • The Reef Authority updated its 'Science and Knowledge Needs for Management' in 2021. It aims to ensure scientific activities are relevant, targeted to address critical management issues, and that scientific outputs are easily accessible. The priority information needs form the focus of specific collaboration opportunities with science and knowledge providers. The document is supported by an interactive web-tool located on the Reef Knowledge System which identifies the specific collaboration opportunities and can be updated as needs are addressed or new needs identified.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		Challenge: • Regularly updating evidence-based information relevant to the CMT industry (i.e. reflecting the latest science and the commercial realities faced by the industry) (Interviewee 2023).			
IN5 The necessary **socio-economic** information is currently available to address commercial marine tourism	3	• Refer PL5 (monitoring data) and PR10 (application). • **Social and Economic Long-Term Monitoring Program (SELTMP)** -Time series: 2013, 2017, 2021, 2023 (planned) is led by CSIRO (refer PL5). 2021 survey (3rd data point): addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Reef social-ecological system. The updated broad objectives of SELTMP are to: monitor changes in community attitudes towards the Reef5, its values and management, and the perceived threats to those values; predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health; monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the Reef; and **assess and monitor social and economic vulnerability, and adaptive capacity** of Reef communities to changes in Reef condition and the wider system. History of funding for the program appears on its web homepage. Data from the timeseries can be queried	SELTMP (csiro.au) SELTMP Core module pilot data SELTMP Core Module Report SELTMP Core Module 2021 Survey dataset: Regional Report Cards -2021 social surveys - pilot dashboard Design and implementation of social surveys for the Regional Report Cards in Reef catchment (Curnock et al. 2022) Catchment Regional Waterway Partnership Baseline Social Surveys (Curnock et al. 2023) Integrated Monitoring and Reporting - Great Barrier Reef	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		regarding changes in (and affecting) Marine Park tourism. There is a gap on site specific information. • **Human Use Dashboard** (refer PL5) will provide access to human use data to Reef managers (Reef Authority internal only) and will be made available on the Reef Knowledge System in 2023. • Improvements are being made in understanding effort signatures of tourism through analysis of AIS, EMC, TRA data. • The Reef Authority Science and Knowledge Needs for Management (2021) (refer IN5).	Foundation Science and Knowledge Needs | Reef Knowledge System		
IN6 The necessary **Indigenous heritage information** is currently available to address commercial marine tourism	3	• Refer PL5 (monitoring data), PR11 (application) and CO5 (stakeholder engagement – in relation to the Tourism RAC, Reef Advisory Committee and Reef Authority Board). • Social and Economic Long-Term Monitoring Program (SELTMP) (refer PL5 and IN5). • 10 TUMRAs and one ILUA are in place covering about 46% of the Reef (refer TUMR topic Table 47). Traditional Owner knowledge is embedded in these plans, which identify a range of strategies and actions in relation to the take of marine species, areas that are closed to 'outsiders' including tourists and the importance attached to many sites within these areas. However, not all information is available to the CMT industry.	Reef Authority sources include Cultural and Heritage Values Database and Traditional Owner Profiles database Aboriginal maritime culture (various publications by D.Smyth) Woppaburra Guidelines Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Indigenous Reef tourism operations are limited and lack visibility e.g. limited signage for culturally significant locations, few relevant travel guides, unclear place names and clan boundaries, and limited tourist awareness of Indigenous heritage (McLean et al 2020). . • Sea Country Values mapping is being undertaken. Mandubarra Sea Country Cultural Values: 2019-2020 mapping project – the Sea Country plan maps the values and outlines the aspiration of the Traditional Owners of the Mandubarra Sea Country. The Reef Authority is preparing policy and plans to incorporate these aspirations into management tools, including the development of processes to enable consistent consideration of these values in permissions assessment. This mapping is one of the first to incorporate underwater cultural heritage values. Much of the mapping outputs are not publicly available but are used for assisting management decision making through cultural referral processes. The targets include: policy and site plan adopted by December 2023 and statutory special management area resolution to proceed by December 2023. • Human Use Dashboard (refer PL5): Improvements are being made in understanding effort signatures of tourism through analysis of AIS, EMC, TRA data etc.	Traditional Owner and Marine Parks Management Portal - Overview (arcgis.com) Land and Sea Country | Reef Knowledge System Monitoring the Indigenous heritage within the Reef 2050 Integrated Monitoring and Reporting Program: final report of the Indigenous Heritage Expert Group Strong peoples - strong country: Indigenous heritage monitoring framework summary report		

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• The Reef Authority Science and Knowledge Needs for Management (2021) (refer IN11). • Various cultural protocols and data sharing agreements have been developed and a range of training programs and Master Guides programs to improve the integration of Indigenous heritage information within tourism operations (refer Traditional use of marine resources topic Table 47). Challenges • While cultural mapping and a range of plans have been developed in relation to TUMRA areas and several island national parks, greater engagement with the CMT industry and more cooperative approaches could assist in ensuring that Indigenous heritage information is incorporated in relevant tourism activities, including appropriate signage, travel guides and visitor programs. • Supporting Traditional Owner groups to offer a range of CMT activities and supporting the capacity building of these groups (Interviewee 5, 2023). • Identifying authentic First Nations Reef tourist experiences through accreditation Indigenous Reef tourism operations are limited and lack visibility e.g. limited signage for culturally significant locations, few relevant travel guides, unclear place names and clan boundaries, and limited tourist awareness of Indigenous heritage (McLean et al. 2020).			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Benefit sharing arrangements may improve the benefits that Traditional Owners receive from engagement with the CMT industry and operators.			
IN7 The necessary **historic heritage information** is currently available to address commercial marine tourism	3	• Refer PL5 (monitoring data), PR12 (application) and CO5 (stakeholder engagement) and Historic heritage topic (Table 43). There are data and knowledge gaps about how commercial marine tourism may impact historic heritage. • Underwater cultural heritage: – Historic shipwrecks – Shipwrecks and other underwater cultural heritage are protected by the *Underwater Cultural Heritage Act 2018* and *Queensland Heritage Act 1992*. Access is permitted by the Museum of Tropical Queensland. – If new shipwrecks or other underwater cultural heritage, including invertedly bringing relics or artefacts up from the sea floor, are discovered during CMT activities, there is an obligation to report these under both Acts above, dependant on whose water they are in. – Magnetic Islands shipwrecks information sheet produced. – UCH information is seen as difficult to access (Workshop participants 2023).	Lady Elliot Island Lightstation Heritage Management Plan (2012) Australian Underwater Cultural Heritage Database Science and Knowledge Needs | Reef Knowledge System Reef Authority - Heritage webpage	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• The Reef Authority Science and Knowledge Needs for Management (2021) (Refer IN4) - there are several current research needs that relate to historic heritage. • Great Barrier Reef Marine Park Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022–25. Reef Authority focus is largely confined to Commonwealth heritage listed lightstations. The Strategy mentions collaborative lease arrangements with tourism operators to ensure cooperative management of Lady Elliot Island and Dent Island. It also recognises the role of tourism industry in presenting the values of the World Heritage Area to visitors. • A heritage management plan is in place for Lady Elliot Island, and draft plans for Dent Island and Low Isles – Commonwealth islands with lighthouses and tourism program and or resorts. • Maritime Cultural Heritage Protection SMAs are declared under Marine Park Regulation 66 to protect fragile and irreplaceable heritage places. Two nationally significant World War II Catalina plane wrecks with potential human remains have been declared as Maritime Cultural Heritage Protection SMAs (2016). • Guidelines for Historic heritage impact assessment in the permissions system (2017) consider three historic heritage values of the Marine Park: WWII features and sites; historic voyages and shipwrecks; and other places			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		of historic and social significance. However, access to this information is difficult to obtain. • Information is available through: socio-economic databases; Indigenous heritage databases; Cultural Heritage Management Plans; Indigenous Land Use Agreements; historic heritage databases; studies to support approval applications including EIS for major projects; the Australian Underwater Cultural Heritage Database. • Commercial marine tourism activities must also not adversely affect any protected shipwreck (shipwrecks over 75 years old) If shipwrecks are impacted, then self-reporting needs to occur using the Australasian Underwater Cultural Heritage Database. Challenges: • Many historic heritage sites are not mapped and assessed and the impact of tourism activities is largely unknown. • Improving information about UCH sites to better protect their values.			
IN8 There are **additional sources of non-government input** (e.g. volunteers) contributing to	4	• Tourism operators contribute to Reef management through activities that promote a 'Healthy Reef Healthy Industry'. • Tourism operators are involved in several partnership programs (i.e.	Responsible Reef Practices Eyes and Ears compliance training Eye on the Reef (including Sightings network)	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
address commercial marine tourism		http://www.gbrmpa.gov.au/corp_site/key_issues/tourism/how_to_choose_a_tour/certificationHigh Standard Operators, Eye on the Reef Monitoring, http://www.gbrmpa.gov.au/onboard/home/marine_park/management_arrangements/reportingSightings Network, Eyes and Ears Program, Crown-of-thorns Starfish control program, coral restoration activities and programs, including annual coral spawning events) (refer PL2). – Operators (via the Association of Marine Park Tourism Operators - AMPTO) deliver a COTS control program in high value tourism sites and train tourism operators and community groups in COTS control (refer Biodiversity topic, Table 32). • Community groups such as OUCH (Association of Underwater Coral Heroes) and industry organisations such as AMPTO, CHARROA, WCBIA, WBOA, LIPS, CVA provide input to Reef management. • Several partnerships with tourism operators address impacts to the reef. – Citizens of the Great Barrier Reef (est 2016) – Cape York Catchments – COTS control community group (est 2015) – Great Barrier Reef Legacy (est 2017) – provides access and support for science on the Reef; an independent research vessel is run in partnership with tourism operators)	Low Isles Preservation Society Eye on the Reef App and Sightings network Great Barrier Reef Foundation Great Barrier Reef Citizen Science Alliance Tourism operators and businesses Magnetic Island (TOBMI) Tourism operators key to large-scale coral restoration - Great Barrier Reef Foundation Magnetic Island Tourism 2030 Masterplan		

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• The Reef Knowledge System hosts a dashboard that highlights the contribution of commercial marine tourism operators to several of these programs (refer Tourism Monitoring Effort | Reef Knowledge System). • The Social and Economic Long Term Monitoring Project (SELTMP) (refer PL5) captures social and economic information from Great Barrier Reef industries and coastal communities. • Tourism Industry Activation and Reef Protection Initiative – 17 CMT operators undertook Reef conservation activities. The $3.2 million initiative (ended June 30 2023) was part of the Australian Government's $1 billion Covid-19 Relief and Recovery Fund to support frontline jobs in the Reef's tourism industry and help conserve high value tourism sites. – Activities included: – In-water Reef health and impact surveys to monitor coral condition and the Reef's composition at reef tourism sites, and upload data to the Eye on the Reef system. – Reef intervention and conservation activities under existing Marine Park permits (e.g. coral gardening, macro-algae removal and controlling crown-of-thorns starfish). – Capturing real-time imagery of the Reef and operational activities for use in developing			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		education and communication material to inform people about the Reef and the need for its protection. – Outcomes included: – 692 activity days – 6,018 hours of operation supported – 4,815 staff employment days – 2,350 hours of site stewardship activities supported – 179 Traditional Owner on-country visits enabled – 1,052 hours of digital media content captured – 479 hours of Reef research conducted – 1,082 COTS culled – 63,342 *Drupella spp*. Removed • Other collaborations on restoration activities include: – Moving Corals (RRAP - research) – Boats 4 Coral (RRAP - research program) – Coral Nurture Program (not RRAP - research program) – Refer also CO1.			
PROCESSES					
PR1 The main **stakeholders &/or industry**(ies) are **effectively engaged** in the ongoing **management** of	3	• Diverse stakeholders are engaged in CMT management (refer CO5) and planning (PL6). • **Engagement of stakeholders and industries in relation to the CMT:** 1. Informing	Tourism partners webpage Government agencies Tourism monitoring effort (includes a list of tourism operators)	Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
commercial marine tourism		– Reef Authority has a dedicated FTE within the Reef Education and Engagement section that delivers outcomes under the Reef Education and Engagement Implementation Plan. This includes strategic tourism industry engagement, dedicated programs and resources. – The Reef Knowledge System hosts a dashboard that highlights the contribution of commercial marine tourism operators to the Eye on the Reef monitoring program. – In 2020 the Reef Authority conducted a 'roadshow' visiting tourism operators throughout the Marine Park and offering an opportunity for discussions between operators and the Reef Authority. – The Reef Authority presented at Superyacht Industry events on management of Superyachts within the Marine Park. – Regular on-site liaison with industry relating to policy implementation and Marine Park permits. – Every year, the Reef Authority participates in and attends the Australian Tourism Exchange to promote high standard tourism operations in the Great Barrier Reef. 2. Consulting			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– RJFMP consults extensively with stakeholders and industry representatives in the planning phase of all significant recreational infrastructure projects e.g. Ngaro trail, Magnetic Island trails and Reef Trails – A high level of coordination between partner agencies (Reef Authority and QPWS) through various formal and informal forums including the Reef Authority Board, Tourism Reef Advisory Committee, which includes a number of marine tourism operators and industry organisations, other Reef Advisory Committees, Local Marine Advisory Committees (LMACs), Joint Permit Working Group, State Wide Tourism Forum and the Whitsunday Parks Forum. The advice received assists in the ongoing management of commercial marine tourism and the Reef. – Ongoing tourism industry and community engagement with significant consultation on policy and planning. For example, all 11 LMACs were consulted on the draft FAD/AR policy during March 2023, including a Reef-wide presentation on the same. – Dedicated FTE within the permission system of the Reef Authority to develop and implement mechanisms within the joint Marine Parks permit application assessment processes to better identify risks to relevant values for the purpose of assessing potential impacts from proposed activities on those values and			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		implement appropriate avoidance or risk mitigation measures. – Plans of Management review and policy development, complemented by engagement through the Tourism RAC and LMACs, industry associations and individual operator meetings. 3. Involving – Ongoing tourism industry engagement through **partnership programs** (i.e. High Standard Operators, Eye on the Reef Monitoring, Sightings Network, Eyes and Ears compliance program – Tourism operators are actively involved as stewards of the Reef. Through the High Standard Tourism Program, operators are increasingly working to voluntary best practice standards in their activities, e.g. 64 operator (2014), 67 (2016), 69 (2017), 64 (2018), 72 (2023) Relies on independent certification administered by Ecotourism Australia and EarthCheck – The Reef Authority has a guide to choosing a high standard tourism operation – Tourism Industry Activation and Reef Protection Initiative (refer IN8). – The Association of Marine Park Tourism Operators, in partnership with the Reef Authority and the Reef and Rainforest Research Centre (RRRC) undertake			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		targeted control of crown-of-thorns starfish to improve the sustainability of the industry and the health and resilience of the Reef. 4. Collaboration – Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi) receive information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. This work directly contributes to the Reef Authority's Aboriginal and Torres Strait Heritage Strategy, objective O2.4 – 'Integrate Traditional Owner knowledge and input into our environmental assessment and permitting process', and action A2.4.3 - 'develop guidance and templates for applicants on expectations for Traditional Owner consultation. 5. Empowering – No relevant examples. Challenges: • Working with Traditional Owners to enhance their effective engagement in CMT activities. this may include interpreting Indigenous cultures and stories; Indigenous people directly operating or investing in tourism operations; business partnerships between Indigenous organisations and tourism operators; Indigenous people			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		employed in tourism operations; Indigenous input into the way tourism is managed; greater participation by Indigenous communities; and negotiation of benefit sharing arrangements.			
PR2 The **local community is effectively engaged** in the ongoing management of commercial marine tourism	3	• There are statutory requirements for engaging with the local community in the development of management plans, zoning plans, reviews and for some permit application assessments. • Overall, there is low level engagement with the community in terms of the IAPP (2018) framing of engagement. Engagement focuses on information provision and consultation. • Engagement of local community in relation to the CMT: 1. Informing – There is a high level of engagement with local communities including representation at forums and public meetings. – The In August 2022, the Local Marine Advisory Committees network was given a presentation on the history, processes, and legislation about zoning which included aspects of commercial marine tourism. 2. Consulting	Reef Authority's Tourism partners webpage: Tourism industry Local marine advisory committees' advice and communication Local Marine Advisory Committee: Terms of reference 2021-2024 LMAC Reef Wide summary on changes of use in the marine park: Local Marine Advisory Committee Meetings June 2022	Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– RJFMP consults extensively with local community groups in the planning phase of all significant recreational infrastructure projects e.g. Ngaro trail, Magnetic Island trails and Reef Trails – Tourism industry representatives were encouraged to nominate for the 2021-24 LMAC term. LMAC meetings provide a forum for the local community, to share their views and provide collective input to Reef management – In June 2022, the LMACs were asked for their advice on changes of use in the marine park, including the change in tourism use. – Traditional Owners and clans are engaged through various committees (Tourism RAC, Advisory Board and LMACs etc), but the level of engagement is unclear, especially in relation to TUMRA and non-TUMRA areas. – Local community views are considered in SELTMP results and annual market/sentiment research by the Reef Authority. 3. Involving – Ongoing tourism industry engagement through partnership programs (i.e. High Standard Operators, Eye on the Reef Monitoring, Sightings Network, Eyes and Ears compliance program) (refer PL6)			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Tourism Industry Activation and Reef Protection Initiative (refer IN8). – The Association of Marine Park Tourism Operators, in partnership with the Reef Authority and the Reef and Rainforest Research Centre (RRRC) undertake targeted control of crown-of-thorns starfish to improve the sustainability of the industry and the health and resilience of the Reef. 4. Collaboration – Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi) receive information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. This work directly contributes to the Reef Authority's Aboriginal and Torres Strait Heritage Strategy, objective O2.4 – 'Integrate Traditional Owner knowledge and input into our environmental assessment and permitting process', and action A2.4.3 - 'develop guidance and templates for applicants on expectations for Traditional Owner consultation. 5. Empowering – No relevant examples.			
PR3 There is a sound governance system	3	• The Reef 2050 Plan (p.36) requires that 'governance arrangements are transparent and accountable'.	Governance risks facing the Reef (Dale et al. 2016)	Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
in place to address commercial marine tourism		• **Governance assessments** have been undertaken by Dale et al. (2013), Craik, et al. (2017), Morrison et al. (2017, 2019, 2020), Turner (2022) and others. A common theme is the need to review governance systems, including in relation to CMT, to ensure that the systems are addressing a range of major threats, in particular climate change, and other impacts that occur at multiple scales. Governance needs to be 'fit for purpose' in addressing diverse pressures relating to the CMT industry. • The Reef has a **polycentric system of governance**. CMT is a 'sub-system' within this overall system (along with heritage, biodiversity, fishing, shipping, ports etc). • Reef governance for CMT is **complex with diverse stakeholders and partners** (refer PR2) and complex cross-scale and cross-sectoral dynamics (Turner 2022). The Reef Authority is the key management agency responsible for ensuring the Reef Region is protected for the future. The Reef Authority manages tourism in partnership with DES (QPWS) through complimentary Zoning Plans, regulations, permission system, and policy. This is captured under the Intergovernmental Agreement and the Reef 2050 Plan (refer PL2). • The marine tourism industry is a key partner within the governance system. Tourism operators help to enhance visitor experiences and play an important role in protecting the Reef values that underpin their industry. Tourism specific groups include EarthCheck, the	Integrated Monitoring and Reporting - Great Barrier Reef Foundation		

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		Association of Marine Park Tourism Operators (AMPTO), Whitsunday Charter Boat Industry Association (WCBIA), Whitsunday Bareboat Owners Association (WBOA) and Indigenous tourism operations. • The Tourism Reef Advisory Committee (TRAC) advises the Reef Authority in relation to actions that can be taken to address the risks to the Marine Park, including impacts on CMT. • Other authorities and interests (refer CO5, stakeholders; CO6 and PR1, stakeholder engagement; andPR2, local community) include: – State agencies - Tourism Queensland (TQ), Queensland Tourism Industry Council (QTIC), MSQ, QBFP, Qld Water Police – Federal agencies - Australian Government Department of Industry, Tourism Australia, AMSA, Ecotourism Australia (EA) – Regional tourism organisations e.g. Tourism Whitsundays, Capricorn Enterprise etc. – local governments – LMACs – community groups (refer PR2) – research organisations (e.g. Tourism Research Australia, Australian Tourism Industry Council, AIMS and others). – Traditional Owners, own and manage major tourism assets, have tourism business interests and are			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		regulators of tourism activities on their lands and waters. • Other management agencies and tourism bodies contribute to the governance system in differing ways, e.g. through Protected Areas Management Forum (PAM), intergovernmental meetings under an MOU (Parks Australia), MOU between the Reef Authority and the Reef Foundation. • Some arrangements among the key stakeholders are clearly defined, with streamlined processes (e.g. trying to avoid duplication of permit assessment processes, strengthening intergovernmental cooperation and partnerships). However, gaps remain, particularly with engagement of Traditional Owners and local governments. • **The structural elements of CMT governance** are well developed e.g. vision setting, decision-making processes, strategy development, implementation, monitoring and evaluation. – **Diverse array of legislation** (e.g. EPBC Act, Marine Park Act, Nature Conservation Act 1992), **plans, policies and programs** for the sustainable use of the Reef in relation to CMT and control of potential impacts on MNES (refer PL2). This provides a substantial basis for governing the Reef Region in relation to CMT. However, some legislation (e.g. EPBC Act), plans, policies need review and updating			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		to enhance more effective management (e.g. Plans of Management). – **Inclusion of science and obtaining new knowledge e.g.** investment into monitoring and evidence-based decision making to inform management and governance of Reef tourism (refer PL5, IN4,5,6,7,8, PR9,10,11,12). – IMR RTP Monitoring collective capacity and implementation **(Governance)** (2021-2024) - will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health and the sustainability of the CMT industry. No results yet. – User/access rights to the Reef are mostly clearly defined in the Zoning Plan and relevant information is available through the permitting system. However, this does not mean that all groups are aware of their rights. – Indigenous reef tourism is not well established. • In relation to the **functional elements of governance:** – Recognition amongst key actors that Reef management is a **collaborative effort** as the scale of the issues and threats facing the reef are bigger than any individual actor can address alone (Interviewee 2023). – Long-standing political commitment to the Reef and its formal governance arrangements, which have			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		been in place for over 20 years. The governance system is 'robust and mature' (Interviewee 2023). – the **decision-making powers** are distributed among the key actors (e.g. between the Reef Authority, government, tourism industry organisations and other key actors, including Traditional Owners). The Intergovernmental Agreement provides the framework for the Australian and Queensland governments to work together to protect the Reef. – While decision making powers are distributed among the key players, the Reef Authority plays a central role (i.e. it is unclear whether the **representation** of all key players in addressing and making decisions concerning CMT is equitable). – Increasing focus on **Traditional Owner engagement** is resulting in enhanced engagement, especially in TURMA areas. – Many stakeholders are consulted for input into a range of plans, guidelines and strategies, but have a limited role in decision making. – The **strength of connections** among actors within the governance system is variable. Connections are strongest between the Reef Authority, Commonwealth and State governments.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– **Various knowledges** are incorporated into CMT planning and management (refer IN4,5,6,7), although there are gaps in Indigenous and historic heritage knowledge. – **Compliance and law enforcement** for CMT are a key priority and in general this is well coordinated. – There is a **dispute resolution** system in place that includes documentation of processes, suitability of processes and success. However, it is unclear whether this system is widely supported by the stakeholders. – **Benefit sharing arrangements** are poorly developed, especially with Traditional Owners. – In relation to issues of **adaptability and effectiveness** of the governance system, it is unclear whether current arrangements will be effective in addressing some of the big threats and challenges facing the industry, particularly in relation to the impacts of climate change (refer OC1-7). Challenges: • Due to operational complexity and the large number of actors involved in the governance system, changes to policy and operational matters can take a long time to deliver and implement (Interviewee 2023). • The various governance components or sub-systems are 'siloed in a policy sense' (Interviewee 2023), with			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		restrictions in connections between Reef policy, regional planning and the circular economy. The challenge is in ensuring that Reef decisions are made not in isolation, but in collaboration with diverse stakeholders and partners. • Addressing **system flexibility** i.e. reassessing and updating the governance system to reflect changes in context and ensuring there is consistency with ancillary organisations and policies (including international policy, especially in relation to climate change). • Ensuring inputs and funding match the requirements for improved CMT outcomes. • Establishing an **Indigenous tourism advocacy body** for Queensland to enhance Indigenous reef tourism opportunities and governance outcomes (McLean et al 2020).			
PR4 There is effective **performance monitoring**, including. regular assessment of **appropriateness and effectiveness of tools**, to gauge progress towards the **objective(s)** for	3	• There is little or no coordinated monitoring of tools relevant to CMT based on reliable indicators that assess effectiveness in relation to stated objectives. Hence it is difficult to easily address this indicator. The IMR RTP Governance Project (2021-24) will develop a monitoring framework to assess how different components of the governance system are working together to achieve improved Reef health, and this may include relevant management tools. No results yet.	Strategic Plan 2012-2016 (see PL1) Environmental management charge RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
commercial marine tourism		• The Reef Authority adopted the **Tourism Management Action Strategy** (2021) *to* guide the review, development and implementation of more responsive, contemporary management tools for the Commonwealth and State Reef Marine Parks. Implementation is long term and will include the development of measurable performance indicators. The performance indicators have been drafted as an internal tool and an initial report against the performance indicators is pending. • **Indicators to monitor progress** towards the objectives of the Reef2050 Plan are identified within '*Reef 2050 objectives and goals*' document. The development of the evaluation framework to monitor the progress towards objectives and goals is underway and, when complete, will be presented on the Reef Knowledge System. • Annual Reports and Annual Operating Plan reporting address performance monitoring e.g. one KPI relates to visitors to the Reef using tourism operators accredited as 'High Standard Operators'. • There is no explicit performance monitoring of reef values within Plans of Management (e.g. is the coral cover in better condition in a low use area vs a high use area). Performance of management tools is monitored through monitoring trends in compliance records, booking systems, etc.	Reef 2050 Plan objectives and goals 2021-2025 Condition Review Dashboard on the Dock Tourism visitation data		

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• **Compliance and enforcement programs** are based on a comprehensive risk matrix approach to check that tourism operators maintain management requirements. – The Reef Authority established a dedicated permits compliance team to facilitate administrative permit compliance (2015). – The Strengthening Permissions Compliance Action Plan 2015-2020 sought to establish effective arrangements to manage non-compliance in order that the impacts of human activity on the Reef are reduced through effective environmental regulation. It adopted an enhanced risk-based program for the assessment of regulatory risks so that enforcement resources and consequential actions are efficiently, effectively and proportionately targeted; and an annual compliance plan to address identified regulatory risks. – Since February 2020 allegations of non-compliance have been efficiently and effectively managed via the My Case Manager system within RMS and the complimentary Managing Permissions Non-Compliance Procedure. The system has the capacity to report and measure on many aspects of the work of the Permits Compliance Team. – Historical records pre-dating the My Case Manager system back to 2015 were migrated to the new system.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Between 2019-2022, a review of over 1,100 standard conditions on permit templates was undertaken to ensure conditions are consistent, contemporary, enforceable, relevant and easy to understand for permit holders (planned completion June 2023). Of these 1,100 conditions, 860 conditions related to commercial marine tourism have been reviewed. A jointly approved internal procedure with QPWS has been approved in 2022 to ensure the periodic review of conditions continues following completion of this work. • Reef 2050 Integrated Monitoring and Reporting Program (RIMREP) tracks the progress of outcomes outlined in the Reef 2050 Plan. • As part of the Policy and Planning Strategic Roadmap – Tools stream, the Spatial Planning team have undertaken a comprehensive review of the Plans of Management as a management tool. • Charging Structure Review team is examining the metrics and data to assess effective service delivery. • The Reef Authority has met with key tourism industry bodies to receive performance feedback and discuss issues.			
PR5 Appropriate **training** is available to the managing agencies to	3	• There are a range of training opportunities in relation to CMT across the various managing agencies, including within the tourism industry groups.	Permission Systems and Compliance Program Applications for joint permissions	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
address commercial marine tourism		• Reef Guides Program - focuses on quality interpretation, storytelling and presentation of the values of the World Heritage Area (refer CO1). Tier 1 includes a baseline level of training delivered through the online Reef Discovery Course and Tier 2 includes a nomination process and a field-school based masterclass for specialist training to become a certified Reef Guide. • Master Reef Guides Program was developed by the Reef Authority in partnership with the Association of Marine Park Tourism Operators (AMPTO) and Tourism and Events Queensland (TEQ). The Program provides training several times a year to the marine tourism industry staff and operators. The training is delivered through professional experts in their individual fields and may include scientists, academics, Traditional Owners, videographers, compliance managers and others. The program trains Master Reef Guides to be world leading reef guides and interpreters of the World Heritage Area. They impart up-to-date scientific and management information about the Reef and its values and explain what people can do to make a difference. – There are currently 102 Master Reef Guides located across the Marine Park, from the Ribbon Reefs in the north to Lady Elliot Island in the southern Great Barrier Reef. The sixth field training school held in 2022.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– **Master Reef Guides Masterclasses** bring together key stakeholders and community to work with tourism operators and their guides to deliver current best practice tourism operations. Master Reef Guides are trained to a high standard and present the Reefs values to the community and tourists regularly. • **Eye on the Reef Program** involves tourism operators and their staff in monitoring reef health. Participation in the program has expanded to include a number of operators using the Rapid Monitoring protocol as a sellable product with guests now completing monitoring of Reef health as part of their visit to the Great Barrier Reef. In addition, there are in-water training days every year in Port Douglas, Cairns and the Whitsundays to train tourism crew who are involved in the Eye on the Reef. • Reef Authority training: – **Policy and Planning Toolbox Training** – an internal comprehensive training package was developed to assist Reef Authority staff understand management tools. This was shared with QPWS staff in January 2023. – RJFMP (QPWS and Reef Authority staff) has employed 2 x OO6, 2 x AO5 and 1 x AO6 dedicated project officers to deliver significant visitor infrastructure projects. It comprises a **highly skilled and motivated workforce**, with targeted strategic			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		training. High levels of in-house skills in impact assessment and marine tourism. – The **RJFMP undertakes a foundational training program for rangers**, many of whom engage with the CMT industry. – A **training package** has been developed and included in the **induction process** for all new staff to the Reef Authority to ensure a sound knowledge base when undertaking management of activities and values in the Marine Park including commercial tourism. – The Permits Compliance Team regularly delivers training to RJFM and QPWS authorised inspectors, who are in the field liaising with permit holders including commercial marine tourism operators. – **Training modules for the new permission system** have been developed and implemented in 2022. – EAP and QPWS (joint permits team) conducted joint familiarisation trips for the permits assessment team to better understand CMT experiences firsthand. – EAP is developing a training package for Site Supervision for commercial activities. – EAP and People Services developed a workflow that will track EAP delegation levels and approvals in the Reef Authority's Learning Management System – due for implementation in 2023.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Various cultural protocols and data sharing agreements have been developed and a range of training programs and Master Guides programs to improve the integration of Indigenous heritage information within tourism operations (refer TUMR topic Table 47). – As part of the Reef Authority's processes to enhance knowledge, the Guide for Current Permit Holders was developed with QPWS in 2021 to help current permit holders and new assessors in the Reef Authority navigate permits, understand how to be a responsible permit holder and know the general requirements when operating in the Marine Parks. – Joint Guide to tourism operations (Whitsundays and Cairns) to explain rules to users and also Reef Authority and QPWS staff. • Reef Discovery Course (2020) aims to improve knowledge and understanding of the WHA, its cultural connections, biological diversity and management protection and inspire participants to take action to protect the Reef (originally designed for the tourism industry, but now available to interested individuals) – 421 users (to 2023). • There is limited cross-cultural awareness training within the CMT industry. Challenges:			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Enhancing training to enable improved navigation of the current systems relevant to CMT, including understanding how Plans of Management work (Interviewee 2023). • Review of existing induction programs for all staff engaged in or with the CMT industry. • Encouraging regional and local tourism organisations to work with Traditional Owners to provide cross-cultural awareness training to all mainstream local tourism business operators (McLean et al 2020).			
PR6 Management of commercial marine tourism is **consistently implemented** across the relevant jurisdictions	3	• This indicator addresses, in relation to CMT, the alignment of priorities among the Reef actors, the level of cooperation, and integration or coordination of strategies across multiple levels to achieve the desired collective outcomes (as stated in the Reef 2050 Plan). Connectivity is enhanced by the policies and related documents (refer PL2) and politics that bridge the actors/institutions at various levels to enhance cross-sectoral coherence. The extent to which consistent implementation is evident in the Reef is difficult to assess due to the limited monitoring data related to this indicator. • Mainly effective coordination between relevant agencies (Reef Authority, Queensland government and commonwealth government agencies, AMSA, MSQ, Australian Water Police) to enforce Marine Park Acts,	Permits A Guide for Current Permit Holders Routine permit examples Types of Permissions Fact Sheet Research Permissions Fact Sheet Fisheries Permissions Fact sheet Link to Condition Review Dashboard on the Dock	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		Regulations, Zoning Plans (e.g. complementary State and Marine Park zoning) and Plans of Management. • **Intergovernmental Agreement** (refer PL2) continues joint permitting arrangements for permits, policies, compliance – all of which plan for and manage CMT. • **Strong complementary legislative and governance base** in place with State Joint permitting and assessment process in place – overseen by the Joint Permits Working Group. A new Joint Streamlining Permissions Steering Committee initiated in 2019 to oversee work on streamlining permissions. • Permits Online - enhancements allow for greater consistency and efficiency for permit applications including development of six Routine (standardised) permits for low-risk activities. Additional permit application checklists have been developed. • Between 2019-2022, over 1,100 standard conditions within the Reef Authority's permit templates were reviewed, including 860 conditions related to CMT, to ensure conditions are consistent, contemporary, enforceable, relevant and easy to understand for permit holders (planned completion in June 2023). A jointly approved internal procedure with QPWS was approved in 2022 to ensure the periodic review of conditions continues following completion of this work.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• QPWS involvement was integral in developing the revised Whitsundays POM (refer PL8). This will simplify permissions. • Joint Guides for tourism operations. **Challenge**: • Enhancing communication and institutional linkages among institutions relevant to CMT.			
PR7 There are effective processes applied **to resolve differing views/ conflicts** regarding commercial marine tourism	3	• There is little accurate information available on the perceived and actual conflicts in relation to CMT. – *There are no huge amounts of conflicts and processes are managing this* (Workshop participant 2023). – *Conflicts may be issue-based* (Workshop participant 2023). • **Key differing views/conflicts** relate to: – There are diverse Traditional Owner groups and each may have differing views on issues relating to CMT. This requires close liaison with these groups by the CMT industry, government and the Reef Authority to address relevant issues e.g. there may also be differing views about activities within some areas. – **A lack of benefit sharing arrangements** with Traditional Owners can result in conflicts over use especially within TUMRA areas. *This work is in progress* (Workshop participant 2023).	Applications for joint permissions (2017)	Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Tourism industry frequently engages with the Reef Authority, identifying conflicting uses between industry, recreational fishing and risk of interactions with sharks (Whitsundays PoM). • Key processes to address conflict include: – The Permissions system has been upgraded to provide greater clarity to permit holders and thus avoid conflicts in terms of where activities can occur: – Permits Online - a new online portal to submit applications and manage all permissions and contact details; and longer permit terms up to 20 years – updated permission system policy and improved assessment guidelines and a checklist of information required at the time of application. – Statutory processes for appealing tourism permit decisions (reconsideration - internal review and then AAT – Cwth, QCAT - QLD). Section 239 of the Marine Park Regulations 2019 outline decision reconsideration provisions. – Update and review of relevant plans, including TUMRAs and ILUAs to ensure that differing views are addressed and agreed. – Regular meetings of Government agencies, industry groups (AMPTO, etc) and advisory committees			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		(TRAC, LMAC) are used as a forum to resolve differing views. – Reef Authority liaison with CMT operators to resolve issues / conflicts on a regular basis (Northern Marine Assessments, EAP, Planning). – Consultation over site arrangements. *We* (government) *negotiate along the way to minimise conflict* (Workshop participant 2023). – Open channels of communication with the Reef Authority and the Minister for the Environment through letters/emails. – New Joint Streamlining Permissions Steering Committee initiated (2019) to oversee work on streamlining permissions. Challenges: • Better understanding of the main sources of conflict and where these occur and the strategies that are needed to resolve these conflicts. • Ensuring that future POMs (e.g. Southern Region POM) incorporate co-management and benefit sharing to minimise future conflicts over use and benefit. *We are very aware of this and want to move into this space* (Workshop participant 2023).			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
PR8 **Impacts** (direct, indirect and cumulative) of activities associated with commercial marine tourism are **appropriately considered**.	3	• Refer CO3 (for discussion of impacts and responses), PL2 (for documents that address impacts). • Research on tourism impacts in marine environments is well documented. Current research on the Reef is focussed on better understanding the CMT industry and its social and economic values including the value of certain species and activities to the industry. Impacts associated with CMT are generally low, although concentrated in spatial extent. • Impacts from tourism activities are generally considered and dealt with through a variety of mechanisms including: – **statutory instruments** such as: – Zoning plans e.g. where a permission to conduct a particular activity is required under the Zoning Plan, the Commonwealth Regulations and Queensland Marine Parks Regulation outline how impacts must be considered when deciding on the permit application. Marine Park permissions include provisions to limit impacts, e.g. 50 days in a location in a high use area. – Regulations provide the ability to review/change tourism permit conditions as necessary – this would include as cumulative impacts become obvious. Similar provisions apply under State Marine Park legislation. – **Plans of Management** (assist in managing cumulative tourism use in high use areas).	Permissions System Policy Permits online	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Policy – Managing Tourism Permissions (2004) aims to manage the latency associated with unused permits by implementing 'use it or lose it principles' (under review). – Permission system policy and guidance documents. – Environmental Impact Management: Permission System – Site management plans (e.g. John Brewer Reef Site plan (2021) – Guidelines e.g. Applications for joint permissions, Assessment and decision – Direct action e.g. pest control, coral fragment plantings and monitoring increased at tourism sites through TIRPI. 2350 hours of site stewardship activities were supported in 2021 to address a range of impacts to the Reef. – Other strategies (e.g. Tourism management action strategy (2021), initiatives (e.g. Tourism Reef Protection Initiative), plans (e.g. Marine tourism contingency Plan is under review) and a range of activity assessments. Challenges: • Knowledge gaps exist in relation to the volume and frequency of users at a location. Without clear, updated			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		and real time data it is difficult to know and appropriately consider the impacts of activities associated with CMT. • Effectively considering cumulative impacts in relation to CMT operations.			
PR9 The best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding commercial marine tourism	4	• Refer IN4 for comprehensive coverage of biophysical information. • The Reef Authority uses the best available biophysical and monitoring research information to make relevant management decisions, including monitoring information provided by agency staff, researchers (JCU, AIMS) and tourism operators. • Climate change impacts, including coral bleaching, and the impacts of more frequent cyclones affected many of the reefs visited by tourism operators. In response the operators can apply to temporarily relocate their operations under the Marine Tourism Contingency Policy (the Reef Authority); and compliance activities may be increased in heavily impacted areas. • Eye on the Reef data, Resilient reefs network and Reef Knowledge System are used to inform site stewardship plan actions under TRPI and have assisted in understanding the extent of damage caused by bleaching and other events and identified surviving coral areas. This	Global warming and recurrent mass bleaching of corals, Nature 543, 373 (Hughes et al. 2017). Marine tourism contingency plan (2014) – for permittees operating tourism operations impacted by severe environmental incident. Permission system policy and guidance documents. [see PR8]	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		has informed the placement of No Anchoring areas (NAA) and the expansion of existing NAA (formerly Reef Protection) areas (Refer CO2). • Where a permission to conduct a particular activity is required under the Zoning Plan, the permission system outlines the information that must be applied to decide on the permit application. Challenge: • There are gaps in knowledge, including the need to expand Values Based Mapping to better understand appropriate use.			
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding commercial marine tourism	4	• Refer to IN5 for details on socio-economic research and data. • The Reef Authority monitors emerging socio-economic issues to make relevant management decisions including information provided by the SELTMP, Bureau of Statistics, Tourism data provided by Tourism Australia and Tourism Queensland and the Reef Authority's own socio-economic program. • Social and Economic Long-Term Monitoring Program (SELTMP) (Refer IN5) provides essential data from Reef industries and coastal communities to assist in management decision making. SELTMP is funded by the Reef Authority as part of RIMReP	SELTMP survey results Permission system policy and guidance documents. In particular note: Social value assessment (Document No. 100433) SELTMP Core module pilot data dashboard SELTMP Core Module Report SELTMP Core Module 2021 Survey dataset:	Adequate	Improving

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment: This project reviewed common frameworks that conceptualise the relationship between people and nature to identify which parts of the system influence environmental outcomes, and factors relevant to designing policy or influencing behaviours. • The value of the CMT industry in presenting Reef values to the Qld and Australian economy is unknown. Options to work with CSIRO are being explored. • Human Use Dashboard (Refer IN4) aims to produce a prototype dashboard that will provide access to human use data to Reef managers. The user-friendly interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs. This will help to ensure that the best available socio-economic data is used in the development of tourism related plans, policies and permit assessments and other decision-making processes. • Where a permission to conduct a particular activity is required under the Great Barrier Reef Zoning Plan, the permission system outlines the information, including socio-economic data, that must be applied to decide on the permit application.	Regional Report Cards social survey dashboard Regional Report Cards Module Report Regional Report Cards 2021-22 Social Survey dataset Integrated Monitoring and Reporting - Great Barrier Reef Foundation		

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
PR11 The best available **Indigenous heritage** information is applied appropriately to make relevant management decisions regarding commercial marine tourism	3	• Refer IN6 for comprehensive information on Indigenous heritage and Indigenous Heritage Topic (Table 44). • The Reef Authority worked closely with the Manbarra Elders Council to develop the John Brewer Reef Site Plan. • Four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), are engaged in a Cultural Referral process to assist decision making on applications for permissions for location specific activities within Traditional Owner Sea Country. – Woppaburra Traditional Owner Heritage Assessment Guidelines – Mandubarra Sea Country Cultural Values: 2019-2020 mapping project. The Sea Country plan maps the values and outlines the aspiration of the Traditional Owners of the Mandubarra Sea Country. The Reef Authority is preparing policy and plans to incorporate these aspirations into management tools, including the development of processes to enable consistent consider of these values in permissions assessment. Development of similar plans for other Sea Country (based on TUMRA areas) have commenced. • A strengthened Indigenous RAC has increased access to the best available indigenous heritage information to make management decisions regarding tourism. An Indigenous representative forms part of the Tourism RAC	Permission system policy and guidance documents. Traditional Owner heritage assessment (Document No. 100434) Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		and this assists in ensuring Indigenous matters are addressed in relation to CMT. • Where a permission to conduct a particular activity is required under the Zoning Plan, the permission system outlines the Indigenous heritage information that must be applied to decide on the permit application. Challenge: • Effectively engaging the IRAC to assist with decision making concerning Indigenous heritage and CMT.			
PR12 The best available **historic heritage** information is applied appropriately to make relevant management decisions regarding commercial marine tourism	4	• Refer IN7 for information on Historic heritage and the Historic Heritage Topic (Table 43). • While there are significant gaps in understanding about historic heritage, the Historic heritage information that is available is incorporated into relevant plans and policies e.g. Whitsundays POM, which considered the Valetta Shipwreck at Long Island. • Where a permission to conduct a particular activity is required under the Zoning Plan, the permission system outlines the historic heritage information that must be applied to decide on the permit application. • There is regular patrolling of known Historic Shipwrecks and VMS interrogation.	Historic heritage assessment: other places of historic and social significance (2017) Historic heritage assessment: maritime cultural heritage protection special management area (2017) Historic heritage assessment: maritime cultural heritage protection special management area (2017)	Adequate	Improving
PR13 Relevant **standards** are identified and being met regarding	3	• The Reef Authority is widely regarded as world leader in tourism management and consistently applies relevant national standards as the minimum basis for		Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
commercial marine tourism		management, e.g. sewage discharge, cruise ship transit lanes and others. • **Eco-certification** is used to recognise high performing tourism operations. These operators can also apply for longer-duration permits. A review of this program is underway. • The Reef Authority has commenced a review of the 'Managing tourism permissions (including allocation, latency and tenure)'. This is highlighting the interconnectedness of the Reef Authority's tools related to CMT. To provide certainty regarding where uses may occur, etc, a detailed review into whether the tools are fit-for-purpose is still required. • TRPI will set **standards for Tourism site-based stewardship** - trialled with 24 operators. • The Strengthening Permissions Compliance Action Plan 2015-2020 aims to facilitate the sustainable delivery of an enhanced permission compliance program, based on a 'responsive regulation' model (and with targeted enforcement of regulation), which demonstrates regulatory integrity.			
PR14 **Targets** have been established to **benchmark management performance** for	3	• The Reef 2050 Integrated Monitoring and Reporting Program (RIMREP) tracks the progress of outcomes outlined in the Reef 2050 Plan and progress towards targets and objectives under the Plan's seven themes: ecosystem health,	RIMReP Web pages	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
commercial marine tourism		biodiversity, heritage, water quality, community benefits, economic benefits, governance and reporting. • For the Tourism Management Action Strategy — refer PR4. • The use of an outcomes-based approach within a MERI framework is being explored with the aim of incorporating this into new and amended Plans of Management. • The Reef Authority, in partnership with the Association of Marine Park Tourism Operators (AMPTO) and Tourism and Events Queensland (TEQ) developed a world leading reef guide and interpretation program, Master Reef Guides. • Charging Structure Review team are looking into metrics and data to measure the effectiveness of service delivery with the view to be able to fully recover the costs of some services.			
OUTPUTS					
OP1 To date, the actual **management program** (or activities) have progressed in accordance with the planned work program for	3	• Refer PL2 for extensive discussion of activities undertaken, including plans, policies, strategies, guidelines, fact sheets, legislative and regulatory provisions, programs and permit system. • Generally, management programs are delivered on time. However, some delays inevitably are outside the Reef Authority's control, e.g. POM amendments slow due to	Reef Authority Annual Reports: 19-20; 20-21; 21-22	Limited	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
commercial marine tourism		legislative impediments and available resources/priority in AGS. • Delays have resulted due to the impacts of the COVID-19 pandemic • The Reef Authority: – Held at least two meetings a year for the Tourism Reef Advisory Committee. – Meets with key tourism and industry partners at last on a bi-annual basis. – Meets individual tourism operators as required especially on permitting matters. – Sends the quarterly 'From the Deck e-newsletter'. • TMAS: Many short term (1–2 year) actions have commenced, fewer have been completed (e.g. State accreditation of Commonwealth Whitsundays Plans of Management in 2020). More detailed analysis of policy and plans are ongoing. • Streamlining permission conditions (refer PL9). • Policy and Planning Roadmap (refer PL1). • Sea Country values mapping (refer IN6). Challenge: • The impacts of the pandemic, difficulties in securing a reliable workforce and reduced visitation impacted the CMT industry and have delayed implementation of some programs.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
OP2 Implementation of **management documents** and/or programs relevant to commercial marine tourism have progressed in accordance with **timeframes** specified in those documents	3	• Refer to PL1 for a comprehensive discussion of management documents and related timeframes (e.g. A Guide for Current Permit Holders) and programs relevant to CMT (e.g. TIARPI and COTS Strategic Management Framework) and OP1 (management programs). • In general, programs are delivered within timeframes. '*On average managers are doing better but some Outputs (mainly updated policy and plans) lag behind*' (Workshop participant 2023). For example, the policy review under the Tourism Management Action Strategy is not on track (GBRMPA 2023).	Tourism Reef Protection Initiative	Limited	Stable
OP3 The results (in OP1 above) have achieved their stated management **objectives** for commercial marine tourism	3	• Refer PL2 (list of relevant documents) and PL4 (clear, measurable objectives) and relevant evidence. • In general, work plans meet specific objectives (refer Field Management Program Annual Reports that report on performance and achievement of results). For example, the COTS Control Program has continued to develop and expand with five to seven vessels delivering Program operations between 2019 and 2022. Over 95% of high value tourism reefs are included as Priority Reefs for the Crown-of-thorns starfish control program and this has helped to reduce the loss of coral cover at high value tourism sites. • Diverse tourism policies have been implemented to achieve their objectives (refer PL2).	See annual reports (OP1) Field Management Program Reports: 19-20 summary 20-21 summary; 21-22 summary Reef Joint Field Management Program: annual business plan summary 2021-2022 Reef Joint Field Management Program: Business Strategy Summary 2021-2025	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Growth of the High Standard Tourism program was achieved. These operators carry approx. 63 percent of tourists visiting the Reef and this is above the Portfolio Budget Statement performance indicator of 55 percent. Auditing ensures that the standards are maintained. • Whitsundays POM was amended (2018) after taking into consideration all of the values of the areas, the likely impact of any of the proposed changes and public submissions that were made on the proposed changes. Challenge: • Further monitoring of Plan of Management areas, and any areas where planning interventions are implemented needs to occur to ensure the spatial planning tools are achieving the results intended (e.g. live coral cover in no-anchoring areas (previously represented by reef protection makers) is maintained at a higher level than areas outside no-anchoring areas – noting non-specific impacts such as coral bleaching etc).			
OP4 To date, **products or services** have been produced in accordance with the stated **management objectives** for commercial marine tourism	4	• Refer PL1 for a comprehensive discussion of the products and services produced. • In general, the products and services related to CMT reflect the objectives identified in the Reef Authority's Strategic Plan, Reef 2050 Plan, Agency AOP and Section Operating Plan. General	Field Management Program Reports: 19-20 summary 20-21 summary 21-22 summary	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• $12M Whitsunday Islands Investment Package completed post tropical cyclone Debbie to support Whitsunday Marine Commercial Tourism operators with island-based experiences. • Haslewood Island Shortwalk (400m) and stone lookout (2020) • Border Island short walk (700m with two viewing areas and interpretation) 2019. • Langford Island short walk (400m with one viewing area and interpretation) 2019. • Whitehaven Beach day-use and camp area upgrade (redevelopment including new camp and day use shelters, seating, revegetation and fencing) 2019. • Tongue Point visitor precinct and walking track upgrade (new shelter, seating and interpretation at arrival point, operator staging area and 800m track upgrade) 2020. • South Whitehaven lookout and trail (1.2km new track, new lookout) 2019 Ngaro Track (29km new multi day walking track including upper Hill Inlet bridge and boardwalk and ladders/steps completed 2021. Additional work for camp sites and visitor infrastructure due for completion June 2024). • Tongue Point Betty's Beach boardwalk replacement (2021) $380K • Newry and Rabbit Island pit toilet replacement (2022) $185K	Reef Joint Field Management Program: annual business plan summary 2021-2022 Reef Joint Field Management Program: Business Strategy Summary 2021-2025 Eye on the Reef Tourism Monitoring Effort | Reef Knowledge System		

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• 31 T/P class public moorings in the Whitsundays to support tender vessels and small (<12m) commercial operators accessing snorkelling locations and island National Parks. Also additional no anchorage areas (NAA) in Whitsundays locations. • North West Island campground upgrade and amenities replacement (2019) $1.1M. • North West Island cross island walking track upgrade (2022) $25K • Lady Musgrave Island Campground upgrade (2021) and amenities replacement (2022) $850K. • Heron Island pedestrian fence replacement (2021) $20K • Curtis Island Multi use trails and Connor Bluff new Day use area (2021) $1.2M. Magnetic Island • Completed redevelopment of the Magnetic Island Forts Junction Hub $2.35m. • Restoring and rebuilding two Magnetic Island tracks damaged during the 2019 monsoon flood event $680K. • Nelly Bay to Arcadia track upgrade $500K. • Completed construction of a new walking track from the Forts Circuit to Florence Bay $750K. • Progressed planning, design and procurement for an upgrade to the Horseshoe-Balding-Radical bays walking			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		track, completing planning and design for an upgrade to the Forts Circuit walking track and Arthur Bay lookout with construction to be completed in 2022-23. • Forts Buildings Upgrade. Hinchinbrook • Clean-up and removal of disused Hinchinbrook Island Resort, with eight barge trips transporting 259 tonnes of recycled metal, 44 tonnes of asbestos, 91 tonnes of general waste and 20,100 litres of sewage from the site at Cape Richards. The former lease area has been relinquished back to the national park estate and the adjacent esplanade is now closed and added to the national park, $1.85m • Goold Island campground upgrade $150K. • Commenced planning for campground and track works on Thorsborne trail to enable commercial ecotourism opportunities $250K. Lizard Island • Upgraded the Cooks Lookout walking track, $250K. • Upgraded the Blue Lagoon walking track, $60K. Fitzroy Island • Developed an Asset Investment Strategy to guide projects for $2m of recreational infrastructure funding.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		Green Island • Upgraded and transitioned boardwalks on Green Island to recycled plastic, $250K. • In 2019, during the last phase of the $2.375M Significant Regional Infrastructure Projects Program (SRIPP), moorings projects for the Northern GBR consisted of 34 new public moorings and 15 Reef Protection Markers (RPMs) installed from Cooktown to the Whitsundays. In total this project delivered 114 new moorings and 90 RPMs. • In 2020 the RJFMP was allocated the Reef Trails election commitment of $2.5M for a 4-year expansion of the Reef Protection Program. During 2021, 31 new public moorings were added to the Whitsundays to support the local tourism industry and improve access for visitors. In 2022-23, a further 42 new public moorings are to be installed within the Townsville and Whitsunday regions. • Knowledge gaps exist in the volume and frequency of users at a location. Without clear, updated and real time data it is difficult to know the impacts of activities associated with commercial marine tourism. • The Reef Knowledge System hosts a dashboard that highlights the contribution of commercial marine tourism operators to the Eye on the Reef Program			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs. • The online Reef Discovery Course is completed. Master Reef Guide candidates must complete a portion of the course prior to their field school to become accredited Master Reef Guides.			
OP5 Effective **knowledge management systems** regarding commercial marine tourism are in place within agencies	4	• A key part of the Reef 2050 Plan is the establishment of the Reef 2050 Integrated Monitoring and Reporting Program (RIMReP). RIMReP's vision is to develop a knowledge system that enables resilience-based management of the Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. • A centrepiece of RIMReP is the interactive online **Reef Knowledge System** — the 'first stop shop' for up-to-date information about the Reef to guide effective management decisions. The System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful and interactive ways. A demonstration site was released in 2020, with further enhancements being undertaken. • EoTR **Tourism Monitoring Effort dashboard** - a centralised database for Reef health information. Reef	RIMReP Program Strategy (2015) RIMReP Web pages Regulation of Great Barrier Reef Marine Park Permits and Approvals — Follow-up | Australian National Audit Office (ANAO) RMS (gbrmpa.gov.au) Permission Systems and Compliance Program Environmental management charge Coronavirus Economic Response Package RIMReP Business Strategy 2020-25	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		Explorer is an interactive tool for displaying spatial information. • **Knowledge gaps exist in relation to the volume and frequency of users at a location**. Without clear, updated and real time data it is difficult to know the impacts of activities associated with commercial marine tourism. *'Much of the evidence is secondary data, not primary data, and may not be super accurate/relevant to CMT'* (Workshop participant 2023). • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs. • Training modules for new Reef Authority permission system developed and implemented in 2022. • EAP and People Services are developing a workflow that will track EAP delegation levels and approvals in the Reef Authority's Learning Management System - due for implementation early 2023. • EMC online in place with payments and visitation data. Permit query and permit applications is also online (Note: EMC waiver 2020-June2023). • Management of scientific information procedures are in place and are delivered at whole-of-Reef Authority using RefWorks as its database and citation management tool.	RIMReP Annual Business Plan 2022-23 RIMReP Annual Business Plan 2021-22 RIMReP Annual Business Plan 2020-21 RIMReP – Reef Knowledge System		

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Spatial information and datasets arising from research conducted on in the Marine Park are housed and managed by the Reef Authority's Spatial Data Centre.			
OP6 Effective systems are in place to **share knowledge** on commercial marine tourism with the community	4	• Refer PL2 (for knowledge systems) and OP5. • The **Reef Knowledge System** hosts a dashboard that highlights the contribution of commercial marine tourism operators to the Eye on the Reef Program • Information about tourism on the Great Barrier Reef and visitation is on the **Reef Authority's corporate website**. • Communication through plain-English products summarising outcomes of scientific research is undertaken to some extent, but not systematically. • e-Library (Reef Authority external website) provides access to publications and all policies, guidelines etc. • eResearch Archive is a digital repository of scientific and research publications, and datasets authored by DAFF staff, including journal articles, book chapters, conference papers, theses and raw data collected in the course of research. • The wider community is engaged via **LMACs.** • The tourism community is engaged in issues-specific **workshops and forums** • **Tourism RAC** is a competency-based committee with members providing a cross-section of stakeholder expertise and interests in areas relevant to tourism on the Reef.	Tourism Reef Authority public interface of the permits database: Permits online Tourism Monitoring Effort | Reef Knowledge System	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• **From the Deck e-newsletter** is sent at least quarterly – more during bleaching events. • The monthly **Reef in Brief e-newsletter** regularly promotes work by the tourism industry to protect the Reef. • The Reef Authority**'s social media channels** — Twitter, Facebook, Instagram (particularly), You Tube — regularly promotes work by the tourism industry to protect the Reef. These social media channels also promote High Standard Tourism Operators. • Tourism products – Onboard website is available for tourism operators. – Promotional video which contextualised coral bleaching prepared for the Australian Tourism Exchange. – World Heritage poster and talking points for operators. – Online Reef Discovery Course – all 10 modules have the information collated, three modules have been designed and one module is complete.			
OUTCOMES					
OC1 The relevant **managing agencies** are to date **effectively addressing commercial marine**	3	• The CMT industry is important to the economy, to diverse stakeholders, including the local community, has cultural heritage significance to Traditional Owners, and presents the Reefs OUV to the world.		Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
tourism and moving towards the attainment of the desired outcomes.		• A diverse array of policies, plans, strategies, programs, guides, information networks, and investment relevant to CMT have been delivered since 2019 and aim to manage the potential impacts of tourism and to ensure tourism is a sustainable use into the future. These products and programs reflect the wider planning and management framework for the Reef (e.g. Reef 2050 Plan). Refer previous indicators e.g. CO1, PL2, all Inputs and Outputs). • High tourism visitation sites are being more intensively managed including limits on the number of vessels and group sizes, an increase in supporting infrastructure and the adoption of best practices by operators. As a result, the impacts associated with tourism activities are generally regarded as low risk and are concentrated in a few intensively managed areas. '*There has been a significant increase in the site stewardship of tourism sites by tourism operators…increasing best practice and shifting the accepted norm across the industry. There are always exceptions, which should be caught by the good compliance program*' (Workshop participant 2023). '*This has been supported by education and engagement strategies such as TIARPI, TRPI and Master Reef Guides*' (Workshop participant 2023). • Management of tourism in the Marine Park is also addressed through regular consultation with industry, other management agencies and the general public.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• The Tourism management action strategy (TMAS) identifies that the tools currently used to manage CMT have 'served their purpose well and are some of the reasons why existing management arrangements are regarded highly by Reef users and other stakeholders. However, the strategy identifies several gaps, noting that conditions have changed across the Reef in terms of ecosystems, socio-economic drivers and industry trends and management tools need to respond i.e. revising tools to be 'more proactive, clear and agile to respond quickly to changing conditions.' – The strategy will guide the review, development and implementation of responsive, culturally appropriate and contemporary management tools that aim to lower regulatory and administrative burden, facilitate greater compliance, more certainty, clarity and stability for the CMT and the communities it contributes to and the ecosystems it relies on. Challenges: • Many components of the CMT industry desire to move to a more 'green' and sustainable future but require guidance and resourcing to achieve these ends. • The industry is challenged by difficulties with staffing, retaining staff and training staff (Interviewee 2023). • Effectively implementing the TMAS recommendations.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
OC2 The **outputs** relating to commercial marine tourism are on track to ensure **the values** of the Great Barrier Reef are protected (refer CO1)	3		The ugly face of tourism: Marine debris pollution linked to visitation in the southern Great Barrier Reef, Australia, Marine Pollution (Wilson & Verlis 2017) Tourism Reef Protection Initiative	Adequate	Stable
OC3 The **outputs** (refer OP1 and 3) for commercial marine tourism are reducing the **major risks and the threats** to the Great Barrier Reef	3	• The outputs for CMT (refer PL2, RP3,4, OP1,3) are substantial and will reduce some risks and threats to the Reef in small areas of the Region and protect some species and ecosystems. The COTS control program (Reef Authority 21/22 Annual Report) had seven vessels targeting 190 reefs. In this year, there were 59,517 COTS culled. Data from the COTS control program, reef health and impact surveys and independent AIMS monitoring demonstrate coral cover has been protected on the original 57 priority reefs which were offshore Cairns and Port Douglas. Measuring the effectiveness of the control program as it expands southward will continue to be a priority. • **Risks to the Reef from tourism activity has been significantly reduced** through management and education including: – Improved management of potential tourism impacts through permit assessments – Compliance reporting from tourism operators	Outlook Report 2019 Marine Tourism Coordination Framework for Environmental Incidents (2012) (update in preparation) Marine Tourism Contingency Plan (see PL1) Tourism and climate change: a framework for action (2008) Ecotourism Australia Climate Action Certification The ugly face of tourism: Marine debris pollution linked to visitation in the southern Great Barrier Reef, Australia, Marine Pollution (Wilson & Verlis 2017)	Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Reduced conflict of use through the ongoing management under the Zoning Plan, Plans of Management and Site Plans – **Accreditation of tourism operators** for high environmental standards – **New assessment guidelines, policy and regulations** (refer PL1) – **Improved public moorings.** The Queensland Government is committed to expanding this network by installing an extra 100 public moorings and 150 reef protection markers over the three years from 20xx, including 10 new moorings recently delivered off the coast near Cairns. – Whitsundays POM includes outputs which have increased protection of seabird nesting areas from vessels and aircraft (tourism and recreational) during key nesting periods and identified areas for superyacht anchoring that has minimal coral/habitat • However, a range of factors (e.g. climate change, coral bleaching, extreme weather) will continue to affect the condition of values across the Reef. • Threats associated with extreme weather events and environmental incidents are addressed to some degree with additional outputs (permits revised under the Marine Tourism Coordination Framework and Marine Tourism Contingency Plan).	A Guide for Current Permit Holders Tourism Reef Protection Initiative		

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
OC4 Use of the Great Barrier Reef relating to commercial marine tourism is demonstrably **environmentally sustainable**	3	• Refer PL1 where a range of policies, plans, regulations to enhance environmentally sustainable outcomes are detailed. • The **footprint of tourism is small** and concentrated to several key areas. • The **High Standard Tourism program** has 72 operators recognised as high standard in Feb 2023 and who carry over 63% of visitors to the Reef. These operators are independently certified as operating to high standards relating to protection of the environment, presentation of the Reef to visitors and working in partnership with protected area managers and local communities. • Extensive resources are directed at ensuring tourism is sustainable by: reviewing tourism management arrangements (e.g. plans of management), managing tourism permits, streamlining environmental impact assessments (to be more risk-based and publicly transparent), planning, compliance and enforcement, maintenance of supporting infrastructure, research (RIMReP and SELTMP), collection of EMC and reporting. • Marine debris impacts from tourism may require further investigation and improved education and awareness programs targeting tourists in the region. • A range of stewardship actions such as COTS/*Drupella* control, coral re-positioning after storms, coral outplanting in partnership with NGOs and research	Reef Restoration Foundation – Building a Brighter Future! Coral restoration and adaptation in Australia: The first five years. PLoS ONE 17(11): e0273325 (McLeod et al. 2022).	Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		institutions improve the environmental sustainability of CMT.			
OC5 Use of the Great Barrier Reef relating to commercial marine tourism is demonstrably **economically sustainable**	3	• In the longer term, *'the health of the Reef is fundamental to our future'* (Interviewee 5, 2023). The Reef-based tourism industry is dependent on a well-managed and biologically diverse reef with a range of values (refer CO1). • *'The majority of the tourism operators in the Marine Park have been around for at least 20 years and are involved in many…flagship and new programs'* (Workshop participant 12, 2023), indicating some level of economic sustainability in the past. • The CMT industry relies heavily on international tourists. The proportion of these visitors participating in Indigenous tourism is relatively low (McLean et al. 2020). • Tourism activity on the Reef contributed $5.7 billion annually to the economy and supported over 58,000 full		Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		time jobs in the tourism industry (Deloitte Access Economics 2017). This declined due to the impacts of Covid 19. • About 80% of tourism activity occurs within 7% of the Marine Park (McLean et al. 2020). On average, 86% of Reef visitation is to Port Douglas, Cairns and the Whitsundays. The majority (66%) of tourism visitor days were spent doing activities run by 25 of the most active operators (cited in McLean et al. 2020). • **Tourism economic and infrastructure hubs** are mainly located in the central region of the Reef e.g. Cairns, Townsville and Whitsundays. The southern region has a medium level of reef resourcing with economic hubs in Mackay, Rockhampton and Gladstone. The far norther region is remote, lacks infrastructure and has restricted economic opportunities (McLean et al. 2020). • Lack of reef transport infrastructure and equipment limits Indigenous peoples' participation in the tourism industry, with activities restricted to shore-based cultural activities and employment servicing tourists in the hospitality sector (cited in (McLean et al. 2020). – The decline in the condition of the southern inshore Reef Region may have long-term effects on the value of tourism and recreational use of the Reef. – *'The risks are greater outside the CMT industry (i.e. in relation to climate change). If the industry is not*			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		economically sustainable the operators won't be here' (Interviewee 5, 2023). • Several environmental factors impact on economic sustainability: – Water quality in the Region has declined markedly, especially in inshore areas adjacent to the developed coast, which impacts negatively on tourism and recreation. The flow on effects from broadscale land clearing, intensification of agriculture and projected increases in urban and industrial development will continue to present a very high risk to the Region's values and impact on the CMT industry. – Due to the industry's reliance on natural assets and the built environment, the industry is very concerned about the impacts of climate change on its businesses and livelihoods, including degradation of reef sites, poor recovery of bleached sites, and a loss of marketing appeal as a high-quality reef destination (Workshop participants 2023, Interviewee 5 2023). – International focus through UNECSO World Heritage site monitoring and evaluation, raising the possibility of the Reef's listing as 'in Danger', will have implications for visitation and the viability of the CMT industry. – Australian Academy of Science (2023) scenarios identify: near future (2030-40) impacts as a result of perceptions of declining Reef health;			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		medium-term future (2040-60) high emissions resulting in near complete or complete loss of key economic activities such as tourism; and medium-term future (2040-60) low emissions resulting in less sustainable tourism. – Financial risks due to rising insurance premiums, changes in business financing and the need for businesses to manage the potential risks of climate change going forward as part of their business model (Tourism and climate change - A framework for action) • In the short- and medium-term a range of other factors may impact the industry. For example, COVID-19 brought reduced visitation and incomes for many tourism operators. The government intervened to assist the industry. Recovery remains slow. At this point in time visitation to the Reef is expected to be 40-50% less than that observed pre-pandemic. • Other factors influencing economic sustainability relate to a range of **external factors** including the cost of living (and ability to participate in the industry), the composition of the visitors (international Vs domestic), the *'imposition of additional charges and fees'* (Interviewee 12, 2023), . • **Visitor perceptions** can also significantly influence the economic sustainability of the CMT industry. – The impacts of climate change, including mass coral bleaching events, can reduce the tourist experience.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		Extreme weather events may result in evacuations, negative media coverage, as well as impacts on tourism infrastructure. As a consequence, reductions in tourist numbers in the long-term will result in reduced viability for tourism operators and related support services (AIMS 2022). • A shift in tourism markets from ecotourists to mass tourists may result in lower environmental sensitivity and preparedness to pay for sustainable management (Reef Resilience Network 2023) • The CMT industry is an '*asset heavy business*' (dive boats, ferries, diesel generators/engines, pontoons, structure, buildings etc). It is subject to high fuel prices, rising supply chain costs and pressures to reduce its carbon footprint (Interviewee 5, 2023). These factors reduce the economic sustainability of the industry. A transition plan is needed to assist the industry to adopt a renewables-based future. Challenges: • Responding to the impacts of several major threats to the reef (e.g. climate change, poor water quality, marine debris) resulting in a decline in reef ecosystems and species and flow-on impacts to the viability of the CMT industry. • The industry '*knows their market and how to tweak their market to enhance sustainability*' but will need help, as occurred through the pandemic (Interviewee 5, 2023).			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– '*The industry is sustainable if they do their planning but most don't have a business plan*'. This requires assistance with capacity building (Interviewee 5, 2023). • Supporting the industry transition to a renewables-based future.			
OC6 Use of the Great Barrier Reef relating to commercial marine tourism is demonstrably **socially sustainable**, in terms of understanding and/or enjoyment	3	• Refer IN5 and PR10 where socio-cultural aspects of CMT are discussed and PL2 for a range of programs and tools that enhance social sustainability (e.g. eco-certification, High Standard Tourism Operator Program, and Master Reef Guides Program). • Monitoring human dimensions of the Great Barrier Reef survey results highlight the benefits that people receive from visiting the reef, their perceptions of the threat posed by CMT and CMT livelihood dependency. • Climate change remains the most serious long-term risk facing the Reef and is likely to have far reaching consequences for the Region's environment and the people who derive benefits from the Reef, including the CMT industry. • The broader Reef community (both local and international) place great value on knowing that the Reef is well managed and its values are being protected (**existence value and altruist value**) and that these values will be in place for future generations (**bequest value**). These values have been **estimated to be valued at $24 billion** (the cumulative amount the Australian population		Adequate	Declining

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		is willing to pay for the protection of the reef). Climate change poses a significant challenge to the Reef and places at risk the significant value derived by Australian society (AIMS 2022). • 'Structural changes are necessary if **Indigenous tourism** (on the Reef) is to go forward in a sustainable manner …. Indigenous tourism in Queensland has **floundered…because of a failure of governments to create a role for Indigenous governance in the industry** – a voice' (Henrietta Marrie cited in Mclean et al. 2020:i). • **Reef HQ Aquarium** provides an avenue to **enhance community understanding** of the Reef. Over 186,000 people visited the Aquarium from January 2019 to February 2021. The Aquarium closed for a period of time during 2020 due to COVID-19 restrictions. The Aquarium offers high-quality products and promotes the values of the Reef, the threats its facing and the role people can play in protecting it. The products on offer have consistently met visitor expectations. • The **Reef Education team** are delivering educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its sustainable future and to encourage participation by taking action to address threats to the Reef. The Reef Authority works with the SELTMP program to integrate the findings into its management considerations. (Refer			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		also to Reef Guardian Schools, Reef Guardian Councils, citizen science projects). – Tourism Industry Activation Reef Protection Initiative - tourism educate visitors on responsible ways to enjoy the activities within the Marine Park. They encourage their guests to participate in conservation activities and raise awareness of threats to the Reef helping to enrich visitors' experiences of the Reef and encourage visitors to take action to protect the Reef. **Challenges:** • Enhancing Indigenous governance arrangements in relation to CMT, including a body to 'create, promote and market our brand, to advocate, to set industry standards for our businesses to aspire to, and to oversee appropriate management training for our participation in the industry and to navigate …..social media driven tourism' (Henrietta Marrie cited in Mclean et al. 2020:i). • Addressing strategies to improve the visibility of Traditional Owner heritage to enhance tourism opportunities generally and more specifically for Indigenous groups.			
OC7 The relevant managing agencies have developed **effective partnerships** with local communities	4	• Refer CO5, PL6 and PR1 where relationships with stakeholders and partners are detailed. • Partnerships represent discernible, formalised and regularised relationships between organisations that see themselves as partners, and are characterised by		Adequate	Stable

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
and/or stakeholders to address commercial marine tourism		mutuality (i.e. interdependence, negotiation of agreed objectives, joint decision making, mutual accountability, equitable and mutually beneficial outcomes) (Brinkerhoff 2002). • Partnerships form a strong foundation on which to advance outcomes for CMT across the Reef. They support program delivery and build an enabling environment in which other actions or strategies (e.g. collecting data -Tourism industry; providing information – research organisations; financial incentives – from government and others; enabling innovation etc). • Partnerships in general are viewed as necessary to make progress on diverse issues surrounding CMT. Working together provides benefits (see below). • Types of partnerships (Interviewee 2, 2023) – *knowledge-based/reporting* – provide information on condition and trend which helps to increase awareness among partners and the public on Reef condition e.g. universities, research institutions, governments at all levels, tourism industry groups, NGOs, commercial tourism partners. CMT operators would like to expand partnerships with research-based organisations (Interviewee 12, 2023). – *integrated delivery* (more recent focus) – sector oriented/led; place based/regional (e.g. Reef Guardian Councils); local issue specific, including new delivery approaches (e.g. RJFMP, QPWS)			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Building community partnerships for resilience at the local scale, including Reef Foundation projects in the Cairns-Port Douglas region e.g. Coral Nurture Program partnership between tourism and science to support stewardship and adaptation at key tourism locations. – The Reef Restoration and Adaptation Program (RRAP) focuses on developing interventions and delivery methods focused on assisting the Reef's potential to recover from major disturbances and adapt to a changing climate. In combination with about 19 coral restoration projects at 17 distinct locations on the Reef, most restoration and adaptation work involve a range of tourism operators (as well as reef managers, local communities and Traditional Owners). For example, the Coral Nurture Program uses coral gardening techniques at six reefs that are important to the tourism industry in the Cairns-Port Douglas region. The program began in 2018 as a partnership with Wavelength Reef Cruises and UTS. In 2019 the program expanded to include four more tourism operators (Ocean Freedom, Passions of Paradise, Quicksilver and Sailaway and five more reefs. The tourism operators developed the capacity to undertake coral restoration			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		activities at the reef-site scale, while focussing on high-value tourism reef sites (McLeod et al. 2022). – Wavelength Reef Guardian Project is connecting schools with tourism to trial coral out-plant survival – *Policy and planning* – e.g. **Intergovernmental Agreement** enables a partnership approach to management by the Australian and Queensland governments in relation to CMT. • Trends – **increasing number of partnerships over time and greater partner diversity**, contributing to more complex arrangements – Partnerships have **focused on planning and policy consensus** (co-design, alignment, high level program coordination (e.g. IGA), but are moving to greater involvement of various sectors and integrated delivery partnerships (e.g. with Traditional Owners) – **Increasing institutional complexity in partnering** e.g. nesting of partnerships – with the Reef Authority, government, NGOs and the community – **Locus of investment and brokerage has diversified** e.g. Reef Trust Partnership Grant Agreement – Reef Foundation and State Government operate as influential investors and program managers			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• A strong and active partnership with the CMT industry has been maintained with tourism actively engaged and generally supportive of the management of the Reef and the Reef Authority. • Partnerships with government agencies are both formal and informal: – There are a range of partners in the Australian Government e.g. DCCEEW. – There are a range of partners in the Queensland Government e.g. DES, QPWS, State Development, Infrastructure, Local Government and Planning, Department of Agriculture and Fisheries, Qld Water Police, Dept of Premier and Cabinet – Local government – responsible for local planning and development decisions and providing public services e.g. water treatment in catchment; Reef Guardian Councils • The Tourism RAC is a partnership approach to management involving a range of partners and is described as '*an important asset*' and the relationship with the Reef Authority is '*constructive and meaningful*' (Interviewee 5 2023). – The RAC provides advice only and is not a decision maker. Consideration should be given to expanding this role to enable the RAC '*to be more visible in decision making*' (Interviewee 5, 2023) and ultimately enhance transparency.			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– Meets only two or three times a year. A more regular form of engagement may be more beneficial in addressing issues e.g. more frequent meetings, out-of-session information updates and on-line meetings between formal meetings. This will enable the TRAC to effectively address the vast amount of work that is on the agenda (Interviewee 5, 2023). – Moving towards a Committee that receives information rather than one where the expertise of the members, which is extensive, is utilised to the full to inform effective decision making (Interviewee 5, 2023). '*When we come together it is an information dump. There is no capacity to meaningfully engage on long-term strategic issues*' (Interviewee 12, 2023). – Has a limited or no role in setting the agenda and hence ensuring all relevant matters regarding CMT are being raised and addressed. • Benefits of partnerships for the Reef and CMT industry: – access to diverse skills and resources – enhanced relationships among stakeholders e.g. government benefits from greater direct engagement with local communities, landholders and industry groups – building trust and mutual understanding – supporting experimentation, innovation and flexibility – complimentary data sources (citizen science, tourism industry – collecting, downloading data, landholders)			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		– demonstrates social responsibility – aids public accountability – reducing conflict between different interests – means to bring in additional sources of funding – stability – opportunities for joint planning and action – flexibility (for experimentation) – organisations can publicly demonstrate responsible action (Interviewee 2023, CSIRO 2023). Challenges: • Aligning goals of government and related agencies with those of partner organisations may require reconsideration of partner goals and roles to enhance outcomes for CMT and improve mutuality (Interviewee 2023). • Making high-level policy targets (as described in Reef 2050 Plan and related strategies and plans) relatable and beneficial to partners and their constituents. • Addressing ambiguity in roles and balancing accountability to a partners' constituents with responsibility to other partners (CSIRO 2023). • The strength of relationships may remain specific to individuals (there has been fluctuation across industry and part of the Reef Authority over the last couple of years).			

Component of Management	Rating	Justification	Other Evidence/sources	Confidence	Trend
		• Supporting meaningful partnerships and stronger engagement between Reef tourism stakeholders and Indigenous businesses (McLean et al 2020).			

Community Benefits of the Environment

Table 39: Calculation of grades for Community Benefits of the Environment

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The values of the Great Barrier Reef relevant to community benefits of the environment are understood by managers	4	• Section 32 of the Great Barrier Reef Marine Park Act 1975: • Section 2A – Objects of the Act: – Allow for ecologically sustainable use that includes public enjoyment and appreciation, and recreational, economic and cultural activities. – Encourage engagement in the protection and management of the GBR Region by interested persons and groups including…local communities. • The fact that protection of the Reef and associated community benefit is captured in the Agency's statement of purpose (below) reflects high level understanding by managers that the Reef has community benefit (Ref. Corporate Plan). "The long-term protection, ecologically sustainable use, understanding and enjoyment of the Great Barrier Reef for all Australians and the international community through the care and development of the Marine Park."	• Great Barrier Reef Marine Park Act 1975 (legislation.gov.au) • Great Barrier Reef Region Strategic Assessment, Chapters 4 and 7, Appendix 5 • Great Barrier Reef Coastal Zone Strategic Assessment 2014 (Chapter 3) • http://www.gbrmpa.gov.au/zoning-permits-and-plans/zoning • Great Barrier Reef Marine Park Authority, science strategy and information needs, 2014-19 • Great Barrier Reef Marine Park Authority Corporate Plan, 2017-18	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Recognition that the most significant threats to the long-term health of the Reef now being outside the Authority's direct control has driven the need for the Authority to step up efforts to work with and influence the broader community (Corp plan p11). To effectively do this has presented managers with the need to better understand values of and benefits to the community. Strategies in the Corporate Plan and projects in the linked AOPs reflect current understanding, recognised gaps and actions to address these (referred to in subsequent components of management). • The strategic assessment reports and stakeholder engagement report explicitly considers the community benefits derived from the environment, addressing identified gaps in knowledge and understanding. This recognises that the Marine Park is a multiple-use marine protected area as well as the interconnectedness of people and their environment, as reflected in the definition of the environment in both the Great Barrier Reef Marine Park Act and the EPBC Act: 'Environment includes ecosystems and their constituent parts, including people and communities; natural and physical resources; the qualities and characteristics of locations, places and areas; heritage values of places; and the social, economic and cultural aspects of the above'. • The multiple use marine park through Zoning Plan and Plans of Management segregates conflicting uses to	• Reef 2050 Long-Term Sustainability Plan • Reef 2050 WQIP • Great Barrier Reef Marine Park Authority Science Strategy and Information Needs 2014-2019 • GBRMPA Science Strategy and Knowledge Needs for Management • Science and Knowledge Needs | Reef Knowledge System (gbrmpa.gov.au) • Reef 2050 Plan • Strengthening Partnerships and Stewardship - DCCEEW • https://www.barrierreef.org/what-we-do/projects/reef-islands • Reef Trust Partnership between the Australian Government and the Great Barrier Reef Foundation – Community Reef Protection Component		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		ensure access to resources, support enjoyment and encourage personal attachment to the Reef. • Community benefits are recognised as being integral to science and information needs for management (Science strategy). • Reef 2050 • The Reef 2050 Plan aims to develop a shared understanding of community benefits derived from the Reef. Reef 2050 Plan principles for decision making include: – basing decisions the best available science, including community knowledge (p. 14). – Adopting a partnership approach to management, being 'cooperative, empowering partners, fostering stewardship, and building strong community support' (p. 14). • Key goals under the Plan include: – 'the capacity of Reef communities, Traditional Owners and industries to adapt to a changing climate is increased' (strategic actions 1.3 and 1.4) • The Reef Trust Office's Strengthening Partnership and Stewardship measure and the Reef Island Initiatives will further support Reef Managers to understand the			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		benefits in community involvement (including Traditional Owners) in Reef restoration and protection activities. • Through the Reef Trust Partnership, funded by the Australian Government, the Community Reef Protection component is increasing the positive impact that local community action has on the Reef by scaling up existing on ground action and piloting new ways of working together. This program is investing $10M to accelerate on ground actions that reduce Reef threats and increase Reef resilience through focus areas such as citizen science, local action, local coral restoration and the development of integrated community action plans that identify local actions that can have a big impact on Reef health. • Values and benefits of the GBR and linked local waterways were assessed for the first time in 2021 using the Regional Report Card Partnership Human Dimensions survey method. • Key community stakeholders are represented on LMACs and share their views about the values with managers • The Reef Advisory Committees, TRAC and IRAC, share their experience and views about the values of the Reef with managers. • The Reef Guardian Councils program continues to be a great conduit to the Great Barrier Reef Catchment Community. There are now 19 Reef Guardian Councils of which two are Aboriginal Shire Councils. These local			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		government areas cover approximately 60 per cent of the catchment and contain over one million people. The Reef Guardian Councils have been specifically identified in the Australian Government budget with a commitment of $17.48M towards shovel ready projects identified in RGC action plans. • Market research surveys were conducted in 2020 and 2022 to better understand community and stakeholder attitudes towards the Reef. • The market research measures shifts in behaviours and perception over time among the general public and Reef Authority stakeholders. Pollinate and The Reef Authority are in discussions to update the survey to ensure the data collected is an accurate reflection of current attitudes and behaviours, and a review will take place prior to 2023 research. • In March 2020 the Australian Government implemented a support package for Great Barrier Reef Marine tourism operators significantly affected by COVID-19 this included the waiver of the Environmental Management Charge (EMC) and Permit Application and Assessment Fees (PAAF). This initial waiver has been extended to the end of June 2023. • As such EMC must not be collected from visitors, advertised or paid to the Great Barrier Reef Marine Park Authority until 1 July 2023.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• A literature review was conducted to provide a national and global review of existing published knowledge about anchored fish attracting devices (FADs) and artificial reefs (ARs) to inform the development of the Authority's policy position on these. The key goal of the literature review is to evaluate the potential benefits and negative impacts of these structures in relation to the objects of the Great Barrier Reef Marine Park Act, especially the protection of the environment, biodiversity and heritage values of the region.			
CO2 The current condition and trend of values relevant community benefits of the environment are known by managers	2	• The condition and trend of all values of the GBR is summarised in the GBR strategic Assessment and previous Outlook Reports. • The 2013 Social & Economic Long Term Monitoring Program (SELTMP) provided baseline data relevant to community perceptions of condition and trend of values relevant to them. (Ref SELTMP) • The inclusion of management of community benefits in the Outlook Report for the first time in 2014, has contributed to a suite of management activities to improve knowledge of which values have the greatest relevance to community benefit. This work includes research to improve understanding of indicators and develop processes for assessing condition and monitoring trend of community benefits. (Marshall et.al. 2017)	• Great Barrier Reef Region Strategic Assessment Report, Chapters 2-5 • GBR Outlook Report 2014 • SELTMP • Defining the aesthetic values of the Great Barrier Reef World Heritage Area: • Geological and geomorphological features of outstanding universal value in the Great Barrier Reef World Heritage Area:	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Cumulative impact policy provides a systematic and consistent approach to managing and reducing cumulative impacts on the GBR. Community attitudes can directly affect decisions that are made about the Great Barrier Reef's health by governments, communities, industry and others. • Net Benefit Policy. • A Reef Integrated Monitoring and Reporting Program (RIMReP) has been developed to provide a coordinated monitoring program for many Reef values. Indicators and monitoring activities for tracking the state of GBR values are being determined for values not monitored by existing programs such as the Marine Monitoring program. How to monitor the 'human dimensions' (social and economic values) is a particular focus of effort. • Regional report cards report on the condition of ecosystem-health linked to environmental values relevant to the community. These assessments are produced by 5 regional report card partnerships on an annual basis. • Through the Reef Trust Partnership, funded by the Australian Government, the Community Reef Protection component is increasing the positive impact that local community action has on the Reef by scaling up existing on ground action and piloting new ways of working together. This program is investing $10M to accelerate	• Reef 2050 Plan Cumulative Impact Management Policy • Reef 2050 Plan Net benefit Policy • Experimental Environmental-Economic Accounts for the Great Barrier Reef, 2017 • Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef • Reef 2050 Integrated Monitoring and reporting program (RIMReP) GBRMPA webpage and RIMReP Strategy (n.b. initial framework document was delivered by a Marine Biodiversity Hub NERP project in 2013) • RIMReP Reef Knowledge System • Marshall NA, Curnock MI, Goldberg J, Gooch M,		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		on ground actions that reduce Reef threats and increase Reef resilience through focus areas such as citizen science, local action, local coral restoration and the development of integrated community action plans that identify local actions that can have a big impact on Reef health. • The Reef 2050 Traditional Owner Implementation Plan released November 2022 builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products including an animation and timeline were also produced to inform community and government of the long history and desired path forward. • Information on community perceptions of the current condition of Reef and linked local waterway values was collected for the first time in 2021 using the Regional Report Card Partnership Human Dimensions survey method. Methods and results are available through CSIRO's SELTMP website. Note also, that CSIROs Reef-scale SELTMP surveys are possibly also relevant in this context. • Indigenous cultural heritage value condition assessments have been carried out by the Gladstone Healthy Harbour Partnership and Mackay Whitsunday	Marshall PA, Pert PL, & Tobin RC. (2017): The Dependency of People on the Great Barrier Reef, Australia, *Coastal Management*, DOI: 10.1080/08920753.2017.1373454 • NESP project 3.2.2 The IMS 2050 Human Dimensions Project: cost-effective Indicators and metrics for key GBRWHA human dimensions – milestone report available on portal • SELTMP current data: https://research.csiro.au/seltmp/.also regional report cards: https://research.csiro.au/seltmp/explore-dashboards-here/ • Social & Economic Long Term Monitoring Program (SELTMP) analysis of social survey data collected in 2017 is underway and due		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Isaac Healthy Rivers to Reef Partnership (different methods for each). Results are available in recent report cards produced by those partnerships. Key community stakeholders on LMACs and RACs share anecdotal information about the condition and trend of values with managers. • Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: • Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. • Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. • Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. • Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system.	to be reported to GBRMPA in mid-December 2017. Preliminary report now available • Results for SELTMP data as at 2021 • Regional Report Cards • Reef Trust Partnership between the Australian Government and the Great Barrier Reef Foundation – Community Reef Protection Component • Reef 2050 Traditional Owner Implementation Plan https://reefto.au/wp-content/uploads/2022/10/DES_GBR_TO-Report_WEB.pdf • Animation https://youtu.be/GdIRwn6QINc • Timeline https://reefto.au/timeline/ • Social and Economic Long-Term Monitoring Program (SELTMP)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• IMR RTP Sustainable use and benefits monitoring project (SEABORNE): This project (2021-2024) will design a monitoring program to help managing agencies make informed decisions about striking the right balance between sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values. • IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Community members have an important role to play in contributing to the protection the Great Barrier Reef and maintaining its World Heritage Values. This project (2021-2024) will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes. No results yet. • IMR RTP Monitoring collective capacity and implementation (Governance): There are multiple programs, plans and policies underway for the protection and sustainable use of the Reef under the Reef 2050 Plan. This project (2021-2024) will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. No results yet. • Human Use Dashboard: This Reef Authority project (2021-2023) aims to produce a prototype dashboard	– SELTMP Core module pilot data dashboard – SELTMP Core Module Report – SELTMP Core Module 2021 Survey dataset: – Regional Report Cards social survey dashboard – Regional Report Cards Module Report – Regional Report Cards 2021-22 Social Survey dataset • Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		that will provide access to human use data to Reef managers. The user-friendly interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs. It uses the IT Cloud environment to allow for data flow. • Market research undertaken by the Reef Authority 2020 and 2022 assesses Australians attitudes towards the Reef and understanding of its values. According to the market research undertaken by the Reef Authority in 2022, Australians perceive the Great Barrier Reef as under threat and want more done to protect the reef. That said, optimism regarding the future of the Great Barrier Reef has again increased in 2022. 4 in 5 Australians feel proud of the GBR and agree it needs to be protected but they feel as though they cannot make any difference as an individual. Most stakeholders feel a sense of responsibility for the Reef, and optimism about the future of the Reef has decreased. • Social Science Community for the Reef established. This Community is an initiative of the Great Barrier Reef Marine Park Authority in collaboration with the Commonwealth Scientific and Industrial Research Organisation, Office of the Great Barrier Reef (Department of Environment and Science, Queensland), James Cook University: the Cairns Institute and the ARC Centre of Excellence for Coral Reef Studies, the	• IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Monitoring collective capacity and implementation (Governance): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Queensland University of Technology and the University of Queensland. It brings together social science practitioners and academics working in the Great Barrier Reef Region. The group's purpose is to collaborate, share knowledge and provide a platform for improving understanding of social science for the Reef, both research and applied. • In March 2020, the Australian Government implemented a support package for Great Barrier Reef Marine tourism operators significantly affected by COVID-19 this included the waiver of the Environmental Management Charge (EMC) and Permit Application and Assessment Fees (PAAF). This initial waiver has been extended to the end of June 2023. As such EMC must not be collected from visitors, advertised or paid to the Great Barrier Reef Marine Park Authority until 1 July 2023. • RIMReP's vision is to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. • RIMReP will determine the business requirements for the design of an online Reef 2050 reporting platform through the Reef Knowledge System (RKS). To be an online progress report that provides an indication of whether the Reef 2050 Plan is tracking towards its objective and targets is needed. Scoping is progressing			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		for this framework under the RIMReP Annual Business Plan priority project work. • A centrepiece of RIMReP is the interactive online Reef Knowledge System — the 'first stop shop' for upto-date information about the Reef to guide effective management decisions in a rapidly changing world. The Reef Knowledge System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken. • The first phase of RIMReP systematically identified critical monitoring activities needed to support an integrated program. Through Phase 2 of the Reef Trust Program (RTP), funding was available (through GBRF) to make a signification contribution to address priority gaps as identified within the Priority monitoring gaps prospectus for RIMReP (2021). A total of $13.1 million for 11 projects was funded in 2021. The projects cover the biophysical, cultural and socio-economic contexts of the Reef, including inshore dolphins, seabirds, island habitats, including invasive species and seabirds and Reef fish (latest project overview document). Support through the RTP will continue to deliver project outcomes that fill critical monitoring gaps identified during the Program design phase.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Reef Authority reviewed EMC charge to review how community could be affected.			
CO3 Impacts (direct, indirect and cumulative) associated with community benefits of the environment are understood by managers.	2	• Impacts associated with community benefits are summarised in the Strategic Assessments and Outlook Reports. • The limited confidence and evidence of impacts on social values (Strat Ass. p182) and inclusion of community benefits as a management topic in the Outlook Report for the first time in 2014 – summarised as their "…consideration lacks a policy framework" have been somewhat addressed since 2014. • Reef 2050 Plan Cumulative Impact Management Policy • The Permission System Policy and supporting guidelines have been reviewed and strengthened with respect to managing community benefit by: – Policy requirement for use/consultation of Traditional Owner and community knowledge and public comment, commensurate with the complexity and potential impact of the activity – Assessment guidelines to support consideration of community benefit – New social, historic heritage and Traditional Owner heritage values guidelines to support development of	• Great Barrier Reef Strategic Assessment Report, Chapter 6 and 7, Appendix 5 • Great Barrier Reef Coastal Zone Strategic Assessment 2014 • Experimental Environmental-Economic Accounts for the Great Barrier Reef, 2017 • Reef 2050 Plan Cumulative Impact Management Policy • Reef 2050 Integrated Monitoring and Reporting Program • Reef 2050 WQIP • Policy – Environmental Impact Management: Permission System (2017) • Permission assessment and decision guidelines (2017) • Social value assessment guidelines	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		permit applications and their assessment (Ref: Policy & Guidelines • The RIMReP has recently funded the update and extension of the social and economic long-term monitoring program (SELTMP) for the Great Barrier Reef (previously funded through the NERP) to undertake effective monitoring and reporting on progress of the four Human Dimensions theme outcomes under the Reef 2050 plan, to provide the necessary data and interpretation to understand changes that are occurring within the region, and to make plans for the future. • The market research commissioned by the Agency in 2016 to inform brand positioning gave insight to impacts of management on community perceptions and beliefs and is informing elements of future management strategy. • The Australian Government has committed $17.48M to deliver shovel-ready projects identified in local councils' Reef Action Plans; contributing to delivery of Reef 2050 plan objectives. • Regional report card partnerships are one of a number of activities under the Reef 2050 Long-Term Sustainability Plan and are funded by both the Australian and Queensland governments. They bring together government and local communities including Traditional Owners, industry, farmers and fishers, scientists, tourism operators and conservation groups who have a shared	• Historic heritage assessment – other places of historic and social significance guidelines • Historic heritage assessment – WWII features and sites and voyages and shipwrecks guidelines • Traditional Owner heritage assessment guidelines • Developing a brand strategy for the Great Barrier Reef Marine Park Authority (Pollinate, 2016) • Further information on Reef Guardian Council Action plans can be provided by GBRMPA • Further information on the Regional Report Card Partnerships can be provided by the Queensland Government • Reef Trust Partnership between the Australian Government and the Great		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		vision for healthy waterways in their region. Each partnership produces an annual report card that outlines the condition of waterways in their region. The data collected also guides management decisions around actions to improve water quality in local waterways that flow to the Reef. • Through the Reef Trust Partnership, funded by the Australian Government, the Community Reef Protection component is increasing the positive impact that local community action has on the Reef by scaling up existing on ground action and piloting new ways of working together. This program is investing $10M to accelerate on ground actions that reduce Reef threats and increase Reef resilience through focus areas such as citizen science, local action, local coral restoration and the development of integrated community action plans that identify local actions that can have a big impact on Reef health. • The Reef 2050 Traditional Owner Implementation Plan released November 2022 builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products including an animation and timeline were also produced to inform	Barrier Reef Foundation – Community Reef Protection Component • Social and Economic Long-Term Monitoring Program (SELTMP) • SELTMP Core module pilot data dashboard • SELTMP Core Module Report • SELTMP Core Module 2021 Survey dataset: • Regional Report Cards social survey dashboard • Regional Report Cards Module Report • Regional Report Cards 2021-22 Social Survey dataset • Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		community and government of the long history and desired path forward. • Information on community perceptions of the relative impacts of uses and key drivers on current condition of Reef and linked local waterway values was collected for the first time in 2021 using the Regional Report Card Partnership Human Dimensions survey method. Methods and results are available through CSIRO's SELTMP website. Note also, that CSIROs Reef-scale SELTMP surveys are possibly also relevant in this context. • Key community stakeholders on LMACs and RACs provide information about impacts to managers • Reef Guardian Council Program - Climate change initiatives snapshot showcases actions the 19 Reef Guardian Councils are undertaking to decrease emissions. Actions that will help deliver the Australian government commitment to reduce greenhouse gas emissions by 43 per cent below 2005 levels by 2030 and to net zero by 2050, and tangible examples that support the call-to-action within the Reef Authority's position statement on climate change which encourages "the strongest and fastest actions to reduce global greenhouse gas emissions". • Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: – Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. – Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system. • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): This project (2021-2024) will design a monitoring program to help managing agencies make informed decisions about striking the right balance between sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Community members have an important role to play in contributing to the protection the Great Barrier Reef and maintaining its World Heritage Values. This project (2021-2024) will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes. No results yet. • IMR RTP Monitoring collective capacity and implementation (Governance): There are multiple programs, plans and policies underway for the protection and sustainable use of the Reef under the Reef 2050 Plan. This project (2021-2024) will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. No results yet. • Social Science Community for the Reef established. This Community is an initiative of the Great Barrier Reef Marine Park Authority in collaboration with the Commonwealth Scientific and Industrial Research Organisation, Office of the Great Barrier Reef (Department of Environment and Science, Queensland), James Cook University: the Cairns Institute and the ARC Centre of Excellence for Coral Reef Studies, the Queensland University of Technology and the University of Queensland. It brings together social science			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		practitioners and academics working in the Great Barrier Reef Region. The group's purpose is to collaborate, share knowledge and provide a platform for improving understanding of social science for the Reef, both research and applied. • According to market research undertaken by the Reef Authority in 2022: 4 in 10 Australians have changed their habits due to concern regarding climate change and reef pollution. Market research results show that there is concern about climate change and a demand for action has once again increased, as is consumer action to reduce their personal impact. Most stakeholders feel a sense of responsibility for the GBR, and optimism about the future of the reef has dropped. Stakeholders have increased their reef-engagement activity. More stakeholders are giving money, attending public meetings and making formal submissions to Government about reef-related issues than in 2020. • Mass bleaching events took place across much of the Reef in 2020. According to market research undertaken by the Reef Authority, the concern about climate change and a demand for action has once again increased, as is consumer action to reduce their personal impact • In March 2020 the Australian Government implemented a support package for Great Barrier Reef Marine tourism operators significantly affected by COVID-19 this included the waiver of the Environmental Management			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Charge (EMC) and Permit Application and Assessment Fees (PAAF). This initial waiver has been extended to the end of June 2023. • As such EMC must not be collected from visitors, advertised or paid to the Great Barrier Reef Marine Park Authority until 1 July 2023.			
CO4 The broader (national and international) level influences relevant to community benefits of the environment are understood by managers.	3	• Market research results from 2022 show that there is support for the current rules and regulations to use and access the reef has increased, and most Australians support the Reef Authority doing more to protect the Reef even if it impacts upon permitted activities in the Marine Park • According to Reef Authority market research, support for the current rules and regulations to use and access the Reef has increased, and most Australians support the Reef Authority doing more to protect the Reef even if it impacts upon permitted activities in the Marine Park • Traditional and social media stories around the state of the Reef have reached a national and international audience. Media analysis on reach and media monitoring of key topics is undertaken. • Since February 2020, the COVID-19 global pandemic has played a significant part in the decline of visitor numbers and consequently, it has been particularly difficult for the tourism industry along the Great Barrier Reef. Tourism visitation to the entire Great Barrier Reef	• Great Barrier Reef Strategic Assessment Report, • Outlook Report 2009, 2014 e.g. Chapter 5 • Reef 2050 Long-Term Sustainability Plan • State Party Report on the state of conservation of the Great Barrier Reef World Heritage Area (Australia) 2015 • State Party Report on the state of conservation of Australia's Great Barrier Reef - 2022 • State of the Environment Report 2016 https://soe.environment.gov.au/download/reports	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Marine Park for the financial year ending 30 June 2022 was reported as 1,391,231 visitor days. This is a 22.11 percent increase on 2020-2021 financial year. Yearly visitation to the entire Great Barrier Reef Marine Park has however decreased by around 41 per cent when compared to the previous eight financial years pre-pandemic average (2012-13 to 2019-20).	• State of the Environment Report 2021 https://soe.dcceew.gov.au/ • SELTMP (csiro.au) • Reef 2050 WQIP • Developing a brand strategy for the Great Barrier Reef Marine Park Authority (Pollinate, 2016)		
CO5 The stakeholders relevant to community benefits of the environment are well known by managers.	4	• The stakeholders are well known by management as an outcome of many forums and activities that provide for stakeholder and community engagement and/or participation in caring for the Reef and connected environment. Depending on their function, these forums and activities have stakeholders representing various sectors of the community with knowledge of impacts/benefits relevant to their sector/region. These include: – Community based boards overseeing many agencies involved in environmental management – NRM groups, the Great Barrier Reef Marine Park Authority, Reef Trust – Reef Advisory Committees (tourism, indigenous) – Local Marine Advisory Committees (12 coastal regions)	• Great Barrier Reef Strategic Assessment Report, Appendix 5 • GBRMPA Annual Report 2016-17 • Our Partners • Reef 2050 Integrated Monitoring and Reporting Program • Reef 2050 Long-Term Sustainability Plan • State Party Report on the state of conservation of the Great Barrier Reef World Heritage Area (Australia) 2015	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Steering groups overseeing programs strongly linked to community benefits of the environment (e.g. Reef Guardians, Major Integrated Projects, Wet Tropics – Research teams – programs and activities fostering community stewardship and citizen science (e.g. Reef Guardians, Eye on the Reef, Reef Check, Coral Watch – Public consultation for significant developments and activities required by EPBC and permission systems – Public consultation for planning and policy development (e.g. Reef 2050 Plan, Water Quality Improvement Plans, Whitsunday Plan of Management – Reef HQ and its volunteer and members programs. – Public Information Unit records of calls, information requests etc – Feedback from Community Access Points for zoning in information – Managers and staff direct liaison with stakeholders via all means (face to face, phone, social media, public workshops, etc) – WWF, Greenpeace – Research institutions	• State of the Environment Report • Reef Trust Partnership		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– NRM groups/local government – Reef Advisory Committee – RIMREP – Human dimensions working group (ceased at end of RIMReP design phase) • The Reef Trust will incorporate new ideas through ongoing consultation with the community, science experts, environmental organisations, relevant industries, agricultural and pastoral managers, and natural resource management organisations. Consultation approaches will be varied and ongoing throughout the life of the Reef Trust to capitalise on specialist knowledge and advice. • The Great Barrier Reef Foundation (GBRF) Board is guided by recommendations from the Partnership Management Committee (PMC). The PMC is an independent committee appointed by the GBRF Board. The PMC's sole focus is the Reef Trust Partnership. • A project steering group was created for the Cleaner Wastewater Initiative project –phases 1 and 2 and was made up of stakeholders from multiple State government agencies, LGAQ, the Queensland Water Directorate and the university sector. The Cleaner Wastewater Initiative sought to provide councils with guidance on affordable, alternative wastewater management solutions (i.e. solutions that have socio-			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		economic benefits to the community, while protect their waterway use related values). • A project advisory group was created for the GBR Point Source Metadata project – Stage 3 and was made up of stakeholders from multiple State government agencies, the peak bodies for prawn and barramundi farming, and the university sector. The project sought to identify the relative nutrient load contributions of this industry sector to the Reef and understand where the opportunities for reducing this are (not yet published). • Key community stakeholders were encouraged to nominate for the 2021-24 LMAC term. • Great Barrier Reef Marine Park Authority Actor Network Mapping project: Mapping working agreements between the Authority, partners, stakeholders, and community of practice: This project maps the existing actors within a network that connects the Authority to the organisations and institutions they engage for research and management practice. This project has three overarching goals. Firstly, to provide information to the Authority's science for management sector that will help inform future work. Secondly, to identify gaps in existing Reef management partnerships. Thirdly, to help inform management decision-making process by identifying actors in the Reef management landscape solely from an Authority centric perspective.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs • Tourism Management Action Strategy adopted in 2021 – ongoing review and updates to existing policies to ensure contemporary management, reduce administrative burden and promote environmental outcomes, starting with review of the Managing Tourism Permissions to Operate in the Great Barrier Reef Marine Park • Commencing in 2017 there are now four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. • Social Science Community for the Reef established. This Community is an initiative of the Great Barrier Reef Marine Park Authority in collaboration with the Commonwealth Scientific and Industrial Research Organisation, Office of the Great Barrier Reef (Department of Environment and Science, Queensland), James Cook University: the Cairns Institute and the ARC Centre of Excellence for Coral Reef Studies, the Queensland University of Technology and the University of Queensland. It brings together social science			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		practitioners and academics working in the Great Barrier Reef Region. The group's purpose is to collaborate, share knowledge and provide a platform for improving understanding of social science for the Reef, both research and applied.			
PLANNING					
PL1 There is a planning system in place that effectively addresses community benefits of the environment	3	• The Annual Work Plans, released by the Great Barrier Reef Foundation and reviewed by DCCEEW, describes the activities and investments planned for the financial year to deliver on each of the components described in the Partnership Grant Agreement. • An updated Reef 2050 Plan was released in late 2021. This first comprehensive review of the Plan in 2020/2021 was undertaken in collaboration with stakeholders and involved public consultation on a draft of the updated Plan to achieve the overarching outcome of Healthy Reef, Healthy People. • An outcome of the 2020 review was a need for a Traditional Owner Implementation Plan, one that was Traditional Owner led, written by mob for mob. Supported by the Joint Reef 2050 Secretariat, Traditional Owners on the multiple Reef governance groups came together to develop the Reef 2050 Traditional Owner Implementation Plan released November 2022. The Implementation Plan builds on a strong history of Traditional Owners articulating their	• Cairns Area Plan of Management 1998 • Hinchinbrook Area Plan of Management 2004 • Whitsundays Plan of Management 1998 • Great Barrier Reef Marine Park Zoning Plan 2003 • Great Barrier Reef Marine Park Act 1975 • Recreational management strategy for the GBRMP • Site plans	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products including an animation and timeline were also produced to inform community and government of the long history and desired path forward. • The Communication strategy strives to raise awareness or drive meaningful, long-lasting behaviour change which guides a media and digital strategy. It is underpinned by the communications objectives See the Reef: raising awareness and providing education, Love the Reef: advocacy and emotion, Protect the Reef: Action and engagement. This underpins the communications campaigns. • Ongoing enhancements to Reef Management System and Permits Online. • Ongoing improvements to GBRMPAs permission system provide – greater clarity and guidance for permissions applicants, accredited – institutions and assessors and implement recommendations from the Australian National Audit Office and the Australian Parliament's Joint Committee of Public Accounts and Audit.	• Managing Multiple Uses: http://www.gbrmpa.gov.au/about-the-reef/Managing-multiple-uses • Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef • Experimental Environmental-Economic Accounts for the Great Barrier Reef, 2017 • Updated permission system policy and new guidance documents. • Reef 2050 Plan Cumulative Impact Management Policy • Net benefit Policy • Reef 2050 Long-Term Sustainability Plan • Reef 2050 Integrated Monitoring and Reporting Program		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• EAP administers the Permission System on behalf of the Reef Authority and QPWS. To support this, EAP is developing internal documents such as templates, guidelines and procedures which are used only to administer the Permission System • Commencing in 2017 there are now four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'.			
PL2 The planning system for community benefits of the environment addresses the major factors influencing the Great Barrier Reef Region's values.	3	• Overall community benefits of the environment are addressed well in planning • Reef 2050 Traditional Owner Implementation Plan • Campaigns are run to raise awareness, provide education and advocate for the health of the Reef. The themes for these campaigns are drawn from the major factors identified through the Outlook Report 2019 and Blueprint for Resilience. • ANAO audit recommendation – ongoing review and finalisation of internally managed business procedures, including establishing relevant documents as controlled documents, in order to fully implement Recommendation no.1 from Auditor-General Report	• Interview and workshop discussion • Reef 2050 Traditional Owner Implementation Plan https://reefto.au/wp-content/uploads/2022/10/DES_GBR_TO-Report_WEB.pdf • Animation https://youtu.be/GdlRwn6QINc • Timeline https://reefto.au/timeline/	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		No.3 2015–16 Regulation of the Great Barrier Reef Marine Park Permits and Approvals. External documents are being reviewed and established as controlled documents where relevant. • The 2019 management effectiveness tables noted the Authority would review the 'Managing tourism permissions (including allocation, latency and tenure)'. Reviews have commenced but are slowly progressing due to competing Authority priorities.	• Love the Reef campaign overview • Reef Joint Field Management Communications Plan • Be Reef Smart campaign • Reef health communications framework • Regulation of Great Barrier Reef Marine Park Permits and Approvals — Follow-up | Australian National Audit Office (ANAO) • Managed document procedure – Procedures/Manuals (sharepoint.com) • Permits | gbrmpa • Permits online | gbrmpa • GBRMPA ELibrary: Tourism management action strategy		
PL3 Actions for implementation regarding community benefits of the	3	• Overall community benefits of the environment are addressed well in planning • NESP Human Dimensions (NESP project 3.2.2) project developed and trialled a collaborative process to	• NESP project 3.2.2 The IMS 2050 Human Dimensions Project: cost-effective Indicators and metrics for	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
environment are clearly identified within the plan		benchmark human dimensions to help monitor progress, refine strategies and progress action against the Reef Plan. • Human dimension target included in the Reef 2050 Water Quality Improvement Plan	key GBRWHA human dimensions. • Assessing the human dimensions of the Great Barrier Reef: A Burdekin Region focus • Reef 2050 Long-Term Sustainability Plan • Reef 2050 WQIP • Traditional Owner Implementation Plan • Tourism management action strategy		
PL4 Clear, measurable and appropriate objectives for management of community benefits of the environment have been documented	3	• The NESP project will build on work from RIMREP and develop cost-effective indicators and metrics for human dimension outcomes, objectives and targets in the Reef 2050 Plan consistent with DPSIR framework. • Project schedules and Monitoring, Evaluation, Reporting and Improvement (MERI) plans have been developed to capture program benefits, including community and Traditional Owner benefits, including: – Strengthening sea country partnerships in the GBR: Expanding the successful TUMRA program and increasing Traditional Owner partnerships to benefit Marine Park management	• Interviews and workshop discussions • Tourism Management Action Strategy adopted in 2021 • Reef Islands Initiative - Great Barrier Reef Foundation - Great Barrier Reef Foundation. • Cairns Area Plan of Management 1998 • Hinchinbrook Area Plan of Management 2004	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Queensland Indigenous Land and Sea Rangers (ILSR) program – Reef Islands Restoration • The key performance indicators around trust and sentiment are documented and updated in the Reef Authority corporate plan. These are reported on in the Reef Authority annual report. • Reef HQ Aquarium provides an avenue to enhance community understanding of the Reef. Over 186,000 people visited the Aquarium from January 2019 to February 2021. The Aquarium closed for a period of time during 2020 due to COVID-19 restrictions. The Aquarium offers high-quality products and promotes the values of the Reef, the threats its facing and the role people can play in protecting it. The products on offer have consistently met visitor expectations. • Reef HQ Aquarium reopened its doors following the temporary closure and remained operational until 1 February 2021. The Aquarium then closed and will be rebuilt to ensure compliance with building code, WHS and accessibility. • The Reef Education team are still delivering educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its sustainable future and to encourage participation by taking action to address threats to the Reef. Reef HQ	• Whitsundays Plan of Management 1998 • Site plans http://www.gbrmpa.gov.au/zoning-permits-and-plans/site-specific-management • Great Barrier Reef Marine Park Zoning Plan 2003 • Managing Multiple uses • NESP project 3.2.2 The IMS 2050 Human Dimensions Project: cost-effective Indicators and metrics for key GBRWHA human dimensions. Portal document Commonwealth II (002) – milestone report available • GBRMPA Annual Report 2016-17 • Reef 2050 WQIP • Reef 2050 Plan		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Aquarium continue to engage with the public and promote educational messages through social media channels and local community events. • Tourism Management Action Strategy adopted in 2021 – ongoing review and updates to existing policies to ensure contemporary management, reduce administrative burden and promote environmental outcomes, starting with review of the Managing Tourism Permissions to Operate in the Great Barrier Reef Marine Park • See PL3			
PL5 There are plans and systems in place to ensure appropriate and adequate monitoring information is gathered in relation to community benefits of the environment	3	• The Outlook Report is updated and published every 5 years and includes an assessment of the values associated with and the effectiveness of management associated with community benefits. • RIMReP will help track progress towards objectives under the Reef 2050 Plan's five work areas: impacts from climate change, impacts from land-based activities, impacts from water-based activities, international sources of impact, and protect/rehabilitate/restore. (Previously the plan's (edition 2018) seven themes: ecosystem health, biodiversity, heritage, water quality, community benefits, economic benefits, governance and reporting). • SELTMP is assisting Reef managers and other decision-makers within the Great Barrier Reef region to	• Workshop discussion • Outlook Report 2019 • Reef 2050 Long-term Sustainability Plan • Reef 2050 Integrated Monitoring and Reporting Program • Social and Economic Long-Term Monitoring Program (SELTMP) for the Great Barrier Reef • SELTMP Core module pilot data dashboard • SELTMP Core Module Report	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		incorporate the human dimension into their planning and management. • The draft guidelines for social impact assessment in the permission system which provides guidance on assessing impacts to social values within the permission system as well as including on-going monitoring of impacts associated with new developments. • Assessment and monitoring of the GBR's human dimensions is consistent with, and aligned to, the Drivers-Pressures-State-Impact-Response (DPSIR) framework adopted by the Reef Integrated Monitoring and Reporting Program's (RIMReP) Program Design Group. • The NESP project will build on work from RIMREP and develop cost-effective indicators and metrics for human dimension outcomes, objectives and targets in the Reef 2050 Plan consistent with DPSIR framework. • The NESP project 3.2.3 addresses the urgent need to understand and monitor the aesthetic value of the Great Barrier Reef. • The NESP project 3.2.2 developed indicators for monitoring and modelling the human dimension outcomes, objectives and targets from the Reef 2050 Long-Term Sustainability Plan (Reef 2050 Plan). This work is fully embedded within the within Reef Integrated Monitoring and Reporting Program (RIMReP).	• SELTMP Core Module 2021 Survey dataset: ○ Regional Report Cards social survey dashboard ○ Regional Report Cards Module Report ○ Regional Report Cards 2021-22 Social Survey dataset • Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • Social impacts assessment in the permission system • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Integrated Reef stewardship monitoring		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The NESP project 3.2.4 worked across social and ecological disciplines to identify, for the first time, indicators that will enable managers to measure and monitor aesthetic values for the GBRWHA. • The Monitoring and Evaluation Plan sets out how the performance of the Reef Trust Partnership will be measured over five years to 2023-2024 and provides a robust methodology for credibly demonstrating both the outcomes and broader impact of the Partnership, across all six inter-related Partnership Components • Project schedules and Monitoring, Evaluation, Reporting and Improvement (MERI) plans have been developed to capture Reef Trust partnership program benefits and information, including community and Traditional Owner benefits, including: – Strengthening sea country partnerships in the GBR: Expanding the successful TUMRA program and increasing Traditional Owner partnerships to benefit Marine Park management – Queensland Indigenous Land and Sea Rangers (ILSR) program – Reef Islands Restoration • Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated	project (PROTECT): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • RIMReP – Reef Knowledge System		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: – Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. – Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system. • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): This project (2021-2024) will design a monitoring program to help managing agencies make informed decisions about striking the right balance between sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Community members have an important role to play in contributing to the protection the Great Barrier Reef and maintaining its World Heritage Values. This project (2021-2024) will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes. No results yet. • IMR RTP Monitoring collective capacity and implementation (Governance): There are multiple programs, plans and policies underway for the protection and sustainable use of the Reef under the Reef 2050 Plan. This project (2021-2024) will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. No results yet. • Human Use Dashboard: This Reef Authority project (2021-2023) aims to produce a prototype dashboard that will provide access to human use data to Reef managers. The user-friendly interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs. It uses the IT Cloud environment to allow for data flow. • Annual market research is undertaken to understand perceptions towards the Reef and its management.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Traditional media monitoring is undertaken daily and reach for key topics are understood. • State endorsement of the WPOM • RIMReP's vision is to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. • The design phase of RIMReP was completed in 2019. It delivered the structure, program and monitoring design, an implementation roadmap, and an initial release of the Reef Knowledge System. Implementation phase of RIMReP is progressing with the greatest effort directed toward continuing the scoping and implementation of a fit for purpose Data Management System, progressing the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement • RIMReP will determine the business requirements for the design of an online Reef 2050 reporting platform through the Reef Knowledge System (RKS). To be an online progress report that provides an indication of whether the Reef 2050 Plan is tracking towards its objective and targets is needed. Scoping is progressing for this framework under the RIMReP Annual Business Plan priority project work.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The RKS is the centrepiece of RIMReP. It is the interactive 'first stop shop' for up to-date information about the Reef to guide effective management decisions in a rapidly changing world. The Reef Knowledge System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken • A fit for purpose Data Management System (DMS) is the critical infrastructure to underpin the successful delivery of RIMReP and related reporting activities, management systems and decision support tools. The scoping phase of the DMS in 2020-21 identified the size, scale and maturity of data sets critical for initial inclusion in RIMReP. It also defined the infrastructure requirements and environments and the best estimate of ongoing operational requirements. A total of 153 unique data sets from 73 organisations or programs were identified. The architecture of the DMS is conceived as a FAIR (findable, accessible, interoperable and reusable) compliant, data-agnostic, scalable 'future-proof' and service-oriented system that will collect data and metadata from data providers, store/cache data collections, apply transformations and provide a delivery mechanism through a rich API interface. It will include an interoperable metadata sub-system: an open and easily			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		accessible catalogue, based on standards, of all datasets relevant to RIMReP. The design and build of this fit for purpose DMS for RIMReP will occur over 2022-23 and 2023-24. • See PL3 • See CO1			
PL6 The main stakeholders &/or the local community are effectively engaged in planning to address community benefits of the environment	4	• The Reef Authority consults with the public on a range of matters that concern the Marine Park, including permit applications and proposed developments. People interested in the management of the Great Barrier Reef and World Heritage Area, including proposed developments, have valuable knowledge that contributes to the assessment process. A list of current plans, applications and assessments for public consultation are available online, along with details on the process. • Established committees such as Local Marine Advisory Committees (LMAC) and Reef Advisory Committees (RAC) play an important role • Regional Offices (Yeppoon, Mackay, Cairns) and outreach officers play an important role. • Joint management arrangements with Queensland (IGA) • The High Standard Tourism Program and the Eye on the Reef Program encourage tourism operators to take action for a healthier Reef.	• Reef Authority Public Consultation • Reef Guardians • LMAC • RAC • Eye on the Reef • Strengthening Partnerships and Stewardship – DCCEEW • Reef Trust Partnership between the Australian Government and the Great Barrier Reef Foundation – Community Reef Protection Component • Reef Trust Engagement • Reef 2050 WQIP	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Regulatory Impact Statements are required for all changes to policy and regulation taking into account any implications to affected members of the community (noting that this process is geared more to income indicators as opposed to connections and relationships). • Reef Guardians Program: The Reef Guardian program is a successful stewardship program that began with schools in 2003 to encourage the community to take action for a healthier Reef. The program has since expanded to include councils. • The Regional Report Cards involve industry, the Australian Government, Queensland Government, local government, universities and research institutions in the provision of streamlined monitoring, targeted management and expert science advice to maintain and continuously improve harbour health. (Reef Trust) • Consultation on the Reef Trust and investment options involves discussions with key interest groups such as NRM organisations, industry organisations, environmental non-government organisations and research institutions, as well as, academic organisations such as the Australian Institute of Marine Science, Commonwealth Scientific and Industrial Research Organisation, James Cook University and the University of Queensland.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Nest to Oceans Turtle program supports activities that have synergies with the Biodiversity evidence table. For this program, the Department of Climate Change, Energy, the Environment and Water (DCCEEW) partnered with Natutra Pacific (a social enterprise company) to help deliver the program. Within the 20 min video please see relevant time stamps for activities where stakeholders, managers and Traditional Owners are involved in plans and outcomes for the Reef. centre for visitor engagement and education. • The GBRF's Reef Islands Restoration program is piloting new approaches to ridge-to-reef restoration that are driven and led by local tourism, community and TO partners. • Through the Reef Trust Partnership, funded by the Australian Government, the Community Reef Protection component is increasing the positive impact that local community action has on the Reef by scaling up existing on ground action and piloting new ways of working together. This program is investing $10M to accelerate on ground actions that reduce Reef threats and increase Reef resilience through focus areas such as citizen science, local action, local coral restoration and the development of integrated community action plans that identify local actions that can have a big impact on Reef health.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• As the Reef Trust Office designs the Strengthening Partnership and Stewardship package, the main stakeholders &/or the local community will be effectively engaged through the relevant planning, design and delivery phases of this program. • Project schedules and Monitoring, Evaluation, Reporting and Improvement (MERI) plans have been developed which outlines relevant stakeholder involvement, including community and Traditional Owners, including: – Strengthening sea country partnerships in the GBR: Expanding the successful TUMRA program and increasing Traditional Owner partnerships to benefit Marine Park management – Queensland Indigenous Land and Sea Rangers (ILSR) program – Reef Islands Restoration • See PL3 • Community-led catchment rehabilitation projects were funded as part of the Reef Assist program. Projects were delivered as a partnership between lead proponents (NRMs, councils and statutory authorities) and delivery partners (land care groups, first nations organisations and private industry), with project design often being a collective effort.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Two Major Integrated Projects in the Burdekin and Wet Tropics adopted a place-based approach engaging local communities in the co-design and implementation of a suite of interventions, including catchment repair and land rehabilitation, to reduce pollutant runoff and improve water quality. • There are now 19 Reef Guardian Councils engaged in the program. Their local government areas cover over 300,000sqkm and include over a million people • The annual market research is undertaken to understand perceptions towards the Reef and its management. • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs			
PL7 Sufficient policy currently exists to effectively address community benefits of the environment	3	• The Reef Authority's Policy and Planning Strategic Roadmap has been developed to focus the Authority's efforts to deliver a proactive, contemporary and risk-based approach to Marine Park policy, planning and regulation that will protect key values and enable ecologically sustainable use for a changed and changing Reef. This includes assessment and rationalisation of Reef Authority policies. • Several policies are in place that contain aspects to effectively address community benefits (e.g. Recreation Management Strategy, Policy on Great Barrier Reef Interventions)	• Reef Authority Policy and Planning Strategic Roadmap • Recreation Management Strategy • Policy on Great Barrier Reef Interventions • Reef 2050 WQIP	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Human Dimension target in Reef 2050 WQIP			
PL8 There is consistency across jurisdictions when planning for community benefits of the environment	3	• The *GBRMP Act 1975* is not explicit about community benefits or well-being. It refers to enjoyment, appreciation and understanding of the Reef, but is not concerned with aspects of wellbeing that relate to employment or income of Reef-dependent industries. • The Intergovernmental Agreement on the Environment for the Great Barrier Reef provides the 'head of power' for aspects of community benefits through the joint permitting system between the Authority and QPWS. This joint system allows for consistent consideration and management of access to resources through permits, Zoning Plans and Plans of Management. • GBRMP Regulations 1983 provide for consistency across international, national and Qld jurisdictions when assessing permits see specific regulations below. • The Reef 2050 Plan outlines strategies for managing and preserving the Great Barrier Reef World Heritage Area and provides the basis to ensure wise use and protection of the Great Barrier Reef World Heritage Area for the future. The Reef 2050 Plan aims to develop a shared understanding of community benefits derived from the Reef. An important step is further developing a long-term social and economic monitoring program. • Reef 2050 Long-term Sustainability Plan seeks to ensure community benefits derived from the Reef are	• Great Barrier Reef Marine Park Act 1975 • Great Barrier Reef Marine Park Regulations 1983 • Intergovernmental Agreement on the Environment • Heads of Agreement on Commonwealth/State Roles and Responsibilities for the Environment • Information Sheet - Joint Marine Parks permissions with Queensland • Reef 2050 Long-Term Sustainability Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		considered in local and State-level policy and planning instruments and development and management decisions. • Jointly signed Annual Permissions Compliance Plans now include resourcing commitments from GBRMPA and QPWS for joint management responsibilities.			
PL9 Plans relevant to community benefits of the environment provide certainty regarding where uses may occur, the type of activities allowed, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.	3	• The $9m program to bolster existing Australian and Queensland Government programs for Traditional Owner-led projects in the Great Barrier Reef, includes $3 million towards the development of Traditional Use Marine Resource Agreements and Sea Country Values Mapping. These Agreements are community-based plans for management of traditional resources which are accredited in legislation and have proved a successful mechanism for joint management of the Reef. • Plans regarding access to resources and extractive activities are clear and provide certainty for tourism, fishing and recreation. • Traditional owner implementation plan (Reef 2050). • Permits Online - enhancements allowing for greater consistency and efficiency for permit applications including development of six Routine (standardised) permits for low-risk activities. • Additional permit application checklists have been developed.	• Great Barrier Reef Marine Park Zoning Plan 2003 • GBRMPA Plans of Management • GBRMPA policies and position statements • Site Specific Management • Reef 2050 Integrated Monitoring and Reporting Program • Reef 2050 Long-Term Sustainability Plan • Traditional Use of Marine Resources Agreements • Types of Permissions Fact Sheet • Research Permissions Fact Sheet Fisheries Permissions Fact sheet	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Series of easy-to-read fact sheets for the permission system: – Types of Permissions Fact Sheet – Research Permissions Fact Sheet – Fisheries permissions Fact Sheet – Updated permission system policy's – Policy on Great Barrier Reef interventions – Draft Artificial Reef Guidelines • There remain areas within the Marine Parks where conflicting uses could be benefit form more detailed certainty that could be provided around where use may occur. For example, Magnetic Island.	• Information Sheet - Joint Marine Parks permissions with Queensland • Applications for joint permissions		
INPUTS					
IN1 Financial resources are adequate and prioritised to meet management objectives to address community benefits of the environment	3	• For 2020-2023, SELTMP is funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation, and is being delivered in partnership with CSIRO, the Great Barrier Reef Marine Park Authority and the Queensland Government's Reef Water Quality Program. (I.e., SELTMP funded for 2021 and 2023 data collection points through the Reef Trust Partnership with GBRF). • The Reef Trust Office's $74.4 million (notional allocation) Strengthening Partnerships and Stewardship measure	• SELTMP • Strengthening Partnerships and Stewardship – DCCEEW • $9m Traditional Owner on the Reef media release • Annual report data	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		from 2022-23 to 2029-30 to foster stewardship and empower people to care for the Reef through strong partnerships and collaboration. The measure has been informed and will build on the Community Reef Protection component under the Reef Trust Partnership between the Australian Government and the Great Barrier Reef Foundation. • The $9million investment from the Australian Government towards Traditional Owner-led projects to protect and manage the Great Barrier Reef further supports achievement of community, including Traditional Owner, objectives through funding for Traditional Use of Marine Resources Agreements, Sea Country Values Mapping and provides additional investment into the Queensland Indigenous Land and Sea Ranger program. • Within the 2021-22 annual report campaigns included: – $111,928.33 – Zoning education (2019-20 – $4764 – Be Reef Smart (2019-20) $185,798 – Zoning education (2020-21 – $10999.95 – LMAC (2020-21) – Virtual Future Leaders Eco Challenge - $23,147.45 (2020-21) – Zoning and compliance - $294,190.74 (2021-22)			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Safe Whale Watching practices - $13,952 – (2021-22) • A significant investment was made into development of the Reef Authority website, the main communication channel. The website is now more user friendly and improve functionality. • Annual market research is undertaken by Pollinate to understand the trust and sentiment of the general population.			
IN2 Human resources within the managing organisations are adequate to meet specific management objectives to address community benefits of the environment	2	• Following the Reef Authority restructure in 2020, specific functions were formalised within the Communications team and resourced accordingly. Taking from existing FTE, marketing and media functions were streamlined to dedicated positions. • The GBRMPA employs two dedicated Social Scientists and engages regularly with social-ecological scientists at numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science Community for the Reef and Reef 2050 (Human Dimensions consortium) • There have been general challenges over the past 2 years in recruiting to positions at the Reef Authority. Many positions (including some described above) have remained vacant as a result. • Permits Compliance Team has maintained 3 x FT equivalent staff. The team manages non-compliance on	• Interviews and workshop discussions • Permission Systems and Compliance Program	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		a daily basis through the implementation of the My Case Manager System and complimentary Managing Permissions Non Compliance Procedure that were both effective from February 2021. • Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes to better identify risks to relevant values for the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measure.			
IN3 The right skill sets and expertise are currently available to the managing organisations to address community benefits of the environment	2	• The GBRMPA employs one dedicated Social Scientists (update for 2024 below – now two) and engages regularly with social-ecological scientists at numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP. • Relevant expertise and skills can be outsourced through consultation with Industry and/or other Government and research agencies. • The Reef Guardian Councils program includes networking and professional development to share knowledge, best practice and information to assist our local government partners to help manage catchment impacts on the Reef. • The GBRMPA employs two dedicated Social Scientists and engages regularly with social-ecological scientists at	• Interviews and workshops • Permission Systems and Compliance Program • Reef Joint Field Management Program	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science Community for the Reef and Reef 2050 (Human Dimensions consortium). • A formal panel of providers has been established to support marketing and communications product development. • Specialised training has been undertaken in behaviour change and community based social marketing. • Permits Compliance Team regularly delivering training to FM and QPWS authorised inspectors who are in the field liaising with permit holders including commercial marine tourism operators. • Training modules for new GBRMP permission system developed and implemented in 2022. • Social science information is completed for inclusion in the Reef Joint Field Management Program's foundation training program in March 2023 and then every foundation program thereafter. • EAP and People Services are also developing a workflow that will track EAP delegation levels and approvals in the Reef Authority's Learning Management System - due for implementation early 2023.			
IN4 The necessary biophysical information is currently available to address	3	• Human dimensions RIMReP group during RIMReP design phase, including a NESP project to determine	• Great Barrier Reef Strategic Assessments (see chapters 4, 5, 6, 7 and 10)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
community benefits of the environment		social and economic indicators and monitoring for the Reef. • RIMReP synthesis and reporting group to instigate integration of different themes, including socio-economic and biophysical, from early 2018 (during RIMReP design phase, now complete) • SELTMP is assisting Reef managers and other decision-makers within the Great Barrier Reef region to incorporate the human dimension into their planning and management. • The Reef 2050 Plan aims to develop a shared understanding of community benefits derived from the Reef. An important step is further developing a long-term social and economic monitoring program. • SELTMP 2021 survey included new questions on community perceptions of water quality and inshore environments. • The 2022 Scientific Consensus Statement is currently in development and due to be finalised in 2023. It is a synthesis of current peer-reviewed scientific evidence pertaining to the water quality issues in the Great Barrier Reef. It informs a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. Questions being addressed include the impacts, drivers and management options of key pollutants. In addressing these questions, managers	• Outlook Report 2009, 2014 and 2019, e.g Chapter 5 • Informing the Outlook for the Great Barrier Reef coastal ecosystems report • Informing the Outlook for Great Barrier Reef coastal ecosystems • Reef 2050 WQIP Report Cards • Values and attributes table underpinning MNES • Reef 2050 Plan Cumulative Impact Management Policy • Net benefit Policy • SELTMP • Reef 2050 Long-Term Sustainability Plan • Reef 2050 Integrated Monitoring and Reporting Program		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		will be presented with the most up-to-date scientific evidence (based on the peer-reviewed published literature) to support their understanding of the Reef's values. • The Reef Authority updated its 'Science and Knowledge Needs for Management' in 2021. It is informed by the Great Barrier Reef Outlook Report 2019, the Reef 2050 Plan and emerging needs identified by Authority staff. It aims to ensure scientific activities are relevant, targeted to address critical management issues, and that scientific outputs are easily accessible. The priority information needs form the focus of specific collaboration opportunities with science and knowledge providers. The document is supported by an interactive web-tool located on the Reef Knowledge System which identifies the specific collaboration opportunities and can be updated as needs are addressed or new needs identified. • The Reef Knowledge System hosts: – A list of, and links to, some core monitoring programs contributing to RIMReP – new GBR coral reef habitat mapping layers through the Reef Explorer interface: geomorphic, benthic, and bathymetry (to 20m depth) maps and a satellite image mosaic	• Cost-effective indicators and metrics for monitoring the human dimensions of the Great Barrier Reef: current NESP project underway. • Marshall et al The dependency of people on the Great Barrier Reef, Australia and Gooch et al., Assessment and promotion of the Great Barrier Reef's human dimensions through collaboration. • 2022 Scientific Consensus Statement – about, progress and updates • GBRMPA ELibrary: Science and Knowledge Needs for Management • Science and Knowledge Needs | Reef Knowledge System		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– an internal interactive dashboard, the Resilient Reefs Network Guidance Tool, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park • AusSeabed Marine Data Portal and Geoscience Australia host a very high resolution bathymetry map of the Great Barrier Reef, including the continental shelf • Reef Hub hosts inter Reefal and continental slope data for identifying plane/slope • GBRMPA ELibrary: Environmental Impact Management: Permission System (Document No. 100430)	(gbrmpa.gov.au)		
IN5 The necessary socio-economic information is currently available to address community benefits of the environment	3	• CSIRO released the Design and implementation of social surveys for Regional Report Cards in the Great Barrier Reef catchment in August 2022. This report documents the process of operationalising some of the identified Regional Report Card human dimension indicators of waterway health, via social surveys that were co-designed by representatives from the Regional Report Card partnerships, management agency staff from OGBR and the Great Barrier Reef Marine Park Authority. • In addition, CSIRO also released the Monitoring human dimensions of the Great Barrier Reef report which outlines the social and economic indicators for catchment residents.	• Outlook Report 2019 • Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef • Deloitte Access Economics Report Economic contribution of the Great Barrier Reef • Experimental Environmental-Economic Accounts for the Great Barrier Reef, 2017	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The 2022 Scientific Consensus Statement is currently in development and due to be finalised in 2023. It is a synthesis of current peer-reviewed scientific evidence pertaining to the water quality issues in the Great Barrier Reef. It to informs a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. Questions being addressed include the impacts, drivers and management options of key pollutants. In addressing these questions, managers will be presented with the most up-to-date scientific evidence (based on the peer-reviewed published literature) to support their understanding of the Reef's values. • (GBRMPA), and scientists from CSIRO. • Outlook Report 2019 includes some relevant socio-economic information – refer section 5, 7. • The NESP project is developing indicators for monitoring and modelling the human dimension outcomes, objectives and targets from the Reef 2050 Plan. • Socio and economic research was brought into the RIMREP Human Dimensions expert working group to inform the RIMREP Program design. (Group ceased at end of RIMReP design phase)	• Defining the aesthetic values of the Great Barrier Reef World Heritage Area: • NESP project 3.2.2 The IMS 2050 Human Dimensions Project: cost-effective Indicators and metrics for key GBRWHA human dimensions • GBRMPA Annual Report 2016-17 • The *Australian Beliefs and Attitudes Towards* Science Survey is available at http://cpas.anu.edu.au/news-events/australians-think-science-has-made-life-easier-%E2%80%93-new-poll The survey was conducted by ANU Centre for the Public Awareness of Science and funded by the Department of Industry, innovation and Science. • NESP Project 3.2.3 Monitoring aesthetic value of the Great		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The NESP project 3.2.3 addresses the urgent need to understand and monitor the aesthetic value of the Great Barrier Reef. • The NESP project 3.2.4 worked across social and ecological disciplines to identify, for the first time, indicators that will enable managers to measure and monitor aesthetic values for the GBRWHA. • Gooch et al. report aims to ensure GBR policy makers and managers better consider the needs of GBR-dependent communities and industries. Includes information on aspirations, capacities and stewardship, community vitality, culture and heritage, economic viability and governance. Update 2024: report finalised along with similar reports for other regions • Access Economic Study has determined the value of the Reef (income, employment etc) to CSIRO released the Design and implementation of social surveys for Regional Report Cards in the Great Barrier Reef catchment in August 2022. This report documents the process of operationalising some of the identified Regional Report Card human dimension indicators of waterway health, via social surveys that were co-designed by representatives from the Regional Report Card partnerships, management agency staff from OGBR and the Great Barrier Reef Marine Park Authority (GBRMPA), and scientists from CSIRO.	Barrier Reef by using artificial intelligence to score photos and videos • NESP Project 3.2.4 - Defining, assessing and monitoring Great Barrier Reef aesthetics • Gooch et al., Final Report: Assessing the human dimensions of the GBR: A Wet Tropics Region focus This report and those for other regions available on project's webpage • Experimental Environmental-Economic Accounts for the Great Barrier Reef, 2017 • Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef • Reef 2050 Integrated Monitoring and Reporting Program		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• In addition, CSIRO also released the Monitoring human dimensions of the Great Barrier Reef report which outlines the social and economic indicators for catchment residents. • The 2022 Scientific Consensus Statement is currently in development and due to be finalised in 2023. It is a synthesis of current peer-reviewed scientific evidence pertaining to the water quality issues in the Great Barrier Reef. It to informs a common understanding amongst managers of key ecosystems, associated values, condition, risks and status of efforts to protect values impacted by water quality. Questions being addressed include the impacts, drivers and management options of key pollutants. In addressing these questions, managers will be presented with the most up-to-date scientific evidence (based on the peer-reviewed published literature) to support their understanding of the Reef's values. • The Reef Authority 'Science and Knowledge Needs for Management' (2021) – refer IN4. Current gaps include several questions relating to socio-economic values associated with community benefits (societal attitudes and economic values). • Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and	• 2017 Scientific Consensus Statement • Reef 2050 Integrated Monitoring and Reporting Program • Gooch M, Curnock M, Dale A, Gibson J, Hill R, Marshall N, Molloy F, & Vella K. (2017): Assessment and Promotion of the Great Barrier Reef's Human Dimensions Through Collaboration, Coastal Management, DOI: 10.1080/08920753.2017.1373455 • Curnock, M.I., Pert, P.L., Maharjan, D., Gordon, B. and Kaniewska, P, (2022). Design and implementation of social surveys for Regional Report Cards in the Great Barrier Reef catchment. CSIRO Land and Water, Townsville: RegionalReportCards-		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: • Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. – Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system. • Human Use Dashboard: This project (2021-2023) aims to produce a prototype dashboard that will provide access to human use data to Reef managers. The user-friendly interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs. It uses the IT Cloud environment to allow for data flow. • Reef Authority market research 2020 and 2022, with a view to undertaking this on an annual basis.	HDmonitoring-FinalReport-August2022-1 • Hobman, E. V., Mankad, A., Pert, P. L., van Putten, I., Fleming-Muñoz, D. & Curnock, M. (2022). Monitoring social and economic indicators among residents of the Great Barrier Reef region in 2021: A report from the Social and Economic Long-term Monitoring Program (SELTMP) for the Great Barrier Reef. CSIRO Land and Water, Australia. ISBN 978-1-4863-1719-6. – Report • 2022 Scientific Consensus Statement – about, progress and updates		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN6 The necessary Indigenous heritage information is currently available to address community benefits of the environment	2	• The GBRMPA has good connections and relationships with some Traditional Owners through Caring for our Country projects, TUMRA groups, the Indigenous Reef Advisory Committee and liaison and consultation. • Refer to ME Heritage (indigenous) evidence table • See Woppaburra Guidelines - Woppaburra has been working with the Environmental Assessment and Permitting (EAP) Section of GBRMPA to develop ways of increasing Traditional Owner input into permitting decisions, and to prevent impacts to traditional use and heritage values as identified within the National and World Heritage Listings. (Before applications are accepted and assessed). • Following an approach to market in 2016, GBRMPA engaged consultants to develop a Cultural Protocol and Data Sharing Agreement templates to develop best practice protocols for managing cultural information and legally binding Data Sharing Agreements for use with Traditional Owner groups to share information as necessary. Outputs from this project and subsequent RIMReP Traditional Owner engagement work commenced in 2022 (see update for 2024 below) will help managers to work with Traditional Owners in a culturally appropriate way to address IN6. • RIMReP Indigenous Heritage Expert Group convened in November 2017 to develop indicators for RIMReP long-	• Refer to ME Heritage (indigenous) evidence table • Partners • Traditional Owner heritage assessment • Historic heritage assessment: maritime cultural heritage protection special management area (Document No. 100436) • Historic heritage assessment: other places of historic and social significance (Document No. 100437) • Historic heritage assessment: WWII features and sites, and voyages and shipwrecks (Document No. 100435) • Traditional Owner heritage assessment (Document No. 100434) • Woppaburra Traditional Owner heritage assessment (Document No. 100428)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		term monitoring. (Group ceased at end of RIMReP design phase) • Aboriginal cultural heritage database available for managers. • Native Title notification, public comments & engagement with TUMRA groups occur. • Through the Reef Trust Partnership, funded by the Australian Government, the Traditional Owner Reef Protection Component is the largest ever single investment in Traditional Owner Reef Protection and acknowledges the significance of their rights, interests and capacity for management of Reef Sea Country. The $51.8M investment is focused on the implementation of the priorities that accord to the Reef 2050 Traditional Owner Aspirations Report and the Uluru Statement from the Heart. This investment has the potential to create an enduring outcome that extends far beyond the life of the Partnership in true collaboration with Traditional Owners. • The Department of the Environment and Energy contracted a consortium, led by the Reef and Rainforest Research Centre (RRRC), to provide advice informed by effective and broad engagement to support the delivery of Traditional Owner aspirations and commitments in the Reef 2050 Plan. The consortium was led by Traditional Owner Gigari George (Wulgurukaba). Members of the consortium included Duane Fraser (Wulgurukaba), Liz	• https://culturalheritage.datsip.qld.gov.au/achris/public/home • Reef Trust Partnership between the Australian Government and the Great Barrier Reef Foundation – Traditional Owner Reef Protection component • Traditional Owners of the Great Barrier Reef: The Next Generation of Reef 2050 Actions report https://www.dcceew.gov.au/sites/default/files/documents/reef-2050-traditional-owner-aspirations-report.pdf • https://www.rrrc.org.au/wp-content/uploads/2019/08/Reef-2050-4pp-Summary-Brochure-Upload.pdf • RIMReP Web pages – GBRMPA Website • RIMReP Business Strategy 2020-25		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Wren, Larissa Hale (Yuku Baja Muliku), Traceylee Forester (Lama Lama) and Leah Talbot (Eastern Kuku Yalanji). They were supported by organisations in science and policy including: Allan Dale (JCU), Ro Hill (CSIRO), Libby Evans-Illidge (AIMS), Mike Winer (Cape York Institute), Sheriden Morris (RRRC) and Julie Carmody (RRRC). The consortium provided the Traditional Owners of the Great Barrier Reef: The Next Generation of Reef 2050 Actions in December 2018, which was released by the Department in 2019. This report is intended to support Traditional Owners to celebrate and document their achievements in securing a more "joined-up" approach to governance and management across the GBR. Based on the extensive engagement undertaken, it seeks to distil their core aspirations and plans regarding the governance and management of Sea Country. It then explores what the Reef 2050 Plan committed to, reviews its implementation to date, and documents Traditional Owners' discussions and statements about the best way forward. • An updated Reef 2050 Plan was released in late 2021 with a greater focus on acknowledging Traditional Owners aspirations for protecting the Great Barrier Reef. This first comprehensive review of the Plan in 2020/2021 was undertaken in collaboration with stakeholders and involved public consultation on a draft	• RIMReP – Reef Knowledge System • Toolkit for safeguarding Indigenous heritage and knowledge		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		of the updated Plan. The Plan includes Traditional Owner specific objectives and goals to achieve the overarching outcome of Healthy Reef, Healthy People. • The Plan has a strong emphasis on actions that recognise Traditional Owner rights and interests; and work towards increased participation, voice and capacity in governance processes for Reef protection and management. (Enabler chapters) • An outcome of the 2020 review was a need for a Traditional Owner Implementation Plan, one that was Traditional Owner led, written by mob for mob. Supported by the Joint Reef 2050 Secretariat, Traditional Owners on the multiple Reef governance groups came together to develop the Reef 2050 Traditional Owner Implementation Plan released November 2022. The Implementation Plan builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products including an animation and timeline were also produced to inform community and government of the long history and desired path forward. • See CO2 re: Cultural Heritage Value condition assessment, but noting that there is no consistent approach or application among the various report card			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		partnership regions and there has only been a limited number of assessments carried out to date (hence available knowledge is limited). • The Reef Authority 'Science and Knowledge Needs for Management' (2021) – refer IN4. • 2019 Outlook Report is publicly available and includes some relevant Indigenous heritage information. However, many data and knowledge gaps remain about how community benefits impact indigenous heritage. • The Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef sets out a vision, guiding principles, objectives, actions and anticipated outcomes for how the Great Barrier Reef Marine Park Authority will work with Aboriginal and Torres Strait Islander peoples to focus on ways to keep Indigenous heritage in the Great Barrier Reef Marine Park strong, safe and healthy. • The Reef Knowledge System currently hosts several Land and Sea Country webpages, which provide key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community. • Implementing the 'Strong Peoples-Strong Country Framework' was identified as one of the Priority Monitoring Gaps in the Reef Authority's prospectus in 2021 - which provides an overview of the priority monitoring gaps identified to support the implementation of the Reef 2050 Integrated Monitoring			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and Reporting Program. The prospectus identified 11 priority monitoring gaps which have since been funded by the Reef Trust Partnership and are being progressed by RIMReP Partners. The Strong Peoples-Strong Country Framework aims to build capacity for Traditional Owner leadership of monitoring and reporting in the Great Barrier Reef (GBR). Phase 2 of the Strong People Strong Country framework builds on the work undertaken in Phase 1 and involves the development of a set of objective indicators, which aim to provide information and insights about the condition and trends in Indigenous heritage values in the Reef and its catchments. • Some examples of Sea Country Values Mapping are now available: E.g. Mandubarra Sea Country Cultural Values Mapping Project. • Commencing in 2017 there are now four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. • This work directly contributes to the Reef Authority's Aboriginal and Torres Strait Heritage Strategy objective O2.4– 'Integrate Traditional Owner knowledge and input into our environmental assessment and permitting			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		process', and action A2.4.3 'develop guidance and templates for applicants on expectations for Traditional Owner consultation • One dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes to better identify risks to relevant Indigenous heritage values for the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measures. • Developed a spatial representation for stakeholder of proposed permit areas relating to Native Title Claims, Determinations, TUMRAs etc within the Marine Parks • RIMReP is a partnership involving Australian and Queensland government entities, together with Traditional Owners. Four Traditional Owner Members sit on the RIMReP Governance groups to provide guidance and advice on cultural, social, economic, and other matters, engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision. • Toolkit (developed from the RIMReP DMS4 project) for safeguarding Indigenous heritage and knowledge was released in 2020, used as a guidance tool for RIMReP. • Sharing of Indigenous heritage information will be captured through the RIMReP Reef Knowledge System (as related to Reef 2050) and negotiated through Data			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Sharing Agreements with the knowledge holders. Future engagement requirements for RIMReP.			
IN7 The necessary historic heritage information is currently available to address community benefits of the environment	2	• The Reef Authority 'Science and Knowledge Needs for Management' (2021) – refer IN4. There are several current research needs that relate to historic heritage • 2019 Outlook Report is publicly available and has some relevant historic heritage information. However, data and knowledge gaps remain about how community benefits have/will impact historic heritage.	• Refer also to ME of heritage (historic) evidence table • Guidelines – Historic heritage assessment 2017 • Historic heritage assessment: maritime cultural heritage protection special management area • Historic heritage assessment: other places of historic and social significance (Document No. 100437) • Historic heritage assessment: WWII features and sites, and voyages and shipwrecks (Document No. 100435)	Adequate	Stable
IN8 There are additional sources of non-government input (e.g. volunteers) contributing to address community benefits of the environment	3	• Reef Islands Initiative Lady Elliot Island Volunteer program contributing to island restoration activities including maintenance of nursery on Lady Elliot Island. • In addition to the $443.3 million of funding provided by the Australian Government to the Great Barrier Reef Foundation (the GBRF), the GBRF also has a range partners and investors support the organisation.	• Reef Islands Initiative - Great Barrier Reef Foundation - Great Barrier Reef Foundation • Partners - Great Barrier Reef Foundation - Great Barrier Reef Foundation • ReefClean – Tangaroa Blue	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Australian Government funded ReefClean marine debris clean-up program works with a range of community members and volunteers to support delivery of the program. • Reef ecologic • GBRF • NQ Dry tropics • Universities – JCU, CQU, UQ • Master Reef Guides • Reef HQ Aquarium provides an avenue to enhance community understanding of the Reef. Over 186,000 people visited the Aquarium from January 2019 to February 2021. The Aquarium closed for a period of time during 2020 due to COVID-19 restrictions. The Aquarium offers high-quality products and promotes the values of the Reef, the threats its facing and the role people can play in protecting it. The products on offer have consistently met visitor expectations. • The Aquarium closed in March 2021 and is being rebuilt after risks associated with refurbishing the 35-year-old facility were uncovered. • The Reef Education team are still delivering educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its stainable future and to encourage participation by taking action to address threats to the Reef. Reef HQ			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Aquarium continue to engage with the public and promote educational messages through social media channels and local community events.			
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of community benefits of the environment	4	• The Reef 2050 Traditional Owner Implementation Plan released November 2022 builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products including an animation and timeline were also produced to inform community and government of the long history and desired path forward. • As an APS agency the way and type of information that GBRMPA distribute is governed by various APS wide conventions. During 2022, the Caretaker Conventions period associated with this time stipulated that Australian Government resources are not used to support any particular political position. • The Reef Authority leads an annual pre-summer health workshop that brings together partners and stakeholders to coordinate communications around Reef Health events • Commencing in 2017 there are now four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi),	• Partners • Reef guardians | gbrmpa • GBRMPA annual reports (see elibrary for past editions) • http://www.gbrmpa.gov.au/about-us/reef-advisory-committee/tourism-and-recreation-reef-advisory-committee • LMACS http://www.gbrmpa.gov.au/about-us/local-marine-advisory-committees • Cape York Peninsula Tenure Resolution Program • NESP 2.3.3 - Building Indigenous livelihood and co-management opportunities in the Northern GBR – ecosystem services and conservation	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. – This work directly contributes to the Reef Authority's Aboriginal and Torres Strait Heritage Strategy objective O2.4– 'Integrate Traditional Owner knowledge and input into our environmental assessment and permitting process', and action A2.4.3 'develop guidance and templates for applicants on expectations for Traditional Owner consultation. • Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes to better identify risks to relevant Indigenous heritage values for the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measures.	governance for water quality • NESP 2.3.4 - Working with Traditional Owners and local citizens to better manage GBR estuarine wetlands - final report available on portal • Marine tourism coordination framework for environmental incidents (2012) • Marine tourism contingency plan for the Great Barrier Reef Marine Park (Document No:100356) (2014) • PM&C guidelines 7.4.2 • Reef health communications framework		
PR2 The local community is effectively engaged in the ongoing management of community benefits of the environment	4	• The Australian Government has committed $17.48M to deliver shovel-ready projects identified in local councils' Reef Action Plans; contributing to delivery of Reef 2050 plan objectives. • Reef 2050 Traditional Owner Implementation Plan	• Reef Guardians, schools, fishers (inactive), farmers and councils • GBRMPA Annual Report 2016-17	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• In July 2020, Reef HQ Aquarium reopened its doors following the temporary closure due to COVID-19 and remained operational until 1 February 2021. The Aquarium then closed, including the Turtle Hospital, and will be rebuilt to ensure compliance with building code, WHS and accessibility. • The Reef Education team continue to deliver educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its sustainable future and to encourage participation by taking action to address threats to the Reef. Reef HQ Aquarium continue to engage with the public and promote educational messages through social media channels and local community events. • Media, social media, website, Reef in Focus webinars, Reef on the Radio. • Various communication activities and campaigns encourage community members to take action to protect the Reef, including tips on what they can personally do to make a difference.	• Reef Trust: http://www.environment.gov.au/marine/gbr/reef-trust • Reef 2050 Water Quality Improvement Plan • Further information on Reef Guardian Council Action plans can be provided by GBRMPA • Reef 2050 Traditional Owner Implementation Plan https://reefto.au/wp-content/uploads/2022/10/DES_GBR_TO-Report_WEB.pdf • Animation https://youtu.be/GdlRwn6QINc • Timeline https://reefto.au/timeline/		
PR3 There is a sound governance system in place to address community benefits of the environment	4	• See PR2 – work area 4 • NESP Final Report (2016) - Monitoring and adaptively reducing system-wide governance risks facing the GBR. • IMR RTP Monitoring collective capacity and implementation (Governance): There are multiple programs, plans and policies underway for the	• 2017 Scientific Consensus Statement • Reef 2050 Integrated Monitoring and Reporting Program	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		protection and sustainable use of the Reef under the Reef 2050 Plan. This project (2021-2024) will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. No results yet.	• Reef 2050 Long-Term Sustainability Plan • Reef 2050 Traditional Owner Implementation Plan https://reefto.au/wp-content/uploads/2022/10/DES_GBR_TO-Report_WEB.pdf • Animation https://youtu.be/GdIRwn6QINc • Timeline https://reefto.au/timeline/ • Integrated Monitoring and Reporting - Great Barrier Reef Foundation		
PR4 There is effective performance monitoring, including. regular assessment of appropriateness and effectiveness of tools, to gauge progress towards the	3	• Suggest Reef 2050 re monitoring and reporting • See PR2 – work area 5 • The Outlook Report is published by the Reef Authority every 5 years and assesses the management	• GBRMPA Annual Report 2016-17 • 'Human sensors' for monitoring Great Barrier Reef environmental changes	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
objective(s) for community benefits of the environment		effectiveness for community benefits. In 2019 this was assessed as good (and stable). • Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: – Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. – Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system. • Market research undertaken by the Reef Authority assesses community attitudes towards the Reef and its management.	and quality of marine waters through harnessing Big Data analysis • Reef 2050 Traditional Owner Implementation Plan https://reefto.au/wp-content/uploads/2022/10/DES_GBR_TO-Report_WEB.pdf • Animation https://youtu.be/GdIRwn6QINc • Timeline https://reefto.au/timeline/ • GBRMPA ELibrary: Great Barrier Reef Outlook Report 2019 (refer Chapter 7) • Social and Economic Long-Term Monitoring Program (SELTMP) • SELTMP Core module pilot data dashboard		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Strengthening Permissions Compliance Action Plan 2015-2020 sought to deliver certain outcomes directly relevant to the Permits Compliance Team which included the establishment of effective arrangements to manage non-compliance as follows: – An enhanced risk based program for the assessment of regulatory risks so enforcement resources and consequential actions can be efficiently, effectively and proportionately targeted; and – an annual compliance plan to address identified regulatory risks. • Since then, the Annual Permissions Compliance Plan has continued to be implemented annually which outlines the risk associated with allegations of non-compliance and strategic approach to non-compliance. • Since February 2020 allegations of non-compliance have been managed via the My Case Manager system within RMS and the complimentary Managing Permissions Non-Compliance Procedure. • Historical records pre-dating the My Case Manager system back to 2015 were migrated to the new system.	• SELTMP Core Module Report • SELTMP Core Module 2021 Survey dataset: • Regional Report Cards social survey dashboard • Regional Report Cards Module Report • Regional Report Cards 2021-22 Social Survey dataset • Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects)		
PR5 Appropriate training is available to the managing agencies to address	3	• Limited – some staff participate in workshops, conferences, steering committee meetings at GBRMPA	• Workshop discussions • Reef Guardians	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
community benefits of the environment		• Agency staff have participated in a range of training, workshops and attended seminars to increase their awareness of and ability to manage for community benefits – e.g. Thematic Communication, Social-based marketing. • Training in 'Communicating with influence' was done by 50 stewardship leaders across the GBR catchment in 2016 and 2017. Participants included: Reef Guardians, High Standard Tourism operators and representatives from Local Marine Advisory committees- many of whom have some role in environmental management • The Reef Guardian program conducts a range of networking and educational activities each year aimed providing knowledge, networks and skills to either stakeholders directly involved in management (e.g. briefings to councils), with influence over managers (e.g. LMAC/Reef Guardian networking meetings) or may be future managers (e.g. Future Leaders Eco-challenges), • Training in monitoring the Reef has been delivered to people with a role in Reef management via Eye on the Reef, Reef Check, Coral Watch • COTs training to the community is provided on request. AMPTO have trained Cape York NRM and Low Isles Preservation Society however it is under strict guidelines. The COTS guidelines are provided with the permits which provides online training. • GBRMPA Annual Report 2016-17 pg. 80	• GBRMPA Annual Report 2016-17		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• 'Behaviour change' training conducted across the organisation within GBRMPA. • Digital marketing and trends training with the communications team.			
PR6 Management of community benefits of the environment is consistently implemented across the relevant jurisdictions	3	• There are some inconsistencies within management of the coastal zone and developments on Islands under the jurisdiction of Queensland where the head of power to consider impacts on community benefits and social and heritage matters is not as clear. • There is no clear intergovernmental agreement or arrangement when planning community benefits • Reef 2050 (Refer to CBA5 - Ensure community benefits derived from the Reef are considered in local and State-level policy and planning instruments and development and management decisions). • Also see Indigenous Heritage table	• Workshop and interviews • Reef 2050 Plan	Limited	Stable
PR7 There are effective processes applied to resolve differing views/ conflicts regarding community benefits of the environment	3	• There are clearly specified processes to resolve differing views in relation to community benefits that may be impacted by permitted developments and activities (Ref EPBC Act, Permissions System), contracted work, granted money • See CO5 for forums for interaction between community stakeholders in management impacting on community benefits of the environment. These forums are generally where conflict is managed. Processes are often	• Reef Guardians • Local Marine Advisory Committees | gbrmpa • LMAC terms of Reference: GBRMPA ELibrary: Local Marine Advisory Committee: Terms of reference 2021-2024 • Field Management Quarterly Reports provide	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		dependent on the issue; discussion may resolve the matter; it may be determined other processes are necessary. • Monitoring of community benefits is developing, and we are gaining a deeper understanding of differing views and conflict through specific issues/incidences, media monitoring, sentiment tools and anecdotal evidence. The process to resolve differing views and conflict is undertaken case-by-case dependent on the issue and channel. • The Communications section develops a social moderation plan (can be provided if required) with its media agency when advertising Marine Park zoning on Facebook. Moderation is required as high engagement does not necessarily mean good performance in changing behaviour. High click-through rates on posts that are attracting negative comments erode target audience trust and the reputation of the Reef Authority. • Joint Streamlining Permissions Steering Committee initiated in 2019 to oversee work on streamlining permissions.	social media sentiment overview • GBRMPA ELibrary: Applications for joint permissions (Document No. 100440)		
PR8 Impacts (direct, indirect and cumulative) of activities associated with community benefits of the environment are appropriately considered.	2	• See CO3 • Impacts associated with community benefits are summarised in the Strategic Assessments and Outlook Reports	• Reef 2050 Plan Cumulative Impact Management Policy • Great Barrier Reef Strategic Assessment	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Reef 2050 CBA11 - Strengthen programs to understand and promote the: – Reef's values and the community benefits they provide – threats to the values of the Reef and what people can do to address them – implications of climate change for the Reef and coastal ecosystems – role of the Reef, coastal ecosystems and physical coastal processes in protecting communities from extreme weather events – opportunities to contribute or play a role in protecting and managing the Reef. • Cumulative Impacts Policy has been published. • Cumulative impact assessment takes into account direct, indirect and consequential impacts and the incremental and compounding effects of these impacts over time, including past, present and reasonably foreseeable future pressures. • Net Benefit Policy provides guidance on designing or implementing programs, plans and actions to improve the condition and trend of values and achieve an overall net benefit to the Great Barrier Reef. • Project schedules and Monitoring, Evaluation, Reporting and Improvement (MERI) plans have been developed to	Report, Chapter 6 and 7, Appendix 5 • Great Barrier Reef Coastal Zone Strategic Assessment 2014 • Outlook Report 2009, 2014 e.g Chapter 5 • Experimental Environmental-Economic Accounts for the Great Barrier Reef, 2017 • State Party Report on the state of conservation of the Great Barrier Reef World Heritage Area (Australia) 2015 • Reef 2050 Net benefit Policy		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		capture Reef Trust partnership program impacts, including community and Traditional Owner impacts, including: – Strengthening sea country partnerships in the GBR: Expanding the successful TUMRA program and increasing Traditional Owner partnerships to benefit Marine Park management – Queensland Indigenous Land and Sea Rangers (ILSR) program – Reef Islands Restoration • The impacts of recreational fishing have been addressed through a campaign to raise awareness around zoning. • Community impacts have been considered through a Be Reef Smart campaign. • Impacts identified through the Blueprint for Resilience were used to guide community-based campaigns such as the recreational fishing campaign and the Be Reef smart campaign.			
PR9 The best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding	2	• Biophysical knowledge and monitoring are used when making decisions about community benefit including through the EIS and permit assessment process. • See IN4	• Workshop discussions • See IN4	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
community benefits of the environment					
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding community benefits of the environment	2	• The guidelines for social impact assessment in the permission system which provides guidance on assessing impacts to social values within the permission system as well as including on-going monitoring of impacts associated with new developments. • See IN5 • SELTMP is assisting Reef managers and other decision-makers within the Great Barrier Reef region to incorporate the human dimension into their planning and management. • RIMReP human dimension indicators encompass four themes of Reef 2050 Plan • CSIRO released the Design and implementation of social surveys for Regional Report Cards in the Great Barrier Reef catchment in August 2022. This report documents the process of operationalising some of the identified Regional Report Card human dimension indicators of waterway health, via social surveys that were co-designed by representatives from the Regional Report Card partnerships, management agency staff from OGBR and the Great Barrier Reef Marine Park Authority (GBRMPA), and scientists from CSIRO. • In addition, CSIRO also released the Monitoring human dimensions of the Great Barrier Reef report which	• Social impacts assessment in the permission system SELTMP • Curnock, M.I., Pert, P.L., Maharjan, D., Gordon, B. and Kaniewska, P, (2022). Design and implementation of social surveys for Regional Report Cards in the Great Barrier Reef catchment. CSIRO Land and Water, Townsville: RegionalReportCards-HDmonitoring-FinalReport-August2022-1 • Hobman, E. V., Mankad, A., Pert, P. L., van Putten, I., Fleming-Muñoz, D. & Curnock, M. (2022). Monitoring social and economic indicators among residents of the Great Barrier Reef region in 2021: A report from the Social and	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		outlines the social and economic indicators for catchment residents. • Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: – Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. – Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system. • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment: This project reviewed common	Economic Long-term Monitoring Program (SELTMP) for the Great Barrier Reef. CSIRO Land and Water, Australia. ISBN 978-1-4863-1719-6. – Report • Social and Economic Long-Term Monitoring Program (SELTMP) – SELTMP Core module pilot data dashboard – SELTMP Core Module Report – SELTMP Core Module 2021 Survey dataset: – Regional Report Cards social survey dashboard – Regional Report Cards Module Report		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		frameworks that conceptualise the relationship between people and nature to identify which parts of the system influence environmental outcomes, and factors relevant to designing policy or influencing behaviours. • Stewardship for the Great Barrier Reef: A review of concepts and definitions of stewardship for the Great Barrier Reef: This report reviews the concepts and definitions of stewardship for the Great Barrier Reef • Social market research conducted by the Reef Authority is used to inform management activities, including the development of communication plans and campaigns. • Reef Authority media and social media analysis provides insights to community views and understanding of the Reef, its values and management. • According to market research conducted in 2022, there are more Reef stakeholders giving money, attending public meetings and making formal submissions to Government about reef-related issues than in 2020.	– Regional Report Cards 2021-22 Social Survey dataset – Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment: Project 1.17 | Marine and Coastal (nespmarinecoastal.edu.au) • Stewardship for the Great Barrier Reef: A review of concepts and definitions of stewardship for the Great Barrier Reef:		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			https://hdl.handle.net/11017/3781		
PR11 The best available Indigenous heritage information is applied appropriately to make relevant management decisions regarding community benefits of the environment	2	• Australian Government Reef Programme – Land and Sea Country Partnerships component will continue to strengthen communications between local communities, Great Barrier Reef managers and stakeholders and build a better understanding of Traditional Owner use of the Great Barrier Reef Marine Park • RIMReP Indigenous Heritage Expert Group explored designing indicators for long term monitoring • Refer to ME Heritage (indigenous) evidence table • See IN5 • Cultural Heritage Management Plan • Cultural heritage process listed in all EISs for major development proposals. • Aboriginal and Torres Strait Islander Heritage Strategy • IRAP • Sharing of Indigenous heritage information will be captured through the RIMReP Reef Knowledge System (as related to Reef 2050) and negotiated through Data Sharing Agreements with the knowledge holders. Future engagement requirements for RIMReP.	• Reef Guardians • The Australian Government Reef Programme • Refer to ME Heritage (Indigenous) evidence table • RIMReP Web pages – GBRMPA Website • RIMReP Business Strategy 2020-25 • RIMReP Annual Business Plan 2022-23 • Marine tourism coordination framework for environmental incidents (2012) • Marine tourism contingency plan for the Great Barrier Reef Marine Park (Document No:100356) (2014)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Achieving the goals and targets of the Reef 2050 Water Quality Improvement Plan (formerly the Reef Water Quality Protection Plan) relies on partnerships across all levels of government, industry, community groups, research organisations and land managers. • The Reef Guardian program strategy aims to engage the community in ongoing management of the environment and associated community benefits. Through direct engagement with program participants, the strategy strives to indirectly increase engagement via connecting, empowering and building capacity of Reef Guardians to influence and engage their communities. Participation by 291 schools, councils covering 300,000 square kilometres of the GBR catchment and over 60 fishers and farmers and demand for participation exceeding Reef Authority ability to 'supply' is evidence of the extent of effectiveness of this engagement process. • Association of Marine Park. Tourism Operators (AMPTO). • Marine tourism coordination framework for environmental incidents and marine tourism contingency plan research providers CSIRO, JCU • LMACs, RACs • GBRMPA staff in Regional offices • Stakeholders can also provide input during public consultation processes relevant to them (e.g. RMS			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		development, site management arrangements, Plans of Management amendments) • Increase in protected areas and Indigenous owned land managed for conservation purposes within GBR catchment on east cost of Cape York Peninsula. • Range of research has been done (or in progress) developing new approaches to inform improvement of engagement of community, industry etc in management of community benefits (Ref NESP projects). • Commencing in 2017 there are now four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. • This work directly contributes to the Reef Authority's Aboriginal and Torres Strait Heritage Strategy objective O2.4– 'Integrate Traditional Owner knowledge and input into our environmental assessment and permitting process', and action A2.4.3 'develop guidance and templates for applicants on expectations for Traditional Owner consultation • Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes to better identify risks to relevant Indigenous heritage values for			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measures.			
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding community benefits of the environment	2	• Refer also to ME of heritage (historic) evidence table • IN6	• Workshop discussions • Refer also to ME of heritage (historic) evidence table	Adequate	Stable
PR13 Relevant standards are identified and being met regarding community benefits of the environment	3	• Reef Practices • The High Standard Tourism Program is 'eco-certification' (administered and audited, by bodies independent of Reef managers) of standards identified to be important to environmental health and associated community benefits. 69 tourism business operating in the GBRWHA are certified (72 in December 2018). • The marine aquarium collectors fishery has developed a stewardship action plan in direct response to requirement to manage environmental and community benefits associated with reefs. This plan is a voluntary code of management standards for the fishery • SELTMP is assisting Reef managers and other decision-makers within the Great Barrier Reef region to incorporate the human dimension into their planning and management.	• The Australian Government Reef Programme • Social impacts assessment in the permission system • SELTMP • Responsible Reef Practices • Reef Guardians • High Standard Tourism Programs • Reef 2050 Integrated Monitoring and Reporting Program • Reef 2050 Plan.	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef 2050 Integrated Monitoring and Reporting Program (RIMREP) is being used to track the progress of outcomes outlined in the Reef 2050 Plan. • RIMREP will help track progress towards objectives under the Reef 2050 Plan's five work areas: impacts from climate change, impacts from land-based activities, impacts from water-based activities, international sources of impact, and protect/rehabilitate/restore. (Previously the plan's (edition 2018) seven themes: ecosystem health, biodiversity, heritage, water quality, community benefits, economic benefits, governance and reporting). • The draft guidelines for social impact assessment in the permission system which provides guidance on assessing impacts to social values within the permission system as well as including on-going monitoring of impacts associated with new developments. • Key industries in the catchment are encouraging, supporting and seeing increased participation in industry Best Management Practice programs. • Ports – stewardship action. Port master planning requires consideration of issues beyond strategic port land including potential impacts on marine and land-based environments and community values within and surrounding the master planned area. • Reef Guardian program, although not certifying specific practices standards; it does require participants to	• Industry Best Management Practice Programs – SmartCane; Grazing BMP; Banana BMP • Provision Reef Stewardship Action Plan 2013 • Social media policy (can be provided if required) • Australian Government style guide • Reef Authority style guide • Accessibility guidelines • Media Management Policy • Reef Guardian Councils Climate change initiatives snapshot 2022		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		uphold stewardship principles that recognise and support community benefits of the environment • Reef Authority channels are used in a number of different ways pending the nature of the topic and the target audience. Communications protocols and standards are adhered to through a number of guides, policies and consistency of language. • Reef Guardian Council Climate change initiative snapshot 2021. • RIMReP's vision is to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. • The design phase of RIMReP was completed in 2019. It delivered the structure, program and monitoring design, an implementation roadmap, and an initial release of the Reef Knowledge System. Implementation phase of RIMReP is progressing with the greatest effort directed toward continuing the scoping and implementation of a fit for purpose Data Management System, progressing the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement • RIMReP will determine the business requirements for the design of an online Reef 2050 reporting platform through the Reef Knowledge System (RKS). To be an			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		online progress report that provides an indication of whether the Reef 2050 Plan is tracking towards its objective and targets is needed. Scoping is progressing for this framework under the RIMReP Annual Business Plan priority project work. • The RKS is the centrepiece of RIMReP. It is the interactive 'first stop shop' for up to-date information about the Reef to guide effective management decisions in a rapidly changing world. The Reef Knowledge System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken.			
PR14 Targets have been established to benchmark management performance for community benefits of the environment	2	• High level targets were established as part of the Strategic Assessment Program Reports for the Region • RIMREP will help track progress towards objectives under the Reef 2050 Plan's five work areas: impacts from climate change, impacts from land-based activities, impacts from water-based activities, international sources of impact, and protect/rehabilitate/restore. (Previously the plan's (edition 2018) seven themes: ecosystem health, biodiversity, heritage, water quality, community benefits, economic benefits, governance and reporting). • Reef 2050, Refer CBA11 - Strengthen programs to understand and promote the:	• Great Barrier Reef strategic assessment - DCCEEW • The Australian Government Reef Programme • RIMReP Web pages – GBRMPA Website • Reef 2050 Plan • Annual report data 2021-22	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Reef's values and the community benefits they provide – threats to the values of the Reef and what people can do to address them – implications of climate change for the Reef and coastal ecosystems – role of the Reef, coastal ecosystems and physical coastal processes in protecting communities from extreme weather events – opportunities to contribute or play a role in protecting and managing the Reef. • The Reef Authority communication strategy 2021–24 details activities to promote understanding and appreciation of the Reef and its values, as well as activities to protect it. • The Reef Authority's annual Corporate plan outlines trust and sentiment scores, website and social media reach.	• Corporate Plan 2022-23		
OUTPUTS					
OP1 To date, the actual management program (or activities) have progressed in accordance with the planned	3	• Reef HQ Aquarium: 70% of visitors to Reef HQ Aquarium participate in talks and tours that deliver key messages about risks to the Great Barrier Reef. • Reef HQ Aquarium ensures that the community and stakeholders have a clear understanding of the value of	• Eye on the Reef • High Standard Tourism Program • Reef HQ	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
work program for community benefits of the environment		the Great Barrier Reef, the threats to its sustainable future and their role in protecting it. • Reef HQ Aquarium has strong links to the community and continues to support a volunteer program that has contributed more than 406,000 hours since being established in 1987. • The Reef Guardian program is a successful stewardship program achieving its mission 'to build a (growing) network…influencing community stewardship of the Reef.' That network has grown from a small number of schools participating in 2003 to a much larger and more diverse network of participants (see PR1). • Eye on the Reef - More than 400 tourism staff have been trained in Eye on the Reef monitoring protocol. • Human dimensions research is being brought into the RIMREP Human Dimensions expert working group to inform the RIMREP Program design • Results from SELTMP 2017 survey included new questions about community perception. • Human dimension target included in the Reef 2050 Water Quality Improvement Plan (Reef 2050 WQIP). • Sustainable fishing messages are being promoted through recreational fishing campaigns. Fishing personalities are used to promote and build normative messaging to encourage behaviour change	• Reef 2050 Integrated Monitoring and Reporting Program • Reef 2050 Long-Term Sustainability Plan • GBRMPA Annual Report • Reef 2050 WQIP • Publications – SELTMP (csiro.au)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The following programs have been progressed as agreed in their project schedules: • The Great Barrier Reef Foundation's Reef Islands Initiative is working with local communities and tourism operators to successfully deliver on-ground and in-water actions to protect and restore critical high-value island habitats that support wildlife and communities. New approaches to habitat restoration are being driven and led by local tourism, community and Traditional Owner partners. • Strengthening sea country partnerships in the GBR: Expanding the successful TUMRA program and increasing Traditional Owner partnerships to benefit Marine Park management • Queensland Indigenous Land and Sea Rangers (ILSR) program • The Marine Debris ReefClean program is being delivered as agreed with the Services Agreement with Tangaroa Blue. • Planned corporate and program activities programs have progressed through the Reef Authority communications strategy. • Reef HQ Aquarium provides an avenue to enhance community understanding of the Reef. Over 186,000 people visited the Aquarium from January 2019 through to end of January 2021. The Aquarium closed for a period of time during 2020 due to COVID-19			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		restrictions. The Aquarium offers high-quality products and promotes the values of the Reef, the threats its facing and the role people can play in protecting it. The products on offer have consistently met visitor expectations. • Reef HQ Aquarium reopened its doors following the temporary closure and remained operational until 1 February 2021. The Aquarium then closed and will be rebuilt to ensure compliance with building code, WHS and accessibility. • The Reef Education team are still delivering educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its stainable future and to encourage participation by taking action to address threats to the Reef. Reef HQ Aquarium continue to engage with the public and promote educational messages through social media channels and local community events.			
OP2 Implementation of management documents and/or programs relevant to community benefits of the environment have progressed in accordance with timeframes specified in those documents	3	• See OP 1 • The following programs have been progressed as agreed in their project schedules: – The Great Barrier Reef Foundation's Reef Islands Initiative is working with local communities and tourism operators to successfully deliver on-ground and in-water actions to protect and restore critical high-value island habitats that support wildlife and communities.	• GBRMPA Annual Report • Reef 2050 Integrated Monitoring and Reporting Program • Reef 2050 Long-Term Sustainability Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		New approaches to habitat restoration are being driven and led by local tourism, community and Traditional Owner partners. – Strengthening sea country partnerships in the GBR: Expanding the successful TUMRA program and increasing Traditional Owner partnerships to benefit Marine Park management – Queensland Indigenous Land and Sea Rangers (ILSR) program • The Reef Authority communication strategy 2021–24 details activities to promote understanding and appreciation of the Reef and its values, as well as activities to protect it. This guides implementation of the annual work program.	• Reef Island Initiative public information is available at Reef Islands Initiative - Great Barrier Reef Foundation - Great Barrier Reef Foundation. Details of Traditional Owner and Indigenous ranger commitments is here.		
OP3 The results (in OP1 above) have achieved their stated management objectives for community benefits of the environment	3	• See OP1 • Although the outputs in OP1 contribute in varying degrees to management of community benefits of the environment, few have clearly stated objectives in relation to this. As evident in PL5, IN5, PR4, indicators and systems to monitor community benefits of the environment are in development. In the absence of these it is not possible to measure progress towards objectives. • The Reef Island Initiative, Australian Government funded component of the Queensland Indigenous Ranger	• GBRMPA Annual Report • Reef Island Initiative public information is available at Reef Islands Initiative - Great Barrier Reef Foundation - Great Barrier Reef Foundation. Details of Traditional Owner and Indigenous ranger commitments is here.	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		program and the Strengthening Sea Country partnerships programs are still underway so final results are not yet known. • The Marine Debris ReefClean program is being delivered as agreed with the Services Agreement with Tangaroa Blue. • Reef Authority communication plans and campaigns include an evaluation component to assess its effectiveness.	• The Services Agreement is for internal use only for the department (DCCEEW) and Tangaroa Blue. Public information on ReefClean is available at ReefClean – Tangaroa Blue		
OP4 To date, products or services have been produced in accordance with the stated management objectives for community benefits of the environment	3	• See OP 3 • FMP maintain asset register and monitoring program. The Field Management Program maintains a visitor facilities asset base for public moorings, reef protection markers, island campgrounds etc). • The Great Barrier Reef Foundation's Reef Islands Initiative is working with local communities and tourism operators to successfully deliver on-ground and in-water actions to protect and restore critical high-value island habitats that support wildlife and communities. New approaches to habitat restoration are being driven and led by local tourism, community and Traditional Owner partners. • Strengthening sea country partnerships in the GBR: Expanding the successful TUMRA program and increasing Traditional Owner partnerships to benefit Marine Park management	• GBRMPA Annual Report • Reef Island Initiative public information is available at Reef Islands Initiative - Great Barrier Reef Foundation - Great Barrier Reef Foundation. • Details of Traditional Owner and Indigenous ranger commitments is here. • Communications strategy • Projects on a page	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Queensland Indigenous Land and Sea Rangers (ILSR) program • The Reef Authority have developed a corporate suite of collateral that raises awareness and shares the management messages of the Reef Authority. • A newly refreshed website has been launched. • The Reef Authority produces a range of collateral across different mediums including videos, physical signage, and applications.			
OP5 Effective knowledge management systems regarding community benefits of the environment are in place within agencies	3	• Information for communities is available through various mediums (e.g. TV community announcements, billboards, boat shows, publications, websites) • Management of scientific information procedures are in place and are delivered at whole-of-GBRMPA using RefWorks as its database and citation management tool • Tools to disseminate information about values and impacts on them are available, and undergoing development to improve service delivery – e.g. the Eye on the Reef program that provides a centralised database for Reef health information and Reef Explorer which is an interactive tool for displaying spatial information • A significant amount of monitoring data will be strongly embedded within RIMReP and representatives from RIMReP partners were involved in the technical working groups responsible for designing reef-wide monitoring	• Permits search • Bookings Online • EMC Online • Eye on the Reef • Reef Explorer • SELTMP (csiro.au) – newer website • Social and Economic Long Term Monitoring Program (SELTMP) – entry in eAtlas repository • Eye on the Reef | gbrmpa	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		programs during the program design phase (Update for 2024 - and now during the implementation phase, e.g. involvement in the RIMReP Data Management System project implementation project. See also the Reef Knowledge System information below.) • There are few knowledge management systems with particular focus on community benefits of the environment, e.g., the SELTMP data (and 'dashboards' in development). Update for 2024 – dashboards now in place on SELTMP public website, which is linked to from the Reef Knowledge System. • The existence of effective environmental knowledge management systems and sharing of them with the community, is in itself a community benefit. Effective systems in place are outlined in OP6. • Management information in regard to permits is available to community through the Permits search • Bookings Online provides a user-friendly, online platform to make and manage bookings to the Planning Areas, Sensitive Locations and all anchorages. • EMC Online allows Marine Park users to manage their EMC obligations. • Google universal analytics, GA4, supermetrics to inform audience and knowledge gaps for digital communications products.	• Environmental management charge | gbrmpa • Coronavirus Economic Response package • Permits online | gbrmpa • A Guide for Current Permit Holders • RIMReP Web pages – GBRMPA Website • RIMReP Business Strategy 2020-25 • RIMReP – Reef Knowledge System • Toolkit for safeguarding Indigenous heritage and knowledge • RIMReP Annual Business Plan 2022-23		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs • A new Eye on the Reef app will be released alongside the database to improve community engagement. • In March 2020 the Australian Government implemented a support package for Great Barrier Reef Marine tourism operators significantly affected by COVID-19 this included the waiver of the Environmental Management Charge (EMC) and Permit Application and Assessment Fees (PAAF). This initial waiver has been extended to the end of June 2023. • As such EMC must not be collected from visitors, advertised or paid to the Great Barrier Reef Marine Park Authority until 1 July 2023. • RIMReP's vision is to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. • A centrepiece of RIMReP is the interactive online Reef Knowledge System — the 'first stop shop' for upto-date information about the Reef to guide effective management decisions in a rapidly changing world. The Reef Knowledge System is being continuously improved, and over time it will show monitoring and modelling data from a wide range of sources in useful			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken.			
OP6 Effective systems are in place to share knowledge on community benefits of the environment with the community	3	• Many knowledge management systems are also the system through which knowledge is shared. • Community benefits associated with effective knowledge systems relate to community desire to have access to information about the environment and its management and to contribute knowledge. Effective systems are in place within agencies to provide: • Information about the environment – educational resources (e.g. GBRMPA website 'About the Reef', resources on other government agencies, NRM groups, industry bodies), scientific information (e.g. Refworks, research institutes systems to access research information), condition (e.g. various report cards), spatial information (e.g. Reef Explorer, QLD Globe). • Management information – about specific permits and planning/use decisions (e.g. Permit search, EPBC Act Notices database), grants and funding programs to assist community environmental action (e.g NQ Grants hub.); industry 'best practice' information resources (e.g. see PR3). • Access to the environment – booking use (e.g. Reef bookings online, systems for booking visits to State and National parks), zoning maps (e.g. Marine Park zones being incorporated into navigation and fisheries app).	• eResearch Archive • e-Library • LMACs • Facebook, Instagram, Twitter, LinkedIn • About the Reef & Learn about the Reef • FLOW • Water Quality Improvement Plan report cards • Reef Explorer • Queensland Globe • Permits online • EPBC Act Notices database • North Queensland Grants hub • Grazing Best Management Practices • Bookings online • Queensland National Parks Booking Service • Eye on the Reef Survey activity	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Gathering of community knowledge – citizen science data platforms (e.g. Eye on the Reef, Sightings network); advisory groups (e.g. LMAC communiques). • Regional based staff provide stakeholders and local communities with easier access to managers • Communication platforms to raise awareness of the above and associated information/knowledge (e.g. e-newsletters, social media channels, mainstream media, stalls at relevant community events). • Google business profile, Facebook, Instagram, Twitter and LinkedIn – social media has become a prominent way to communicate to the community. • Communication through plain-English products summarising outcomes of scientific research is undertaken to some extent, but not systematically. • e-Library (GBRMPA external website) provides access to publications. • eResearch Archive is a digital repository of scientific and research publications, and datasets authored by DAFF staff, including journal articles, book chapters, conference papers, theses and raw data collected in the course of research • The non-scientific community is engaged via the GBRMPA's LMACs, magazines – e.g. Reef Beat, media releases etc • SELTMP	• LMAC communiques • Reef 2050 Advisory Committee • https://www.dcceew.gov.au/parks-heritage/great-barrier-reef/protecting/reef-2050-plan/advisory-bodies#terms-of-reference_2 • Eye on the Reef | gbrmpa • Permits online | gbrmpa • A Guide for Current Permit Holders		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• See also OC6 • Reef 2050 (refer: GA2 - Convene and support a multi-sectoral Reef advisory committee to facilitate engagement with industry and the broader community regarding the implementation and review of the Plan; GA12 - Prioritise and develop specific implementation plans and reporting protocols addressing the Plan's targets and actions in consultation with the community). • Reef 2050 Reef Advisory Committee established to provide strategic advice on the implementation of Reef 2050 actions, stakeholder priorities, and highlight any emerging cross sectoral issues that need to be addressed. Members are appointed by the Australian and Queensland Great Barrier Reef Ministers to provide a representative view of sectors and organisations with a role in delivering the Reef 2050 Plan. • Reef 2050 Traditional Owner Implementation Plan released November 2022. • See CO1 –Regional Report Card Human Dimensions Assessment aspect. • Since the start of the 2021-2024 LMAC term, the Reef Authority has offered a Reef Wide presentation to the LMAC community. These presentations are on topics or issues relevant to the Reef Wide community and delivered by either Reef Authority staff or external key stakeholders.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority communication strategy 2021–24 details activities to promote understanding and appreciation of the Reef and its values, as well as activities to protect it. • Implementation of new Reef Authority website and introduction of Sea Country connection e-newsletter. • Webinars introduced • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs. • A new Eye on the Reef app will be released alongside the database to improve community engagement.			
OUTCOMES					
OC1 The relevant managing agencies are to date effectively addressing community benefits of the environment and moving towards the attainment of the desired outcomes.	3	• The GBRMPA's recognition of the range of community benefits is shown through the Recreational Management Strategy, the Reef Guardian programs, Reef HQ, High Standard Tourism program, and support for the tourism industry. • The Reef 2050 Plan's economic benefits theme focuses on improving and maintaining the ecological, social and economic sustainability of Reef-dependent and Reef-associated industries. Success of this Plan is detailed in Reef 2050 Plan Annual Report and Implementation Strategy.	• Reef 2050 Plan Annual Report and Implementation Strategy • Reef Island Initiative public information is available at Reef Islands Initiative - Great Barrier Reef Foundation - Great Barrier Reef Foundation. • Details of Traditional Owner and Indigenous ranger commitments is here.	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Reef 2050 Communicators Network. It is a collaboration of many agencies and organisations involved in protecting the Reef and streamlining communication activities. • The Great Barrier Reef Foundation's Reef Islands Initiative is working with local communities and tourism operators to successfully deliver on-ground and in-water actions to protect and restore critical high-value island habitats that support wildlife and communities. New approaches to habitat restoration are being driven and led by local tourism, community and Traditional Owner partners. • Strengthening sea country partnerships in the GBR: Expanding the successful TUMRA program and increasing Traditional Owner partnerships to benefit Marine Park management • Queensland Indigenous Land and Sea Rangers (ILSR) program • The Outlook Report is published by the Reef Authority every 5 years and assesses the management effectiveness for community benefits. In 2019 this was assessed as good. • Recreational fishing campaign • Be Reef smart outcomes • The Reef Authority is addressing behaviour change for threats identified in the Blueprint for Resilience and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		previous Outlook 2019 report through community campaigns such as recreational fishing for zoning compliance and be reef smart for responsible reef practices.			
OC2 The outputs relating to community benefits of the environment are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	3	• See OP3 • Programs such as the Reef HQ aquarium, the Reef Guardians and High Standard Tourism program engender positive community attitudes to protect the values of the Reef • Scientific Consensus Statement 2017 – Chapter 4. Pg. 89-90, 95 • Results from the 2022 market research state that 4 in 10 Australians have changed their habits due to concern regarding climate change and reef pollution. Those who have changed habits to reduce their impact on the environment have done both 'less' and 'more': Less plastic and waste and more recycling and better products. Nearly all stakeholders have changed their habits, with an increase for most behaviours since 2020. • Reef HQ Aquarium provides an avenue to enhance community understanding of the Reef. Over 186,000 people visited the Aquarium from January 2019 to February 2021. The Aquarium closed for a period of time during 2020 due to COVID-19 restrictions. The Aquarium offers high-quality products and promotes the values of the Reef, the threats its facing and the role	• Chapter 4 – Scientific Consensus Statement 2017 • Reef 2050 WQIP	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		people can play in protecting it. The products on offer have consistently met visitor expectations. • The Aquarium closed in March 2021 and is being rebuilt after risks associated with refurbishing the 35-year-old facility were uncovered. • The Reef Education team are still delivering educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its stainable future and to encourage participation by taking action to address threats to the Reef. Reef HQ Aquarium continue to engage with the public and promote educational messages through social media channels and local community events.			
OC3 the outputs (refer OP1 and 3) for community benefits of the environment are reducing the major risks and the threats to the Great Barrier Reef	3	• Positive community attitudes gained through the community engagement programs can reduce risks of negative decisions being made. This assists in reducing the major risks and threats to the Reef. • SELTMP 2017 survey included new questions of community perceptions of water quality and inshore environments. • Prioritisation of Reef Trust investments involves a collaborative approach with scientific institutions, community and management agencies to ensure a robust scientific and economic process to identify the high priority actions to reduce major threats to the Reef.	• SELTMP • Reef Trust • Reef Islands Initiative - Great Barrier Reef Foundation - Great Barrier Reef Foundation • ReefClean – Tangaroa Blue	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Great Barrier Reef Foundation's Reef Islands Initiative is progressing actions to restore critical island habitats to protect ecosystems and save vulnerable species. This work supports efforts to establish a network of island refuges and help protect marine and plant life from climate change. • The ReefClean project, funded by the Australian Government, is removing and preventing marine debris along the Great Barrier Reef.			
OC4 Use of the Great Barrier Reef relating to community benefits of the environment is demonstrably environmentally sustainable	3	• Enjoyment, understanding and appreciation, relationships health are environmentally sustainable • The health of the Great Barrier Reef is declining, and management is not keeping pace with the cumulative impacts that are acting on the system. The causes of decline are known and the potential for restoration is there provided we avoid a 'business as usual' approach. Without urgent and effective additional management intervention the Region's biodiversity values are likely to continue to deteriorate. Given community benefits are intricately linked with the health of the Reef and its ecosystem processes (e.g. fishing, traditional values, health and wellbeing), it is likely that the condition community benefits also declining. • The Great Barrier Reef Foundation's Reef Island Initiative has reduced carbon emissions at Lady Elliot	• Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef • Deloitte Access Economics Report Economic contribution of the Great Barrier Reef • Experimental Environmental-Economic Accounts for the Great Barrier Reef, 2017 • Reef Islands Initiative - Great Barrier Reef Foundation - Great Barrier Reef Foundation	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Island resort, with the installation of solar panels and lithium batteries. • Since 2007, Pollinate has surveyed over 25,000 Australians via The Pulse across three key pillars of sustainability – environment, society and the economy. Market research was conducted in 2020 and 2022.			
OC5 Use of the Great Barrier Reef relating to community benefits of the environment is demonstrably economically sustainable	4	• Economic sustainability is shown through reports such as Deloitte Access Economics • East Coast Otter Trawl Fishery economic vulnerability assessment (2012) • SELTMP 2017 report to provide new insights into recreational Reef uses, tourists, tourism operators and commercial fishers. • Since 2007, Pollinate has surveyed over 25,000 Australians via The Pulse across three key pillars of sustainability – environment, society and the economy. Market research was conducted in 2020 and 2022.	• Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef • Deloitte Access Economics Report Economic contribution of the Great Barrier Reef • Experimental Environmental-Economic Accounts for the Great Barrier Reef, 2017 • Assessment of the ecological vulnerability of the East Coast Otter Trawl Fishery to climate change: a brief synthesis of information and results of an expert workshop	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC6 Use of the Great Barrier Reef relating to community benefits of the environment is demonstrably socially sustainable understanding and/or enjoyment	4	• Reef HQ • Reef Videoconferencing Outreach: Reef Video conferencing is breaking down geographical barriers to the latest in reef education. • Volunteer Program • Interpretive services • ReefED Website . Visiting the Reef website: information and tips on access and enhancing the reef experience • SELTMP 2017 survey included new questions of community perceptions of water quality and inshore environments. • Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: – Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health.	• Regional Offices/Industry Engagement Officer (Tourism) • Accredited Research Institutions • Reef HQ Volunteer Program and Members Programs • Public Information Unit • Volunteer Program • Interpretive services • ReefED Website • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • Social and Economic Long-Term Monitoring Program (SELTMP) – SELTMP Core module pilot	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. – Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system. • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): This project (2021-2024) will design a monitoring program to help managing agencies make informed decisions about striking the right balance between sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values. • Since 2007, Pollinate has surveyed over 25,000 Australians via The Pulse across three key pillars of sustainability – environment, society and the economy. • The promotion of responsible reef practices, activities, programs and the various uses of the Great Barrier Reef Marine Park is promoted through the website, webinars, Reef on the Radio and social media.	data dashboard – SELTMP Core Module Report – SELTMP Core Module 2021 Survey dataset: – Regional Report Cards social survey dashboard – Regional Report Cards Module Report – Regional Report Cards 2021-22 Social Survey dataset – Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			Monitoring projects		
OC7 The relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address community benefits of the environment	3	• In general, stakeholder engagement is one of the strongest aspects of the Authority's management. The agency uses a suite of communication tools to reach the community and encourage stakeholders to become stewards of the Reef. Communication and Education officers liaise with stakeholders via all means (face to face, phone, social media, public workshops, etc) • Reef Guardians Programs • Regional Offices/Industry Engagement Officer (Tourism) • Accredited Research Institutions • Reef HQ Volunteer Program and Members Programs • Public Information Unit • Reef Guardians • Reef HQ • Refer PR1 and PR2 • Partnerships are maintained in various ways including through TRAC and LMACs but also via specific partnership programs. • Reef 2050 (Refer: EHA28 - Support best practice and community stewardship activities that contribute to Reef health and resilience; GA2 - Convene and support a multi-sectoral Reef advisory committee to facilitate engagement with industry and the broader community regarding the implementation and review of the Plan;	• Reef Guardians Programs • Regional Offices/Industry Engagement Officer (Tourism) • Accredited Research Institutions • Reef HQ Volunteer Program and Members Programs • Public Information Unit • Reef Trust Partnership between the Australian Government and the Great Barrier Reef Foundation – Community Reef Protection Component • ReefClean – Tangaroa Blue, Reef Islands Initiative - Great Barrier Reef Foundation - Great Barrier Reef Foundation, TO and ranger programs	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		GA10 - Work with Traditional Owners, industry, regional bodies, local governments, research institutions, and the community to inform the delivery of local and regional actions). • Through the Reef Trust Partnership, funded by the Australian Government, the Community Reef Protection component is increasing the positive impact that local community action has on the Reef by scaling up existing on ground action and piloting new ways of working together. This program is investing $10M to accelerate on ground actions that reduce Reef threats and increase Reef resilience through focus areas such as citizen science, local action, local coral restoration and the development of integrated community action plans that identify local actions that can have a big impact on Reef health. • Through the following programs, agencies have developed relationships with communities, including Traditional Owners and Indigenous rangers, to address benefits to the environment – ReefClean – Reef Islands Initiative – Strengthening sea country partnerships in the GBR: Expanding the successful TUMRA program and increasing Traditional Owner partnerships to benefit Marine Park management			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Queensland Indigenous Land and Sea Rangers (ILSR) program • GreenCaffeen offers swap-and-go coffee cups as an alternative to single-use disposable cups. With over 1 billion coffee cups entering landfill, or the ocean, each year, small steps like this go a long way in combating plastic pollution. Green Caffeen partnership with Townsville City Council. • A paid fishing TV program partnership was developed as part of the annual fishing and compliance field management campaign.			

Defence Activities

Table 40: Calculation of grades for Defence Activities

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The values of the Great Barrier Reef relevant to defence activities are understood by managers	4	• Key Defence sites and activity areas within the region consist of: – Shoalwater Bay Training Area (SWBTA) - within World Heritage Area – Cowley Beach Training Area and research station - within World Heritage Area – Halifax Bay Training Area - within World Heritage Area – HMAS Cairns, Cairns - within World Heritage Area – Ross Island Barracks, Townsville - within/adjoining World Heritage Area – Lavarack Barracks, Townsville - Reef catchment – Townsville Field Training Area - Reef catchment – RAAF Townsville - Reef catchment • The managers for defence activities consist of the Defence and associated defence agencies (e.g. Royal Australian Navy, Defence Security and Estate Group) and the Reef Authority. Defence is the lead agency but is informed by	• 2019 Outlook Report • Memorandum of Understanding between Defence and the GBRMPA on defence activities in the GBRMP (2020-2022) • Strategic Assessment of the GBRWHA (2014) • Strategic Environmental Assessment of Defence Activities in the GBRWHA 2014	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the Reef Authority. The relationship between the agencies is governed by a Memorandum of Understanding (2020-2022, being updated for 2023) which facilitates the sharing of information between the agencies, enabling: – Reef Authority to appreciate the scale and nature of Defence activities – Defence to understand Reef Authority priorities and management requirements – Timely input by each agency to policy development and management of new technology and upcoming activities – Reef Authority attendance at key Defence activities, such as the biennial Talisman Sabre exercises. • The values for which the Reef has been protected are well understood by the Reef Authority and Defence environmental managers, with close cooperation evident between the two agencies extending back many years. • Defence periodically undertakes a Strategic Environmental Assessment of activities in the region which provides an indication of the relevant values and risks associated with the region. The most recent assessment was 2014.Defence has also contributed to and has access to the Strategic Assessment conducted for the World Heritage Area (2014) and the Reef Outlook Reports (2009,2014, 2019). • One of the most environmentally important Defence sites in the region is the Shoalwater Bay Training Area (SWBTA).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		This is subject to a specific plan of management to protect the local dugong population and marine turtles.			
CO2 The current condition and trend of values relevant to defence activities are known by managers	3	• Overall trends and condition are known to Defence through the publication of the Outlook Reports (2009, 2014, 2019). Defence has also historically undertaken a Strategic Environmental Assessment of activities in the Great Barrier Reef (2014) and contributed to the Strategic Assessment of the World Heritage Area undertaken by the Commonwealth and Queensland Governments. • The current condition and trend of some species (turtles, dugongs, seagrass) are well known through historical monitoring. Current data gaps or deficiencies include: – Monitoring of current condition and trend of ecosystem values more broadly in Defence areas is limited – Little is known about the status and trend of the aesthetic value of the Reef in relation to Defence activities as there has been no monitoring of the aesthetic value undertaken across the World Heritage Area – There is a gap in turtle nesting data for east coast Queensland, including the area around SWBTA, Townsend Island and islands to the north – There is limited telemetry data available to define inter-nesting habitat requirements for all species and stocks in SWBTA.	• 2019 Outlook Report • Memorandum of Understanding between Defence and the GBRMPA on defence activities in the GBRMP (2020-2022) • Strategic Assessment of the GBRWHA (2014)) • Strategic Environmental Assessment of Defence Activities in the GBRWHA 2014	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Defence has contributed to a range of research projects within the region, including: – Dugong and satellite tagging study within Shoalwater Bay in 2014 – Dugong and large marine turtle aerial surveys at Shoalwater Bay in 2016 – Dugong survey for southern Reef, including Shoalwater Bay - reporting expected April 2023.			
CO3 Impacts (direct, indirect and cumulative) associated with defence activities are understood by managers.	3	• Overall impacts associated with Defence activities are well known through the Outlook Reports (2009, 2014, 2019), Defence's Strategic Environmental Assessment for activities in the region (2014), and Defence's contribution to the Strategic Assessment for the World Heritage Area. • Defence is subject to the EPBC Act and an internal framework of environmental management tools that require project-specific assessments and management actions, principally driven by a risk-based process. This includes the preparation of Environmental Reports, self-assessments, post-activity reports, risk assessments, domain environmental management plans, site-based procedures, and standard operating procedures and contingency plans. • The Royal Australian Navy also has an extensive environmental policy and management framework providing for management of key risks in the region.	• 2019 Outlook Report • Memorandum of Understanding between Defence and the GBRMPA on defence activities in the GBRMP (2020-2022) • Strategic Assessment of the GBRWHA (2014) • Strategic Environmental Assessment of Defence Activities in the GBRWHA 2014 • Shoalwater Bay (dugong) Plan of Management 1996 • Maritime Activities Environmental Management Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Management of activities is sophisticated and mature so incidents causing environmental harm are rare. • As part of the Memorandum of Understanding between the Reef Authority and Defence (2020-2023, currently being updated for 2023), Defence is obliged to notify Reef Authority activities in the Marine Park but does not require permission to undertake defence activities. Reef Authority regards to these activities. • Defence also works closely with the Reef Authority in the design and development of mitigation measures for Talisman Sabre exercises (2019 and 2021). • Managers had a good understanding of key impacts associated with defence activities, including marine fauna strike, underwater noise, underwater blasts, and marine pests/ballast water exchanges. • There is currently a knowledge gap around the impacts of blackwater discharge during significant Defence exercises, such as Talisman Sabre, especially as this can include international vessels that are not IMO compliant. While a 2017 study was intended to understand discharge areas and future management, the status of this study is unknown. • Defence has also identified the potential for future impacts to coral from accessing intertidal areas and potential biosecurity threats to island national parks but these have not been assessed further.	• Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan • Shoalwater Bay Training Area Standing Orders 2022		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Managers consider that social perceptions and risks are not always well understood (e.g. as demonstrated by public response to UXO incidents). • Cumulative impacts at base sites was assessed through Bayside-Landscape Monitoring Programs but these have been discontinued. • The potential contribution of defence activities to cumulative impacts in the region are not formally assessed.			
CO4 The broader (national and international) level influences relevant to defence activities are understood by managers.	4	• As a result of the changing geopolitical environment, more United States forces will be based in Australia and combined training exercises between Australian and United States forces are expected to continue to increase in frequency and intensity. Shoalwater Bay and other sites in the region will therefore increase in importance for major exercises such as Talisman Sabre. • Management challenges are also arising from the activities of international forces (United States, Singapore, others) and the complexities of working with foreign forces to which the GBRMP Act and other Australian legislation does not apply, in addition to Defence activities. • The region has a relatively sporadic Defence vessel presence at present but could become more frequent if patrols are required (e.g. patrols to Papua New Guinea and Darwin in response to illegal fishing or arrival of refugees by boat).	• Australia-United States Ministerial Consultations 2022 • Defence White Paper2016	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There has been increased whole-of-government engagement by Defence concerning its activities, particularly in relation to the Talisman Sabre exercise, including other Commonwealth agencies such as DFAT, DCCEEW and the Reef Authority in addition to State regulators such as DES and DAF. • The National Defence Environmental Strategy 2016-2036 includes strategic aims around minimising and managing pollution and managing environmental impacts and heritage values. • National level influences are well known (e.g. climate change policy).			
CO5 The stakeholders relevant to defence activities are well known by managers.	4	• The Reef Authority and Defence work closely through a Memorandum of Understanding for defence activities (2020-2022, currently being update for 2023). • Staff from local training areas work closely with QPWSP and the Reef Authority to monitor local environmental conditions. • Engagement typically occurs on an ad-hoc or as needs basis through Reef Authority forums or in relation to major exercises, such as Talisman Sabre. • More regular engagement occurs for SWBTA, including with the Reef Authority, DCCEEW. DES. SWBTA Environmental Advisory Committee, Traditional Owners and ILUA partners, residents and the regional community forums.	• Environment and Heritage Management in Defence • Defence Environmental Strategy 2016-2036 • Defence Environmental Policy • Memorandum of Understanding between Defence and the GBRMPA on defence activities in the GBRMP (2020-2022)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Defence undertakes a whole-of-government approach to planning and management of activities such as Talisman Sabre including engagement with Commonwealth and State agencies.			
PLANNING					
PL1 There is a planning system in place that effectively addresses defence activities	4	• The Defence environmental management framework is extensive and consists of an Environmental Management System (EMS), Defence Environmental Policy and Strategy, and Defence Environment and Heritage Manual together with a wide collection of domain-specific environmental management plans (EMPs) and site-based management procedures associated with specific training areas. • Additionally, Defence activities are subject to environmental assessment and approval in accordance with the EPBC Act. Non-standard activities are required to undergo a risk assessment to identify and avoid or mitigate potential environmental impacts. These activities require Environmental Clearance Certificates and Environmental Assessment Reports which set out specific management arrangements for these activities. • Specific to activities in the region, the Defence environmental management and planning framework consists of: – Strategic Environment Assessment of Defence Activities in the World Heritage Area - this provides a high-level	• Environment and Heritage Management in Defence • Defence Environmental Strategy 2016-2036 • Defence Environmental Policy • Maritime Activities Environmental Management Plan • Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan • Shoalwater Bay Training Area Standing Orders 2022 • Strategic Environmental Assessment of Defence Activities in the GBRWHA 2014	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		assessment of Defence activities and sets the framework for considering Reef-specific risks within other environmental management and planning documentation – Maritime Activities EMP, including the Great Barrier Reef and Coral Sea Planning Handbook – Land Activities EMP – Air Activities EMP – Training Area Standing Orders (e.g. site-specific orders for activities at training areas, such as SWBTA, Halifax Bay Training Area etc.) – Standard Operating Procedures (e.g. measures to protect the environment form part of the training of personnel for different equipment). – Environmental Clearance Certificates (ECCs) for specific project activities. • Due to historical PFAS contamination at Defence sites, there is also a planning framework involving investigations and management plans being developed for impacted sites. This includes PFAS Management Area Plans for HMAS Cairns, RAAF Base Townsville and Lavarack Barracks. • Defence also has a Memorandum of Understanding with the Reef Authority which provides the basis for Reef Authority input into the development of Defence			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		management and planning documentation relevant to the region. • Defence has a system under management of the Directorate of Environmental Planning, Assessment and Compliance (DEPAC) for the assessment of developments, activities and capability in order to meet environmental legislative obligations. • Defence doctrine outlines responsibilities for the planning and implementation of environmental protection measures during the planning and conduct of exercises, in terms of protecting areas for future use, maintaining public confidence and compliance with statutory requirements including the GBRMP Act and the EPBC Act. • Defence has a moratorium on the use of high explosives in the World Heritage Area except at Triangular Island in the Shoalwater Bay Training Area. This is formalised in a document describing terms of use of Triangular Island, following consultation with the Reef Authority and other stakeholders. Part 5 Direction from the Reef Authority requires conduct of activities in accordance with the Triangular island Maritime Warfare Facility Construction: Environmental Review and Management Framework (ERMF). • There are other legislative obligations beyond the extent of the Outlook Report that influence the way Defence conducts its activities with direct relevance to the environment (inclusive of the GBR); additional examples			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		include but are not limited to: Protection of the *Sea (Prevention of Pollution from Ships) Act 1983*, and *Environment Protection (Sea Dumping) Act 1981*. • Defence personnel (as 'maritime officers') are also delegated under the *Maritime Powers Act 2013* for powers of detention and monitoring in relation to the EPBC Act among other legislation. The Military Powers Act includes provisions for consideration of the environment in the exercise of powers enabling the disposal of things taken under that Act.			
PL2 The planning system for defence activities addresses the major factors influencing the Great Barrier Reef Region's values.	3	• As per the Outlook Report, the major factors influencing the region's values are coastal development, climate change, land-based run-off and direct use. • The key impact management elements of the Defence planning system (described below) focus primarily on direct use impacts from Defence activities, although the Memorandum of Understanding between Defence and the Reef Authority also acknowledges climate change and land-based run-off (water quality) as important factors for collaboration. • The main planning documentation for Defence is the Strategic Environment Assessment of Defence Activities in Great Barrier Reef together with relevant aspects of the Strategic Environmental Assessment of the World Heritage Area. These categorise the key risks associated with Defence activities based on domain (maritime, air, land) and identify the following:	• Strategic Environmental Assessment of Defence Activities in the GBRWHA 2014 • Commonwealth Policy on the Management of Land in Australia Affected by Unexploded Ordnance 2018	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Vessel strike and marine fauna interactions – Vessel collision or grounding – Sonar and underwater noise – Marine biosecurity – Disturbance from low-level flying – Inadvertent (aerial) release of stores, including explosive ordnance. • These activities are addressed through domain-specific EMPs under the broader environmental management framework maintained by Defence. • Site-specific management plans are also in place and have been developed based on comprehensive environmental areas. Defence activities are well planned and resourced to ensure effective implementation of these plans. • It is noted that the planning system is not able to address legacy UXO contamination issues, although there is a substantial UXO program in place (subject to the Commonwealth Policy on the Management of Land in Australia Affected by Unexploded Ordnance) that provides a risk-based approach to reducing UXO hazards.			
PL3 Actions for implementation regarding	3	• The plans relevant to defence activities consist of management plans (including ECCs and standing orders) which set out arrangements to minimise environmental	• Maritime Activities Environmental Management Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
defence activities are clearly identified within the plan		impacts. They are mature and well embedded into the Defence management system. This contrasts to a plan for further action to address particular gaps or potential improvements in the system. In this context, while the plans have clear activities articulated, they relate to environmental management primarily rather than towards broader management of the Reef. • The Strategic Environmental Assessment of Defence Activities in the World Heritage Area provides information on how the actions of the management plans directly address Reef-specific risks of Defence activities.	• Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan • Shoalwater Bay Training Area Standing Orders 2022 • Strategic Environmental Assessment of Defence Activities in the GBRWHA 2014 • PFAS Management Plans and Detailed Site Investigations for HMAS Cairns, HMAS Townsville and Lavarack Barracks		
PL4 Clear, measurable and appropriate objectives for management of defence activities have been documented	4	• There are clear objectives within the overall Defence management system, directed at environmental management and continuous improvement, as well as objectives linked within specific management plans. • However, the only management framework specific to Defence activities in the region as a whole, the Strategic Environmental Assessment, does not set specific objectives around management in the region. Rather, the assessment identifies that the objectives framework for	• Environment and Heritage Management in Defence • Defence Environmental Strategy 2016-2036 • Defence Environmental Policy • Strategic Environmental Assessment of Defence	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Defence as a whole is adequate to cover activities specific to the region. • While the Strategic Environmental Assessment is close to 10 years old, it is understood that there is a commitment to revisit the assessment as part of a new Memorandum of Understanding between Defence and the Reef Authority. Noting this commitment and the 'strategic' nature of the assessment, it is considered that the objectives in the overall Defence management system remain appropriate for the purposes of the Reef management.	Activities in the GBRWHA 2014		
PL5 There are plans and systems in place to ensure appropriate and adequate monitoring information is gathered in relation to defence activities	3	• Under the Memorandum of Understanding between Defence and the Reef Authority, Defence is committed to supporting monitoring activities across the region, with a particular focus on cooperation on surveys to detect the potential for marine pest incursions, environmental baseline studies, performance indicators associated with major military exercises, impacts of noise, waste discharge, and fauna interactions with Defence activities. • For specific activities, the EMPs, ECCs and Environmental Assessment Reports set monitoring requirements which are implemented directly by Defence. • Defence also regularly undertakes post-activity assessments of major activities, such as the Talisman Sabre Exercise.	• Memorandum of Understanding between Defence and the GBRMPA on defence activities in the GBRMP (2020-2022) • Maritime Activities Environmental Management Plan • Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan • Shoalwater Bay Training Area Standing Orders 2022	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• PFAS Management Plans and Detailed Site Investigations for HMAS Cairns, HMAS Townsville and Lavarack Barracks		
PL6 The main stakeholders &/or the local community are effectively engaged in planning to address defence activities	3	• The Reef Authority and Defence work closely through a Memorandum of Understanding for defence activities (2020-2022, currently being update for 2023). • Staff from local training areas work closely with QPWSP and the Reef Authority to monitor local environmental conditions. • Engagement typically occurs on an ad-hoc or as needs basis through Reef Authority forums or in relation to major exercises, such as Talisman Sabre. • More regular engagement occurs for SWBTA, including with Reef Authority, DCCEEW. DES. SWBTA Environmental Advisory Committee, Traditional Owners and ILUA partners, residents and the regional community forums. • However, a review of the SWBTA engagement in 2014 indicates that it was only *marginally effective* across the community, with concerns related to the ability to influence decision-making (Wu *et al.* 2014). • Defence undertakes a whole-of-government approach to planning and management of activities such as Talisman	• Environment and Heritage Management in Defence • Defence Environmental Strategy 2016-2036 • Defence Environmental Policy • Memorandum of Understanding between Defence and the GBRMPA on defence activities in the GBRMP (2020-2022) • Evaluating the Australian Defence Force stakeholder participation at Shoalwater Bay Training Area, Queensland, Australia (Wu et al. 2014).	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Sabre including engagement with Commonwealth and State agencies.			
PL7 Sufficient policy currently exists to effectively address defence activities	3	• While there is no specific Defence policy for the region, the policy framework established by Defence is mature and has sufficient application to cover Reef relevant activities. • There are some limited policy gaps: – Reef Authority policy on UXOs and Defence activities is only informal. Defence has a website dedicated to UXO. The Defence UXO program is delivered under the Commonwealth Policy on the Management of Land in Australia Affected by Unexploded Ordnance (2018) but is not specific to the region. – Moratorium on high explosives outside of Shoalwater Bay is only voluntary. • Defence is currently undertaking a review of the Maritime Air Activities EMP and associated planning handbook for activities in GBR and the Coral Sea. Land Activities EMP has been added to the suite of domain based activity plans, in accordance with the Strategic Assessment. A planning handbook for activities in the GBR and Coral Sea has been added to the Maritime Activities EMP.	• Defence Environmental Strategy 2016-2036 • Defence Environmental Policy • Commonwealth Policy on the Management of Land in Australia Affected by Unexploded Ordnance 2018	Adequate	Improving
PL8 There is consistency across jurisdictions when planning for defence activities	4	• As Defence activities are managed directly by Defence, in collaboration with the Reef Authority, there is minimal concern regarding jurisdictional consistency. • The Memorandum of Understanding between Defence and the Reef Authority sets the basis for managing the	• Memorandum of Understanding between Defence and the GBRMPA on defence activities in the GBRMP (2020-2022)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		collaboration between the agencies for activities in the region. • Under the EPBC Act, Defence is also required to undertake environmental impact assessment of activities. This is undertaken through collaboration with the Reef Authority and the DCCEEW, as well as key Queensland Government stakeholders (e.g. QPWSP, DES, DAF).			
PL9 Plans relevant to defence activities provide certainty regarding where uses may occur, the type of activities allowed, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.	4	• The planning framework established for individual bases, including the Standing Orders, ECCs and EMPs for Maritime and Land Activities, provide a comprehensive system for understanding the location and parameters for different activities and when and how they can proceed.	• Memorandum of Understanding between Defence and the GBRMPA on defence activities in the GBRMP (2020-2022) • Maritime Activities Environmental Management Plan • Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan • Shoalwater Bay Training Area Standing Orders 2022	Adequate	Stable
INPUTS					

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN1 Financial resources are adequate and prioritised to meet management objectives to address defence activities	4	• The management of Defence activities is undertaken directly by Defence through the Environmental Assessment and Protection group. • Defence is a well-funded agency with adequate resourcing of environmental management and impact assessment. Defence activities receive adequate funding to ensure environmental assessment, approvals and management actions are in place.	• Defence Annual Reports	Adequate	Stable
IN2 Human resources within the managing organisations are adequate to meet specific management objectives to address defence activities	3	• It is noted that the Reef Authority is reliant on Defence to continue the high level of self-management and monitoring of their environmental effects. Given the acknowledged low risk, and nature of the activities this is considered appropriate. For the Reef Authority the effectiveness of a self-managed approach will inevitably depend on Defence ensuring that there are adequate resources available (currently 6-10 FTE) for its own environmental managers to maintain the existing standards. • It is considered that the Reef Authority's main management priorities are rightly in areas other than the limited risks associated with Defence training. Consequently, there is strong competition for resources for monitoring Defence compliance and it can be foreseen that in future these may be inadequate if there is increased levels of training activity.	• Defence Annual Reports	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Defence/GBR Field Management do undertake some joint patrols especially when training areas are closed to the public for safety and security reasons. • Defence has a specialist environmental impact assessment unit (the Directorate of Environmental Protection and Assessments - DEPA) to ensure compliance with regulatory and internal Defence requirements such as Environmental Clearance Certificates, Environmental Assessment Reports and Environmental Reports. • Resourcing in Defence includes APS and contracted specialist staff. This includes approximately 0.5 FTE focussed on Reef Authority strategic level matters within Estate & Infrastructure Group in addition to other APS and contracted resources in Navy HQ and Fleet. • Defence regional environmental staff are responsible for Defence estate within the GBR catchment are also focussed on management of Defence activities with respect to GBR values.			
IN3 The right skill sets and expertise are currently available to the managing organisations to address defence activities	3	• It is noted that within the Reef Authority the right skill set and expertise exists within an admitted small number of staff (2 maximum) to undertake the tasks necessary to manage defence activities. With a small number of individuals when those staff are on leave or seconded to another section the corporate knowledge is displaced and often inaccessible until the staff return to the Environment Assessment and Protection or Field Management Unit.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Defence's own environmental personnel are also limited in number but are generally very experienced with a strong understanding of the obligations on Defence in relation to Reef regulation under the GBRMP Act and EPBC Act. Defence's directly employed regional staff are few in number but are supported by contractors who undertake some environmental management tasks. • Reef Authority has a dedicated Science for Management section (15 ongoing FTE, 5 temporary FTE) which provides additional support through monitoring and science communications.			
IN4 The necessary biophysical information is currently available to address defence activities	3	• Biophysical information is available to the Reef Authority from Defence on some aspects, e.g. hydrographic surveys. Training areas also undertake a suite of routine environmental monitoring evaluations relating to a range of issues (e.g. groundcover, contamination, water quality etc). Some of the best available biophysical information is used by Reef Authority managers e.g. seagrass mapping. • Reef Authority updated its Science and Knowledge Needs for Management in 2021, following the 2019 Outlook Report and Reef 2050 Plan, which aims to enhance scientific activities and outputs. This has further enhanced availability of biophysical data and interactive interfaces (e.g. mapping) in the public arena.		Adequate	Stable
IN5 The necessary socio-economic information is	3	• There is an acknowledged gap in the ability to compare the economic value of defence use of the GBR with other		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
currently available to address defence activities		major uses (e.g. tourism, fishing, shipping) as there is not sufficient economic data collected. Defence economic effect is also diffuse across the wider regional or national economy. Broad socio-economic information for the region is available from the Outlook Reports. • There are known social and economic benefit of particular Defence activities, such as bases at Cairns and Townsville which support local and regional economies. The presence of naval bases is known to attract periodic naval visits from allied nations which leads to spend within local economies related to increased visitation and tourism activities. However, these have not been well evaluated. • Talisman Sabre exercises were estimated to contribute $4 million to Rockhampton economy and $200,000 to Townsville economy in 2017 and similar levels of impact are expected on a recurring basis. • A 2017 Senate Inquiry into the 'Impact of Defence training activities and facilities on rural and regional communities' found that in general Defence presence is positive for local area, suggesting positive social benefits for the communities near Reef Defence sites • The CSIRO's Social and Economic Long Term Monitoring Program (SELTMP) provides long-term time series on a series of indicators related to social, economic, cultural and governance aspects of the GBR, covering time series in 2013, 2017 and 2021.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN6 The necessary Indigenous heritage information is currently available to address defence activities	3	• Managers advise that the Reef Authority and Defence generally apply a precautionary approach that promotes avoidance of indigenous heritage sites in the first place. In the event that avoidance is not possible then it is understood that formal notification protocols are implemented e.g. in event that a possible indigenous artefact is found. On Defence managed property recognised sites and buffer areas are specified as 'no go' areas. • It is considered that there is a good understanding of indigenous heritage for Shoalwater Bay, and some for Cowley Beach/Halifax Bay • Defence has extensive resources that guide, encourage and require engagement with traditional owners, indigenous communities and Native Title holders. These include a specific 'Defence Heritage Toolkit' for managers (currently under revision), the adoption of the Burra Charter and implementation of the Australian Heritage Commission's 'Ask First' policy. • Traditional Owners are able to access Defence training areas subject to safety, security and operational requirements. There is extensive consultation and engagement with Indigenous communities on a day-to-day basis and also specifically in relation to individual activities; e.g. engagement with Darumbal at Shoalwater Bay and Stanage Bay for TS17 and on an ongoing basis through the Shoalwater Bay Training Area Environmental Advisory		Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Committee and also as required; engagement with Juru Traditional Owners at Upstart Bay for TS17 rehearsals • Defence has adopted the Burra Charter and implements the Australian Heritage Commission's Ask First policy. • Defence understanding of Indigenous heritage is typically well understood for on ground and nearshore areas but there remains some knowledge gaps for offshore areas.			
IN7 The necessary historic heritage information is currently available to address defence activities	4	• The Reef Authority advises that it maintains an internal Heritage database which is considered effective. Limits are sometimes needed in relation to access to information on some sites/events. For example the identification of the WWII seaplane Catalina offshore from Bowen raised a number of issues at the time – e.g. who was responsible, was the site to be treated as a war graves area etc. • The legacy from UXOs and other sea-dumped war material, which may be impacting on heritage values is poorly documented with the historic reports now accepted as being commonly unreliable – e.g. historical sea dumping of munitions – see PR8 • Defence also maintains a record of heritage values on Defence estate with accompanying Heritage Management Plans (HMP). The HMP relate to historical and indigenous heritage with the Traditional Owners being consulted and approving the management actions that relate to indigenous heritage on the Defence estate.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Defence has implemented a new integrated database 'Garrison and Estate Management System' (GEMS) which provides a greater level of fidelity on the heritage (and other) values of areas within the Defence estate. This system also allows improved knowledge and tracking of values on non-Defence training areas utilised on an ad hoc basis (e.g. Stanage Bay during TS17)			
IN8 There are additional sources of non-government input (e.g. volunteers) contributing to address defence activities	4	• It is encouraging that Defence does have a network of volunteers who do provide assistance at some defence establishments with maintaining the heritage values of, for example, museum collections, historic buildings and artefacts. There may be examples that apply to Defence sites adjacent to the Reef. It is known that Defence routinely cooperates with its neighbours and volunteers on environmental management and conservation initiatives such as weed, feral animal and bushfire controls – all of which may indirectly contribute to the overall conservation of important World Heritage values e.g. such as those dependent upon maintaining water quality • Research and baseline environmental studies and surveys are also permitted on many Defence training areas subject to routine safety and operational requirements. • Defence also makes extensive use of contracted expertise. • Defence enables access to Shoalwater Bay, (and other parts of the Defence estate) to facilitate research which		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		accords with the findings of the Commonwealth Commission of Inquiry into Shoalwater Bay from 1995. • Shoalwater Bay Training Area Environmental Advisory Committee (EAC) provides a forum for feedback to Defence by the community and key stakeholders in relation to Defence activities on Shoalwater Bay Training Area. The Environmental Advisory Committee was established in response to the Commission of Inquiry in the mid 1990's and has operated ever since.			
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of defence activities	4	• Defence and the Reef Authority have in place processes that ensure key stakeholders are engaged in the processes applied to approve defence use of the Reef (See PL6)	• Environment and Heritage Management in Defence • Defence Environmental Strategy 2016-2036 • Defence Environmental Policy • Memorandum of Understanding between Defence and the GBRMPA on defence activities in the GBRMP (2020-2022)	Adequate	Stable
PR2 The local community is effectively engaged in the ongoing management of defence activities	3	• Defence managers have established an Environmental Advisory Committee (EAC) for each Training area – e.g. Shoalwater Bay Training Area Environmental Advisory Committee (EAC).	• Environment and Heritage Management in Defence • Defence Environmental Strategy 2016-2036	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• For the Reef Authority, engagement is through RACs and LMACs, but this is issues-driven and ad-hoc in relation to defence activities • Managers consider that stakeholders are effectively engaged through the various advisory committees convened by Defence and Reef Authority. • Major exercises also publicise activities, impact assessments and have a public presence on social media. • Due to the nature of Defence activities, there is limited direct involvement that local community can have in management activities. • As for PL6, there are some concerns with the effectiveness of community engagement based on research specific to the SWBTA.	• Defence Environmental Policy • Memorandum of Understanding between Defence and the GBRMPA on defence activities in the GBRMP (2020-2022) • Evaluating the Australian Defence Force stakeholder participation at Shoalwater Bay Training Area, Queensland, Australia (Wu et al. 2014).		
PR3 There is a sound governance system in place to address defence activities	4	• The governance system for defence activities consists of the following key elements: – Defence as the lead agency, with general responsibility for management of the environment and Reef values at defence sites and from defence activities. This management is subject to a comprehensive internal environment and heritage management framework that is applied consistently across the entire Defence estate in Australia but also includes site-specific measures for Reef Deference sites (e.g. SWBTA).	• Memorandum of Understanding between Defence and the GBRMPA on defence activities in the GBRMP (2020-2022)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The Reef Authority as secondary agency, with inputs into management of Defence activities within the Marine Park. This relationship is formalised through a Memorandum of Understanding (see CO1). • As defence activities are of key national interest, there is a greater sense of self-regulation by Defence, which is demonstrated in the range of exemptions from legislative and permission regimes. This is offset by comprehensive internal management system but creates potential perceptions of concerns with transparency as well as the potential for conflicts between environmental interests and national security/defence priorities. Examples include historical PFAS contamination at defence sites, UXOs etc. • International leading practice, including in Australia outside the region, is for the relevant Defence agency to self-regulate their activities with regards to the environment, typically adopting best practice approaches but subject to balance against national security interests. the model of the region goes beyond this practice through the involvement of the Reef Authority (and to a lesser extent, QPWSP) as a collaborator on environmental management activities. This represents a stronger governance system than the standard practice.			
PR4 There is effective performance monitoring, including, regular assessment	3	• All internal Defence approvals have a requirement for post-activity reporting. For large activities, such as Talisman Sabre, a broader post-activity and lessons learnt	• Defence Environmental Strategy 2016-2036	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
of appropriateness and effectiveness of tools, to gauge progress towards the objective(s) for defence activities		process is undertaken to evaluate environmental performance of the activity. This draws on a broad cross-section of information, including engagement with external stakeholders. • Reporting is required to the Reef Authority under the Memorandum of Understanding where requested. • Defence, Reef Authority and relevant Queensland agencies also regularly cooperate to undertake compliance monitoring for major exercises. • Cumulative impact monitoring is limited but monitoring from Defence contributes to broader cumulative impact monitoring by the Reef Authority (e.g. water quality inputs from sites, seagrass cover in SWBTA). • Environmental values and risks are generally very well understood in Defence areas in the region. However, when a new activity is undertaken, an environmental risk assessment is undertaken with the form of the assessment varying depending on the scale of the activity. • Where existing information is found to be inadequate, further targeted investigation of identified environmental risks and/or values (such as indigenous heritage or endangered species) will be required. • Environmental data collected in such an environmental investigation is stored in Defence's SAP system: Garrison Estate Management System (GEMS) where it is available to inform future planning, management and activities.	• Defence Environmental Policy • Maritime Activities Environmental Management Plan • Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan • Shoalwater Bay Training Area Standing Orders 2022 • PFAS Management Plans and Detailed Site Investigations for HMAS Cairns, HMAS Townsville and Lavarack Barracks		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR5 Appropriate training is available to the managing agencies to address defence activities	4	• The key measure for Defence is retention of appropriate number of qualified and experience environmental personnel to ensure Defence has capacity to undertake compliance monitoring and enforcement of conditions attached to exercise approvals. The current expertise is considered to be appropriate (see IN2 and IN3), noting that the Reef Authority primarily relies on Defence to self-regulate. • Reef Authority personnel have had ongoing opportunities to be involved in Defence activities, such as Talisman Sabre exercises in 2019 and 2021. • Environmental awareness training is provided as part of a Defence induction to visitors to the Defence estate. Additional training featuring Traditional Owners and senior Reef Authority and Defence staff are provided to participants in Talisman Sabre exercises.		Adequate	Stable
PR6 Management of defence activities is consistently implemented across the relevant jurisdictions	4	• As Defence activities are implemented directly by Defence under a standardised management framework, and subject to a Memorandum of Understanding with the Reef Authority, there is no inconsistency in implementation. • Defence activities do not require assessment and permission under state government regimes, although Defence cooperates with QPWSP regarding access to islands and coastal areas in the Marine Park / Coastal Marine Park	• Memorandum of Understanding between Defence and the GBRMPA on defence activities in the GBRMP (2020-2022)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR7 There are effective processes applied to resolve differing views/ conflicts regarding defence activities	4	• The evidence points to effective processes being in place guiding a range of decisions about Defence activities. Historical conflict about the use of Defence training areas in Shoalwater Bay in the late 1980s and Halifax Bay a decade later lead to the development of improved collaborative management approaches between Defence and the Reef Authority. The processes in place have ensured that management decisions about Defence activities have been based on understanding and consensus. • Defence recognises that has a 'social licence' to continue to operate, as long as potential environmental concerns are effectively addressed in the World Heritage Area (e.g. retrieval of jettisoned live ordnance following a training exercise in 2013) • The partnership between Defence/Reef Authority at all levels e.g. annual meeting of Defence/Reef Authority officers provides a forum for sharing information and discussing potential areas of conflict. • Risk assessment processes for individual projects/activities also provide opportunities to address differing views. There is routine communication and discussion means that issues are resolved through agreement and consensus • All activities undertaken by Defence within the Reef are notified to the Reef Authority with an invitation to comment on the adequacy of environmental management controls		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR8 Impacts (direct, indirect and cumulative) of activities associated with defence activities are appropriately considered.	4	• See CO3. • Defence has a robust process of considering direct and indirect impacts associated with activities. ECCs for specific activities include an environmental impact assessment process to inform the management activities while Standing Orders are also informed by site-specific assessments. The Maritime and Land Activities EMPs have also been informed by the Strategic Environmental Assessment of Defence Activities in the World Heritage Area. • Legacy issues are becoming of increasing important, specifically in relation to PFAS but also UXOs. Responses associated with PFAS have been more comprehensive to date.	• Defence Environmental Strategy 2016-2036 • Defence Environmental Policy • Maritime Activities Environmental Management Plan • Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan • Shoalwater Bay Training Area Standing Orders 2022 • PFAS Management Plans and Detailed Site Investigations for HMAS Cairns, HMAS Townsville and Lavarack Barracks	Adequate	Stable
PR9 The best available biophysical research and/or monitoring information is applied appropriately to make relevant management	4	• The data availability for defence planning and management is noted in IN4. • As much of this data is collected by or readily available to Defence, there is a direct engagement of this data into implementation of management arrangements.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
decisions regarding defence activities					
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding defence activities	4	• The data availability for defence planning and management is noted in IN5. • As much of this data is collected by or readily available to Defence, there is a direct engagement of this data into implementation of management arrangements. • While there are acknowledged gaps in economic research, the data available for decision-making is considered adequate		Adequate	Stable
PR11 The best available Indigenous heritage information is applied appropriately to make relevant management decisions regarding defence activities	4	• The data availability for defence planning and management is noted in IN6. • As much of this data is collected by or readily available to Defence, there is a direct engagement of this data into implementation of management arrangements.		Adequate	Stable
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding defence activities	4	• The data availability for defence planning and management is noted in IN7. • As much of this data is collected by or readily available to Defence, there is a direct engagement of this data into implementation of management arrangements.		Adequate	Stable
PR13 Relevant standards are identified and being met regarding defence activities	4	• There is no globally agreed standards for environmental management within defence. However, following there is recognition of the need to ensure appropriate	• Defence Environmental Strategy 2016-2036	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		environmental management on behalf of government agencies which has been incorporated into Defence doctrine through the EPBC Act and Defence's internal environmental management framework. • Within the Defence Environment & Heritage Manual, Defence has established policy statements/standards for the following areas: – Environmental assessment and approval – Heritage management – Domestic biosecurity – Native species and ecological communities – Soil management – Bushfire management – Pollution prevention – Site contamination management – Estate water management – Estate energy management – Waste and recycled materials – Climate adaptation and mitigation – PFAS investigation and management	• Environment and Heritage Management in Defence		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There remains opportunity to identify and integrate specific standards related to activities within Defence domain, such as management of UXOs and legacy issues, use of live ammunition in environmental areas etc.			
PR14 Targets have been established to benchmark management performance for defence activities	2	• Broad objectives for performance management are set in the Defence Environment Policy and Strategy 2016-2036 which is used for the basis of environmental performance review for the Defence Annual Report. The Defence and the Reef Authority Memorandum of Understanding also includes provision for environmental performance reporting. However, neither document sets specific performance targets for measuring ongoing management of defence activities. • As the site and domain-specific planning arrangements focus on environmental management approaches for activities specifically, they do not include clear targets for benchmarking. There are also no benchmarks set out in the Strategic Environmental Assessment for Defence Activities in the World Heritage Area. • It is understood targets have not been set for Defence activities within the region based on the mature nature of Defence management and the strong relationship with the Reef Authority. Rather, management is informally benchmarked by exception, i.e. lack of environmental incident.	• Defence Environmental Strategy 2016-2036 • Environment and Heritage Management in Defence	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OUTPUTS					
OP1 To date, the actual management program (or activities) have progressed in accordance with the planned work program for defence activities	4	• As the Defence management system is highly mature, majority of outputs relate to the day-to-day delivery of management arrangements under the planning and management framework, e.g. delivery of activities in accordance with management requirements, as well as effective execution of larger events, such as the Talisman Sabre exercises. • Reef Authority managers report that these activities are being performed without significant incident or impact to the environment.	• Maritime Activities Environmental Management Plan • Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan • Shoalwater Bay Training Area Standing Orders 2022 • PFAS Management Plans and Detailed Site Investigations for HMAS Cairns, HMAS Townsville and Lavarack Barracks	Adequate	Stable
OP2 Implementation of management documents and/or programs relevant to defence activities have progressed in accordance with timeframes specified in those documents	4	• As per OP1, the management program relates to day-to-day delivery and management of major exercises. As management is embedded into Defence activities, this delivery is occurring continuously.	• Maritime Activities Environmental Management Plan • Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Shoalwater Bay Training Area Standing Orders 2022 • PFAS Management Plans and Detailed Site Investigations for HMAS Cairns, HMAS Townsville and Lavarack Barracks		
OP3 The results (in OP1 above) have achieved their stated management objectives for defence activities	4	• Broader objectives of Defence under their EMS and associated framework are being met, as reported in Annual Reports. These amalgamate all various Defence activities across the nation so are not specific to the Reef - see PL4.	• Maritime Activities Environmental Management Plan • Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan • Shoalwater Bay Training Area Standing Orders 2022 • PFAS Management Plans and Detailed Site Investigations for HMAS Cairns, HMAS Townsville and Lavarack Barracks • Defence Annual Reports	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OP4 To date, products or services have been produced in accordance with the stated management objectives for defence activities	4	• As per OP1 - the main products are the development of ECCs and other management documents and outputs through the day-to-day delivery of the management framework.	• Maritime Activities Environmental Management Plan • Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan • Shoalwater Bay Training Area Standing Orders 2022 • PFAS Management Plans and Detailed Site Investigations for HMAS Cairns, HMAS Townsville and Lavarack Barracks • Defence Annual Reports	Adequate	Stable
OP5 Effective knowledge management systems regarding defence activities are in place within agencies	4	• Defence and the Reef Authority have a variety of systems are in place for managers to record and update data relevant to managing Defence activities. Defence uses a database (known as GEMS) that consolidates information regarding environmental and heritage values across the entire Defence estate including owned and leased properties in addition to non-Defence training areas (e.g. Stanage Bay). The data in the GEMS system enables early	• Defence Environmental Strategy 2016-2036 • Environment and Heritage Management in Defence	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		identification of potential constraints to activities in addition to the tracking of environmental risks and mitigation.			
OP6 Effective systems are in place to share knowledge on defence activities with the community	4	• The main avenues managers are using for sharing information with the community include websites and now social media with and more traditional forms of engagement including formation of consultative groups and project-based information programs (e.g. Talisman Sabre PER). This is considered to be effective. • The Shoalwater Bay Training Area Environmental Advisory Committee is an example of a forum for feedback and interaction with the community around Shoalwater Bay especially regarding the conduct of major Defence exercises e.g. Talisman Sabre • Defence website provides links to a range of information and updates about the conduct of Defence activities.	• Defence Environmental Strategy 2016-2036 • Environment and Heritage Management in Defence	Adequate	Stable
OUTCOMES					
OC1 The relevant managing agencies are to date effectively addressing defence activities and moving towards the attainment of the desired outcomes	4	• Defence activities in the region involve an acceptance of some level of impact but this has been minimised where possible through the implementation of the management framework, especially Standing Orders for training areas and ECCs. As these are now embedded into the working arrangements of Defence sites and activities, it is understood that impacts outside of these parameters are not occurring and thus the outcomes associated with minimising impact are being achieved.	• Strategic Environmental Assessment of Defence Activities in the GBRWHA 2014	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC2 The outputs relating to defence activities are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	3	• Defence activities in the region involve an acceptance of some level of impact but this has been minimised where possible through the implementation of the management framework, especially Standing Orders for training areas and ECCs. As these are now embedded into the working arrangements of Defence sites and activities, it is understood that Reef values are being protected to the agreed level. • There remains ongoing risk and uncertainty associated with contamination (e.g. PFAS, UXOs) although there are ongoing efforts to address these. As these pose potential risk to the Reef values, outputs are not yet comprehensively protecting values.	• Maritime Activities Environmental Management Plan • Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan • Shoalwater Bay Training Area Standing Orders 2022	Adequate	Improving
OC3 the outputs (refer OP1 and 3) for defence activities are reducing the major risks and the threats to the Great Barrier Reef	3	• As per OC3 - while not considered a major risk under Reef 2050, contamination represents an ongoing risk from Defence activities that is still subject to management arrangements.	• Maritime Activities Environmental Management Plan • Great Barrier Reef and Coral Sea Planning Handbook • Land-based Activities Environmental Management Plan • Shoalwater Bay Training Area Standing Orders 2022	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC4 Use of the Great Barrier Reef relating to defence activities is demonstrably environmentally sustainable	4	• As previously mentioned, incidents involving Defence activities are very uncommon and the impacts usually minor and temporary. • Training activities are regularly undertaken in designated areas of the Region, covering less than four per cent of the area. While most of the designated defence training areas within or adjacent to the Region are small, the Shoalwater Bay Defence Training Area near Rockhampton is one of Australia's largest and is regularly used. • Defence activities in the Region directly contribute to the training and operation of Australia's defence services. In addition, the acquisition of Shoalwater Bay in 1965 has provided environmental benefits. The land component remains largely undisturbed and is able to maintain natural environmental processes. It also supports high biodiversity, including internationally significant migratory species and wetlands, and has stunning landscape features. • Environmental monitoring has shown activities, such as low-flying aircraft, are not posing significant biological threats to the wetland and the species which rely upon it (for example roosting seabirds). • Shoalwater Bay remains largely undisturbed and is able to maintain natural environmental processes. It also supports high biodiversity, including internationally significant		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		migratory species and wetlands, and has stunning landscape features. • Good outcomes have been demonstrated for seagrass, dugongs and turtles in Shoalwater Bay. Aerial surveys have confirmed that Shoalwater Bay is the very important for dugong on the Queensland coast south of Cooktown, supporting more than a quarter of the dugong in the region. Compared to most other areas in the region it has less tourism, recreational boating or commercial fishing, and impacts from upstream land uses are minimal because only small creeks run into the Bay from adjacent coastal lands. • While defence training activities are well-managed and have negligible impacts on the Great Barrier Reef, the predicted intensification of defence activities in the region coincides with a decline in the Region's ecosystem health caused by a range of other pressures. Defence advises that it is working with the Reef Authority to review the risks posed by defence activities in light of new information about the Region's declining ecosystem resilience and cumulative impacts.			
OC5 Use of the Great Barrier Reef relating to defence activities is demonstrably economically sustainable	4	• The economic viability and sustainability of Defence activities is based on government policy and budgetary agenda; Defence activities do not rely on the generation of income in the region to drive economic sustainability.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There is no indication at present that any Defence sites or activities in the region are economically unsustainable or should be subject to closure or modification.			
OC6 Use of the Great Barrier Reef relating to defence activities is demonstrably socially sustainable understanding and/or enjoyment	4	• Reef Authority and Defence managers appreciate that Defence use of the Reef is driven by national security. While social values are acknowledged the is also recognition that Defence training is essential to provide for national security and that a presence at Shoalwater Bay, in particular, is critical to maintaining Defence's capability. While some elements of the community object to a Defence presence it would seem that Defence retains the support of the majority of the community as an environmental steward of the Reef as has appropriate social licence. • A defence presence and the associated operational activities can also help, directly and indirectly, to achieve management objectives for the Region e.g. hydrographic surveys, fisheries and border protection patrols and UXO remediation. • Public access to Defence areas is usually restricted, therefore defence activities are unlikely to significantly affect people's understanding and enjoyment of the area. Though it is recognised that the necessity for exclusive use does the limit other opportunities for enjoyment, appreciation and pursuit of economic activities. Defence use can enhance the Aboriginal and Torres Strait Islander communities' enjoyment and understanding as the		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		controlled access, remoteness and conservation ethos is consistent with many aspects of traditional use and protection of values. • It is reasonable that Defence consult widely and justify why training activities need to occur outside of the existing large areas that Government have specifically set aside for Defence to train.			
OC7 The relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address defence activities	4	• As per CO5, Defence adopts a whole-of-government approach in planning and management activities which provides the basis for agency partnership. There is also an official partnership between Defence and the Reef Authority represented by the Memorandum of Understanding. • While Defence undertakes engagement with other stakeholders and local communities, there is limited opportunity for direct partnership with these bodies due to the secure nature of Defence sites and activities.		Adequate	Stable

Fishing (Commercial)

Table 41: Calculation of grades for Fishing (Commercial)

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The values of the Great Barrier Reef relevant to commercial fishing are understood by managers	3	• The managers for commercial fisheries in the region consist of: – DAF - this is the agency responsible for management of fisheries in Queensland waters and, under the Offshore Constitutional Settlement, has responsibility for management of fisheries within the region. – Reef Authority - has overarching responsibility for management of the environment in the Marine Park but has limited direct responsibility for commercial fisheries. – DCCEEW - has responsibility to undertake assessments under the *Environment Protection and Biodiversity Conservation Act 1999* for Queensland managed fisheries with an export component and/or that interact with protected marine species. • Generally speaking, all these agencies have an understanding of the high-level values of the region through their historical and ongoing involvement in the Outlook Reports and the Great Barrier Reef strategic assessments.	• GBR Outlook Reports • Strategic Assessment of the GBRWHA (2014) • GBR Coast Strategic Assessment (2014) • Offshore Constitutional Settlement • Queensland Sustainable Fisheries Strategy 2017-2027 • Queensland managed fisheries assessments under the EPBC Act • Reef 2050 Plan	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The economic and social value of commercial fisheries are well understood, with data available for the commercial and charter sectors up to 2020-21 (more recent data reports are in publication). • The ecosystems that underpin commercial fishing are also known but the specific status of these fisheries and associated values are not always well known (see CO2 and CO3).			
CO2 The current condition and trend of values relevant to commercial fishing are known by managers	2	• Trends in economic and social data are well understood through regular reporting (see CO1). • There are currently major acknowledged gaps in the understanding of environmental characteristics of the Reef with relation to fisheries. These include: – Most information on stock status reporting is state-wide and therefore does not consider trends in the region generally or specific areas within the Reef. – The past and current condition and trend of fish spawning aggregation sites is generally unknown except for a few well-known sites (e.g. Scott & Elford Reefs, offshore Cairns). – Interactions with species of conservation concern (SOCC) is mostly unreported or unvalidated so overall trends are not known	• GBR Outlook Reports • Strategic Assessment of the GBRWHA (2014) • GBR Coast Strategic Assessment (2014)) • Queensland managed fisheries assessments under the EPBC Act • Ecological risk assessments • Stock assessments • Harvest strategies	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Other than a single assessment associated with coral reef fin fish, there are no contemporary fishery independent data for the Reef. • However, it is recognised that since the introduction of the Sustainable Fisheries Strategy 2017-2027, stock assessments have been completed for 34 species. This is an improvement on previous approaches where stock assessments were undertaken on an ad hoc basis. • Some anecdotal evidence is available regarding potential changes in fisheries associated with climate change (e.g. king threadfin salmon now in Moreton Bay) but further research and assessment is required. • High level trends and condition are also noted in the Outlook Reports			
CO3 Impacts (direct, indirect and cumulative) associated with commercial fishing are understood by managers.	2	• While fishing related risks are known the direct, indirect and cumulative impacts of fishing of a range of fisheries operating in the GBR are not well understood and large information gaps and risks to Reef ecosystem are still widely unknown. • Key risks and impacts associated with commercial fishing that are known (but not entirely quantified or understood) include: – Reductions in predator populations – Overharvesting of particle feeders (e.g. prawns and scallops)	• GBR Outlook Reports • Strategic Assessment of the GBRWHA (2014) • GBR Coast Strategic Assessment (2014) • Offshore Constitutional Settlement • Queensland Sustainable Fisheries Strategy 2017-2027	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Death, injury and stress to discarded catch – Incidental capture, entanglement and death of SOCC – Loss or decline of fish spawning aggregations, especially for inshore species – Physical damage to the seabed and reef habitat – Marine debris, including discarded and lost fishing gear – Illegal commercial fishing. • The impacts relate to both the fish targeted/caught (including SOCC), by-product, by-catch, the broader ecosystem and ecological processes, and the biophysical habitat. Based on current assessments, the species most vulnerable to impacts are dugong, sawfish, inshore dolphins, marine turtles and sea snakes (as bycatch) and threadfin salmon, grey mackerel and snapper (as target species). Other target species of emerging concern include Spanish mackerel, pink snapper and pearl perch • Independent validation of SOCC reporting does not presently occur and most interactions are likely unreported. The effect of such interactions and associated mortality on populations is not known. • Aside from SOCCs, commercial fishers are not required to report discards of targeted and bycatch species and there are no contemporary estimates of quantum of bycatch and discards across all fisheries. For species that are not	• Queensland managed fisheries assessments under the EPBC Act • Ecological risk assessments • Stock assessments • Reef 2050 Plan • Kroon et al., 2020 • Williamson et al., 2014 • Bergseth et al., 2017 • Lamb et al., 2015 • Buckley et al., 2017		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		subject to stock assessments, this creates significant uncertainty on the scale of impact. • At a fishery-scale, assessment are undertaken under the *Environment Protection and Biodiversity Conservation Act 1999*. Note however that both the 2016 and 2018 assessments for the East Coast Inshore Fin Fish Fishery appeared to make assessments of impacts to the Reef on the basis of individual fishers rather than the fisheries as a whole. While these assessments have subsequently been revoked, they have not been replaced and may indicate some inconsistency in assessment approach that undermines ability to consider impacts at the appropriate scale for at least this fishery. • Ecological risk assessments are also undertaken for certain Queensland fisheries and provides a more comprehensive understanding of environmental risks. Stock assessments are also undertaken, with a more systematic approach being implemented as a result of the Sustainable Fisheries Strategy. At present there are 24 ecological risk assessments, covering 14 fisheries, with a further assessment being conducted for the East Coast Trawl Fishery (which is the only significant fishery without an assessment at present). • Managers have access to a growing range of research on fisheries impacts, although these are often not localised. There is limited independent research available on fisheries in the GBR at an appropriate scale.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CO4 The broader (national and international) level influences relevant to commercial fishing are understood by managers.	3	• The Australian Fisheries Management Forum which comprises heads of all national agencies associated with fisheries (not including the Reef Authority). This provides a key forum to understand national, intranational and international trends. DAF also has cross-jurisdictional arrangements with the New South Wales and Northern Territory fisheries agencies in relation to management of joint stocks of fisheries interest (e.g. snapper, Spanish mackerel). • Generally, fisheries in Queensland are intended to be aligned with standards set through the AFMF and the United Nations Food and Agriculture Organisation. • There is also a high-level cross-agency working group established in late 2022 to share strategic priorities across state and federal government agencies regarding fishing and fisheries within the GBRWHA. • As Australia is a party to the Convention on Migratory Species and the Convention on the International Trade of Endangered Species, international changes associated with species listings are directly implemented at a national level through the *Environment Protection and Biodiversity Conservation Act 1999* and associated instruments and rolled through to state-level controls. Australia has an active role in these conventions, as demonstrated in discussions associated with the listing of two species of hammerhead shark which are commercial taken in GBR waters. Other recent changes include the	• GBR Outlook Reports • Strategic Assessment of the GBRWHA (2014) • GBR Coast Strategic Assessment (2014) • Queensland Sustainable Fisheries Strategy 2017-2027 • Queensland managed fisheries assessments under the EPBC Act • Ecological risk assessments • Stock assessments • Reef 2050 Plan • UNESCO Report on the Reactive Monitoring Mission to the Great Barrier Reef • National Fisheries Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		listing of a series of sea cucumbers under CITES and trade-specific bans on coral species (European Union and United Kingdom). • DCCEEW leads Australia's engagement on international fisheries issues, including Regional Fisheries Management Organisations.			
CO5 The stakeholders relevant to commercial fishing are well known by managers.	4	• There is a good understanding of the key commercial fishing stakeholders. • It is recognised that the role of commercial fishing peak bodies (e.g. Queensland Seafood Industry Association, Fishermen's Portal) in representing commercial fishing stakeholders has diminished in recent years through reducing membership and coordination. This reduces the capacity for managing agencies to directly interact with and identify fisheries stakeholders as there is less coordination. • While relationships with key representatives and networks have been maintained and targeted consultation on certain issues (e.g., net licence buybacks) has occurred, dedicated forums for engagement with commercial fishers have not existed for most fisheries for some years. • Some matters related to commercial fisheries management are discussed at the Reef Authority's Local Marine Advisory Committee meetings but membership by commercial fishers in these forums is generally lacking.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Reef Guardian Fishers Program • MRAG Fisheries Management Review • Green Paper on Fisheries Management Reform in Queensland • Fishery Working Groups documentation • Expert Panel Communiques	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• DAF has established fishery working groups as advisory forums which include a range of commercial and recreational stakeholders, grouped around specific fisheries. • The Reef Authority is undertaking an actor network mapping project which is anticipated to improve understanding of key stakeholders for the region.			
PLANNING					
PL1 There is a planning system in place that effectively addresses commercial fishing	4	• The planning system for commercial fisheries in the region consists of the following key elements: – Zoning arrangements under the GBRMP and GBRCMP Zoning Plans, which set broad zones in which commercial fishing activities can and cannot occur, including associated licensing requirements (in limited situations). The GBRMP Act also has a range of powers available to help control and manage fishing activities in the Marine Park, for example licencing of developmental fishery programs, management of listed protected species and special management areas to restrict fishing activities. – *Fisheries Act 1994* (Qld) and associated regulations, which set commercial fishing licence requirements together with quotas and associated rules. Under these higher level instruments are a series of fishery-specific tools such as harvest strategies and ecological risk	• Great Barrier Reef Marine Park Zoning Plan • Great Barrier Reef Coast Marine Park Zoning Plan • Queensland Sustainable Fisheries Strategy 2017-2027 • Queensland managed fisheries assessments under the EPBC Act • Reef 2050 Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		assessments which provide further actions and rules for managing impacts. – Requirements for strategic environmental assessments under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) for new fisheries that have an export component or where introducing new management arrangements. These assessments also set actions relevant to the management of and planning for the fishery. • Significant improvements to management under the Fisheries Act was introduced through the Sustainable Fisheries Strategy, including a more systematic approach to preparing harvest strategies and the setting of state-wide benchmarks for sustainable catch limits, moving towards a maximum economic yield (MEY) approach. However, this system is still being implemented and there are significant legacy issues associated with historic exhaustion of fish stocks and other unsustainable management activities. • There are noted weaknesses in the assessment approach under the *Environment Protection and Biodiversity Conservation Act 1999*, as noted in CO3. • The Reef Authority's position statement on fishing outlines the key principles important to improve fishing outcomes in the Marine Park. The position statement also details the current issues and impacts, and relevant			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		powers and roles of Commonwealth and Queensland agencies in managing fishing. The position statement for fishing is currently under review and is expected to be released in 2024. • Major concerns associated with underreporting and management of bycatch of SOCC and other species are not currently integrated into the planning system, although it is recognised works are ongoing to introduce independent data validation for commercial fisheries within the Marine Park.			
PL2 The planning system for commercial fishing addresses the major factors influencing the Great Barrier Reef Region's values.	4	• In accordance with the 2019 Outlook Report, the major factors influencing the reef are coastal development, climate change, direct use and land-based run-off. Of these, commercial fisheries are a major direct use. Commercial fisheries are also indirectly relevant to risks arising from climate change to the extent fishing affects the resilience of ecosystems and their ability to adapt to climate change. • The planning system has significantly improved since the introduction of the Sustainable Fisheries Strategy. • The planning system relates primarily to direct use as it seeks to control fishing activities. The main focus on the system is on fishing activities themselves, especially in terms of impacts to target populations. The system has gaps with regards to the management of associated impacts on habitat and non-target species, including SOCCs/protected species.	• Great Barrier Reef Marine Park Zoning Plan • Great Barrier Reef Coast Marine Park Zoning Plan • Queensland Sustainable Fisheries Strategy 2017-2027 • Queensland managed fisheries assessments under the EPBC Act • Reef 2050 Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• While the implications of climate change are understood, they are not sell integrated into the planning system.			
PL3 Actions for implementation regarding commercial fishing are clearly identified within the plan	3	• The relevant plans under the planning system include: – Reef 2050, which sets actions relevant to management of the Reef as a whole, including commercial fisheries-specific actions – Sustainable Fisheries Strategy, which includes specific management actions associated with improving the management arrangements for Queensland fisheries, including within the region – Various harvest strategies, ecological risk assessments and strategic environmental assessments for fisheries which set actions in relation to specific assessments. However, these actions typically relate to the specific management of fishing activities within the fishery, rather than broader arrangements to improve the fishery overall. • The Reef Joint Field Management Program also sets actions through annual business plans and business strategies. The RJMP represents a compliance focus for the Reef Authority and its actions help to drive improved compliance and monitoring of activities within the reef. Thus, while its action plans are not specific to management of commercial fisheries, they provide	• Queensland Sustainable Fisheries Strategy 2017-2027 • Queensland managed fisheries assessments under the EPBC Act • Ecological risk assessments • Stock assessments • Harvest strategies • Reef 2050 Plan • RJFMP Annual Business Plan • RJFMP 5-Year Business Strategy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		specific actions designed to improve management through compliance action.			
PL4 Clear, measurable and appropriate objectives for management of commercial fishing have been documented	3	• There are clear and measurable objectives under the Reef 2050 Plan and Sustainable Fisheries Strategy. • Harvest strategies also set out clear objectives associated with sustainable catch limits (set at MEY or 60% of virgin biomass) and other matters relevant to the specific fishery. These are in place for all major fisheries (17). • The RJFMP has also set a range of objectives for the purposes of delivering a compliance management program.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Queensland managed fisheries assessments under the EPBC Act • Ecological risk assessments • Stock assessments • Harvest strategies • Reef 2050 Plan • RJFMP Annual Business Plan • RJFMP 5-Year Business Strategy	Adequate	Improving
PL5 There are plans and systems in place to ensure appropriate and adequate monitoring information is gathered in relation to commercial fishing	3	• The main monitoring system under the planning system is fishery-specific monitoring by DAF of commercial fishing activities. Historically there was insufficient data collected to allow for effective monitoring and oversight but there have been significant improvements through the implementation of the Sustainable Fisheries Strategy. • Areas where monitoring is captured in the planning system include: – species specific monitoring programs	• Queensland Sustainable Fisheries Strategy 2017-2027 • Reef 2050 Plan • Monitoring and Research Plan 2017 • Vessel tracking of commercial fisheries	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– monitoring of commercial logbooks, including a specific logbook for reporting threatened, endangered and protected species interactions – monitoring/patrols of net-free fishing zones – fisheries independent surveys – electronic reporting certain fisheries (crab, coral, east coast net, east coast line, tropical rock lobster, trawl) to provide real-time monitoring on catch – vessel tracking on commercial vessels to provide real-time monitoring of activities – collection of economic and social data from commercial fishers and charter operators • There remains acknowledged gaps in monitoring impacts to SOCCs/protected species and the cumulative impact of different commercial fisheries although there is now funded programs to introduce independent data validation that will be implemented in future assessment periods.			
PL6 The main stakeholders &/or the local community are effectively engaged in planning to address commercial fishing	3	• DAF has improved engagement recently through the use of fishery working groups to provide technical advice on the planning system. These working groups include attendance by the Reef Authority, providing an avenue for inputs into the Reef Authority planning system as well.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Reef Guardian Fishers Program • MRAG Fisheries Management Review	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• DAF has also established a Sustainable Fisheries Expert Panel which provides a forum for expert stakeholders to further advise DAF and the Minister based on inputs from the various fishery working groups. • However, there remains acknowledged insufficient engagement with stakeholders in planning. This primarily relates to commercial fishers but also includes Traditional Owners, recreational fishers and local community members. Most engagement outside of fishery working groups is ad hoc and at the individual officer level. • Traditional Owner groups in the southern Reef have requested a greater role in the management of take by commercial fishers.	• Green Paper on Fisheries Management Reform in Queensland • Fishery Working Groups documentation • Expert Panel Communiques		
PL7 Sufficient policy currently exists to effectively address commercial fishing	4	• The Sustainable Fisheries Strategy represents a significant improvement in policy for commercial fisheries with a particular focus on shifting to a sustainable take level based on MEY which is set at retaining 60% of virgin biomass, rather than traditional 40%. • Other key DAF policies include: – Fisheries resources reallocation policy, which enables the reallocation of fisheries resources between different sectors and parties (e.g. commercial, recreational, traditional) – Aboriginal and Torres Strait Islander peoples commercial fishing development policy, which aims to support the	• Queensland Sustainable Fisheries Strategy 2017-2027 • Fisheries Resources Reallocation Policy • Aboriginal and Torres Strait Islander Peoples Commercial Fishing Development Policy • Developmental Fishing Policy • Queensland Harvest Strategy Policy	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		taking and selling of fisheries resources by Traditional Owners outside the existing commercial fishing licence framework – Developmental fishing policy, which sets the basis for exploring a new or under-exploited fishery that is not yet subject to commercial licensing requirements – Queensland harvest strategy policy, which sets the framework for consistent development of harvest strategies. • As the Reef Authority does not fully exercise its powers and functions to further regulate and manage fishing, and historical arrangements remain focused on joint management via DAF, it has limited policy related to commercial fisheries. However, the Reef Authority has issued position statements which set out formal positions on matters related to factors influencing the values of the Marine Park. The relevant policies and position statements include: – Policy on Managing Activity that include the Direct Take of a Protected Species from the Great Barrier Reef Marine Park - this provides guidance about the take of protected species allowable under the Zoning Plan but only under very limited circumstances and excludes commercial purposes	• Policy on Managing Activity that include the Direct Take of a Protected Species from the Great Barrier Reef Marine Park • Fish Aggregation Devices and Artificial Reef Interim Policy • Position Statement: Fishing • Position Statement on the Conservation and Management of Protected Species in Relation to the Queensland East Coast Inshore Finfish Fishery • National Fisheries Plan • Guidelines for the Ecologically Sustainable Management of Fisheries • Fish Aggregating Devices and Artificial Reefs – Draft Policy • Fish Aggregating Devices and Artificial Reefs – Literature review of benefits		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Fish Aggregation Devices and Artificial Reef Interim Policy - this policy prevents the deployment of fish aggregating devices and artificial reefs in the Marine Park until a new policy is adopted. The Reef Authority has prepared a Draft Policy on Fish Aggregating Devices and Artificial Reefs to provide clarity on its policy position regarding fish aggregating devices and artificial reefs in the Marine Park. Public consultation on this policy occurred in early 2023. – Position Statement: Fishing - this emphasises the need for harvest strategies and ecosystem-based approaches to fishing that considers all species and habitats – Position Statement on the conservation and management of protected species in relation to the Queensland East Coast Inshore Finfish Fishery - this set the Reef Authority's expectations for the ECIFF based on measures to minimise impacts to protected species. • The National Fisheries Plan 2022-2030 sets a high-level vision for the sustainable growth of commercial fishing, including through improved governance approaches. • The Guidelines for the Ecologically Sustainable Management of Fisheries apply to each fishery assessment under the *Environment Protection and Biodiversity Conservation Act 1999* and set principles for management regimes to be implemented for each	and negative impacts for the Great Barrier Reef		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		fishery. These are that the fishery must be conducted in a way that does not lead to overfishing (or if already overfished, leads to a high probability of recovery), and the fishing activities should minimise impacts on the ecosystem. • This policy framework currently does not establish acceptable limits associated with impacts to the surrounding environment other than the targeted fish species, including SOCCs/protected species and habitat.			
PL8 There is consistency across jurisdictions when planning for commercial fishing	3	• The different legislative responsibilities and objectives of respective Fisheries and Marine Park Acts are outlined in the Great Barrier Reef Intergovernmental Agreement between the Commonwealth of Australia and the State of Queensland relating to the protection and management of the Marine Park, and particularly in the Fisheries schedule of this agreement. • Multiple agencies and governments are involved in fishing management, namely: DAF, DCCEEW and the Reef Authority. Given the nature of their Acts, each has responsibilities to ensure sustainable use of fisheries resources, for different reasons (for example, biodiversity protection and sustainable harvest). Since 2022 there have been strategic cross-agency fishing workshops and working-level catch ups between DAF and the Reef Authority to support coordination of fishing management.	• Australian Fisheries Management Forum documentation • Queensland Sustainable Fisheries Strategy 2017-2027 • RJFMP Business Plans • Great Barrier Reef Marine Park Zoning Plan • Great Barrier Reef Coast Marine Park Zoning Plan • Queensland management fisheries assessments under the EPBC Act • Guidelines for the Ecologically Sustainable Management of Fisheries	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Australian Fisheries Management Forum (AFMF) provides opportunity to improve consistency when planning for commercial fishing across Australia. • The Marine Park and Coast Marine Park generally adopt complementary zoning • The RJFMP is highly successful at ensuring consistency across jurisdictions. This strong multi-agency collaboration and coordination is underpinned by a sound governance system that equally apportions financial support. The culture of the RJFMP is collaborative and consistent. • The Sustainable Fisheries Strategy explicitly recognises the World Heritage Area. The 60% biomass target for fisheries resources by 2027 under the Strategy is consistent with the Reef Authority biodiversity conservation and ecosystem resilience goals. Fishery working groups under the Strategy include involvement by Reef Authority and DAF which promotes greater consistency of approach. • By contrast, actions under the *Environment Protection and Biodiversity Conservation Act 1999* related to fishery assessments and management are not more precautionary in the World Heritage Area than any other fishery in Australia.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PL9 Plans relevant to commercial fishing provide certainty regarding where uses may occur, the type of activities allowed, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.	4	• The Marine Park and Coast Marine Park Zoning Plans provide clear certainty about where fishing activities may or may not occur. • Queensland Fisheries Regulation is the main vehicle for managing fisheries and where actions are put in place (e.g. quota, closures, gear restrictions, size and possession limits etc.). • The new harvest strategies under the Sustainable Fisheries Strategy provide greater certainty based on the performance of fish stock. • Between 2019-2022, a review of over 1,100 standard conditions within our permit templates has been undertaken to ensure conditions are consistent, contemporary, enforceable, relevant and easy to understand for permit holders (planned completion date of June 2023). Of these 1,100 conditions, 50 conditions related to commercial harvest fisheries have been reviewed. A jointly approved internal procedure with QPWSP has been approved in 2022 to ensure the periodic review of conditions continues following completion of this work. • Complexity in regulation creates some ongoing uncertainty for commercial users.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Great Barrier Reef Marine Park Zoning Plan • Great Barrier Reef Coast Marine Park Zoning Plan	Adequate	Stable
INPUTS					

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN1 Financial resources are adequate and prioritised to meet management objectives to address commercial fishing	3	• As part of the implementation of the Sustainable Fisheries Strategy there has been a significant increase in funding available to DAF to support commercial fisheries management. • Additional funding has been made available to the Reef Authority through the Reef Protection Package to influence strong fisheries management policy through enhanced regulation, compliance and fostering community stewardship. The Reef Authority has also received additional funding to expand the RJFMP. • Funding has also been made through DCCEEW (~$1 billion) for independent data validation, although this is in early stages of implementation.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Reef 2050 Activities Report • RJFMP Business Plans	Adequate	Improving
IN2 Human resources within the managing organisations are adequate to meet specific management objectives to address commercial fishing	3	• The skillset of staff within DAF and the Reef Authority is of a high quality and experience with most staff having marine or fisheries resource management training at tertiary level. • DAF has recruited additional 36 FTEs for compliance and delivery of the Sustainable Fisheries Strategy since 2019. • The Reef Authority has recruited three FTEs from 2019-2023 focused on ecologically sustainable fishing and has increased representation in fishery working groups. Further increase in FTEs may occur from 2023 through the Reef Protection Package. • The RJFMP undertook an expansion from 2017-18 with an increase in staff by 62%.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Reef 2050 Activities Report • RJFMP Business Plans	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• DCCEEW has a new Reef Fisheries Section from 2022 with 5 FTEs, additional to the 17 FTEs associated with sustainable fisheries more generally.			
IN3 The right skill sets and expertise are currently available to the managing organisations to address commercial fishing	3	• The skill set within the Reef Authority and DAF is of a high quality and experience with most staff having marine or fisheries management training at tertiary level. • DAF employs fisheries science, fisheries biology, fisheries policy, analytics, media, compliance and monitoring professions. • Queensland is one of the only states with the capacity to undertake in-house stock assessments	• Queensland Sustainable Fisheries Strategy 2017-2027 • Stock assessment program • Reef 2050 Activities Report • RJFMP Business Plans	Adequate	Stable
IN4 The necessary biophysical information is currently available to address commercial fishing	3	• DAF uses available biophysical information to address commercial fishing, including as part of stock assessments. 28 stock assessments, including biophysical information have been undertaken since 2019 under the Sustainable Fisheries Strategy. • The Reef Authority uses and analyses biophysical information through the Reef 2050 Integrated Monitoring and Reporting Program (RIMReP). • Each year (since 2019-20), the Reef Authority releases a snapshot on how the Reef coral has fared over the summer. This increases the available of information related to bleaching events and coral health generally. • However, as per CO2 and CO3, further information is required on SOCC/protected species, habitats, and	• Queensland managed fisheries assessments under the EPBC Act • Ecological risk assessments • Stock assessments • Harvest strategies • Welch et al., 2014	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		ecosystems and broader ecological processes as they specifically relate to fisheries activities and impacts.			
IN5 The necessary socio-economic information is currently available to address commercial fishing	3	• Socio-economic data is collected through the Social and Economic Long-Term Monitoring Program which is regularly published. One of the main groups involved in the SELTMP is commercial fishers. • DAF also collects fisheries economic and social data which has been released for 2017-2018, 2018-2019 and 2019-2020 (subsequent reports in publication) • This data is publicly available to DAF, the Reef Authority and other agencies for input into planning and decision-making.	• SELTMP reports (Monitoring human dimensions of the GBR) • SELTMP Core module pilot data dashboard • Regional Report Cards Module Report • Regional Report Cards 2021-22 Social Survey dataset • Integrated Monitoring and Reporting - Great Barrier Reef Foundation • Deloitte Access Economics 2017 – At What price? The economic, social and icon value • Fisheries economic and social data • Thebaud et al., 2014 • Sampson, 2018 • FRDC – Measuring the economic value of recreational fishing at a national level	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• FRDC Beyond GVP: The value of inshore commercial fisheries to fishers and consumers in regional communities on Queensland's east coast		
IN6 The necessary Indigenous heritage information is currently available to address commercial fishing	2	• There are no programs or mechanisms which link indigenous heritage information with commercial fishing or visa-versa. • Detailed and widespread understanding of traditional (indigenous) knowledge and cultural heritage is limited and strategy and resourcing to address this gap is needed. • Traditional Owner Groups are very concerned about commercial fisheries bycatch of valued megafauna. Most concerns relate to the East Inshore Fin Fish Fishery right along Reef coast and the harvest of corals across the region. • The Reef Authority liaises with Traditional Owners or other Aboriginal or Torres Strait Islander people as users of the Marine Park through TUMRA projects, Indigenous Reef Advisory Committee ranger training and meetings, conferences and workshops. • As part of the Strong Peoples-Strong Country Framework, the Reef Authority aims to build capacity for Traditional Owner leadership of monitoring and reporting	• Great Barrier Reef Authority Aboriginal and Torres Strait Islander Heritage Strategy	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		in the region. Additionally, through the Reef Authority Aboriginal and Torres Strait Islander Heritage Strategy, some Sea Country Values Mapping are now available. • DAF has recruited an Indigenous Fisheries Management and is putting together a special fisheries working groups intended to work closely with First Nations people in Cape York. All fishery working group have a First Nations member. • DAF has engaged five new cultural liaison officers within the Queensland Boating and Fisheries Patrol			
IN7 The necessary historic heritage information is currently available to address commercial fishing	2	• Special management areas are in place around noted historic heritage sites. Many historic shipwrecks and other underwater cultural heritage features are also mapped on public databases. • However, some historic heritage, especially shipwrecks, are not well known. There are acknowledged data and knowledge gaps related to how commercial fishing has/will impact historic heritage.	• Great Barrier Reef Marine Park Special Management Areas • Underwater Cultural Heritage database	Adequate	Stable
IN8 There are additional sources of non-government input (e.g. volunteers) contributing to address commercial fishing	3	• The Reef Authority has limited involvement with volunteers who contribute to address commercial fishing. • Several proactive commercial fishers continue to contribute their own time and resources to actively engage in commercial fisheries matters. This includes the accommodation and support of the activities of researchers.	• Local Marine Advisory Committee documents • Fishery Working Groups documents • Expert Panel Communiques	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Stakeholder-based fishery working groups are now in place for all major fisheries under the Sustainable Fisheries Strategy. These include membership from commercial, recreational and charter fishers, the Reef Authority, marketers/processors, conservation groups, First Nations representatives and science areas. A Sustainable Fisheries Expert Panel was also appointed in July 2017. Stakeholders are actively consulted and provided opportunities to have a say. • Fisheries Queensland provides up to $250,00 in grant money each year to support independent projects and programs that encourage or promote behavioural change, industry modernisation, best practice and innovation in the commercial and charter fishing sectors.			
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of commercial fishing	3	• The Green Paper on fisheries management reform in Queensland (which led to the Sustainable Fisheries Strategy) included significant public consultation to help set the agenda for the new fisheries management framework. • Reef Authority staff regularly engage with stakeholders in the management of commercial fishing. However, these lines of communication are limited to Fishery Working Groups and/or personal existing relationships with commercial fishers.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Reef Guardian Fishers Program • MRAG Fisheries Management Review • Green Paper on Fisheries Management Reform in Queensland • Fishery Working Groups documentation	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• DAF are primarily responsible for effectively engaging the main stakeholders &/or industry(ies) in the ongoing management of commercial fishing. • Some matters related to commercial fisheries management are discussed at the Reef Authority's Local Marine Advisory Committee meetings but membership by commercial fishers in these forums is generally lacking. • Stakeholder-based fishery working groups in place for all major fisheries. Includes commercial, recreational and charter fishers, marketers/processors, conservation groups and science representatives. Terms of reference and communiques for each working group are published online (see Reference). • Working groups have met 79 times since 2018. Working group Terms of Reference and Communiques from each meeting are available online. • Stakeholders are actively consulted and provided opportunities to have a say, for example the current vessel tracking review. • Improving stakeholder engagement is a key reform area under the Sustainable Fisheries Strategy. DAF engaged experts to research into stakeholder engagement and make recommendations on improved engagement. The report was released to Fisheries Queensland in 2020 and has led to improved stakeholder engagement. • Various inter-agency forums are also in place for relevant government departments, including a high-level cross	• Expert Panel Communiques		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		agency working group (established Nov 2022), DAF/Reef Authority working-level catch ups (established 2023 and occur every two months), operational data workshop and discussions to improve information sharing. • DAF has set up an Engagement Hub (EHub) portal for easy stakeholder engagement which has been used numerous times to engage with stakeholders, for example Vessel Tracking Review Engagement, East Coast Spanish Mackerel Fishery: Final Consultation on proposed management action and the East Coast Otter Trawl Fishery Consultation.			
PR2 The local community is effectively engaged in the ongoing management of commercial fishing	3	• The main opportunity for local community input is through fishery working groups managed by DAF which is limited to a few fishers within each Fishery. • The Reef Authority also manages Local Marine Advisory Committee meetings which include discussion on commercial fisheries management although it is uncertain the extent to which this influences management action as this is primarily delivered through DAF.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Reef Guardian Fishers Program • MRAG Fisheries Management Review • Green Paper on Fisheries Management Reform in Queensland • Fishery Working Groups documentation • Expert Panel Communiques	Adequate	Stable
PR3 There is a sound governance system in place to address commercial fishing	3	• The governance system for commercial fisheries consists of the following key elements:	• Offshore Constitutional Settlement • Reef 2050 Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– DAF, who has primary role in the management of fisheries in the region through the Offshore Constitutional Settlement, subject to ensure consistency with zoning and other arrangements under the GBRMP Act. DAF's focus is on sustainable fisheries, including promoting commercial fisheries where undertaken in a sustainable manner. – Reef Authority, with responsibility for protecting all biodiversity, setting broad rules and zoning for the GBRMP and setting policy related to management associated with protected species and habitats within the GBRMP. – DCCEEW, with responsibility for assessing export fisheries for their impact to the World Heritage Area. DCCEEW's focus is on maintaining fish stocks and ecosystems, with a greater focus on long-term sustainability, regardless of commercial exploitation. DCCEEW also ensures the implementation of any changes through international conventions that are relevant to fisheries, such as the Convention on the International Trade in Endangered Species. • The relationship between these organisations is established through the Offshore Constitutional Settlement and the Intergovernmental Agreement. However, the implementation of their respective jurisdictions appears to depend in particular upon strong	• Queensland Sustainable Fisheries Strategy 2017-2027 • Great Barrier Reef Intergovernmental Agreement 2015 • Guidelines for the Ecologically Sustainable Management of Fisheries		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		working relationships. There is a significant risk of conflict due to the differing focuses of each agency which can either lead to inconsistent or ignored policy or poor implementation of management actions. Under the recent arrangements, including the Sustainable Fisheries Strategy, there has been improved management of these relationships. This has been particularly due to an alignment of DAF policy for fish stocks with a precautionary approach relevant to the Reef Authority. However, these relationships are not 'hardwired' into the governance system and could be subject to changes in the future.			
PR4 There is effective performance monitoring, including. regular assessment of appropriateness and effectiveness of tools, to gauge progress towards the objective(s) for commercial fishing	3	• Through the Sustainable Fisheries Strategy, there has been significant improvement in performance monitoring approaches for individual fisheries. See PL5. • Note however that objectives are set primarily in relation to individual fisheries stock management and compliance action. There are limited objectives related to management of SOCCs/protected species and habitat and this is reflected in performance monitoring approaches.	• Fisheries monitoring reports • Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Fisheries economic and social data • Species-specific monitoring programs	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Vessel tracking | Department of Agriculture and Fisheries, Queensland (daf.qld.gov.au) • Vessel Tracking Consultation Report - Feedback on draft policy and guidelines - Vessel tracking - Publications | Queensland Government • Vessel Tracking Guideline - Vessel tracking - Publications | Queensland Government\		
PR5 Appropriate training is available to the managing agencies to address commercial fishing	3	• DAF has a staff capability and training program which ensure appropriate training is available to fishery managers. This includes technical and policy training as well as relevant conferences (e.g. ASFB, Seafood directions etc) • Reef Authority sustainable fisheries group managers are recruited on the basis that they have satisfactory fisheries management technical expertise. There is little opportunity for further technical and scientific training after initial recruitment. However, participation in commercial fishing and fisheries management workshops / conferences are available to managers.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• DCCEEW provides training support to staff, including through core annual training and attendance at key workshops			
PR6 Management of commercial fishing is consistently implemented across the relevant jurisdictions	3	• Day-to-day management of commercial fishing is consistently implemented across the relevant jurisdictions. However, see comment at PL8 regarding inconsistency between biodiversity objectives and broader fisheries extraction objectives. • The RJMP compliance program includes both the Marine Park and Coast Marine Park, with consistent management across both. • Under the Sustainable Fisheries Strategy, harvest strategies are now in place for all major fisheries (17) with a 60% target for the majority. • From Sept 2021, DAF has introduced standard reporting requirements for commercial fisheries. The new requirements are designed to generally improve the accuracy of catch and effort information, support compliance and help prevent black-marketing.	• Australian Fisheries Management Forum documentation • Queensland Sustainable Fisheries Strategy 2017-2027 • RJFMP Business Plans • Great Barrier Reef Marine Park Zoning Plan • Great Barrier Reef Coast Marine Park Zoning Plan • Queensland management fisheries assessments under the EPBC Act • Guidelines for the Ecologically Sustainable Management of Fisheries	Adequate	Stable
PR7 There are effective processes applied to resolve differing views/ conflicts regarding commercial fishing	3	• Apart from some statutory consultation processes, formalised process to engage within and between different fishing sectors (commercial, recreational, customary) do not currently exist. • Clear and consistent processes for the Reef Authority to ensure differing views / conflicts regarding fisheries matters are adequately dealt with by DAF or DCCEEW do	• Australian Fisheries Management Forum documentation • Queensland Sustainable Fisheries Strategy 2017-2027 • Reef 2050 Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		not exist. The Reef Authority must rely on officer-to-officer relationships for input. However, this has been improved through the introduction of high-level working groups in late 2022. • The process for accreditation of fisheries under the *Environment Protection and Biodiversity Conservation Act 1999* through strategic assessments has limited mechanisms of resolving conflict, including negotiations with the Reef Authority and DAF. • Good relationships exist between officers / managers at agency levels. • Regional Liaison Officers and Queensland Boating and Fisheries Patrol staff on the ground may identify issues and conflicts that require further action. • There are regularly conflicts associated with commercial and recreational fishing sectors associated with different controls (e.g. net free areas, resource allocation mechanisms). These conflicts cannot always be resolved but statutory consultation processes assist in identifying issues and views for consideration in decision-making.			
PR8 Impacts (direct, indirect and cumulative) of activities associated with commercial fishing are appropriately considered.	2	• See response to CO3. • Consideration of impacts to target species and associated ecosystems are improving through the systematic approach of ecological risk assessments, stock assessments and harvest strategies introduced through the Sustainable Fisheries Strategies. Almost all ecological	• GBR Outlook Reports • Strategic Assessment of the GBRWHA (2014) • GBR Coast Strategic Assessment (2014)	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		risk assessments for significant fisheries have been completed, other than for the East Coast Trawl (which is in preparation. • Despite improved fishery-specific understanding, the broader understanding of impacts associated with SOCCs/protected species and habitat impacts remains uncertain and subject to significant knowledge gaps.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Queensland managed fisheries assessments under the EPBC Act • Ecological risk assessments • Stock assessments • Reef 2050 Plan • Kroon et al., 2021 • Hall et al., 2023		
PR9 The best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding commercial fishing	3	• Best available biophysical information is used in stock assessment, ecological risk assessments and harvest strategies. These have substantially progressed for most fisheries, representing a significant input of up-to-date information in undertaking assessments. • However, as there is no assessment or clear management mechanism associated with SOCCs/protected species and habitat impacts, there is not a clear means for inputting biophysical data into these processes. • In October 2020 the Reef Authority adopted an interim policy to prevent the deployment of fish aggregating devices and artificial reefs in the Marine Park. A draft policy has now been developed (public consultation in early 2023) which adopts a precautionary approach, recognising the limited data on the effect of these structures in the Marine Park.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Queensland managed fisheries assessments under the EPBC Act • Ecological risk assessments • Stock assessments • Marine Park Permission System Policy • Marine Park Permission Guidance Documents	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• It is assumed best biophysical information is also used in undertaking strategic environmental assessments under the *Environment Protection and Biodiversity Conservation Act 1999*.			
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding commercial fishing	3	• See IN5. • Socio-economic data is beginning to be incorporated into harvest strategies. However, the overall integration of socio-economic data into management decision-making remains limited.	• SELTMP Core module pilot data dashboard • SELTMP Core Module Report • SELTMP Core Module 2021 Survey dataset • Fisheries economic and social data • NESP Project .17 Integrated data requirements for natural resource management • FRDC – Measuring the economic value of recreational fishing at a national level • FRDC Beyond GVP: The value of inshore commercial fisheries to fishers and consumers in regional communities on Queensland's east coast	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Marine Park Permission System Policy • Marine Park Permission Guidance Documents		
PR11 The best available Indigenous heritage information is applied appropriately to make relevant management decisions regarding commercial fishing	2	• See IN6. • Detailed and widespread understanding of traditional (indigenous) knowledge and cultural heritage is limited but improving. • The incorporation of First Nations representatives into fishing working groups should improve incorporation of indigenous heritage information into harvest strategies and other management arrangements. • Where permits are required through the Reef Authority, the assessments process requires greater incorporation of cultural heritage information.	• Marine Park Permission System Policy • Marine Park Permission Guidance Documents	Limited	Improving
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding commercial fishing	3	• Limited input of heritage information into decision-making as historic heritage is primarily managed through exclusion zones and permitting arrangements. DAF management arrangements do not directly incorporate historic heritage. • Where permits are required through the Reef Authority, the assessments process requires greater incorporation of historic heritage information.	• Marine Park Permission System Policy • Marine Park Permission Guidance Documents	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR13 Relevant standards are identified and being met regarding commercial fishing	3	• National or international best practice standards have not been identified for commercial fisheries in the region under the existing planning or management frameworks. • However, the Sustainable Fisheries Strategy commits to a MEY-based approach to sustainable take limits, based on adopting a precautionary approach to commercial fisheries in the region, compared to other areas. This sets a best practice standard for fisheries management that exceeds that in other parts of Australia. • Notably, an equivalent precautionary approach has not been adopted for assessments under the *Environment Protection and Biodiversity Conservation Act 1999*. • This standard is not currently being met as it has only been recently introduced and actions are ongoing. • Other best practice commitments associated with undertaking ecological risk assessments, stock assessments and harvest assessments are being met through works by DAF under the Sustainable Fisheries Strategy.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Guidelines for the Ecologically Sustainable Management of Fisheries	Adequate	Stable
PR14 Targets have been established to benchmark management performance for commercial fishing	3	• Targets for benchmarking of fishery management have been set under the Sustainable Fisheries Strategy and for specific fisheries under harvest strategies. • Performance targets and benchmarks have not been set for other impacting areas, however, such as SOCC/protected species and habitat.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Harvest strategies	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OUTPUTS					
OP1 To date, the actual management program (or activities) have progressed in accordance with the planned work program for commercial fishing	3	• Actions are being delivered under Reef 2050, the Sustainable Fisheries Strategy and RJMP compliance action plans. In particular, significant progress has been made in undertaking stock assessment, ecological risk assessments and harvest strategies for fisheries as well as establish fishery working groups to improve engagement and implementing vessel tracking for major fisheries to improve compliance. • Most actions associated with the implementation of the Sustainable Fisheries Strategy and associated actions for fisheries management (Actions 3.5 and 3.6 of the Reef Plan) are underway. Proof of concept for independent data validation of SOCC capture has not yet commenced, however.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies	Adequate	Stable
OP2 Implementation of management documents and/or programs relevant to commercial fishing have progressed in accordance with timeframes specified in those documents	3	• The actions noted in OP1 are progressing in accordance with work programs, with the main exception of actions related to independent data validation.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies	Adequate	Stable
OP3 The results (in OP1 above) have achieved their	2	• There remains a number of fisheries that are depleted (e.g. Spanish mackerel, pink snapper) and now subject to measures to assist recovery. There are also unrecorded	• Sustainable Fisheries Strategy progress reports	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
stated management objectives for commercial fishing		levels of impact to SOCCs/protected species and habitat. Fisheries-related impacts are due to lack of historical action but also relate to improve understanding on the current state of fisheries through implementation of the Sustainable Fisheries Strategy. Progress towards objectives or improved sustainability is ongoing therefore, with objectives not yet achieved. • As independent data validation is not yet in place, there has not been substantial improvement in the management or understanding of impacts to SOCCs and protected species.	• Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies		
OP4 To date, products or services have been produced in accordance with the stated management objectives for commercial fishing	3	• DAF has produced a significant number of the stock status assessments, fishery summary reports, commercial catch data, ecological risk assessments and harvest strategies required by the Sustainable Fisheries Strategy. As of 2022, 27 of the 33 tasks under the strategy had been implemented. • Vessel tracking for commercial fishing vessels is now in place. • Fisheries economic and social data is being collected and reported. • Fishery working groups are in place.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies • Fishery data • Vessel tracking data • Fishery Working Groups documents • Fisheries economic and social data	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OP5 Effective knowledge management systems regarding commercial fishing are in place within agencies	3	• Data on commercial fishing are stored in internal knowledge management system by DAF. Further work is ongoing for independent data validation and traceability. • While there is some data sharing, improvements are required. • The RJFMP has developed a compliance case management system to store and maintain compliance data.	• Fishery data • Vessel tracking data • Fisheries economic and social data • Stock assessments • Ecological risk assessments • Harvest strategies	Adequate	Stable
OP6 Effective systems are in place to share knowledge on commercial fishing with the community	3	• As most commercial fishing data is commercially sensitive, it cannot be publicly released. However, most fishery-based assessments, strategies and reports are made publicly available.	• Fishery data • Vessel tracking data • Fisheries economic and social data • Stock assessments • Ecological risk assessments • Harvest strategies	Adequate	Stable
OUTCOMES					
OC1 The relevant managing agencies are to date effectively addressing commercial fishing and moving towards the attainment of the desired outcomes.	2	• While actions are being implemented to move towards desired outcomes, as noted in OP3, much of the implementation of the Sustainable Fisheries Strategy has highlighted the vulnerability of some fisheries through improved understanding of stock levels and risks. While this improves the ability to manage into the future, at present, outcomes are not being achieved across many	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies • Fishery data	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		key fisheries, including with regard to non-target species and habitats. • As independent data validation and other actions relevant to SOCCs/protected species have not been implemented, there has been minimal progress in improving outcomes for these species and associated habitat.	• Vessel tracking data • Fishery Working Groups documents • Fisheries economic and social data		
OC2 The outputs relating to commercial fishing are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	2	• As per OC1 - where outcomes for fisheries and SOCCs/protected species are not being fully achieved, this undermines the values of the Great Barrier Reef related to these areas.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies	Limited	Declining
OC3 the outputs (refer OP1 and 3) for commercial fishing are reducing the major risks and the threats to the Great Barrier Reef	2	• Highest risk threats from fisheries activities identified in 2019 Outlook Report still remain • While there has been positive progress with implementation of the Sustainable Fisheries Strategy, see PR13 - managing risk to protected species not yet occurring. • Overfishing and interactions with protected species continue to contribute to major risks and the threats to the Great Barrier Reef.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies	Limited	Declining
OC4 Use of the Great Barrier Reef relating to commercial	2	• Use of the Great Barrier Reef relating to commercial fishing is not yet demonstrably environmentally sustainable	• Sustainable Fisheries Strategy progress reports	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
fishing is demonstrably environmentally sustainable		• Highest risk threats from fisheries activities identified in 2019 Outlook Report still remain and have plans to address threats and impacts. • Reforms proposed in the Sustainable Fisheries Strategy provide an opportunity to demonstrate commercial fishing in the region is environmentally sustainable. • A program of ecological risk assessments and stock assessment are in place to help inform management actions • In 2020, Stock status reporting shows that there are four Reef depleted species– Ballot's saucer scallop, pearl perch, snapper, and Spanish mackerel. • There is still a need to better constrain catch and reduce protected species interactions across a number of fisheries. • A significant impediment to demonstrating environmentally sustainable fishing is ongoing illegal fishing, although compliance action is improving.	• Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies		
OC5 Use of the Great Barrier Reef relating to commercial fishing is demonstrably economically sustainable	2	• The 2019 Outlook Report assessed the economic and social benefits of fishing (commercial and recreational) as good. • Biomass targets of 60%, as a proxy MEY, are designed to improve economic sustainability. • Recent management reforms, including regional management and allocation of quota, may have impacted economics of some fisheries.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Economic surveys are now being undertaken to look at the viability of commercial fishing. • DAF removed some latent effort and reduced effort in commercial fisheries as well as moving some fisheries to quota management with the use of individual transferable quota and regional effort units– for example the crab fishery, and trawl, trawl fishery • The reduction in inshore netting effort through the implementation of net free zones that has occurred in addition to previous effort removal through licence buy back (120 licences removed) may promote improved economic returns for remaining net fishers. Further reforms are needed to some key fisheries to make it more profitable. This includes the crab, trawl and net fisheries.	• Fisheries economic and social data		
OC6 Use of the Great Barrier Reef relating to commercial fishing is demonstrably socially sustainable understanding and/or enjoyment	2	• The 2019 Outlook Report assessed the economic and social benefits of fishing (commercial and recreational) as good. • Stakeholder conflict between recreational and commercial sectors regarding resource allocation continues to be an issue, particularly in the east coast inshore fishery. • Fishing from all sectors is likely to have large, but largely unquantified socio/community benefits. • Reforms being undertaken in the Sustainable Fisheries Strategy provide an opportunity to deliver economically sustainable commercial fisheries which in turn delivers	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies • Fisheries economic and social data	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		social / community benefits to commercial fishers and dependent seafood and commercial fishing industries			
OC7 The relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address commercial fishing	3	• The use of fishery management groups to advise on fisheries represents a significant opportunity for stakeholder and community involvement.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Reef Guardian Fishers Program • MRAG Fisheries Management Review • Green Paper on Fisheries Management Reform in Queensland • Fishery Working Groups documentation • Expert Panel Communiques	Adequate	Stable

Fishing (Recreational)

Table 42: Calculation of grades for Fishing (Recreational)

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The values of the Great Barrier Reef relevant to recreational fishing are understood by managers	3	• The managers for recreational fisheries in the region consist of:	• GBR Outlook Reports • Strategic Assessment of the GBRWHA (2014)	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– DAF - this is the agency responsible for management of fisheries in Queensland waters and, under the Offshore Constitutional Settlement, has responsibility for management of fisheries within the region. – Reef Authority - has overarching responsibility for management of the environment in the Marine Park but has limited direct responsibility for recreational fisheries. • Generally speaking, all these agencies have an understanding of the high-level values of the region through their historical and ongoing involvement in the Outlook Reports and the Reef strategic assessments. • The economic and social value of fisheries are well understood, with statewide surveys undertaken on recreational fishing activities. • The ecosystems components that underpin recreational fishing are also known but the specific status of these fisheries and associated values are not always well known (see CO2 and CO3).	• GBR Coast Strategic Assessment (2014) • Offshore Constitutional Settlement • Queensland Sustainable Fisheries Strategy 2017-2027 • Reef 2050 Plan		
CO2 The current condition and trend of values relevant to recreational fishing are known by managers	2	• Trends in economic and social data are well understood through regular reporting (see CO1). • There are currently major acknowledged gaps in the understanding of environmental characteristics of the GBR with relation to fisheries. These include:	• GBR Outlook Reports • Strategic Assessment of the GBRWHA (2014) • GBR Coast Strategic Assessment (2014) • Ecological risk assessments • Stock assessments	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Most information on stock status reporting is state-wide and therefore does not consider trends in the region generally or specific areas within the Reef. – The past and current condition and trend of fish spawning aggregation sites is generally unknown except for a few well-known sites (e.g. Scott & Elford Reefs, offshore Cairns). – Interactions with species of conservation concern (SOCC) is mostly unreported or unvalidated so overall trends are not known – Other than a single assessment associated with coral reef fin fish, there are no contemporary fishery-independent data for the Reef. • However, it is recognised that since the introduction of the Sustainable Fisheries Strategy 2017-2027, stock assessments have been completed for at least 13 species relevant to the recreational fishing sector. This is an improvement on previous approaches where stock assessments were undertaken on an ad hoc basis. • Some anecdotal evidence is available regarding potential changes in fisheries associated with climate change (e.g. king threadfin salmon now in Moreton Bay) but further research and assessment is required. • High level trends and condition are also noted in the Outlook Reports	• Harvest strategies • Scott and Elford Reef coral grouper spawning aggregation survey data		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CO3 Impacts (direct, indirect and cumulative) associated with recreational fishing are understood by managers.	2	• While fishing related risks are known the direct, indirect and cumulative impacts of fishing of a range of fisheries operating in the Reef are not well understood and large information gaps and risks to Reef ecosystem are still widely unknown. • Key risks and impacts associated with recreational fishing include: – Reductions in predator populations – Death, injury and stress to discarded catch – Loss or decline of fish spawning aggregations - this has historically primarily been for inshore species but now includes some offshore aggregations (e.g. red emperor) – Physical damage to the seabed and reef habitat – Marine debris, including discarded and lost fishing gear – Illegal fishing. • The impacts relate to both the fish targeted/caught (including SOCCs), the broader ecosystem, and the biophysical habitat. Based on current assessments, the species most vulnerable to impacts are mackerel and snapper. • Recreational fishers are not required to report interactions with SOCCs, take of cryptic species, discard of bycatch, or direct impacts to the environment. As a result, the extent	• GBR Outlook Reports • Strategic Assessment of the GBRWHA (2014) • GBR Coast Strategic Assessment (2014)) • Offshore Constitutional Settlement • Queensland Sustainable Fisheries Strategy 2017-2027 • Ecological risk assessments • Stock assessments • Reef 2050 Plan • Lamb et al., 2015 • Buckley et al., 2017 • Szczecinski, 2012	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		of recreational impacts on non-target species is not well known. • Managers have access to a growing range of research on fisheries impacts, although these are often not localised. There is limited independent research available on fisheries in the GBR at an appropriate scale.			
CO4 The broader (national and international) level influences relevant to recreational fishing are understood by managers.	4	• The heads of managing agencies are part of the Australian Fisheries Management Forum which comprises heads of all national agencies associated with fisheries. This provides a key forum to understand national, intranational and international trends. DAF also has cross-jurisdictional arrangements with the New South Wales and Northern Territory fisheries agencies in relation to management of joint stocks of fisheries interest (e.g. pink snapper, Spanish mackerel). • Generally, fisheries in Queensland are intended to be aligned with standards set through the AFMF and the international Food and Agriculture Organisation. • There is also a high-level cross-agency working group established in late 2022 to share strategic priorities across state and federal government agencies regarding fishing and fisheries within the World Heritage Area.	• GBR Outlook Reports • Strategic Assessment of the GBRWHA (2014) • GBR Coast Strategic Assessment (2014) • Queensland Sustainable Fisheries Strategy 2017-2027 • Ecological risk assessments • Stock assessments • Reef 2050 Plan	Adequate	Stable
CO5 The stakeholders relevant to recreational fishing are well known by managers.	4	• There is a good understanding of the key fishing stakeholders. • DAF has established fishery working groups as advisory forums which include a range of commercial and	• Queensland Sustainable Fisheries Strategy 2017-2027	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		recreational stakeholders, grouped around specific fisheries. • The Reef Authority is undertaking an actor network mapping project which is anticipated to improve understanding of key stakeholders for the region.	• Green Paper on Fisheries Management Reform in Queensland • Fishery Working Groups documentation		
PLANNING					
PL1 There is a planning system in place that effectively addresses recreational fishing	4	• The planning system for recreational fisheries in the region consists of the following key elements: – Zoning arrangements under the GBRMP and GBRCMP Zoning Plans, which set broad zones in which recreational fishing activities can and cannot occur. The GBRMP Act also has a range of powers available to help control and manage fishing activities in the Marine Park, for example declaration of special management areas to restrict fishing activities. – *Fisheries Act 1994* (Qld) and associated regulations, which set recreational fishing bag and size limits. Under these higher level instruments are a series of fishery-specific tools such as harvest strategies and ecological risk assessments that provide further actions and rules for managing impacts. • Significant improvements to management under the Fisheries Act was introduced through the Sustainable Fisheries Strategy, including a more systematic approach	• Great Barrier Reef Marine Park Zoning Plan • Great Barrier Reef Coast Marine Park Zoning Plan • Queensland Sustainable Fisheries Strategy 2017-2027 • Reef 2050 Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		to preparing harvest strategies and the setting of state-wide benchmarks for sustainable catch limits, moving towards a maximum economic yield (MEY) approach. However, this system is still being implemented and there are significant legacy issues associated with historic depletion of fish stocks and other unsustainable management activities. • Major concerns associated with underreporting and management of bycatch of SOCC and other species are not currently integrated into the planning system.			
PL2 The planning system for recreational fishing addresses the major factors influencing the Great Barrier Reef Region's values.	4	• In accordance with the Outlook Report, the major factors influencing the reef are coastal development, climate change, direct use and land-based run-off. Of these, recreational fisheries are directly relevant to direct use but are also indirectly relevant to climate change to the extent fishing activities affect the resilience of ecosystems and their ability to adapt to climate change. • The planning system relates primarily to direct use as it seeks to control fishing activities. The main focus on the system is on fishing activities themselves, especially in terms of impacts to target populations. The system currently has gaps with regards to the management of associated impacts on habitat and non-target species, including SOCCs/protected species. However, this system has significantly improved since the introduction of the Sustainable Fisheries Strategy.	• Great Barrier Reef Marine Park Zoning Plan • Great Barrier Reef Coast Marine Park Zoning Plan • Queensland Sustainable Fisheries Strategy 2017-2027 • Reef 2050 Plan • Great Barrier Reef gill net fishing phase out	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• While the implications of climate change are understood, they are not all integrated into the planning system. • In 2023, the Queensland and Commonwealth governments announced the Great Barrier Reef gill net fishing phase out which includes actions to close out licences in the N2 and N3 licence area, reduce licences in the N1 licence area, and declare the hammerhead shark to be a no-take species in all Queensland waters by the end of 2023. These measures, once implemented, specifically address key bycatch and entanglement risks to SOCCs and other species associated with fishing pressures.			
PL3 Actions for implementation regarding recreational fishing are clearly identified within the plan	3	• The relevant plans under the planning system include: – Reef 2050, which sets actions relevant to management of the Reef as a whole, including fisheries-specific actions – Sustainable Fisheries Strategy, which includes specific management actions associated with improving the management arrangements for Queensland fisheries, including within the region – Various harvest strategies and ecological risk assessments for fisheries which set actions in relation to specific assessments. However, these actions typically relate to the specific management of fishing activities within the fishery, rather than broader arrangements to improve the fishery overall.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Ecological risk assessments • Stock assessments • Harvest strategies• Reef 2050 Plan • RJFMP Annual Business Plan • RJFMP 5-Year Business Strategy • Great Barrier Reef gill net fishing phase out	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Joint Field Management Program also sets actions through annual business plans and business strategies. The RJMP represents a compliance focus for the Reef Authority and its actions help to drive improved compliance and monitoring of activities within the reef. Thus, while its action plans are not specific to management of recreational fisheries, they provide specific actions designed to improve management through compliance action. • The proposed phase out for gill net fisheries in the Great Barrier Reef provides clear actions to address action for this fishery.			
PL4 Clear, measurable and appropriate objectives for management of recreational fishing have been documented	3	• There are clear and measurable objectives under the Reef 2050 Plan and Sustainable Fisheries Strategy. • Harvest strategies also set out clear objectives associated with sustainable catch limits (set at MEY or 60% of virgin biomass) and other matters relevant to the specific fishery, including some recreational fisheries. • The RJFMP has also set a range of objectives for the purposes of delivering a compliance management program.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Ecological risk assessments • Stock assessments • Harvest strategies • Reef 2050 Plan • RJFMP Annual Business Plan • RJFMP 5-Year Business Strategy	Adequate	Stable
PL5 There are plans and systems in place to ensure appropriate and adequate	2	• The main monitoring system under the planning system is monitoring by DAF of recreational fishing activities through boat surveys as well as stock assessments.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Reef 2050 Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
monitoring information is gathered in relation to recreational fishing		Historically there was insufficient data collected to allow for effective monitoring and oversight but there have been significant improvements through the implementation of the Sustainable Fisheries Strategy. This includes increased focus on stock assessments for various fisheries, including most of the main recreational fisheries (e.g. barramundi, coral trout, crab, emperor, mackerel, whiting, tropical rock lobster). • Areas where monitoring is captured in the planning system include: – boat ramp surveys – species specific monitoring programs – monitoring/patrols of net-free fishing zones – fisheries independent surveys • Due to the lower level of monitoring associated with recreational fishing (especially comparative to commercial fisheries), there is less availability of data on overall catch rates. • There remain acknowledged gaps in monitoring impacts to SOCCs/protected species and the cumulative impact of different fisheries.			
PL6 The main stakeholders &/or the local community are effectively engaged in	3	• DAF has improved engagement recently through the use of fishery working groups to provide technical advice on the planning system. These working groups include	• Queensland Sustainable Fisheries Strategy 2017-2027	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
planning to address recreational fishing		attendance by the Reef Authority, providing an avenue for inputs into the Reef Authority planning system as well. • DAF has also established a Sustainable Fisheries Expert Panel which provides a forum for expert stakeholders to further advise DAF and the Minister based on inputs from the various fishery working groups. • However, there remains acknowledged insufficient engagement with stakeholders in planning. This primarily relates to commercial fishers but also includes Traditional Owners, recreational fishers and local community members. Most engagement outside of fishery working groups is ad hoc and at the individual officer level.	• Green Paper on Fisheries Management Reform in Queensland • Fishery Working Groups documentation		
PL7 Sufficient policy currently exists to effectively address recreational fishing	3	• The Sustainable Fisheries Strategy represents a significant improvement in policy for all fisheries with a particular focus on shifting to a sustainable take level based on MEY which is set at retaining 60% of virgin biomass, rather than traditional 40%. • Other key DAF policies include: – Fisheries resources reallocation policy, which enables the reallocation of fisheries resources between different sectors and parties (e.g. commercial, recreational, traditional) – Queensland harvest strategy policy, which sets the framework for consistent development of harvest strategies.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Fisheries Resources Reallocation Policy • Aboriginal and Torres Strait Islander Peoples Commercial Fishing Development Policy • Queensland Harvest Strategy Policy • Policy on Managing Activity that include the Direct Take of a Protected Species from the Great Barrier Reef Marine Park	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• As the Reef Authority does not fully exercise its powers and functions to further regulate and manage fishing, and historical arrangements remain focused on joint management via DAF, it has limited policy related to commercial fisheries. However, the Reef Authority has issued position statements which set out formal positions on matters related to factors influencing the values of the Marine Park. The relevant policies and position statements include: – Policy on Managing Activity that include the Direct Take of a Protected Species from the Great Barrier Reef Marine Park - this provides guidance about allows for the take of protected species allowable under the Zoning Plan, but only under very limited circumstances and excludes commercial purposes – Position Statement: Fishing - this emphasises the need for harvest strategies and ecosystem-based approaches to fishing that considers all species and habitats • The Reef Authority has prepared a Draft Policy on Fish Aggregating Devices and Artificial Reefs, to provide clarity on its policy position regarding fish aggregating devices) and artificial reefs in the Marine Park. The draft policy harnessed multiple lines of evidence, as listed in the policy itself, including the best available science. The draft policy was open for public comment in early 2023. Upon	• Position Statement: Fishing • Fish Aggregating Devices and Artificial Reefs – Draft Policy • Fish Aggregating Devices and Artificial Reefs – Literature review of benefits and negative impacts for the Great Barrier Reef • Great Barrier Reef gill net fishing phase out		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		adoption of the new policy, a regulatory amendment will be progressed to introduce an offence relevant to all users (including recreational fishers). • While not an official policy, the Great Barrier Reef gill-net fishing phase out provides a clear policy statement on the reduction and eventual closure of net fisheries in the Region. • This policy framework currently does not establish acceptable limits associated with impacts to the surrounding environment other than the targeted fish species, including SOCCs/protected species and habitat.			
PL8 There is consistency across jurisdictions when planning for recreational fishing	3	• The different legislative responsibilities and objectives of respective Fisheries and Marine Park Acts are outlined in the Fisheries schedule of the Great Barrier Reef Intergovernmental Agreement between the Commonwealth of Australia and the State of Queensland relating to the protection and management of the Marine Park. • Multiple agencies and governments are involved in fishing management, namely: DAF, DCCEEW and the Reef Authority. Given the nature of their Acts, each has responsibilities to ensure sustainable use of fisheries resources, for different reasons (for example, biodiversity protection and sustainable harvest). • The Marine Park and Coast Marine Park generally adopt complementary zoning	• Australian Fisheries Management Forum documentation • Queensland Sustainable Fisheries Strategy 2017-2027 • RJFMP Business Plans • Great Barrier Reef Marine Park Zoning Plan • Great Barrier Reef Coast Marine Park Zoning Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The RJFMP is highly successful at ensuring consistency across jurisdictions. This strong multi-agency collaboration and coordination is underpinned by a sound governance system that equally apportions financial support. The culture of the RJFMP is collaborative and consistent. • The Sustainable Fisheries Strategy explicitly recognises the World Heritage Area. The 60% biomass target for fisheries resources by 2027 under the Strategy is consistent with the Reef Authority biodiversity conservation and ecosystem resilience goals. Fishery working groups under the Strategy include involvement by Reef Authority and DAF which promotes greater consistency of approach.			
PL9 Plans relevant to recreational fishing provide certainty regarding where uses may occur, the type of activities allowed, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.	4	• The Marine Park and Coast Marine Park Zoning Plans provide clear certainty about where fishing activities may or may not occur. • Queensland Fisheries Regulation is the main vehicle for managing fisheries and where actions are put in place (e.g. quota, closures, gear restrictions, size and possession limits etc.). • The new harvest strategies under the Sustainable Fisheries Strategy provide greater certainty based on the performance of fish stock. • Complexity in regulation creates some ongoing uncertainty for recreational users.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Great Barrier Reef Marine Park Zoning Plan • Great Barrier Reef Coast Marine Park Zoning Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
INPUTS					
IN1 Financial resources are adequate and prioritised to meet management objectives to address recreational fishing	3	• As part of the implementation of the Sustainable Fisheries Strategy there has been a significant increase in funding available to DAF to support fisheries management, including enhanced surveys of recreational fishers. • Additional funding has also been made available to the Reef Authority through the Reef Protection Package to influence strong fisheries management policy through enhanced regulation, compliance and fostering community stewardship. The Reef Authority has also received additional funding to expand the RJFMP. • Funding has been provided by the Queensland and Commonwealth governments to support the implementation of the Great Barrier Reef gill-net fishing phase-out.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Reef 2050 Activities Report • RJFMP Business Plans	Adequate	Improving
IN2 Human resources within the managing organisations are adequate to meet specific management objectives to address recreational fishing	3	• The skillset of staff within DAF and the Reef Authority is of a high quality and experience with most staff having marine or fisheries management training at tertiary level. • DAF has recruited additional 36 FTEs for compliance and delivery of the Sustainable Fisheries Strategy since 2019. • The Reef Authority has recruited three FTEs from 2019-2023 focused on ecologically sustainable fishing and has maintained representation in fishery working groups. Further increase in FTEs may occur from 2023 through the Reef Protection Package.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Reef 2050 Activities Report • RJFMP Business Plans	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The RJFMP undertook a expansion from 2017-18 with an increase in staff by 62%. • DCCEEW has a new Reef Fisheries Section from 2022 with 5 FTEs, additional to the 17 FTEs associated with sustainable fisheries more generally.			
IN3 The right skill sets and expertise are currently available to the managing organisations to address recreational fishing	3	• The skill set within the Reef Authority and DAF is of a high quality and experience with most staff having marine or fisheries management training at tertiary level. • DAF employs fisheries science, fisheries biology, fisheries policy, analytics, media, compliance and monitoring professions. • Queensland is one of the only states with the capacity to undertake in-house stock assessments	• Queensland Sustainable Fisheries Strategy 2017-2027 • Stock assessment program • Reef 2050 Activities Report • RJFMP Business Plans	Adequate	Stable
IN4 The necessary biophysical information is currently available to address recreational fishing	3	• DAF utilises available biophysical information to address recreational fishing, including as part of stock assessments. 28 stock assessments, including biophysical information have been undertaken since 2019 under the Sustainable Fisheries Strategy, although this has focused primarily on commercially targeted species. • The Reef Authority uses and analyses biophysical information through the Reef 2050 Integrated Monitoring and Reporting Program (RIMReP). • Each year (since 2019-20), the Reef Authority releases a snapshot on how the Reef coral has fared over the	• Queensland managed fisheries assessments under the EPBC Act • Ecological risk assessments • Stock assessments • Harvest strategies • Welch et al., 2014	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		summer. This increases the available of information related to bleaching events and coral health generally. • However, as per CO2 and CO3, further information is required on SOCC/protected species, habitats, and ecosystems and broader ecological processes as they specifically relate to fisheries activities and impacts.			
IN5 The necessary socio-economic information is currently available to address recreational fishing	3	• Socio-economic data is collected through the Social and Economic Long-Term Monitoring Program which is regularly published. One of the main groups involved in the SELTMP is commercial fishers. • DAF also collects fisheries economic and social data which has been released for 2017-2018, 2018-2019 and 2019-2020 (subsequent reports in publication). • This data is publicly available to DAF, the Reef Authority and other agencies for input into planning and decision-making.	• SELTMP reports • SELTMP total recreational fishing days in Qld within a year 2013 • SELTMP Core module pilot data dashboard • SELTMP Core Module Report • SELTMP Core Module 2021 Survey dataset: • Fisheries economic and social data • Fisheries Research and Development Corporation data	Adequate	Stable
IN6 The necessary Indigenous heritage information is currently available to address recreational fishing	2	• There are no programs or mechanisms which link indigenous heritage information with recreational fishing or visa-versa. • Detailed and widespread understanding of traditional (indigenous) knowledge and cultural heritage is limited	• Great Barrier Reef Authority Aboriginal and Torres Strait Islander Heritage Strategy	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and strategy and resourcing to address this gap is needed. • The Reef Authority liaises with Traditional Owners or other Aboriginal or Torres Strait Islander people as users of the Marine Park through TUMRA projects, Indigenous Reef Advisory Committee ranger training and meetings, conferences and workshops. • As part of the Strong Peoples-Strong Country Framework, the Reef Authority aims to build capacity for Traditional Owner leadership of monitoring and reporting in the region. Additionally, through the Reef Authority Aboriginal and Torres Strait Islander Heritage Strategy, some Sea Country Values Mapping are now available. • DAF has recruited an Indigenous Fisheries Management and is putting together a special fisheries working group intended to work closely with First Nations people in Cape York. All fishery working group have a First Nations member. • DAF has engaged five new cultural liaison officers within the Queensland Boating and Fisheries Patrol			
IN7 The necessary historic heritage information is currently available to address recreational fishing	2	• Special management areas are in place around noted historic heritage sites. Many shipwrecks and other underwater cultural heritage features are also mapped on public databases. • However, some historic heritage, especially shipwrecks, are not well known. There are acknowledged data and	• Great Barrier Reef Marine Park Special Management Areas • Underwater Cultural Heritage database	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		knowledge gaps related to how recreational fishing has/will impact historic heritage.			
IN8 There are additional sources of non-government input (e.g. volunteers) contributing to address recreational fishing	3	• The Reef Authority has limited involvement with volunteers who contribute to address commercial fishing. • Stakeholder-based fishery working groups are now in place for all major fisheries under the Sustainable Fisheries Strategy. These include membership from commercial, recreational and charter fishers, the Reef Authority, marketers/processors, conservation groups, First Nations representatives and science areas. A Sustainable Fisheries Expert Panel was also appointed in July 2017. Stakeholders are actively consulted and provided opportunities to have a say.	• Local Marine Advisory Committee documents • Fishery Working Groups documents	Adequate	Stable
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of recreational fishing	3	• The Green Paper on fisheries management reform in Queensland (which led to the Sustainable Fisheries Strategy) included significant public consultation to help set the agenda for the new fisheries management framework. • Reef Authority staff regularly engage with stakeholders in the management of recreational fishing. However, these lines of communication are limited. • DAF are primarily responsible for effectively engaging the main stakeholders &/or industry(ies) in the ongoing management of recreational fishing.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Green Paper on Fisheries Management Reform in Queensland • Fishery Working Groups documentation	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Stakeholder-based fishery working groups in place for all major fisheries. Includes commercial, recreational and charter fishers, marketers/processors, conservation groups and science representatives. Terms of reference and communiques for each working group are published online.. • Working groups have met 79 times since 2018. Working group Terms of Reference and Communiques from each meeting are available online. • Stakeholders are actively consulted and provided opportunities to have a say, for example the current vessel tracking review. • Improving stakeholder engagement is a key reform area under the Sustainable Fisheries Strategy. DAF engaged experts to research into stakeholder engagement and make recommendations on improved engagement. The report was released to Fisheries Queensland in 2020 and has led to improved stakeholder engagement. • Various inter-agency forums are also in place for relevant government departments, including a high-level cross agency working group (established Nov 2022), DAF/Reef Authority working-level catch ups (established 2023 and occur every two months), operational data workshop and discussions to improve information sharing.			
PR2 The local community is effectively engaged in the	3	• The main opportunity for local community input is through fishery working groups managed by DAF.	• Queensland Sustainable Fisheries Strategy 2017-2027	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
ongoing management of recreational fishing		• The Reef Authority also manages Local Marine Advisory Committee meetings which include discussion on fisheries management although it is uncertain the extent to which this influences management action as this is primarily delivered through DAF.	• Green Paper on Fisheries Management Reform in Queensland • Fishery Working Groups documentation		
PR3 There is a sound governance system in place to address recreational fishing	2	• The governance system for recreational fisheries consists of the following key elements: – DAF, who has a primary role in the management of fisheries in the region through the Offshore Constitutional Settlement, subject to ensure consistency with zoning and other arrangements under the Marine Park Act. DAF's focus is on sustainable fisheries, including promoting fisheries where undertaken in a sustainable manner. – Reef Authority, with responsibility for setting broad rules and zoning for the Marine Park and setting policy related to management associated with protected species and habitats within the Marine Park. – DCCEEW, with responsibility for managing risks to protected species. • The relationship between these organisations is established through the Offshore Constitutional Settlement and intergovernmental agreements. However, the implementation of their respective jurisdictions appears to depend upon strong working relationships.	• Offshore Constitutional Settlement • Reef 2050 Plan • Queensland Sustainable Fisheries Strategy 2017-2027 • Intergovernmental Agreement on the Great Barrier Reef	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		There is a significant risk of conflict due to the differing focuses of each agency which can either lead to inconsistent or ignored policy or poor implementation of management actions. Under the recent arrangements, including the Sustainable Fisheries Strategy, there has been improved management of these relationships. This has been particularly due to an alignment of DAF policy for fish stocks with a precautionary approach relevant to the Reef Authority. However, these relationships are not 'hardwired' into the governance system and could be subject to changes in the future. • At present recreational fishing is regulated through output controls only. While not 'self-governing', this means it has significantly less direct management than commercial fisheries, including minimal capacity to provide more direct decision-making and intervention at the scale of individual fishers. This creates a governance system that is less direct and has less capacity for multiple interests to be involved within decision-making, enforcement action, policy reform etc. (as there is minimal decision points). This contrasts to other States where recreational fishers are required to hold a licence, thereby introduction additional regulatory controls and establishing a strong governance relationship. While there is no formal policy advice indicating recreational licences should be introduced in Queensland generally or the region specifically, advice from regulators indicates that this			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		should be implemented to improve the sector into the future. This will be of increasing importance as population and visitation pressures on the Queensland Coast leads to a higher degree of participation in recreational fishing.			
PR4 There is effective performance monitoring, including. regular assessment of appropriateness and effectiveness of tools, to gauge progress towards the objective(s) for recreational fishing	3	• Through the Sustainable Fisheries Strategy, there has been significant improvement in performance monitoring approaches for individual fisheries. See PL5. • Note however that objectives are set primarily in relation to individual fisheries stock management and compliance action. There are limited objectives related to management of SOCCs/protected species and habitat and this is reflected in performance monitoring approaches.	• Fisheries monitoring reports • Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Fisheries economic and social data • Species-specific monitoring programs	Adequate	Stable
PR5 Appropriate training is available to the managing agencies to address recreational fishing	3	• DAF has a staff capability and training program which ensure appropriate training is available to fishery managers. This includes technical and policy training as well as relevant conferences (e.g. ASFB, Seafood directions etc) • Reef Authority sustainable fisheries group managers are recruited on the basis that they have satisfactory fisheries management technical expertise. There is little opportunity for further technical and scientific training after initial recruitment. However, participation in fisheries		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		management workshops / conferences are available to managers. • DCCEEW provides training support to staff, including through core annual training and attendance at key workshops			
PR6 Management of recreational fishing is consistently implemented across the relevant jurisdictions	3	• Day to day management of recreational fishing is consistently implemented across the relevant jurisdictions. However, see comment at PL8 regarding inconsistency between biodiversity objectives and broader fisheries extraction objectives. • The RJMP compliance program includes both the Marine Park and Coast Marine Park, with consistent management across both. • Under the Sustainable Fisheries Strategy, harvest strategies are now in place for all major fisheries (17) with a 60% target for the majority.	• Queensland Sustainable Fisheries Strategy 2017-2027 • RJFMP Business Plans • Great Barrier Reef Marine Park Zoning Plan • Great Barrier Reef Coast Marine Park Zoning Plan	Adequate	Stable
PR7 There are effective processes applied to resolve differing views/ conflicts regarding recreational fishing	3	• Apart from some statutory consultation processes, formalised process to engage within and between different fishing sectors (commercial, recreational, customary) do not currently exist. • Clear and consistent processes for the Reef Authority to ensure differing views / conflicts regarding fisheries matters are adequately dealt with by DAF or DCCEEW do not exist. The Reef Authority must rely on officer-to-officer relationships for input. However, this has been	• Queensland Sustainable Fisheries Strategy 2017-2027 • Reef 2050 Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		improved through the introduction of high-level working groups in late 2022. • Good relationships exist between officers / managers at agency levels. • Regional Liaison Officers and Queensland Boating and Fisheries Patrol staff on the ground may identify issues and conflicts that require further action. • There are regularly conflicts associated with commercial and recreational fishing sectors associated with different controls (e.g. net free areas, resource allocation mechanisms). These conflicts cannot always be resolved but statutory consultation processes assist in identifying issues and views for consideration in decision-making.			
PR8 Impacts (direct, indirect and cumulative) of activities associated with recreational fishing are appropriately considered.	2	• See response to CO3. • Consideration of impacts to target species and associated ecosystems are improving through the systematic approach of ecological risk assessments, stock assessments and harvest strategies introduced through the Sustainable Fisheries Strategies. Almost all ecological risk assessments for significant fisheries have been completed, other than for the East Coast Trawl (which is in preparation. • Despite improved fishery-specific understanding, the broader understanding of impacts associated with SOCCs/protected species and habitat impacts remains uncertain and subject to significant knowledge gaps.	• GBR Outlook Reports • Strategic Assessment of the GBRWHA (2014) • GBR Coast Strategic Assessment (2014) • Queensland Sustainable Fisheries Strategy 2017-2027 • Ecological risk assessments • Stock assessments • Reef 2050 Plan	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR9 The best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding recreational fishing	3	• Best available biophysical information is used in stock assessment, ecological risk assessments and harvest strategies. These have substantially progressed for most fisheries, representing a significant input of up-to-date information in undertaking assessments. • In October 2020 the Reef Authority adopted an interim policy to prevent the deployment of fish aggregating devices and artificial reefs in the Marine Park. A draft policy has now been developed (public consultation in early 2023) which adopts a precautionary approach, recognising the limited data on the effect of these structures in the Marine Park. • However, as there is no assessment or clear management mechanism associated with SOCCs/protected species and habitat impacts, there is not a clear means for inputting biophysical data into these processes.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Ecological risk assessments • Stock assessments	Adequate	Improving
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding recreational fishing	3	• See IN5. • Socio-economic data is bringing to be incorporated into harvest strategies. However, the overall integration of socio-economic data into management decision-making remains limited.	• SELTMP reports • SELTMP Core module pilot data dashboard • SELTMP Core Module Report • SELTMP Core Module 2021 Survey dataset: • Fisheries economic and social data • Adams et al., 2022	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Fisheries Research and Development Corporation data		
PR11 The best available Indigenous heritage information is applied appropriately to make relevant management decisions regarding recreational fishing	2	• See IN6. • Detailed and widespread understanding of traditional (indigenous) knowledge and cultural heritage is limited but improving. • The incorporation of First Nations representatives into fishing working groups should improve incorporation of indigenous heritage information into harvest strategies and other management arrangements.		Limited	Improving
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding recreational fishing	3	• Limited input of heritage information into decision-making as historic heritage is primarily managed through exclusion zones. DAF management arrangements do not directly incorporate historic heritage.		Adequate	Stable
PR13 Relevant standards are identified and being met regarding recreational fishing	3	• National or international best practice standards have not been identified for recreational fisheries in the region until the existing planning or management frameworks. • However, the Sustainable Fisheries Strategy commits to a MEY-based approach to sustainable take limits, based on adopting a precautionary approach to fisheries in the region, compared to other areas. This sets a best practice	• Queensland Sustainable Fisheries Strategy 2017-2027	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		standard for fisheries management that exceeds that in other parts of Australia. • This standard is not currently being met as it has only been recently introduced and actions are ongoing. • Other best practice commitments associated with undertaking ecological risk assessments, stock assessments and harvest assessments are being met through works by DAF under the Sustainable Fisheries Strategy.			
PR14 Targets have been established to benchmark management performance for recreational fishing	3	• Targets under the Sustainable Fisheries Strategy have not been fully met as the strategy is still being implemented. • Similarly, new harvest strategies for all major fisheries have specific performance targets but it is uncertain if these are currently being met.	• Queensland Sustainable Fisheries Strategy 2017-2027 • Harvest strategies	Adequate	Improving
OUTPUTS					
OP1 To date, the actual management program (or activities) have progressed in accordance with the planned work program for recreational fishing	3	• Actions are being delivered under Reef 2050, the Sustainable Fisheries Strategy and RJFMP compliance action plans. In particular, significant progress has been made in undertaking stock assessment, ecological risk assessments and harvest strategies for fisheries as well as establish fishery working groups to improve engagement and implementing vessel tracking for major fisheries to improve compliance. • Most actions associated with the implementation of the Sustainable Fisheries Strategy and associated actions for	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		fisheries management (Actions 3.5 and 3.6 of the Reef Plan) are underway.			
OP2 Implementation of management documents and/or programs relevant to recreational fishing have progressed in accordance with timeframes specified in those documents	3	• The actions noted in OP1 are progressing in accordance with work programs.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies	Adequate	Stable
OP3 The results (in OP1 above) have achieved their stated management objectives for recreational fishing	2	• There remains some recreationally-targeted fisheries that have been depleted (e.g. Spanish mackerel, scallops, snapper, pearl perch) together with unrecorded levels of impact to SOCCs/protected species and habitat. Fisheries-related impacts are due to lack of historical action but also relate to improve understanding on the current state of fisheries through implementation of the Sustainable Fisheries Strategy. Progress towards objectives or improved sustainable is ongoing therefore, with objectives not yet achieved.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies	Adequate	Declining
OP4 To date, products or services have been produced in accordance with the stated management objectives for recreational fishing	3	• DAF has produced stock status assessments, fishery summary reports, ecological risk assessments and harvest strategies in accordance with the Sustainable Fisheries Strategy, although not all required assessments have been completed.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Fisheries economic and social data is being collected and reported. • Fishery working groups are in place.	• Harvest strategies • Recreational fishing survey data • Fishery Working Groups documents • Fisheries economic and social data		
OP5 Effective knowledge management systems regarding recreational fishing are in place within agencies	3	• Data on recreational fishing based on boat ramp surveys is stored in internal knowledge management system by DAF and also published online. • While there is some data sharing, improvements are required. • The RJFMP has developed a compliance case management system to store and maintain compliance data.	• Recreational fishing survey data • Fisheries economic and social data • Stock assessments • Ecological risk assessments • Harvest strategies	Adequate	Stable
OP6 Effective systems are in place to share knowledge on recreational fishing with the community	3	• The aggregated results of recreational fisher surveys are made available online as state-wide data. • Most fishery-based assessments, strategies and reports are made publicly available.	• Recreational fishing survey data • Fisheries economic and social data • Stock assessments • Ecological risk assessments • Harvest strategies	Adequate	Stable
OUTCOMES					

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC1 The relevant managing agencies are to date effectively addressing recreational fishing and moving towards the attainment of the desired outcomes.	2	• While actions are being implemented to move towards desired outcomes, as noted in OP3, much of the implementation of the Sustainable Fisheries Strategy has highlighted the vulnerability of many fisheries through improved understanding of stock levels and risks. While this improves the ability to manage into the future, at present, outcomes are not being achieved across many key fisheries.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies • Fishery Working Groups documents • Fisheries economic and social data • Recreational fishing survey data	Limited	Declining
OC2 The outputs relating to recreational fishing are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	2	• As per OC1.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies	Limited	Declining
OC3 the outputs (refer OP1 and 3) for recreational fishing are reducing the major risks and the threats to the Great Barrier Reef	2	• Highest risk threats from fisheries activities identified in 2019 Outlook Report still remain • While there has been positive progress with implementation of the Sustainable Fisheries Strategy (see	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		PR13) the setting of sustainable catch limits not yet realised for a number of species. • Overfishing and interactions with protected species continue to contribute to major risks and the threats to the Great Barrier Reef ecosystem.	• Ecological risk assessments • Harvest strategies		
OC4 Use of the Great Barrier Reef relating to recreational fishing is demonstrably environmentally sustainable	2	• Use of the Great Barrier Reef relating to recreational fishing is not yet demonstrably environmentally sustainable • Highest risk threats from fisheries activities identified in 2019 Outlook Report still remain. • Reforms proposed in the Sustainable Fisheries Strategy provide an opportunity to ensure recreational fishing in the region is environmentally sustainable but this has not yet been realised. • A program of ecological risk assessments and stock assessment are in place to help inform management actions • In 2020, Stock status reporting shows that there are four Reef depleted species– including snapper, pearl perch and Spanish mackerel, each of which are recreational target species. • There is still a need to better constrain catch and reduce protected species interactions across a number of fisheries.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• A significant impediment to demonstrating environmentally sustainable fishing is ongoing illegal fishing, although compliance action is improving.			
OC5 Use of the Great Barrier Reef relating to recreational fishing is demonstrably economically sustainable	2	• The 2019 Outlook Report assessed the economic and social benefits of fishing (commercial and recreational) as good. • However, there are ongoing efforts to improve the economic sustainability of fisheries under the Sustainable Fisheries Strategy, recognising that, prior to implementation of key actions, there was concerns on this sustainability. As these efforts are ongoing, the economic sustainability of recreational fishing remains in a state of uncertainty.	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies • Fisheries economic and social data • Recreational fishing survey data	Limited	Improving
OC6 Use of the Great Barrier Reef relating to recreational fishing is demonstrably socially sustainable in terms of understanding and/or enjoyment	3	• The 2019 Outlook Report assessed the economic and social benefits of fishing (commercial and recreational) as good. • Stakeholder conflict between recreational and commercial sectors regarding resource allocation continues to be an issue, particularly in the east coast inshore fishery. • Fishing from all sectors is likely to have large, but largely unquantified socio/community benefits. • Reforms being undertaken in the Sustainable Fisheries Strategy provide an opportunity to deliver economically sustainable commercial fisheries which in turn delivers	• Sustainable Fisheries Strategy progress reports • Reef 2050 Activities Statement • Stock assessments • Ecological risk assessments • Harvest strategies • Fisheries economic and social data • Recreational fishing survey data	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		social / community benefits to commercial fishers and dependent seafood and commercial fishing industries			
OC7 The relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address recreational fishing	3	• The use of fishery management groups to advise on fisheries represents a significant opportunity for stakeholder and community involvement.	• Queensland Sustainable Fisheries Strategy 2017-2027 • MRAG Fisheries Management Review • Green Paper on Fisheries Management Reform in Queensland • Fishery Working Groups documentation • Expert Panel Communiques	Adequate	Stable

Heritage (Historic)

Table 43: Calculation of grades for Heritage (Historic)

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
CONTEXT					
CO1 The **values** of the Great Barrier Reef relevant to historic heritage are **understood** by managers	3	• Historic heritage relates to the "**occupation and use of the Marine Park since the arrival of Europeans and other migrants**" (GBRMPA 2017). • Historic heritage is assessed across the Region, including Commonwealth islands. Queensland islands, internal waters and the catchment above mean low water mark are excluded from the assessment. • Various legislation identifies values relevant to cultural heritage: – Underwater Cultural Heritage Act 2018 sets out heritage criteria for declaration of sites as protected. These may be referred to in the assessment of UCH in the Marine Park. The AUCHD (database) is the national register for the purposes of the UCH Act and contains historical and archaeological data in records for individual UCH sites and associated artefacts. – The *Great Barrier Reef Marine Park Act 1975* provides for the long-term protection and conservation of the heritage values. – Section 53 of the Great Barrier Reef Marine Park Regulations 2019 explicitly provides for the protection of maritime cultural	Reef 2050 Long Term Sustainability Plan Indigenous Implementation Plan Managing Commonwealth Islands Department of Environment website: – View the National Heritage List – Australian Natural Heritage Assessment Tool – Australian Heritage Database – Review the Commonwealth Heritage List – Australasian Underwater Cultural Heritage Database	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		heritage through the establishment of Maritime Cultural Heritage Protection Special Management Areas. There are currently two listed SMAs: Catalina A24-25 Maritime Cultural Heritage Protection SMA and Catalina A24-24 Maritime Cultural Heritage Protection SMA. • Managers across jurisdictions have implemented a range of documents that include consideration of historic heritage values (refer PL2). • Managers have a very **good understanding of heritage values of sites listed under Commonwealth Heritage legislation** (referred to here as 'listed places') (refer CO2). These places and property are: Dent Island Lightstation, Lady Elliot Island Lightstation, and Low Islets Lightstation and Low Island (refer CO2). • **Non-listed places are not as well understood**. For example, knowledge of the known history of the reef, including Indigenous knowledge and uses, European exploration, contact stories, past uses, and the efforts to conserve the Reef are all important aspects of historic heritage and provide a human context for current reef management, but there is little information to indicate how well managers, both within the Reef Authority and in the Field Management Program (FMP) understand this history. • For shipwrecks, value encompasses the physical wreck and tracks of voyages, and all related cultural, political, environmental, technological and physical elements, including	Underwater Cultural Heritage Act 2018 Underwater Cultural Heritage Rules 2018 Workshops Interviews		

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		people, past and present, their experiences and stories associated with the Reef's historic heritage. • The heritage values in the Reef are being documented and included in an internal heritage register that includes: an inventory with heritage information for islands and reefs; an in-house database for Commonwealth Islands; and a list of aircraft wrecks within the Reef. • **The Great Barrier Reef Marine Park Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25** outlines a strategic approach to identifying, protecting and managing the heritage values of Commonwealth heritage places within the Marine Park on behalf of the Commonwealth. This is a statutory requirement under the EPBC Act, as is the preparation of a report to review the previous strategy, and the preparation of a register for each property. • **Historic heritage assessment guidelines** have been published as part of the improvements to the permission system. The guidelines include WWII features and sites and voyages and shipwrecks, other places of historic and social significance, and maritime cultural heritage protection special management area. Other guidelines such as Traditional Owner assessment guidelines and Woppaburra assessment guidelines also consider relevance to historic heritage values (refer PL2). • **The Values Based Management Framework** has resulted in management plans that include historic heritage values on protected areas.			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– Values assessments have been undertaken at Raine Island and Magnetic Island. • The **19 Reef Guardian Councils** include actions relevant to the protection of Heritage values in their 2020-24 Reef Guardian Council Action Plans. • DES/QPWS undertook **photogrammetry work in 2021** (Yongala) to identify values. • Images have been provided by commercial operators and members of the public for a range of isolated shipwreck sites including HMS *Pandora*, QGS *Llewellyn* and HMAS *Warrnambool*. • **Wrecks** are a significant part of the underwater historic heritage. – There are over **800 shipwrecks, but only 40 of these have been mapped**. Wrecks of vessels such as launches, barges and pontoons are located throughout the Marine Park but are poorly recorded (GBRMPA 2017). – There is a good understanding of the values of some shipwrecks that have been targeted for conservation management plans: – There are approximately **112 World War II plane wrecks** (mostly RAAF and United States AF, although other allied and Japanese planes may be located within the Marine			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		Park). The **majority of these wrecks within the Marine Park are undiscovered** (GBRMPA 2017). – The Australian National Shipwrecks Database is a living, public database that is periodically updated to provide the latest known site data and information. However, the majority are poorly recorded and located (GBRMPA 2017). – Only **about 15% of wrecks within the Reef are accurately located**. The Reef Authority and Queensland Government undertook three discrete survey projects to identify and record historic shipwrecks in key areas: magnetometer survey in the Whitsunday area; St Bees Island, Keswick Island and Carlisle Island wreck surveys; and Valetta survey on Long Island. • The skeletal remains of ship's crew and passengers may remain *in situ* on some shipwrecks and many people may have personal connections through their ancestors to these voyages and shipwrecks. • The **Field Management Program** manages historic heritage on islands including both Commonwealth and Queensland protected areas. In many cases, the tangible traces of historic heritage are centred on islands, which are not part of this report. The Field Management Program manages across these boundaries. • As part of RIMReP, the Reef Authority has funded social and economic monitoring under SELTMP (CSIRO's Social and Economic Long Term Monitoring Program).			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		Challenges: • Many islands (probably over 500) are likely to have historic heritage values, but there is little information on these sites. Due to the management 'silos' that have been established to address historic heritage (i.e. based on legislation and jurisdictions) it is difficult to obtain an overall understanding of heritage on the Reef and how to manage this holistically (Workshop participant 2023). • Understanding of the gaps in relation to historic heritage values has increased – 'we know more about what we don't know' (Workshop participant 2023).			
CO2 The **current condition and trend of values** relevant to historic heritage are **known** by managers	3	• **Managers have a relatively good understanding of the context of the tangible heritage values and places** within the Reef. The **non-listed places are not well understood**. This is due to limited internal and other government agency resources making it difficult to identify these components, monitor, conserve and protect them (refer CO1). • The **condition and trend of terrestrial historic heritage is generally known as it is well monitored** across the region (see examples of listed inspection reports and conservation plans in evidence). Sites are often assessed annually, with relevant mediation and improvement in place. e.g. for historic lightstations (refer below). However, while specific lightstations may be well managed, some surrounding sites may be under threat and less well protected (e.g. Low Isles graves sites are eroding due to coastal erosion).	Field Management Plan Annual Business Plan GBR Intergovernmental Agreement 2015 Australian Underwater cultural heritage Intergovernmental Agreement Australasian Underwater Cultural Heritage Database IMR RTP Sustainable use and benefits monitoring project (SEABORNE):	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Condition and trend are **less well known for underwater historic heritage** as there is less monitoring of these values. Monitoring is better for the more accessible sites - '*We monitor the things we can easily get to*' (Workshop participant 2023), and those that have higher levels of protection e.g. protected zone wrecks such as the Catalinas (refer below). Unprotected wrecks are generally not well monitored – '*some monitoring is undertaken opportunistically by QPWS*' (Workshop participant 2023). • A digital spatial data/tool was developed in the RIMReP. Historic lightstations • Four lightstations and one place in the Marine Park are identified on the Commonwealth Heritage List under the EPBC Act – of which three are managed by the Reef Authority – Lady Elliot Island, Dent Island and Low Island lightstations, and Low Islet (not North Reef Lightstation). – Managers undertake annual monitoring and maintenance (refer Field Management Program Annual Report 2020-2021) and implemented actions and maintenance plans prescribed in Lady Elliot Lightstation Heritage Management Plan (2012) and Dent Island Lightstation Heritage Management Plan (2013), pursuant to s341S EPBC). Low Islets Lightstation is subject to sea-level rise, and this may impact its historic heritage values.	Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) IMR RTP Monitoring collective capacity and implementation (Governance): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) Workshops Interviews		

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– Exposure to marine elements makes all structures subject to deterioration (e.g. corrosion). • The mid-nineteenth century navigation beacon on Raine Island is also located within the Marine Park and is administered by the Queensland Government. It has been scanned using high-resolution LIDAR to facilitate ongoing repairs/maintenance and to ensure archival documentation. World War II features and sites • In 2015, regulation amendments were made to Marine Park Regulations 1983 to include Maritime Cultural Heritage Protection Special Management Areas (66A) (SMA). This type of SMA was introduced to better protect maritime cultural heritage within the WHA. The first two SMAs declared were to protect two World War II Catalina plane wrecks, one near Bowen and one off the Frankland Islands. Together they contain the remains of 25 men (an additional 134 personnel are estimated to be missing in action) (GBRMPA 2017). • Given the statutory framework for Shipwrecks and other maritime heritage that sits outside the EPBC and Marine Park Act, conservation and management of these heritage values are not core functions for the Reef Authority. Historic aircraft are protected under the *Queensland Heritage Act 1992* within state coastal waters.			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• The Queensland Government amended the Queensland Heritage Act 1992. All shipwrecks and aircraft wrecks that are over 75 years old are protected. Sites less than 75 years old, including WWII sites, may be nominated for listing on the Queensland Heritage Register. Under the Underwater Cultural Heritage Act: remains of vessels and aircraft that have been in Australian Waters for 75 years or more are automatically protected; other UCH sites in Commonwealth waters (see UCH Act) may be declared to be protected by the Minister for the Environment. Protection means no adverse impact without a permit issued under the UCH Act. • The Queensland Government has commenced desktop research into the wreck of HMAS *Warrnambool*, which is located within the Reef and has attracted some public interest. • 31 of the 98 WWII era aircraft wrecks within the WHA have been entered into the Australian National Shipwreck Database. Physical and desktop research has been undertaken collaboratively between the Reef Authority and the Queensland Government (refer proposed legislative reform in PL1). Historic shipwrecks • Shipwrecks are protected for their historic value, and as well have recreational, scientific and educational values.			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• The *Underwater Cultural Heritage Act 2018* and *Queensland Heritage Act 1992* provide complementary blanket protection for all underwater cultural heritage older than 75 years. Under the *Underwater Cultural Heritage Act 2018*, additional protected zones can also be established around highly significant and/or vulnerable wrecks. Mapped protective zones have been identified for six shipwrecks and conservation plans for HMS *Pandora* (1791), *Mermaid (1829)*, *Foam* (1893), SS *Yongala* (1911), *Gothernburg* (1872) and QGSS *Llewellyn* (1919) have been drafted and will be finalised in 2023. The condition and trend of these shipwrecks is assumed to be good but declining. • The object of the Marine Park Act includes the protection of heritage values, which includes maritime culture and heritage. • Any conservation plan is drafted in line with UNESCO *Convention on the Protection of the Underwater Cultural Heritage* and best practice and Australasian Institute for Maritime Archaeology. • The Great Barrier Reef Intergovernmental Agreement outlines who is responsible for various components of management and protection. • In collaboration, the Reef Authority and Magnetic Island History and Craft Centre Incorporated secured a grant (Everyone's Environment Grant Program) to do archival research on the shipwrecks off Magnetic Island, resulting in a display in			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		Magnetic Island's museum and improved information for the Australasian Underwater Cultural Heritage Database. • Ad hoc monitoring/audits are currently conducted on shipwrecks by the Reef Authority or DES. – As part of the Whitsundays Plan of Management to update the Reef Authority and DES, maritime archaeologists undertook a survey of the shipwreck Valetta to confirm the location. – The Reef Authority and Queensland Government undertook three discrete survey projects to identify and record historic shipwrecks in key areas and identify their condition. This includes: magnetometer survey in the Whitsunday area; St Bees Island, Keswick Island and Carlisle Island wreck surveys; and Valetta survey on Long Island. – Surveys of HMAS *Warrnambool* by Reef Authority staff revealed heavy line fouling the wreck and that operators accessing the site were tying off lines directly to the wreck. – **FNQ Expedition**, working with the Silentworld Foundation; Reef Authority staff conducted aerial surveys of the Northern Reef including locating three WWII Aircraft (Airacobras) and six shipwrecks on Great Detached Reef. – **A24 25 Catalina Survey**: A survey to confirm the security of human remains and to produce a photomosaic of the site was conducted.			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– **A24 24 Catalina remote sensing survey:** Aquamap produced a multi beam map of the site which located the missing wing and other debris. – **Nellbay Survey:** side scan survey did not locate this wreck. – **Maggy L Weston Survey:** Locate and confirm coordinates, side scan sonar survey. – **Foam Survey:** Locate and accurately position the *Foam* site. Through comparison with previous surveys; extensive cyclone damage was identified. – **HMS Pandora Survey:** as part of a Silentworld and National Maritime Museum Expedition, staff were able to assess the stability of the site. – **Radical Bay Anchor:** Relocate an at-risk historic anchor from Radical Bay to a safe position within the bay and record. – **Whitsunday Super Yacht Anchorage Survey:** 17 super yacht anchorages were surveyed using high-definition sonar to identify maritime heritage sites, two of which were ground truthed by divers. – Aerial Drone Survey of the wrecks *Florida* and *Foam*: Survey and report by AIMS at the Reef Authority's request.			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– **Palm Island Catalina Survey Report**: A preliminary diver survey was conducted of a proposed pipeline from Palm Island. A desktop and site inspection were undertaken. – Far Northern Queensland Great Barrier Reef Maritime Cultural Heritage Survey — Location of the Martha Ridgeway Wreck, Survey of North Ledge Reef Wreck, survey of HMS Pandora, surveys for anomalies at Raine Island reef edge and crest, survey of wreck at Ribbon Reef no. 2. • The QPWS Values Based Management Framework identifies key historic heritage values on protected areas and threats to their condition. Some Health Checks / inspections were completed. The process is in its early stages of implementation. Challenges: • Undertaking reef-wide systematic recording of information on historic heritage sites, including their condition and trend. • Underwater cultural heritage assessments require resourcing to enable monitoring of these sites and effective management. These sites are 'less on display and less effort is directed to their management' (Workshop participant 2023).			
CO3 **Impacts** (direct, indirect and cumulative) associated with	3	• The key impacts on historic heritage are from major weather events (e.g. cyclones), erosion (of coastlines/islands), tourism activities, boating, changing water chemistry. Managers are	Zoning Plan specifically the Special Management Area Zone	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
historic heritage are **understood** by managers.		aware of these impacts. For terrestrial historic heritage, direct and indirect threats are generally minor and/or localised. • For **underwater cultural heritage** a key impact is **climate change** (and associated changing water chemistry). This is currently being monitored and assessed, as impacts are likely to be different for each wreck (Workshop participant 2023). Some wrecks such as Foam are in **shallow water** and there is less understanding of the potential impacts on shallow wrecks. In some wrecks coral is incorporated into the wreck and may be affected by severe weather and climate change. This is not well understood. Other threats relate to dredging and looting (GBRMPA 2021). • **Cumulative impacts are less well understood**, including the impacts of climate change. • **Cyclones** are a key risk factor to many of the historic shipwrecks. Inshore wrecks are vulnerable due to increased extreme weather events – including inshore erosion leading to exposure of previously buried wrecks. • Three **assessment guidelines** (including risk matrices) have been developed for use when permit applications are received (refer PL2). • Field Management Program (FMP) maintenance plans, annual reports, funding, monitoring are focused on Commonwealth listed lightstations and managers are resourced to respond to new impacts/ threats quickly for listed lightstations. In terms of additional acute impacts on other **maritime heritage**, (i.e. newly exposed shipwrecks above low water mark within the marine	IMR RTP Sustainable use and benefits monitoring project (SEABORNE): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) IMR RTP Monitoring collective capacity and implementation (Governance): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) 2019 Outlook Report		

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		park), FMP prioritises work outcomes in accordance with the level of urgency and precautionary principles. • **Historic Shipwrecks** are protected from damage, disturbance or interference under the *Underwater Cultural Heritage Act 2018* once they are 75 years old. Historic shipwreck evaluation criteria exist and conditions/policies are in place. All other underwater cultural heritage is protected by the *Queensland Heritage Act 1992* once it reaches 75 years in Queensland waters. • **Protected** zones have been declared for six historic **shipwrecks** in the Marine Park that prohibit access without a permit issued under the Commonwealth *Underwater Cultural Heritage Act 2018*, the aim being to minimise direct impacts. These include the sites of the SS *Yongala*, HMS *Pandora*, *Gothenburg*, QGSS *Llewellyn*, HMCS *Mermaid*, and *Foam*. The delegation to issue permits lies with DES - 329 permits have been issued since 2014. • **Permits to fish** within Historic Shipwreck Protected Zones are no longer allowed wrecks such as the *Llewellyn*.in order to minimise impacts from boat and anchor damage and human interference. • **Anchoring** within the *Pandora* Protected Zone is not allowed to minimise the impact of anchor damage on fragile structures. • **A number of monitoring programs are in place and will provide data in relation to historic heritage. This includes:** – IMR RTP Sustainable **use and benefits monitoring project (SEABORNE)**	Workshops Interviews		

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– IMR RTP Integrated Reef stewardship monitoring project (PROTECT) – IMR RTP Monitoring collective capacity and implementation (Governance)			
CO4 The broader (national and international) level influences relevant to historic heritage are understood by managers.	4	• Heritage values are defined in the EPBC Act. The heritage value 'of a place includes the place's natural and cultural environment having aesthetic, historic, scientific or social significance, or other significance, for current future Australians'. The *Great Barrier Reef Marine Park Act 1975* (the Act) utilises the EPBC Act definition of heritage values. • Historic heritage places include "the buildings, monuments, gardens, landscapes and/or archaeological sites which embody aesthetic, scientific, historic or social values, and provide us with a tangible link to past events, processes and people (Australian Heritage Strategy, Commonwealth of Australia, 2015:11). • The Reef Authority follows best practice in managing the protection of its heritage values: – The Australia International Council on Monuments and Sites *Burra Charter, 2013* (Burra Charter) (Article 21) promotes 'adaptive re-use' of their heritage listed places i.e. adaptation may involve additions to the place, the introduction of new services, or a new use, or changes to safeguard the place. It promotes 'compatible use' i.e. a use that respects the cultural significance of the place and involves no, or minimal impact on cultural significance. It manages its	Australian Underwater cultural heritage Intergovernmental Agreement Underwater cultural heritage in Oceania; 2010; UNESCO Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		heritage values at the Commonwealth Heritage listed properties in a manner consistent with the Commonwealth Heritage Management Principles outlined in the EPBC Act. – AMSA Heritage Strategy 2022–2025. – The Underwater Cultural Heritage Act 2018 (UCH Act) aligns with the 1982 UN Convention on the Law of the Sea, to which Australia is a signatory. However, Australia is not a signatory to the 2001 Convention on the Protection of the Underwater Cultural Heritage (UNESCO). Ratification is important to fully protect Australian underwater cultural heritage and will extent Australia's powers to better protect underwater cultural heritage in the EEZ and contiguous zone, and from actions by foreigners and foreign-flagged vessels. Currently the Act does not protect heritage beyond 12 nautical miles off the Australian Coast (Australian Government 2021). – The UCH Act broadens automatic protection to submerged aircraft in Commonwealth waters and individual declaration for other UCH (including First Nations UCH). (NB: Consequential outcomes of the UCH Act coming into force is that regulation amendments made to Marine Park Regulations 1983 to include Maritime Cultural Heritage Protection Special Management Areas (66A) (SMA) can be repealed to avoid excessive and unnecessary additional regulatory burden).			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– Australia tabled the 2001 UNESCO Convention on the protection of the Underwater Cultural heritage and National Interest Analysis in the Australian Parliament (February 2022) for consideration by the Joint Standing Committee on Treaties. Ratification will support the better protection of underwater cultural heritage and will facilitate better collaboration with other regional States to protect their underwater cultural heritage. • Environment Protection Biodiversity Conservation Act – Identified heritage values. The EPBC identifies historic heritage at several levels: – National Heritage List (Ch 5 Pt 15 Div 1A) - specifically: whole Marine Park. – Commonwealth Heritage List (Ch 5 Pt 15 Div 3A) – specifically three lightstations (Lady Elliot Island, Dent Island and Low Islets Lightstations) one island (Low Island) (The Reef Authority is charged with identifying, conserving, managing, interpreting and celebrating the heritage values at these places). – MNES – refer below. – Historic shipwrecks and historic associated relics are not identified or prescribed under the EPBC. • EPBC – Conservation - Conservation of identified historic heritage is required by preparation of certain plans:			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– National Heritage List (Ch 5 Pt 15 Div 1A s324X(2A)) – exempts the Reef Authority from preparing a management plan for the whole of the GBR. The Zoning Plan 2003 is taken to be an appropriate management plan to satisfy this provision. This broad exemption extends to the statutory requirement to review and update a management plan. – MNES – being identified as or considered a MNES does not expressly obligate further conservation management on the Reef Authority. MNES is most instances is utilised as an assessment trigger. – Historic shipwrecks - refer below. – Commonwealth Heritage List (Ch 5 Pt 15 Div 3A) – the Reef Authority is obligated for each listed place, to prepare and review a heritage strategy every three years (s 341ZA) and separately a heritage management plan review every five years (s341S). The Commonwealth Heritage List is relevant to Commonwealth Heritage listed lightstations and Low Island in the Marine Park. • Lightstations – Heritage management plans are registered for the Lady Elliot Island Lightstation (2012) and Dent Island Lightstation (2013), which is a joint plan with AMSA. – A draft heritage management plan for Low Islet Lightstation and Low Isles is being prepared to satisfy the Reef 2050 Plan (Action HA8). The plan will be jointly prepared by the			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		Reef Authority and AMSA with significant consultation with the two Traditional Owner Groups for this area, the Kuku Yalanji and Yiriganji, given the specific listing criterion relating to Indigenous culture. – Once the Plan is developed, implementation is prepared for and actioned. Implementation is monitored, and once every five years it is reviewed, if resources are allocated for this purpose. This process is consistent with the recommendations of the *Burra Charter* (2013) which is authored by the Australian Committee of the International Council on Monuments and Sites.(AICOMOS) The Burra Charter provides guidance for the conservation and management of places of cultural significance. • Historic Ship and Aircraft wrecks (Underwater Cultural Heritage) – DES have a delegation under the *Underwater Cultural Heritage Act 2018* and an Intergovernmental Agreement to manage Commonwealth owned underwater cultural heritage, including shipwrecks. The delegation includes the powers to ascertain the location of historic shipwreck and relics, make directions in relation to custody of shipwreck and relics, and the issuing of permits (including for entry into the six protected zones within the GBRMP). As part of these functions DES maintains data on shipwrecks and relics and other underwater cultural heritage located throughout			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		Queensland and adjacent waters on the Australasian Underwater Cultural Heritage Database. – DES also administers the **Queensland Heritage Register**. There are approximately eight places within the Marine Park boundary that are entered on the Queensland Heritage Register – six of these are located on Islands and directly relate to the historic use occupation and use of the Great Barrier Reef. Of these six places entered on the Queensland Heritage Register, the Queensland Government directly manages three of them. The remainder are managed by local government or privately. – Historic shipwrecks are protected under the Commonwealth's *Underwater Cultural Heritage Act 2018* and the *Queensland Heritage Act 1992*. Prescribed protection, control and management is pursuant to the *Underwater Cultural Heritage Act 2018* (Cth) only. All shipwrecks and other underwater cultural heritage wrecked at least 75 years or more ago are automatically protected under the Commonwealth and Queensland Acts regardless of awareness or known location of the heritage. Submerged historic aircraft and other historic underwater cultural heritage are also protected under the Queensland Heritage Act within State Coastal Waters. – Six conservation management plans (best practice, not required under any legislation) have been drafted to			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		implement Reef 2050 Long-term Sustainability Action Plan 2021-2025 action 5.5 (p.37). – Six shipwreck sites in the GBR are within protected zones. Under the *Underwater Cultural Heritage Act 2018* (Cth) (Section 7 (1.4), DES has been delegated certain powers to administer permits to access the six sites, including the respective protected zones up to 200 hectares (or 2km2) in area. Ministerial delegation is Section 38 (pg. 34). – Historic shipwrecks in the Marine Park are protected under the *Underwater Cultural Heritage Act 2018*. The obligation for day-to-day management of these sites and preparation of conservation management plans is with DES. • A thematic review of the Lady Elliot Island Lightstation Heritage Management Plan and the Dent Island Lightstation Heritage Management Plan is being undertaken to meet the requirements of the Legislation Act 2003 and the EPBC Act 1999, Strategic Action 5.4. • The draft Low Island and Low Islets Lightstation Heritage Management Plan is being finalised.			
CO5 The **stakeholders** relevant to historic heritage are **well known** by managers.	4	• Key stakeholders are generally known and include: – the Reef Authority, DCCEEW and DES – Local government (where heritage is addressed through local planning instruments)	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– Reef Advisory Committee, Indigenous Reef Advisory Committee, Tourism Reef Advisory Committee and Local Marine Advisory Committees – Industry e.g. tourism sector - the Queensland Government maintains a relationship with commercial dive operators who access shipwrecks within protected zones – sharing imagery and data. – Universities and research institutes – Education e.g. schools, registered training organisations – Traditional Owners – Non-government organisations (e.g. conservation/heritage organisations, international fora) – Community (recreational users, local and national communities) – Living descendants of those people whose remains lie within the Reef (e.g. on wrecks) and buried on islands (e.g. the descendants often wish for the human remains to stay untouched and for the bodies not to be exhumed) (Workshop participant 2023). • Reef Actor Network Mapping project: Mapping working agreements between the Reef Authority, partners, stakeholders, and community of practice - maps the existing actors within a network that connects the Reef Authority to the			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		organisations and institutions they engage for research and management practice. This project has three overarching goals: to provide information to the Reef Authority's science for management sector that will help inform future work; to identify gaps in existing Reef management partnerships; and to help inform management decision-making process by identifying actors in the Reef management landscape solely from a Reef Authority centric perspective. • In general Heritage managers within the Reef Authority have good relationships with external managers and stakeholders in related State and Commonwealth agencies, with whom they engage through the Community Partnerships programme and the LMAC and RAC processes. Key stakeholders were encouraged to nominate for the 2021-24 LMAC term. • **Reef 2050 Plan aims to maintain and enhance** collaboration and effective partnerships between managers, partners and stakeholders to enhance Reef protection, including historic heritage.			
PLANNING					
PL1 There is a **planning system** in place that effectively addresses historic heritage	3	• Reef planning operates at several scales from international to local and incorporates both marine and terrestrial components. The system comprises complex layers of legislation, plans, strategies, agreements, conventions etc (refer PL2 for a comprehensive list of relevant documents) that are developed	Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		and overseen by various jurisdictions including a range of government, non-government institutions and organisations. • International – UNESCO's Convention for the Protection of the Underwater Cultural Heritage – represents a global list of cultural and natural heritage significant properties. • Australia has a four-tier planning system to identify and manage heritage places including national, state, regional and local. • National - Commonwealth Government - World and National heritage matters are managed by the Department of Climate Change, Energy, the Environment and Water (DCCEEW): – through the EPBC Act: – provides for significant historic heritage to be listed on World Heritage, National Heritage or Commonwealth Heritage lists (see Heritage recognised under the EPBC Act). – assess the impacts of proposed developments on historic heritage values (refer PL2), including MNES, historic shipwrecks and associated relics. – The Great Barrier Reef Marine Park Act, through the Zoning Plan includes Special Management Areas - to capture maritime heritage matters (e.g. two Catalina plane wrecks) that are not captured and protected under the Historic Shipwrecks Act (Cth).			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– The zoning plan and plans of management are considered in assessment under applications made under the EPBC and Marine Park Act respectively. • State Government: – Historic heritage is protected by inclusion on state heritage registers. DES administers the Queensland Heritage Register in accordance with the *Queensland Heritage Act 1992* i.e. eight places within the Marine Park boundary are entered on the Queensland Heritage Register (six are located on Islands and directly relate to the historic use occupation and use of the Reef; three are directly managed by the Queensland Government, the remainder are managed by local government or privately. – DES, through the Commonwealth Underwater Cultural Heritage Act 2018 and *Queensland Heritage Act 1992* – manages ship and aircraft wrecks. – A state interest on cultural heritage requires that planning schemes consider national, state and local heritage and Indigenous cultural heritage. The Cultural heritage State Planning Policy – state interest guideline provides guidance on how to identify and protect historic and cultural heritage within planning schemes. – Values Based Management Framework identifies key historic heritage values on protected areas and threats to			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		their condition and will specify objectives in terms of desired condition of the historic value. • Regional and local - Local Government: – Local governments create and administer registers for places of local importance. – Protection of historic heritage is generally provided by inclusion in local statutory planning instruments (e.g. planning schemes can include conservation areas and cultural landscape etc) and heritage-specific provisions (e.g. codes and overlays with the related data matching the relevant heritage registers (Qld Government 2016). – 19 Reef Guardian Councils are working to identify and better protect historic heritage. • **Underwater cultural heritage** is managed separately from terrestrial cultural heritage. The Underwater Cultural Heritage Act 2018 (Cth) provides protection in Commonwealth waters. Queensland various legislation protects underwater cultural heritage. There is some overlap of Australian Government and State Government responsibilities. • As heritage must be identified and assessed to be included on a statutory heritage list (except for some underwater cultural heritage), many places and objects of historic heritage significance are unlisted (Australian Government 2021).			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Australian Underwater cultural heritage Intergovernmental Agreement (2010) clarifies national and state responsibilities under the UCH Act. • Historic heritage is being lost as a result of several threats (refer CO2 and CO3), indicating that the planning system struggles to provide adequate protection. **Challenges:** • There may be gaps in heritage registers that place both terrestrial and underwater cultural heritage within the Reef Region at risk. This includes submerged Indigenous heritage, submerged cultural landscapes. • Addressing gaps in systematic surveys of underwater cultural heritage. • Strengthening the Planning Act 2016 to enhance the protection of historic heritage places (Workshop participant 2023). • Australian Government ratifying the 2001 UNESCO Convention on the Protection of Underwater Cultural Heritage to support better protection of underwater cultural heritage in the Reef and facilitate stronger State protection of these places.			
PL2 The **planning system** for historic heritage addresses the **major factors influencing** the Great Barrier Reef Region's **values**.	3	• Refer PL1 for a discussion of the planning system and CO2 and CO3 for threats and impacts that are addressed by planning. • There are several tools, including zoning plans, plans of management, permissions, policies and strategies, formal agreements and site management arrangements to address historic heritage. The prime purpose is to maintain and restore sites and to avoid deliberate damage to historic and aesthetic	Great Barrier Reef Strategic Assessment Report, Great Barrier Reef Coastal Zone Strategic Assessment 2014 Workshops	Adequate	Improving

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		values through incompatible activities or developments. Various management approaches are used, including education and awareness, planning, environmental impact assessment, monitoring, stewardship programs and compliance and enforcement. Planning is enhanced through partnership arrangements (refer OC7) with local, state and federal government agencies; scientists; industries; businesses and the community. Traditional owners, industry and community advisory groups provide input into the management process. Legislation and Zoning Plan • Environment Protection Biodiversity Conservation Act – Assessment of impacts – Heritage values are considered in assessment through several mechanism in the EPBC Ch 2 Pt 3 Div 1 being MNES, specifically: – The whole Marine Park reflecting WHA (Sub A) – National Heritage List (Ch 2 Pt 3 Div 1 Sub B). Given historic shipwrecks and associated relics and Indigenous heritage values are not prescribed MNES but only inferred through Commonwealth and/or National Heritage listing, assessment of any impacts on these matters are only incorporated in the EPBC assessment through broader heritage protection of the whole Reef marine park. – Natural heritage - certain listed threatened species and communicates (Sub C + D).	Interviews		

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– Marine areas (Sub F) – Reef (Sub FA) and zoning plan (Pt 5 Div 5 s43). The DCCEEW must inform the Reef Authority of an action that may impact the Reef (s 73A). – Commonwealth heritage list (Ch 2 Pt 3 Div 2). • Underwater Cultural Heritage Act 2018 sets out heritage criteria for declaration of sites as protected. These may be referred to in the assessment of UCH in the Marine Park. The AUCHD (database) is the national register for the purposes of the UCH Act and contains historical and archaeological data in records for individual UCH sites and associated artefacts. • The *Great Barrier Reef Marine Park Act 1975* provides for the long-term protection and conservation of the heritage values. The Act allows for ecologically sustainable use of the Region for purposes of public enjoyment and appreciation and research. • Section 53 of the Great Barrier Reef Marine Park Regulations 2019 explicitly provides for the protection of maritime cultural heritage through the establishment of Maritime Cultural Heritage Protection Special Management Areas. There are currently two listed SMAs: Catalina A24-25 Maritime Cultural Heritage Protection SMA and Catalina A24-24 Maritime Cultural Heritage Protection SMA. Changes to the Regulations require Reef Authority assessors to assess the relevant impacts of the proposed conduct on the environment, biodiversity and heritage values			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• DES – Commonwealth Underwater Cultural Heritage Act 2018 and Queensland *Heritage Act 1992* – DES has a delegation under the *Underwater Cultural Heritage Act 2018* to manage ship and aircraft wrecks. The delegation includes the powers to ascertain the location of historic shipwreck and relics, make directions in relation to custody of shipwreck and relics and the issuing of permits (including for entry into the six protected zones within the Marine Park). As part of these functions DES maintains data on underwater cultural heritage located throughout Queensland and adjacent waters on the Australasian Underwater Cultural Heritage Database. – DES also administers the Queensland Heritage Register in accordance with the *Queensland Heritage Act 1992*. There are approximately eight places within the Marine Park boundary that are entered on the Queensland Heritage Register – six of these are located on Islands and directly relate to the historic use occupation and use of the Reef. Of these six places entered on the Queensland Heritage Register, the Queensland Government directly manages three of them. The remainder are managed by local government or privately. – The Australian National Shipwreck Database is a living, public database that is periodically updated to provide the latest known site data and information. However, only **8% of wrecks within the Marine Park are accurately located**.			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– The UCH Act broadens automatic protection to submerged aircraft in Commonwealth waters and individual declaration for other UCH (including First Nations UCH). (NB: Consequential outcomes of the UCH Act coming into force is that regulation amendments made to GBRMP Regulations 1983 to include Maritime Cultural Heritage Protection Special Management Areas (66A) (SMA) can be repealed to avoid excessive and unnecessary additional regulatory burden). – UNESCO Convention on the protection of the Underwater Cultural heritage tabled to Joint Standing Committee on Treaties. Ratification will support the better protection of underwater cultural heritage and will facilitate better collaboration with other regional States to protect their underwater cultural heritage. • Zoning Plans – **provide spatial control** of use and, to a lesser extent, access within the Marine Park. It establishes the framework for extractive use and the need for permits for some uses. Zoning plans are developed under Part 5 Division 2 of the Great Barrier Reef Marine Park Act 1975. Complementary arrangements are in place in adjacent areas under Queensland jurisdiction. – The Managing Agencies are unlikely to grant permission to someone for an activity that is likely to significantly impact on Historic Heritage – unless it can be avoided or minimised. Great Barrier Reef Regulations require all permit			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		applications to undergo an assessment to ensure Historic Heritage values are not significantly impacted. Plans of Management • Set out policies, strategies and enforcement provisions (s39W). Four plans of management currently exist within the Great Barrier Reef Marine Park. The objectives of plans of management are set out in the *Great Barrier Reef Marine Park Act 1975* (s39Y): – Hinchinbrook Plan of Management – Shoalwater Bay (Dugong) Plan of Management – Whitsundays Plan of Management (amendments took effect from 2 August 2017) – Cairns Area Plan of Management. • The Whitsunday Plan of Management has been amended and now separates and addresses the different types of heritage of the Planning Area in Part 1. There is a new subsection that now relates to historic heritage solely and identifies the historic heritage values, the relevant legislation, issues and strategies for protecting these values. • Some aspects of non-Indigenous heritage values are protected under the Cairns Plan of Management (see part 1.25 regarding preserving the values of historic scientific research expedition).			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Scientific values of Low Isles derive from the diversity of natural features and from being the site of the 1928–1929 Great Barrier Reef Expedition. Low Isles is one of the few coral reefs in the world for which a long series of data exists and Low Isles therefore presents an unusual and valuable opportunity for continuing long term studies. • The zoning plan and plans of management are considered in assessment under applications made under the EPBC and Marine Park Act respectively. • Guidelines are used in assessments and protect historical heritage values. These guidelines will be considered in assessment as well as ongoing conservation management (refer CO3). Special Management Areas (SMA) • Division 4.2 of the **Zoning Plan** includes Special Management Areas. This section was added in 2015 specifically to capture maritime heritage matters that are not captured and protected under the Historic Shipwrecks Act (Cth). In these instances, the impetus for the amendment was protecting two Catalina plane wrecks. • Maritime cultural heritage protection special management area and other places of historic and social significance. Policies (include strategies, policies, site management arrangements, position statements and guidelines)			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		Strategies • Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25 (2022) outlines our strategic approach to identifying, protecting and managing the heritage values of Commonwealth heritage places within the Marine Park on behalf of the Commonwealth. The Strategy is a requirement of the EPBC Act and was revised in 2022. • AMSA Heritage Strategy–2022–2025 guides AMSA in the management of sites of cultural and natural heritage value for which it is responsible. This includes Dent Island and Lows Isles lighthouses. AMSA leases this land and under the lease terms, is responsible for lighthouse maintenance. • The Reef Authority's Policy and Planning Roadmap has been developed to focus the Reef Authority's efforts to deliver a proactive, contemporary and risk-based approach to Marine Park policy, planning and regulation that will protect key values (including historic heritage) and enable ecologically sustainable use for a changed and changing Reef. This includes assessment and rationalisation of Reef Authority policies. • Australian Heritage Strategy, Commonwealth of Australia, Canberra. • Queensland Heritage Strategy: protecting, investing in and connecting Queensland's story (DEHP 2015), Guidelines, values mapping and educational material			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Historic Heritage Assessments – have been developed to enter Maritime Cultural Heritage Protection Special Management Areas. – Historic heritage assessment: maritime cultural heritage protection special management area (2017) – Historic heritage assessment: other places of historic and social significance (2017) – Historic heritage assessment: WWII features and sites, and voyages and shipwrecks (2017) – Historic heritage assessment: lightstations and aids to navigation (2017) – Historic heritage assessment: maritime cultural heritage protection special management area (2017) – Maritime cultural heritage protection special management area permit application and assessment • Guidelines for working in the near and offshore environment to protect underwater cultural heritage (DES in preparation) (best practice management and mitigation for activities that could adversely impact on UCH). • http://elibrary.gbrmpa.gov.au/jspui/handle/11017/3238The QPWS Values Based Management Framework identifies key historic heritage values on protected areas and threats to their condition. Other plans and frameworks			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• **Reef 2050 Long Term Sustainability Plan** (2021-25) has a focus on acknowledging Historic heritage • **Commonwealth Heritage List Management Plans** and registers are required under the EPBC Act (s.341ZA). The plans describe and assess the heritage values and set out obligations, appropriate policies and management regimes to manage and protect the heritage values for several sites: – Lady Elliot Island Lightstation Heritage Management Plan and Lady Elliot Island Lightstation Heritage Register – Dent Island Lightstation Heritage Management Plan and Dent Island Lightstation Heritage Register – Low Isles Lightstation and Low Island Management Plan (under development) and L Low Island and Low Islet Lightstation Heritage Register • **Conservation plans** for HMS *Pandora*, *Mermaid*, *Foam*, SS *Yongala*, *Gothernburg* and QGSS *Llewellyn* have been drafted and will be finalised in 2023. The condition and trend of these shipwrecks is assumed to be good but declining. Permits and permissions • Permission system policy and guidance documents • Guidelines - Applications for joint permissions • Guidelines - Assessment and decision • Internal Procedure – Risk Assessment – Permission System • Environmental Impact Management: Permission System (Document No. 100430)			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Permits Online includes enhancements allowing for greater consistency and efficiency for permit applications. Permits are issued jointly by the Reef Authority and QPWS ensuring that impacts to heritage are jointly considered. • Permits • RMS (gbrmpa.gov.au) • Types of Permissions Fact Sheet • A Guide for Current Permit Holders Challenges • Achieving greater consistency in protection across terrestrial and marine planning systems (Workshop participants 2023). • While protected zone wrecks are relatively well managed, the remaining nearly 800 wrecks are less well protected and managed (Workshop participants 2023). • Queensland Heritage Act has limited scope to protect and manage archaeological sites (Workshop participants 2023).			
PL3 **Actions** for implementation regarding historic heritage are clearly identified within the plan	3	• Actions in relation to historic heritage are clearly identified within a range of plans, including Reef 2050 Plan. • The **Values Based Management Framework** identifies key historic heritage values on protected areas and threats to their condition and will specify strategic management direction. • **Joint Field Management Program** Annual Business Plan **and Strategies** outline how they will support maritime heritage.	Workshops Interviews	Adequate	Improving

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• The **Joint Field Management Program** (JFMP) has the responsibility of protecting the Reef and its heritage values through a compliance program. The compliance program includes education, audits of activities that require a permit or lease, annual audits and annual reports. The aim is to achieve high levels of voluntary compliance, while also maintaining a strong enforcement approach to deter and detect prohibited activity. • The JFMP works closely with partners including the Queensland Police Service, Maritime Safety Queensland and the Australian Federal Police. The dedicated team of managers and field officers together oversee that heritage on Commonwealth owned or controlled places and properties are protected in line with industry recognised best heritage practice. • *Field Management Fact Files* are prepared by the Reef Authority for the rangers with heritage key messaging which keeps them informed and updated. The rangers are then able to transmit this knowledge when meeting with users of the Marine Park. • The **Heritage Strat**egy identifies broad actions that address heritage.			
PL4 **Clear, measurable and appropriate objectives** for management of	3	• The **Values Based Management Framework** identifies key historic heritage values on protected areas and threats to their condition and will specify objectives in terms of desired condition of the historic value.	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
historic heritage have been documented		• **Reef 2050 Plan** objectives are documented, including that intangible and tangible historic and cultural heritage and contemporary cultural values remain intact. • The **Joint Field Management Program** Annual Business Plan **and Strategies** indicated the support to be provided to historic heritage. • Refer PL2 where a range of plans are included, all of which have management objectives e.g. Lady Elliot Island Lightstation Heritage Management Plan and Dent Island Lightstation Heritage Management Plan.			
PL5 There are plans and systems in place to ensure **appropriate and adequate monitoring information** is gathered in relation to historic heritage	3	• The **Values Based Management Framework** identifies key historic heritage values on protected areas and threats to their condition and will specify monitoring of these values through a site-specific monitoring and research strategy. • Several monitoring projects are in place to provide relevant information on historic heritage: • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): This project (2021-2024) will design a monitoring program to help managing agencies make informed decisions about striking the right balance between sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values.	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Community members have an important role to play in contributing to the protection the Great Barrier Reef and maintaining its World Heritage Values. This project (2021-2024) will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes. No results yet. • IMR RTP Monitoring collective capacity and implementation (Governance): There are multiple programs, plans and policies underway for the protection and sustainable use of the Reef under the Reef 2050 Plan. This project (2021-2024) will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. No results yet. Ongoing enhancements to Reef Management System and Permits Online. • Improvements to the Reef Authority's permission system provide greater clarity and guidance for permissions applicants and assessors and implement recommendations from the Australian National Audit Office and the Australian Parliament's Joint Committee of Public Accounts and Audit. EAP administers the Permission System on behalf of the Reef Authority and QPWS. To support this, EAP is developing internal documents such as templates, guidelines and			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		procedures which are used only to administer the Permission System. **Challenge:** • Enhancing monitoring, especially of underwater cultural heritage places.			
PL6 The main **stakeholders** &/or the local community are **effectively engaged** in planning to address historic heritage	3	• **Reef 2050 Plan,** through its strategic Actions aims to foster connection, education and stewardship of the Reef (A1). • **Effective engagement** (IAPP 2018, based on Arnstein 1969) in the planning system incorporates different levels of engagement, timeframes, resources and concern about the decisions that are made. For example, engagement in historic heritage: – Often consists of '**informing**', i.e. providing objective information to assist in understanding the issues, alternatives, opportunities and/or solutions. – The Reef Knowledge System is available to all stakeholders to raise awareness of relevant historic heritage issues. – There is also targeted education to assist in raising awareness about historic heritage. – Often consists of '**consulting**' to obtain feedback on particular issues and discussion of alternatives e.g. through various advisory committees, universities and research institutes (e.g. Low Isles Preservation Society).	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– The Reef Authority incorporates a high level of community engagement in planning processes that include heritage values through drafting/ amending - Zoning Plans, Plans of Management, site plans, Heritage Management Plans, Heritage Strategy and policy development (refer PL2 for relevant documents that involve stakeholder consultation, and CO5 for a description of the main stakeholders). – May incorporate some '**involving**' or working directly to ensure relevant concerns/aspirations are understood and considered e.g. through LMACs. – In general Heritage managers within the Reef Authority have good relationships with partners in related State and Commonwealth agencies, with whom they engage through the Community Partnerships programme and the LMAC and RAC processes. – The Queensland Government maintains a relationship with commercial dive operators who access shipwrecks within protected zones – sharing imagery and data. – Eye on the Reef monitoring and assessment program – Groups involved in maintaining lightstations and various restoration tasks – Compliance tasks with Qld Police Service, and broad protection of historic heritage values. – Seldom incorporates collaborating (co-management) or empowering processes.			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
PL7 **Sufficient policy** currently exists to effectively address historic heritage	3	• Refer PL1,2,3 where a range of strategies, policies, guidelines and plans are identified and described. **Challenge**: • Ensuring all policy is regularly reviewed and updated to maintain relevance to ensure protection of historic heritage.	Maritime heritage – diving into history	Adequate	Stable
PL8 There is **consistency across jurisdictions** when planning for historic heritage	3	• Refer to PL2 where a range of legislation and relevant documents are detailed relating to historic heritage. Much of this requires integrated planning and implementation among a range of stakeholders and agencies. • Great Barrier Reef Intergovernmental Agreement 2015 ensures a **collaborative approach** between the Australian and Queensland Governments to manage the marine and land environments of the Reef Region and provides a framework for joint management arrangements. Permits are issued jointly by the Reef Authority and Queensland Government. – Consideration of potential impacts to non-Indigenous heritage values is consistently considered for joint Marine Park permits under the Agreement. However, this only covers Marine Parks and Commonwealth Islands (and not Queensland Islands). – Joint permit arrangements provide some consideration for non-indigenous heritage values and aim to minimise direct and indirect impacts.	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– The IGA is being updated. Joint decisions are progressed through two Ministers responsible for the Reef via a joint briefing process (Workshop participant 2023). • A 2009 Memorandum of Understanding between the Commonwealth and the Reef Authority outlines the integration and application of the EPBC Act and the Marine Park Act. It details the responsibilities administering the EPBC Act referrals, assessments and approvals process including that the Reef Authority must be informed of any referrals relating to an action in the Marine Park (Note – this MOU is not specific to historic heritage, but may encompass potential impacts on it from activities) • A number of formal and informal arrangements underpin work on Commonwealth Islands, including: – Public lease arrangements with the Australian Maritime Safety Authority – Caretaker services agreement for undertaking day-to-day maintenance and communications at Low Isles – Collaborative lease arrangements with tourism operators to ensure cooperative management of Lady Elliot Island and Dent Island. – A collaborative lease arrangement with tourist operators to ensure cooperative management of Lady Elliot Island's Lightstation and Dent Island's Lightstation. Conditions of the			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		leases ensure that the lessee assists with maintaining the place to in accordance with the Heritage Management Plans and Burra Charter. The lessees/permittees must give the Reef Authority prior notice before commencing any works and Field Management Program and EAP staff assess potential impacts and provide directions as required. • At the State level, the DES administers the *Queensland Heritage Act 1992* and is also the State delegate under the *Underwater Cultural Heritage Act 2018* (Cth). Rationalising primary responsibility through one agency is consistent with other State and Territories and was determined as necessary to reduce duplication and mitigate issues of jurisdiction – especially given the complex nature of the Queensland Coast and the undetermined extent of State internal waters. – DES provided opportunities for the Reef Authority to contribute to the conservation management plans for historic shipwrecks including: Pandora CMP; Foam CMP, Gothenburg CMP. The 2009 Memorandum of Understanding between the (then) Department of the Environment and Energy and the Reef Authority has been updated, however this has not been executed to date (should continue to be progressed through 2023). • The Nature Conservation Act 1992 includes cultural heritage in all its sections and thus sites under QPWS management are also protected.			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Joint Streamlining Permissions Steering Committee initiated in 2019 to oversee work on streamlining permissions. • Permits Online includes enhancements allowing for greater consistency and efficiency for permit applications. Permits are issued jointly by the Reef Authority and QPWS ensuring that impacts to heritage are jointly considered. • In 2022, four Reef Authority staff were authorised as Inspectors under the Underwater Cultural Heritage Act. Challenges: • Enhancing the existing working arrangements between QPWS and AMSA (e.g. North Reef) (Workshop participant 2023). • Ensuring all levels of the planning system are integrated to enhance outcomes for historic heritage.			
PL9 **Plans** relevant to historic heritage **provide certainty regarding where uses may occur**, the type of activities allowed or specifically disallowed, conditions under which activities may proceed and circumstances where	3	• Plans regarding access to resources and extractive activities (e.g. Commonwealth Islands Zone) are clear and provide certainty. • Marine Park Act Regulations, specifically the Maritime Cultural Heritage Protection Special Management Area restrict activities in the Special Management Area relevant to historical maritime cultural heritage. • Other management tools are used to protect historical heritage places such as complementary zoning.	Zoning Plan Dive into history around Magnetic Island Maritime heritage – diving into history	Adequate	Improving

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
impacts are likely to be acceptable.		• Lightstations are subject to leases, permits and Deeds of Agreement. • Interpretive material for Maritime Cultural Heritage management within the Marine Park has increased with the Reef Authority having developed a dedicated webpage for Maritime Cultural Heritage, a Maritime Cultural Heritage Responsible Reef Practices and the development of the Dive into History at Magnetic Island Shipwreck Guide. • Certainty concerning where uses may occur is impacted by limited of knowledge about many historic sites e.g. shipwrecks and plane wrecks. Challenges: • While existing plans may provide certainty about uses, there is a lack of comprehensive coverage of plans and hence protection of historic heritage. • Enhance educational programs to ensure plans are effectively implemented.			
INPUTS					
IN1 **Financial resources** are **adequate and prioritised** to meet management	3	• The Reef Trust – Great Barrier Reef Foundation Partnership is a $443.3 million six-year grant between DCCEEW, which manages the Reef Trust, and the Foundation. It has been established to build on and support delivery of the joint Australian and Queensland Government Reef 2050 Plan. This includes	Environmental management charge Curtis Island development offsets framework	Adequate	Improving

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
objectives to address historic heritage		investment in Reef Restoration and Adaptation Science ($100 million) and Integrated Monitoring and Reporting (IMR) ($40 million). See Reef Trust Partnership Investment Strategy. • The Australian Government invested $1.2 B over nine years to 2030. This is intended to accelerate actions to support the Reef's long-term resilience and protect its future. These investments will help to achieve actions and objectives under the Reef 2050 Plan, which include historic heritage. The investments focus on priority areas: Improving water quality, restoration and adaptation, partnerships and stewardship and world-leading management. This will be delivered through the Reef Trust. • AMSA has a lease over the lighthouse at Low Isles and Dent Island because these two historic lighthouses are working lighthouses. The Reef Authority 'owns' the rest of the lightstation at these sites. AMSA 'owns' the actual lighthouses, but the Reef Authority owns the land underneath them. The historic lighthouse at Lady Elliot Island is not a working lighthouse and is 'owned' by the Reef Authority. • Tourist operators at Dent Island and Lady Elliot Island lease the entire lightstations and currently utilise the buildings for staff accommodation. • Maintenance and long-term conservation costs of these places are managed within the Field Management Program's resource management framework. Lessees have most responsibility to	RTP_Investment Strategy Our investments - DCCEEW Improving water quality - DCCEEW Strengthening Partnerships and Stewardship - DCCEEW Reef Restoration and Adaptation - DCCEEW Reef protection through world-leading management		

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		maintain heritage buildings within the constraints of fair wear and tear. Challenge: • Enhancing resourcing for protection of underwater cultural heritage places.			
IN2 **Human resources** within the managing organisations are **adequate** to meet specific management objectives to address historic heritage	2	• The Commonwealth Heritage listed places are jointly managed by the Reef Authority and QPWS through the Joint Field Management Program. The program has a team of managers and field officers who together oversee that heritage on Commonwealth heritage listed places are protected in line with industry recognised best heritage practice (refer also IN1). • QPWS staff have assisted the DES historic heritage team with access to historic sites via FMP vessels. • There is one dedicated project manager within RJFMP for protection of Commonwealth islands and lightstations. • **Several positions remain vacant within the Reef Authority** due to an inability to recruit new staff. There has been a high turn-over in staff, with loss of corporate knowledge. – There is no dedicated Maritime Cultural Heritage Project Manager at the Reef Authority. This has also reduced in-house ability to train other staff. • Expert advice is available through the Advisory Committees. Challenge:	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Ensuring adequate human resourcing across all agencies involved in historic heritage protection (e.g. State and local government).			
IN3 The right **skill sets** and expertise are currently available to the managing organisations to address historic heritage	3	• Individuals at the Reef Authority generally have the right skill sets, knowledge and expertise. • The Maritime Cultural Heritage dedicated position finished with Reef Authority in 2019. This position/ASL was reassigned to broader Policy and Planning work. • The Reef Authority employs two dedicated social scientists and engages regularly with social-ecological scientists at numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science Community for the Reef and Reef 2050 (Human Dimensions consortium). • Under the EPBC Act: – there is an obligation for DCCEEW to provide training to relevant staff on heritage matters. – Under 10.03F of EPBC Regs, the Heritage Strategy must include: *(g) an update on progress with Commonwealth Heritage training programs.* – Schedule 7C of EPBC Regs states: *4 A strategy must include matters relating to Commonwealth Heritage training and promotion, including the following: (a) a program for the training of agency staff about Commonwealth heritage obligations and best practice heritage management; (b) a*	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		program for promoting community awareness of Commonwealth Heritage values, as appropriate. – Note DCCEEW has indicated that such training would be provided, but it remains unclear as to whether this has occurred. • The Reef Authority and State Government staff have been provided with specialist training in underwater cultural heritage – which was delivered in collaboration by Queensland Government and the Reef Authority. Challenge: • Ensuring all aspects of historic heritage protection have personnel with the required skill sets. This is especially relevant to underwater cultural heritage.			
IN4 The necessary **biophysical information** is currently available to address historic heritage	3	• Information on physical location and values of non-Indigenous heritage sites are not well documented. • The Reef Knowledge System hosts: – new Reef coral reef habitat mapping layers through the Reef Explorer interface: geomorphic, benthic, and bathymetry (to 20m depth) maps and a satellite image mosaic – an internal interactive dashboard, the Resilient Reefs Network Guidance Tool, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park	Reef 2050 Integrated Monitoring and Reporting Program 2019 Outlook Report Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• AusSeabed Marine Data Portal and Geoscience Australia host a very high-resolution bathymetry map of the Great Barrier Reef, including the continental shelf. • Reef Hub hosts inter Reefal and continental slope data for identifying plane/slope. • The Reef Authority updated its 'Science and Knowledge Needs for Management' in 2021. It was informed by the Great Barrier Reef Outlook Report 2019, the Reef 2050 Plan and emerging needs identified by Reef Authority staff. It aims to ensure scientific activities are relevant, targeted to address critical management issues, and that scientific outputs are easily accessible. The priority information needs form the focus of specific collaboration opportunities with science and knowledge providers. The document is supported by an interactive web-tool located on the Reef Knowledge System which identifies the specific collaboration opportunities and can be updated as needs are addressed or new needs identified. There are several current opportunities that relate to historic heritage. • Science information for heritage values (other than lightstations) is limited i.e. for shipwrecks, plane wrecks, other relics. • Any disturbances with potential to impact on historic shipwrecks must be reported to DES in the first instance. Challenge:			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Enhancing information on shipwrecks, plane wrecks and a range of other relics.			
IN5 The necessary **socio-economic** information is currently available to address historic heritage	2	• **Social and Economic Long-Term Monitoring Program (SELTMP)** has time series data: 2013, 2017, 2021, 2023 (planned). The 2021 survey (3rd data point) addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Reef social-ecological system. SELTMP is assisting Reef managers and other decision-makers within the Reef Region to incorporate the human dimension into their planning and management. SELTMP is not specific to historic heritage values, but rather considers the broader human interaction with the Reef. • The Reef Authority 'Science and Knowledge Needs for Management' (2021) (refer IN4). **Challenge:** • Socio-economic information for heritage values requires further funding to produce the required documents relevant to historic heritage.	SELTMP Core module pilot data dashboard SELTMP Core Module Report SELTMP Core Module 2021 Survey dataset: Regional Report Cards Regional Report Cards Module Report Regional Report Cards 2021-22 Social Survey dataset Integrated Monitoring and Reporting - (Human dimensions Monitoring projects) Workshops Interviews	Adequate	Stable
IN6 The necessary **Indigenous heritage** information is	2	• Many data/knowledge gaps remain with regards to indigenous heritage. Knowledge continues to be lost as a result of the passing of Traditional Owner elders.	Science and Knowledge Needs for Management	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
currently available to address historic heritage		• The Reef Authority 'Science and Knowledge Needs for Management' (2021) (refer IN4). • Implementing the 'Strong Peoples-Strong Country Framework' was identified as one of the Priority Monitoring Gaps in the Reef Authority's prospectus in 2021 - which provides an overview of the priority monitoring gaps identified to support the implementation of the Reef 2050 Integrated Monitoring and Reporting Program. The prospectus identified 11 priority monitoring gaps which have since been funded by the Reef Trust Partnership and are being progressed by RIMReP Partners. The Strong Peoples-Strong Country Framework aims to build capacity for Traditional Owner leadership of monitoring and reporting in the Reef. Phase 2 involves the development of a set of objective indicators, which aim to provide information and insights about the condition and trends in Indigenous heritage values in the Reef and its catchments. • As an action under the Reef Authority's Aboriginal and Torres Strait Islander Heritage Strategy for the Reef (Action A3.1.1), some examples of Sea Country Values Mapping are now available, e.g. Mandubarra Sea Country Cultural Values: 2019-2020 mapping project. • Refer Indigenous Heritage Topic (Table 44) for further information on Indigenous heritage information (IN4).	Science and Knowledge Needs | Reef Knowledge System Monitoring the Indigenous heritage within the Reef 2050 Integrated Monitoring and Reporting Program: final report of the Indigenous Heritage Expert Group Workshops Interviews		
IN7 The necessary **historic heritage** information is currently available	3	• **Many places of significance are not well documented** and only some are Commonwealth Heritage listed (under the EPBC Act). It is important to also recognise that both Indigenous and	2019 Outlook Report Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
to address historic heritage		historic heritage values will continue to evolve to represent the flow of history and changing community perceptions (refer CO1, CO2, CO3). • Specific aspects of the Region's historic heritage values have been documented, for example the locations of historic lighthouses (refer CO1). • Data from the Australasian Underwater Cultural Heritage Database shows located shipwrecks. However, the lack of knowledge of the location of the shipwrecks makes it difficult to manage. • There is also information about the heritage values of many islands. However, there remain **large gaps in knowledge about many historic places or events**. • The Reef Authority's 'Science and Knowledge Needs for Management' (2021) (refer IN4), includes several current research needs that relate to historic heritage. • DES supported delivery of Gathering Information via Recreational Technical (GIRT) Scientific Divers training in Brisbane and on Mike Ball Dive Expeditions in November, 2020 in the Marine Park. On this trip SS Yongala and SS Gothenburg were visually inspected. (NB: Dr Andrew Viduka [DCCEEW] also worked with MBDE circa April 2021 but not supported by DES, just GIRT training). • SS *Yongala* was surveyed by Julia Summerling during the current reporting period.			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Between 8 – 10 April 2022, DCCEEW Underwater Cultural Heritage staff and QPWS, supported by DES, undertook a site inspection of SS *Gothenburg* using the GIRT Scientific Divers citizen science program and Eye on the Reef – Rapid Monitoring program. Challenge: • Information on historic heritage is not comprehensive, with much underwater cultural heritage lacking mapping and detailed analysis.			
IN8 There are additional sources of **non-government** input (e.g. volunteers) contributing to address historic heritage	2	• There have been important contributions by volunteer groups and school groups, including the Low Isles Preservation Society and Conservation Volunteers Australia. • Eye on the Reef monitoring and assessment program enables visitors to the Marine Park to collect and submit information about marine matters, including heritage. • Tourist operators promote heritage values and ensure appropriate behaviours by tourists around heritage sites. • Australasian Institute of Maritime Archaeology (AIMA). • Some heritage information is compiled by volunteers. • Silentworld Foundation: an expedition successfully located the historic shipwreck, *Mermaid* on Flora Reef, and they continue	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		to sponsor the expeditions to document and protect Australia's maritime heritage. • Limited volunteer input is historical heritage specific. Challenge: • Developing partnerships with diverse organisations to expand effort in relation to historic heritage needs.			
PROCESSES					
PR1 The main **stakeholders** &/or industry(ies) are **effectively engaged** in the ongoing management of historic heritage	3	• Stakeholders have been addressed in CO5 (well known), PL1 (planning system), PL6 (engaged in planning), IN8 (Non-government input), PR2 (local community) and PR3 (governance system). • Types of engagement and supporting evidence were outlined in PL6. • Formal advice is sought from the **Australian Heritage Council** for the over-arching Marine Park Heritage Strategy and heritage management plans. Formal advice is sought from the **Qld DES** for shipwreck management. Reef. • **Industries** (largely the tourism industry) are engaged in planning processes for heritage management throughout the Reef Region. – Consultation is held with **tourism operators** through the Reef Authority's tourism section.	Heritage management plans Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• **Local communities** are informed in heritage management generally through LMACs and through planning processes for specific places. • Local Marine Advisory Committees, **IRAC, TRAC** – are not groups specific to historical heritage; however informal consultation in relation to historic heritage is undertaken with these groups. • The **Reef Guardians** program consults with relevant local Councils. • The Reef Authority consults on a regular basis with members from the **Traditional Owner groups**. • **Interest groups and individuals** are also engaged. Family members who grew up on the Lightstations are invited to events such as National Heritage Week. • **DCCEEW** collaborated in monitoring fieldwork on SS Gothenburg (2022). • DES supported delivery of Gathering Information via Recreational Technical (GIRT) Scientific Divers training in Brisbane and on Mike Ball Dive Expeditions (20- 26 November 2020) in the Marine Park. On this trip SS Yongala and SS Gothenburg were visually inspected. (Note: DCCEEW also worked with MBDE in 2021 for GIRT training). • SS *Yongala* was surveyed by Julia Summerling during reporting period.			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Between 8 – 10 April 2022, DCCEEW Underwater Cultural Heritage Staff and QPWS, supported by DES, undertook a site inspection of SS *Gothenburg* using the GIRT Scientific Divers citizen science program and Eye on the Reef – rapid Monitoring program. • **SS Yongala** - the Reef Authority developed a 360-degree video to promote historic heritage (available on Facebook and the Reef Authority's web page). • Youtube videos have been produced for the public, which relate the story of the lightstations and maritime cultural heritage. **Challenge:** • Incorporating higher-level stakeholder engagement types (e.g. collaboration and empowerment), where relevant, to ensure the effective engagement of all key stakeholders.			
PR2 The **local community** is **effectively engaged** in the ongoing management of historic heritage	2	• Stakeholders are outlined in PR1. Local communities have a **limited level of engagement with historic heritage**, although the Reef Authority works with partners engaged in heritage work e.g. lighthouse enthusiasts, scuba divers looking for shipwrecks. • Information provision:	Low Isles Preservation Society Dive into history around Magnetic Island Maritime heritage – diving into history	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– Webpages, videos and brochures have been prepared to increase the general understanding of World Heritage and Outstanding Universal Value. – Interpretive material for Maritime Cultural Heritage management within the Reef Authority has increased. The Reef Authority developed a dedicated webpage for Maritime Cultural Heritage, a Maritime Cultural Heritage Responsible Reef Practices web page and the development of the Dive into History at Magnetic Island Shipwreck Guide. – The Reef Authority continues to organise **public talks** to discuss historic heritage. – **Local communities are informed** in heritage management generally through the LMACs and through planning processes for specific places. LMAC, IRAC, TRAC – are not groups specific to historical heritage; however informal consultation is undertaken with these groups. Challenge: • Seeking input (e.g. through LMACs and other fora) concerning strategies to enhance local community engagement in historic heritage conservation.			
PR3 There is a **sound governance system** in place to address historic heritage	3	• The Reef 2050 Plan requires that "governance arrangements are transparent and accountable" (p.36). However, there is no monitoring system in place to measure performance of Reef governance and immature understanding about what	Queensland Assessment Bilateral Agreement Project 3-11_Final Report III (nesptropical.edu.au)	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		constitutes governance or how it can enhance decision making (Interviewee 2023). • **Governance assessments** have been undertaken by Dale et al. (2013), Craik, et al. (2017), Morrison et al. (2017, 2019, 2020), Turner (2022) and others. A common theme is the need to review governance systems, including in relation to historic heritage, to ensure that the systems are addressing a range of major threats, in particular climate change, and other impacts that occur at multiple scales. Governance needs to be 'fit for purpose' in addressing diverse pressures on the Reef's historic heritage. "There is an outward presentation of good governance, but an inward realisation that this is not the case" (Interviewee 2023). "From what I see, we are moving in the right direction (in relation to governance improvements" (Interviewee 2023). • The Reef Foundation is funding the development of a **governance monitoring program** for the Reef, including an assessment of key governance indicators to assess governance effectiveness in relation to Reef 2050 Plan objectives (2022-23). **Governance was identified as a critical monitoring gap in the RIMReP**. • The Reef has a **polycentric system of governance**. Heritage is a 'sub-system' within this overall system. • Reef governance for historic heritage is complex, with diverse stakeholders and partners, and cross-scale and cross-sectoral dynamics (Turner 2022). Relevant planning and management	Integrated Monitoring and Reporting – Great Barrier Reef Foundation Permission system policy and guidance documents Policy – Environmental Impact Management: Permission System (Document No. 100430) Guidelines – Applications for joint permissions Guidelines – Assessment and decision Internal Procedure – Risk Assessment – Permission System Historic heritage assessment: maritime cultural heritage protection special management area (Document No. 100436) Historic heritage assessment: other places		

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		tools are explained in PL2, the planning system is described in PL1 and stakeholders are listed in CO5, PL6, PR1, PR2, OC7. • Several governing authorities and a range of interests are involved in and make decisions about historic heritage, including the Reef Authority, DCCEEW, DES, QPWS, AMSA, the Joint Field Management Program, local government, research organisations, local community etc. • Reef Advisory Committees (Indigenous and Tourism) can advise the Reef Authority in relation to actions relevant to historic heritage to address risks. • The **structural elements** of historic heritage governance are well developed, e.g. vision setting, decision-making processes, strategy development, implementation, monitoring and evaluation. – There is diverse legislation, plans, policies and programs (refer PL2) to address historic heritage. However, some of this needs review and updating to enhance more effective management. – There is a developing focus on science and obtaining new knowledge, including monitoring and more evidence-based decision making to inform management and governance – IMR RTP Monitoring collective capacity and implementation (Governance) (2021-2024) - will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. No results yet. • In relation to the **functional elements of governance**:	of historic and social significance (Document No. 100437) Historic heritage assessment: WWII features and sites, and voyages and shipwrecks (Document No. 100435)		

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– Recognition amongst key actors that Reef management is a collaborative effort as the scale of the issues and threats facing the reef are bigger than any individual actor can address alone (Interviewee 2023). – Long-standing political commitment to the Reef and its formal governance arrangements, which have been in place for over 20 years. The governance system is 'robust and mature' (Interviewee 2023). – the decision-making powers are distributed among the key actors in relation to Historic heritage (e.g. between the Reef Authority, government and other key actors, including Traditional Owners). – However, "the system is disaggregating and opportunities for collectively planning and aligning priorities is disaggregated – I feel lost as do lots of others in the governance system" (Interviewee 2023). – The Intergovernmental Agreement provides the framework for the Australian and Queensland governments to work together to protect the Reef. However, there are gaps (Samuel 2020). – There is less clarity concerning the decision-making powers of non-government actors in the governance system. – It is unclear whether the **representation** of all key players in addressing and making decisions concerning historic heritage is equitable.			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– It is unclear as to whether all actors/stakeholders can **influence decision making**. However, many stakeholders are consulted for input into a range of plans, guidelines and strategies. – The **strength of connections** among actors within the governance system is variable. Connections are strongest between the Reef Authority, Commonwealth and State governments. There is some evidence of the governance system aligning itself in response to international frameworks that relate to historic heritage (e.g. in relation to underwater cultural heritage). – **Various knowledges are incorporated** into historic heritage planning and management (refer IN4,5,6,7). – Compliance and enforcement are a priority and in general this is well coordinated. (refer Permission system policy and guidance documents). – The **Joint Field Management Program** delivers compliance and maintenance services to historic heritage structures and sites. – Lightstations- the Field Management Program conducts at least annual inspections of the three Reef Authority managed Commonwealth Heritage Listed Lightstations and develops maintenance plans to ensure these lightstations are maintained in accordance with the Heritage Management Plans and Burra Charter. – **Shipwreck and aircraft wrecks**			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– The Reef Authority provides permits for the Special Management Areas including plane wrecks and EHP (now DES) provides permits for shipwrecks in protected areas. – The Reef Authority regulates access of researchers in the Marine Park through its permit system. – Field work for shipwrecks is more infrequent than for lightstations. Any improved knowledge from this monitoring informs protective measures and is fed into the Australian National Shipwreck Database and Reef Authority's databases. Three separate fieldwork projects were undertaken in collaboration between Queensland Government and Reef Authority. This includes: Magnetometer survey in the Whitsunday area; St Bees Island, Keswick Island and Carlisle Island wreck surveys; and Valetta survey on Long Island. – There is a dispute resolution system in place that includes documentation of processes, suitability of processes and success. However, it is unclear whether this system is widely supported by the stakeholders. Challenge: • **Confusion** among many stakeholders concerning what is included in historic heritage management. **A few sites appear to be included and many are not and the reasons are little understood.**			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
PR4 There is effective **performance monitoring**, including. Regular assessment of **appropriateness and effectiveness of tools**, to gauge progress towards the objective(s) for historic heritage	2	• The Outlook Report is published by the Reef Authority every 5 years and assesses the management effectiveness of heritage. In 2019 this was assessed as good. • There is regular performance monitoring and reporting against Reef 2050 actions. • Listed places have regular monitoring requirements. • The *Strengthening Permissions Compliance Action Plan 2015-2020* sought to deliver certain outcomes directly relevant to the Permits Compliance Team which included the establishment of effective arrangements to manage non-compliance as follows: – An enhanced risk-based program for the assessment of regulatory risks so enforcement resources and consequential actions can be efficiently, effectively and proportionately targeted; and – an annual compliance plan to address identified regulatory risks. • Since then, the Annual Permissions Compliance Plan has continued to be implemented annually which outlines the risk associated with allegations of non-compliance and strategic approach to non-compliance. • Since February 2020 allegations of non-compliance have been efficiently and effectively managed via the My Case Manager system within RMS and the complimentary Managing	Lady Elliot Island Lightstation Heritage Management Plan PRMT-1-2975 Annual Permissions Compliance Plan 2018 – 2019 PRMT-1-4267 Annual Permissions Compliance Plan 2019 – 2020 PRMT-1-4637 Annual Permissions Compliance Plan 2020-2021 PRMT-1-5274 Annual Permissions Compliance Plan 2021-2022 The Great Barrier Reef Marine Park Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		Permissions Non-Compliance Procedure. The system has the capacity to report and measure on many aspects of the work of the Permits Compliance Team. • Historical records pre-dating the My Case Manager system back to 2015 were migrated to the new system. • The Great Barrier Reef Marine Park Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25 outlines our strategic approach to identifying, protecting and managing the heritage values of Commonwealth heritage places within the Marine Park on behalf of the Commonwealth.			
PR5 Appropriate **training** is available to the managing agencies to address historic heritage	2	• The Environmental Assessment and Protection section at the Reef Authority has developed a series of training modules and fact sheets to train new permit assessment officers. These are available to the staff of Reef Authority more broadly through a new Learning Management System. • Refer AIMA/NAS training (PR1).	Workshops Interviews	Adequate	Stable
PR6 Management of historic heritage is **consistently implemented** across the relevant jurisdictions	3	• There are joint arrangements between the Commonwealth and Queensland governments. Potential impacts to historic heritage are consistently considered for Joint Marine Park permits under the Intergovernmental Agreement 2015. • Assessors currently have limited digital spatial data/ tools to assist assessments on listed/ known historical heritage matters in terms of accurate location. Digital spatial data/ tools do not exist for broader heritage values that may not be listed or known.	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Joint jurisdictions over shipwrecks and broader heritage values within the marine park particularly, is complex. The relevant legislation is from the commonwealth, management has been delegated to the State, while maintenance and operational matters are jointly managed. • Inconsistencies appear to remain in the resourcing of listed and non-listed places.			
PR7 There are effective processes applied to **resolve differing views**/ conflicts regarding historic heritage	2	• The Great Barrier Reef Marine Park Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25https://hdl.handle.net/11017/3933 outlines the Reef Authority's strategic approach to identifying, protecting and managing the heritage values of Commonwealth heritage places within the Marine Park on behalf of the Commonwealth. • Any conflicts arising about historic heritage management are ultimately the jurisdiction of the DCCEEW under the EPBC that identifies historical heritage at several levels. Processing conflicts whilst rare, can arise as a result of protocols of respective managers across jurisdictions. • The extent to which wider views are incorporated and effectively resolved is unclear (e.g. Traditional Owners, tourism operations, the local community).	Workshops Interviews	Limited	Stable
PR8 **Impacts** (direct, indirect and cumulative) of activities associated with historic heritage	3	• Threats and impacts were discussed in CO2, CO3 and PL9 (refer to evidence also). • Activities within the Marine Park that trigger the need for approvals undergo assessment that is supported by detailed	Traditional Owner and Marine Parks Management Portal - Overview (arcgis.com)	Adequate	improving

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
are **appropriately considered**.		environmental assessment documentation and processes. Joint Marine Parks permit arrangements provide consideration of historic heritage values. • While a range of impacts are known to impact historic heritage values, future stressors such as climate change may have compounding influences on historic heritage (e.g. shipwrecks, lightstations etc). Various guidelines (refer PL2) are in place to assist in managing risks and likely impacts. Challenge: • Addressing the need to focus on understanding the impacts of climate change and related cumulative impacts, especially on underwater cultural heritage places.	Workshops Interviews		
PR9 The best available **biophysical research and/or monitoring** information is **applied** appropriately to make relevant management decisions regarding historic heritage	3	• Activities within the Marine Park that trigger the need for approvals undergo assessment which is supported by detailed environmental assessment documentation and processes. Joint Marine Parks permit arrangements provide consideration of historic heritage values (refer relevant guidelines and IN4). • Accurate biophysical data is restricted to the shipwrecks Yongala and Foam. This paucity of information reduces the effectiveness of managers in assessing damage to sites; particularly post cyclonic events. • Refer PL5 for detailed information on monitoring and CO1, CO2 and CO3 for research relating to values, threats and impacts and PL2 for relevant documents (and related evidence).	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
PR10 The best available **socio-economic research and/or monitoring** information is **applied** appropriately to make relevant management decisions regarding historic heritage	3	• Socio-economic information was discussed in IN5, relevant documents (PL2) (and related evidence). • **Social and Economic Long-Term Monitoring Program (SELTMP)** Time series: 2013, 2017, 2021, 2023 (planned). 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment (2022): This project reviewed common frameworks that conceptualise the relationship between people and nature to identify which parts of the system influence environmental outcomes, and factors relevant to designing policy or influencing behaviours. No implementation to date. • Activities within the Marine Park that trigger the need for approvals undergo assessment which is supported by detailed environmental assessment documentation and processes. Joint Marine Parks permit arrangements provide consideration of historic heritage values. **Challenge**: • Identifying the right plan for the right place and ensuring that plans are sufficient to manage the problem, but not	Social and Economic Long-Term Monitoring Program (SELTMP) SELTMP Core module pilot data dashboard SELTMP Core Module Report SELTMP Core Module 2021 Survey dataset: Regional Report Cards social survey dashboard Regional Report Cards Module Report Regional Report Cards 2021-22 Social Survey dataset Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) Traditional Owner and Marine Parks Management Portal - Overview (arcgis.com)	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		superfluous and that activities undertaken to fill data gaps are sufficient to inform the relevant problem (NESP Project 1.17).			
PR11 The best available **Indigenous heritage** information is applied appropriately to make relevant management decisions regarding historic heritage	3	• Indigenous heritage management issues are discussed in the Indigenous heritage topic (Table 44) (refer also IN6 and PR11 and related evidence). • Greater consideration of the potential impacts to Indigenous cultural heritage values is required in line with the Reef Authority's position on, and progress towards, Traditional Owner co-management of the Marine Parks. • Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. • Developed a spatial representation for stakeholder of proposed permit areas relating to Native Title Claims, Determinations, TUMRAs etc within the Marine Parks. • Dedicated FTE within the permission system to develop and implement mechanisms within the joint Marine Parks permit application assessment processes. This is to better identify risks to relevant values for the purpose of assessing potential impacts from proposed activities on those values and implement appropriate avoidance or risk mitigation measures. • Joint Marine Parks permit arrangements provide consideration for Indigenous heritage values.	Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park Traditional Owner and Marine Parks Management Portal Traditional Owner Implementation Plan	Adequate	NA

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
PR12 The best available **historic heritage** information is applied appropriately to make relevant management decisions regarding historic heritage	3	• Activities within the Marine Park that trigger the need for approvals undergo assessment which is supported by detailed environmental assessment documentation and processes. Joint Marine Parks permit arrangements provide consideration of historic heritage values (refer IN7 and PR12 and related evidence). • The Joint Field Management Program undertakes regular monitoring and a maintenance program for Commonwealth listed lightstations and provides relevant information. **Challenge:** • Addressing situations where there is no recorded information about particular sites requires input from relevant experts to assist in decision making.	Workshops Interviews	Adequate	Stable
PR13 Relevant **standards** are identified and being met regarding historic heritage	2	• The Heritage Strategy and plans and strategies relating to listed places include relevant standards and guiding principles (refer PL2). • The **Strengthening Permissions Compliance Action Plan 2015-2020** sought to deliver certain outcomes directly relevant to the Permits Compliance Team which included the establishment of effective arrangements to manage non-compliance as follows: – An enhanced risk-based program for the assessment of regulatory risks so enforcement resources and consequential actions can be efficiently, effectively and proportionately targeted; and	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– an annual compliance plan to address identified regulatory risks. • Since then, the Annual Permissions Compliance Plan has continued to be implemented annually which outlines the risk associated with allegations of non-compliance and strategic approach to non-compliance. • Since February 2020 allegations of non-compliance have been managed via the My Case Manager system within RMS and the complimentary Managing Permissions Non-Compliance Procedure. • Historical records pre-dating the My Case Manager system back to 2015 were migrated to the new system. • Follow up from the Auditor-General Report No.3 2015-16 Regulation of the Great barrier Reef Marine Park Permits and Approvals noted the Reef Authority's regulation of permits and approvals is partially effective and that relevant recommendations had not been fully implemented; and has not "established efficiency metrics that demonstrate to the public and the Parliament that it is properly managing the public resources for which it is responsible"; and that arrangements for managing and monitoring permissions are partially appropriate, with key components of a compliance monitoring framework not implemented until 2021 with further improvements required; the Reef Authority is implementing information systems and procedures that have the potential to provide an improved non-compliance framework.			

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		– Lack of appropriate arrangements to adequately measure or monitor the efficiency of assessments; – No formal policy requiring the review of standard conditions on a periodic basis – Inability to demonstrate permissions compliance. **Challenge:** • Addressing mandatory training requirements to provide assurance over staff capability to exercise delegations			
PR14 **Targets** have been established to benchmark management performance for historic heritage	2	• Targets are identified in the Field Management Program and a range of other planning documents (refer PL2, PL9, PL10). • Reef 2050 Plan does not include targets. However there are indicators for the relevant objectives in Reef 2050 Objectives and Goals 2021–2025.	The Great Barrier Reef Marine Park Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25	Adequate	Stable
OUTPUTS					
OP1 To date, the actual **management program** (or activities) have progressed in accordance with the planned work program for historic heritage	3	• Work has been undertaken to document the heritage values in the Reef: – Heritage registers drafted for the Commonwealth Heritage listed places, to be placed on the Reef Authority's website once approved by the Minister – Heritage impact assessment guidelines from Woppaburra Traditional Owners. • Internal Reef Authority programs to increase staff understanding of heritage include: Public presentations during National Heritage Week; staff forums dedicated to instructing	Woppaburra Traditional Owners Joint Field Management Business Plans and Strategies The Great Barrier Reef Marine Park Commonwealth Heritage Listed Places and	Limited	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		on heritage; and presentations to the Senior Management Team. • Reef Authority celebrates National Heritage Week with a week-long talk series that is open to the general public. The Reef Authority supports community and partners that wish to act to protect the Reef's heritage they value, such as lighthouse enthusiasts and scuba divers searching for shipwrecks. • The Reef Authority's website and social media are the tools that the Reef Authority employs to raise the awareness of people visiting the Commonwealth Heritage listed places. – Lightstations - the Reef Authority has increased the frequency of field work. Joint Field Management Business Plans and Strategies are in place. – The Reef Authority has prepared conservation plans for the three shipwrecks (HMS Pandora, HMCS Mermaid + Foam) within protected zones. DCCEEW assisted in review of draft CMPS for SS *Yongala*, SS *Gothenburg*, *Foam*, QGS *Llewellyn* and *Mermaid* and HMS *Pandora*. Only one draft CMP was suitable to be endorsed HMS Pandora, all other draft CMPs need substantial amendments.	Properties Heritage Strategy 2022-25		
OP2 Implementation of management documents and/or programs relevant to historic heritage have progressed in	3	• Programmed work is included in the FMP Annual Business Plan; completed or commenced work is reported in in FMP Annual Reports (refer OP1). • Most programs have been delivered, although interruptions due to Covid 19 has caused some delays.	FMP Annual Business Plan FMP Annual Reports	Limited	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
accordance with timeframes specified in those documents					
OP3 The results (in OP1 above) have achieved their stated management objectives for historic heritage	3	• The Great Barrier Reef Marine Park Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25https://hdl.handle.net/11017/3933 outlines the strategic approach to identifying, protecting and managing the heritage values of Commonwealth heritage places within the Marine Park on behalf of the Commonwealth.	Workshops Interviews	Adequate	Stable
OP4 To date, products or services have been produced in accordance with the stated management objectives for historic heritage	3	• Interpretive material for Maritime Cultural Heritage management within the Marine Park has increased with the Reef Authority having developed a dedicated webpage for Maritime Cultural Heritage, a Maritime Cultural Heritage Responsible Reef Practices and the development of the Dive into History at Magnetic Island Shipwreck Guide. • The RJFMP has restored the Raine Island tower ($1.13m). • Forts Historical Buildings Upgrade, Magnetic Island National Park. • Commonwealth Islands Heritage Precinct's historical buildings upgrade completed at Lady Elliott and Dent Islands. • A website page dedicated to heritage has been produced, including videos about the lightstations and shipwrecks.	Workshops Interviews	Adequate	Stable
OP5 Effective knowledge management systems regarding	3	• Knowledge management systems are described in CO1. • In relation to the Commonwealth Heritage List and Reef Heritage register, all Commonwealth agencies must produce a	Great Barrier Reef Heritage Register	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
historic heritage are in place within agencies		statutory register of Commonwealth Heritage listed places, available to the public, that sets out, for each place it owns or controls, the heritage values (if any) of that place. • Australasian Underwater Cultural Heritage Database is run by DCCEEW (Cth). The Reef Authority has provided data on maritime cultural heritage in the WHA but does not have access to the site to correct mistakes or add new data. Researcher access can be requested to make the amendments that are reviewed and accepted/rejected under delegation of the UCH Act. • Reef Authority heritage register entries for Dent Island Lighstation, Lady Elliott Island Lighstation, and Low Islet Lightstation and Low Island • Islands register – available internally to Reef Authority staff only. • Management of scientific information procedures are in place and are delivered at whole-of-Marine Park using RefWorks as its database and citation management tool. • Spatial information and datasets arising from research conducted on in the Marine Park are housed and managed by the Reef Authority Spatial Data Centre. Heritage programs are becoming increasingly spatial in focus and output, generating a variety of spatial datasets about the Region's values, its use and impacts. As a consequence, the process of gathering, synthesising, interpreting and delivering these datasets is becoming increasingly important. Continued collaboration between the Reef Authority and its partners will help to identify	Workshops Interviews		

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		and address gaps in spatial data and opportunities to share data and make it more 'discoverable' by others.			
OP6 Effective systems are in place to **share knowledge** on historic heritage with the community	3	• Refer OP1 and OP5. • Australasian Underwater Cultural Heritage Database • Information available on the Reef Authority's website • Reef Authority Annual Reports are publicly available. • Survey reports are publicly available (e.g. Foam) • Numerous government websites provide access to heritage information, databases, guidelines and interpretative material e.g. DES, DCCEEW, Australian National Maritime Museum (ANMM) (refer PR2, OP1 and OP5).	Workshops Interviews	Adequate	Stable
OUTCOMES					
OC1 The relevant managing agencies are to date effectively addressing historic heritage and **moving towards the attainment of the desired outcomes.**	3	• Refer OP1 and PL2 for a discussion of approaches to historic heritage management (e.g. SMA for two Catalinas, several assessment guidelines). • The Great Barrier Reef Marine Park Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25https://hdl.handle.net/11017/3933 outlines a strategic approach to identifying, protecting and managing the heritage values of Commonwealth heritage places within the Marine Park on behalf of the Commonwealth. Challenges: • Lack of comprehensive information on historic heritage sites and values and associated mapping.	Workshops Interviews	Adequate	Improving

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Limited integration of historic heritage into all relevant decision making, especially related to development approvals. • Multiple stressors such as climate change and associated sea level rise, erosion and corrosion are likely to impact on historic heritage and risk strategies are required across these sites.			
OC2 The **outputs** relating to historic heritage are on track to ensure the **values** of the Great Barrier Reef **are protected** (refer CO1)	2	• There have been substantial outputs related to historic heritage (refer OP1, PL2, PR 5 and PR4) and these will help to maintain relevant Reef values e.g. SMAs are now in place for two Catalinas (Bowen and off the Frankland Islands) and there are a raft of policies and plans in place. Challenges: • Several historic heritage sites are under threat from coastal development and erosion and inundation – this includes several maritime cultural heritage sites (e.g. burial grounds, middens etc). Local governments play a significant role in recognising and protecting many historic heritage sites. • Human resourcing of historic heritage is declining and outcomes are less robust (Workshop participant 2023).	Media Release: New underwater heritage law will protect even more of our history Australian Underwater cultural heritage Intergovernmental Agreement Queensland Heritage Act 1992 The Great Barrier Reef Marine Park Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25 Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
OC3 The **outputs** (refer OP1 and 3) for historic heritage are reducing the **major risks** and the threats to the Great Barrier Reef	2	• The main risks to the reef's historic heritage are as a result of climate change impacts, coastal development and the impact of various uses (refer CO2 and CO3). – However, **not all sites are in decline**. In general if there is little interference from people in relation to underwater cultural heritage places, there is little evidence of decline in the fabric of the site (Workshop participants 2023) – **Terrestrial historic heritage (e.g. on islands) is generally being maintained** and managed (e.g. recent restoration of the Raine Island Tower and Magnetic Island visitor access sites) • Several documents and guidelines have been developed to assist in permit assessment to better protect the 'Reef's values (refer PL2). • Risk assessments have been completed for lighthouses and as part of the historic heritage permit guidelines and this will assist in reducing risks and threats to historic heritage in the Reef. • Historic Heritage Assessments – have been developed to enter Maritime Cultural Heritage Protection Special Management Areas. • Overall these outputs are unlikely to reduce major risks and threats to the Reef. **Challenges:**	Maritime cultural heritage protection special management area (Document No. 100436) other places of historic and social significance (Document No. 100437) WWII features and sites, and voyages and shipwrecks (Document No. 100435) Workshops Interviews	Limited	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Several threats are difficult to address (e.g. climate change impacts) and hence management is required to ensure that the stability of sites is maintained, for example by focussing on other threats such as interference by visitors (Workshop participants 2023) • Many sites with historic heritage values have little protection (Workshop participants 2023). • Significant resources are required to reduce the rate of decline of many historic heritage sites.			
OC4 **Use** of the Great Barrier Reef relating to historic heritage is demonstrably **environmentally sustainable**	3	• Given the extensive existing information and ongoing maintenance and information gathering about listed lightstations, the use of these historic heritage properties is more likely to be environmentally sustainable, than other historic heritage values within the Marine Park. • Use of and access to many sites of historic heritage significance are thought to have limited environmental impacts (Workshop participants 2023). • There is limited information on tourism use of the Reef in relation to underwater cultural heritage sites such as wrecks. • Other uses including camping on islands is generally well managed. **Challenge:** • Monitoring impacts particularly in relation to underwater cultural heritage sites.	Workshops Interviews	Limited	Declining

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
OC5 **Use** of the Great Barrier Reef relating to historic heritage is demonstrably **economically sustainable**	3	• Targeted economic analyses of Reef-based activities has not been undertaken. The SELTMP program is the closest body of work that may be of assistance to understand the economic sustainability of historic heritage values within the Marine Park. • The Historic shipwreck *Yongala* is visited regularly by tourists and recreational users and is a good example of economic sustainability. A number of tourists visit the site each year and the site remains one of the top ten wreck dives in the world. • DES manages moorings for the Yongala and provides permits to dive operators and individuals accessing the dive site. • Managing underwater cultural heritage: a case study of the SS Yongala looks at the history of the site, current condition and future options for the wreck. • Climate change may impact on some sites and reduce their viability in relation to income generation.	Workshops Interviews	Limited	Stable
OC6 **Use** of the Great Barrier Reef relating to historic heritage is demonstrably **socially sustainable**, in terms of understanding and/or enjoyment	3	• The Reef is an environment that contributes to the community's wellbeing, both locally and more indirectly throughout Australia and the world. The Reef's biodiversity, geomorphological features, heritage values and natural beauty supports people economically, provides them with food and enriches their lives. 2021 SELTMP survey data highlights the high levels of satisfaction that respondents to the survey have in relation to their understanding and enjoyment of the Reef generally. 85% of respondents indicated that they placed a positive value on the services and benefits provided by the Reef's maritime heritage.	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• Benefits vary according to people's cultural connections, experiences, personal perspectives, and dependence upon and familiarity with the Region. These benefits are shared by the local community and global community who place value in knowing that the Reef exists and is in a reasonable state.			
OC7 The relevant managing agencies have developed **effective partnerships** with local communities and/or stakeholders to address historic heritage	4	• Key partnerships have been established with a diverse range of organisation. • **Reef 2050 Plan aims to maintain and enhance** collaboration and effective partnerships between managers, partners and stakeholders to enhance Reef protection. • **Actor Network Mapping project:** Mapping working agreements between the Reef Authority, partners, stakeholders, and community of practice: This project maps the existing actors within a network that connects the Reef Authority to the organisations and institutions they engage for research and management practice (refer PR1) • In general Heritage managers within the Reef Authority have good relationships with partners in related State and Commonwealth agencies, with whom they engage through the Community Partnerships programme and the LMAC and RAC processes. • The Queensland Government maintains a relationship with commercial dive operators who access shipwrecks within protected zones – sharing imagery and data.	Reef Authority Heritage website Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Other evidence/sources	Confidence	Trend
		• The **Reef Authority has strong partnership arrangements with industry** (e.g. tourism, ports and business), science (e.g. universities and research institutes such as AIMS), education (e.g. schools, registered training organisations, Eye on the Reef monitoring and assessment program), non-government organisations (e.g. conservation organisations, NRM bodies, parks associations, international fora), the community (e.g. recreational users, local and national communities) as well as Traditional Owners and a range of government agencies and the Reef Trust (refer CO5, PL2, IN1). • Leaseholders on Commonwealth islands are **partners in maintaining lightstations**. • Partnerships assist with management and restoration tasks and in providing funding for a range of tasks from research, assessment, planning and monitoring. • Industry has supported the Raine Island Recovery Project. • The **Field Management Program partners with** the Qld Police Service, MSQ and Federal Police in compliance and broad protection of historic heritage values. • Social values are being assessed by external experts who are advising on the human dimensions of Reef management. • There are also partnerships with Local Marine Advisory Committees, Reef Advisory Committees (Tourism and Indigenous).			

Heritage (Indigenous)

Table 44: Calculation of grades for Heritage (Indigenous)

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The **values** of the Great Barrier Reef relevant to Indigenous heritage are **understood** by managers	2	• Aboriginal and Torres Strait Islander peoples are managers of their Sea Country and partners in wider Reef planning and management in relation to Indigenous heritage. Other managers include the Reef Authority, and a range of government agencies, non-government organisations and Reef users (e.g. shipping, fishing, tourism etc). • '**Indigenous heritage includes everything in Sea Country**, including natural values, Indigenous values, tangible and intangible expressions of Traditional Owners' relationships with Country, people, beliefs, knowledge, law, language, symbols, ways of living, sea land and objects, all arising from Indigenous spirituality' (Aboriginal and Torres Strait Islander Heritage Strategy). Indigenous heritage is interlinked with the condition of the Reef's natural components. – 'Managers don't understand the vastness of the Reef and the associated Indigenous heritage values' (Workshop participant 2023) • **Cultural landscapes, seascapes, sites** (e.g. sacred, ceremonial and rock are sites) and **places** (e.g. burial grounds, story places, places important for cultural	Reef Outlook Report 2019 Timeline of Reef Traditional Owner engagement Traditional Owners Reef Story Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		traditions), **structures** (middens, fish traps, eel traps), **technology, tools and archaeology** are important to Aboriginal and Torres Strait Islander peoples) and are intertwined with the more **intangible elements of culture such as cultural practices, observances, customs, lore, stories, songlines, totems and languages**. Reef Sea Country is a cultural landscape and these significant places provide a strong connection to traditional clan areas and form part of Australia's heritage. • **The values of the Reef relevant to Indigenous Heritage are understood by managers to the following extent**: – Aboriginal and Torres Strait Islander peoples are the Traditional Owners of the Reef Region. – There are over 70 Reef Traditional Owner clan groups that have a deep knowledge of the Reef's values, this knowledge extending back for over 60,000 years. Most of these groups maintain heritage values for their land and sea country. Indigenous heritage is biocultural i.e. is dependent on biological resources, tradition and knowledge and includes environment and intangible components. – These **values may be cultural, spiritual, economic, social or physical**, and demonstrate continuing connections with the Reef and its natural resources. – Traditional Owners undertake **traditional use of marine resources** (TUMR) activities as part of their cultures, customs or traditions, for the purpose of satisfying			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		personal, domestic or communal needs. These activities may include: fishing; collecting (for example shellfish); hunting; and looking after cultural and heritage sites. – The Reef's World Heritage status incorporates '**Outstanding universal value**' (the Reef meets all four World Heritage natural criteria and has strong ongoing links between Traditional Owners and their sea country) – The Reef's national heritage incorporates '**Outstanding value**'. – Commonwealth heritage includes '**Significant heritage value**'. • 'The Reef is Country. The Reef is our Heart and the water is the lifeblood that connects us all. She is our Family. The Reef is an extension of Us and we are an extension of Her. The Reef looks after us, feeds and protects us, and keeps us healthy. She's the keeper of our stories, our Lore. Without her we will suffer irreversible effects to our identity' (Heart of the Reef – A Call for Healing). For Traditional Owners, **nature and culture combine** to make a living heritage. • There is **growing information recorded and/or known** about the location, condition and trend of most Indigenous heritage values. – Members of local Indigenous communities are **represented on LMACs** and share their views and values with managers.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The **Indigenous Reef Advisory Committee** (IRAC) is the key body that advises the Reef Authority Board on its management, programs and policies and seeks to ensure the Reef Authority's management; programs and policies consider and include Traditional Owner values, aspirations and recommendations. – **Please refer to PL2 where a range of relevant plans, strategies and projects are described, many of which contain statements relating to Indigenous heritage values.** – Reef Traditional Owner Implementation Plan (2022) – Aboriginal and Torres Strait Islander Heritage Strategy (2019) reflects Indigenous heritage values. – The Joint **Field Management Program** provides opportunities for managers to work with Indigenous rangers and Traditional Owners to better understand values. – Proposed new **Plan of Management in the Southern Region will identify Indigenous heritage values**. – **Sea Country Values Mapping** projects are underway and incorporate discussion of Indigenous Heritage values, particularly when management plans are being developed by Traditional Owner groups. However, these are location specific and engagement occurs mainly when the plans are being prepared. To date, Traditional Owners have had limited engagement with these projects (Workshop participant 2023).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Reef Guardian Councils** (19) include actions relevant to the protection of Indigenous Heritage values in their 2020-24 **Reef Guardian Council Action Plans**. – **Reef Knowledge System** provides links and information relevant to Indigenous heritage and values. However, the cultural knowledge system is little used and needs to be updated (Workshop participant 2023) – Traditional Owners of the Great Barrier Reef: The Next Generation of Reef 2050 Actions (2018) - identifies **core values**, aspirations and plans regarding the governance and management of Sea Country and includes advice to better equip Commonwealth and Queensland Government staff to improve their capacity to engage Traditional Owners in meaningful partnership in implementing the Reef 2050 Plan and supporting Traditional Owners aspirations (Chapter 2). – Strong Peoples-Strong Country Indigenous Heritage Monitoring Framework (RIMReP) is grounded in Traditional Owner values. It shows how the health and condition of the Reef is connected to the quality of life of Traditional Owners. However, implementation is limited to date, with a focus on indicators and little data having been obtained (Workshop participants 2023). – **Reef 2050 Plan** (2021) acknowledging Traditional Owners values and aspirations for protecting the Reef.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Traditional Use of Marine Resource Agreements – focus on values. – RIMReP - social and economic monitoring under SELTMP identifies values. – Several guidelines and policies improve protection of Indigenous heritage values, e.g. Woppaburra Traditional Owner Heritage Assessment Guidelines, Historic heritage assessment- other places of historic and social significance, Traditional Owner Heritage Assessment Guideline Challenges: • Identifying information recorded or known about the location, condition and trend of Indigenous heritage values (refer cultural landscapes and seascapes above), including Indigenous place names and language relevant to the Region. • Investing in further Sea Country Values Mapping and developing Data Sharing Agreements to enable enhanced understanding of values across the Reef. • Sufficient resourcing to enhance sea country management and effective engagement of Traditional Owners, who frequently have limited capacity to engage (Workshop participants 2023). • Expanding knowledge of Indigenous heritage values – 'there is piecemeal understanding of values. Knowledge sharing is			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		led by Traditional Owners but in limited areas. Insufficient information is being generated' (Workshop participant 2023). • 'Indigenous heritage Sea Country values is a big concept. All managers need additional cultural heritage training' (Workshop participant 2023).			
CO2 The **current condition and trend of values** relevant to Indigenous heritage are known by managers	2	• Traditional Owners with connections to the Reef Region maintain their cultural practices and customs and there is evidence of inter-generational transfer throughout the Reef. • The Aboriginal and Torres Strait Islander Heritage Strategy (2019:16) comprehensively addresses the condition and trend of Indigenous heritage values and concludes that 'because Indigenous heritage values are closely tied to land and sea country, values have deteriorated with deterioration of the environment'. • Many of the Indigenous heritage values of the Reef Region are graded as being in poor condition: – **Sacred sites, sites of particular significance, places important for cultural tradition** (poor and deteriorating): There are many places, especially in coastal systems and on islands, where there is pressure on sacred sites and other sites of cultural significance. This is particularly around areas of high development and those exposed to severe weather events. Other sites are intact and in good condition and are being well managed by Traditional Owners.	Great Barrier Reef Region Strategic Assessment Report (2014) (Chapter 7) Great Barrier Reef Coastal Zone Strategic Assessment Report (2014) Traditional Owner Heritage Assessment Guidelines (2017) (refer Table 2 – summary of hazards, related permission types and possible impacts) Indigenous Land and Sea Rangers Newsletter example, Girringun Yuku Baja Muliku (Archer Point) – projects, ranger program, culture and economy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Story, language, songlines and totems** (poor and deteriorating) are being affected by activities such as shipping, anchoring and to a lesser extent dredging (since 2015 when dumping was banned in the Region). These have a particularly significant impact as they may transgress these traditional systems. Some species of cultural significance, such as whales, dugongs, turtles, rays, sharks and dolphins, and other coastal resources, are under pressure. – **Indigenous structures, technology, tools and archaeology** (poor and deteriorating): Indigenous structures (for example fish traps), tools, technologies and archaeology (burial grounds, middens, scar trees) have not been systematically identified. Many of these structures etc are located in inter-tidal areas and they are vulnerable to coastal development, human interference, shipping (wash of cruise ships have been identified to impact fish traps in Hinchinbrook Area) and climate change and severe weather, including sea level rise and erosion. – Cultural practices, observances, customs and lore are rated as being in good condition and stable. – **Many Indigenous Heritage values** are linked to the natural environment and dependent on relevant monitoring and reporting processes (refer Biodiversity Topic Table 32,CO2).	Strong people strong country framework Land and Sea Country | Reef Knowledge System Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Damage to sites can result in irreplaceable loss of material heritage and have implications for undertaking cultural practices. • Monitoring of condition and trend and communication of information: – IMR RTP Sustainable use and benefits monitoring project (SEABORNE) (2021-2024) will design a monitoring program to help managing agencies make informed decisions sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values. – IMR RTP Integrated Reef stewardship monitoring project (PROTECT) (2021-2024) - will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes. No results yet. – IMR RTP Monitoring collective capacity and implementation (Governance) (2021-2024) - will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. No results yet. – Research and monitoring | Reef Knowledge System provides links to research and monitoring relevant to Indigenous heritage.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Sea Country Values mapping project** is built upon Traditional Lore, Customs and Cultural Authority governance systems led by saltwater **Traditional Owner (TOs)** groups. However, these are limited in extent (Workshop participant 2023). – **Traditional Owner Technical Working Group** for the Reef Trust Partnership Integrated Monitoring and Reporting program was formed in 2020. Selected Reef Traditional Owner groups will be funded to hold pilot projects to **test ways to monitor and report on the condition of their community and Country**, and to keep track of any changes over time. Indigenous heritage indicators are being developed to measure condition and trend. The Strong Peoples-Strong Country framework will guide monitoring of the health and condition of Reef, People and Country in the pilot projects, according to Traditional Owner values, priorities and aspirations. – Many community groups undertake monitoring of culturally significant species and their habitats (e.g. dugong, seagrass) (refer TUMR topic Table 47, CO2). – **TUMRA newsletters** showcase monitoring programs and results. – **Specialised Indigenous Rangers Program** – rangers are on-ground observing condition and trend of a range of values and guiding management.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Monitoring of culturally significant (cultural keystone) species and their habitats are undertaken by numerous Traditional Owner Groups along the Reef. Challenges: • Many places of Indigenous heritage value have **not been systematically identified and many have deteriorated, especially around development areas and on islands**. Gaining this knowledge (i.e. location, condition and trend) requires working with Traditional Owner groups through data sharing agreements and resourcing Traditional Owners to access country, monitor sites and pass on relevant knowledge. • Expanding understanding of Indigenous heritage values, their condition and trend to relevant managing organisations.			
CO3 **Impacts** (direct, indirect and cumulative) associated with Indigenous heritage are understood by managers.	2	• The main impacts associated with Indigenous heritage include: **impacts on natural values with Heritage significance, deterioration of significant sites, loss of cultural knowledge, loss of language related to aspects of the environment.** • **Key threats** include climate change, poor water quality from catchment run-off, coastal development, fishing and COTS outbreaks. These threats are increasing, driven by climate change, economic growth and population growth. The impacts from these threats disrupt Indigenous heritage and cultural practices. Other direct uses (e.g. impacts of fishing,	Queensland First Nations World Heritage Strategy Annual Report 2019-2020 Performance: Program area 2 -Compliance Management and Surveillance Reef Joint Field Management Program (RJFMP) The RJFMP, p44	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		tourism, recreation, research, environmental works and anchoring) may impact heritage. • Some **direct impacts** (such as conflicting use, disturbance to cultural sites – fish traps, middens, burial sites, or disruption to traditional hunting, songlines, language, customs and lore) are known to the Reef Authority and other managers. Impacts with a very high risk of major impact on Indigenous heritage values include: increased sea temperature, ocean acidification, death of discarded species from extraction, illegal fishing and poaching, and modifying supporting terrestrial habitats (Aboriginal and Torres Strait Islander Heritage Strategy 2019:19). • Impacts on intangible Indigenous heritage are little known (Workshop participant 2023). • Impacts may be managed through existing planning tools and new guidelines: – The Permissions Cultural Heritage Referral project is improving the Reef Authority's ability to include Traditional Owner cultural knowledge in permit decisions. Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi) are involved to date and provide comments, in a formal and structured way, on location-specific permit applications. This process helps to manage and mitigate risks to Indigenous heritage, where applicable – **Woppaburra Guidelines** are an example of a valuable process to assist in ***integrating*** Traditional Owner information into informed decision making to mitigate	Annual Report 2019-2020 Performance: Program area 4: Enhancing Reef resilience through continuous improvement and new initiatives across all aspects of management – The Great Barrier Reef blueprint for resilience (the Blueprint), p68. Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		impact to Indigenous heritage; DMS4 - Cultural Protocol and Guidelines (to teach and guide staff); Cultural Knowledge Management System (DataBase to store information and manage its permission and use in a culturally appropriate way) and successful negotiation of Data Sharing Agreements. – Traditional Owner Heritage Assessment Guidelines identify several hazards (e.g. artificial light, changes in human use, hydrodynamics, ecological processes, noise, nutrients, sea temperature etc) and include a risk assessment of potential impacts on Indigenous heritage values. These impacts are considered before any permissions are granted and applicants are encouraged to contact Traditional Owners directly. – Sea Country Values (SCV) Mapping Projects and accredited TUMRAs have worked closely with Environmental Assessment and Protection (EAP) section of the Reef Authority to establish improved Traditional Owner consultation process (pilot project) through the permission system with Woppaburra and Mandubarra. In 2022 the process has expanded to Wuthathi and Girringun (that advocates for six saltwater First Nation people) and is in a development phase with Darumbal. – Where a permit application assessment approach requires public comment (i.e. information package, Environmental Impact Statement or other targeted consultation), specific			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		consultation with relevant Traditional Owners is explicitly included in the Terms of Reference. – Establishing **new partnerships with Traditional Owner groups** to help manage Sea Country Values: Marine Park management partnerships; Traditional Owner estate-specific permissions Assessment Guidelines; informing other management measures (e.g. protection of significant sites through planning, information to support permit assessments and on-ground management activities). • The **Blueprint for resilience** recognises the threats to the Reef from climate change, land-based run-off, coastal development and other human-induced pressures and sets best practice standards across the Reef Authority's key program areas to support a more resilient Reef. Key actions in 2019–20 included culling COTS, strengthening the compliance regime, developing a draft policy for Reef restoration and adaptation activities in the Marine Park, building new decision-making tools for Reef management and deepening engagement with Traditional Owner groups, and others to maximise all efforts supporting Reef health. • There are a range of **relevant monitoring projects including** SEABORNE, PROTECT, and Governance that help to assess impacts on natural and Indigenous heritage values (Refer CO2). – **RIMReP** - Governance groups to provide guidance and advice, including in relation to a range of impacts on cultural heritage values. **Expert Indigenous Heritage**			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Working Group is developing Indigenous heritage indicators which can then be used for measuring impacts. – Reef Knowledge System (refer CO1). • Several projects and actions are in place to minimise the impact of threats to Indigenous heritage: - RJFMP Restoration of Reef Islands Project (2020 – 2025), funded by Reef Trust partners with Traditional Owners and First Nations people to identify and protect cultural values and associated cultural intellectual property and rights and will train Traditional Owners and First Nations people in methods required to protect and manage Reef island ecosystems. - Toolkit for safeguarding Indigenous heritage and knowledge was released in 2020 and should be used as a guidance tool for RIMReP However, there has been limited implementation to date (Workshop participants 2023). – Traditional Owners of the Great Barrier Reef: The Next Generation of Reef 2050 Actions (2018) (refer CO1). – Strong Peoples-Strong Country Framework (refer Co1). – Reef 2050 Traditional Owner Implementation Plan (2022) (refer CO1). – Queensland First Nations World Heritage Strategy (refer CO1). • TUMRA Program – TUMRAs identify Traditional Owner heritage values and incorporate them into their management strategies for sea country. Program activities have			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		experienced some delays due to COVID-19 operational restrictions on travel to remote communities. The Reef Authority continued to support TUMRA groups remotely and reassured groups of its ongoing commitment to supporting delivery of TUMRA activities into the future, including through existing contracts that support the employment of TUMRA coordinators and staff. There were reductions in field delivery and some activities needed to be deferred, including Raine Island recovery, planned burns and pest control, face-to-face engagement, reef health and bird surveys, and regular contact and delivery of activities with First Nations People. The TUMRA team will continue to work with groups to support an administratively sound process that ensures contracts are maintained and impacts minimised. • Joint Standing Committee on Treaties (UNESCO 2001) – Ratification of the Convention on the Protection of the Underwater Cultural heritage will support the better protection of underwater cultural heritage and facilitate better collaboration with other regional States to protect their underwater cultural heritage. • Cumulative Impact Management Policy (GBRMPA 2018) A key performance indicator is a reduction in the risk of threats to the Reef. • Members of LMACs share anecdotal information about impacts on the Reef and Indigenous heritage values with managers. Challenges:			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• In general, managers lack comprehensive understanding of impacts to cultural heritage values and their spatial extent. 'If we don't understand the values, then it is difficult to understand any impacts on the values' (Workshop participant 2023). • The cumulative impacts associated with climate change and a range of other threats are little understood.			
CO4 The broader (**national and international) level influences** relevant to Indigenous heritage are understood by managers.	3	• The Reef is a globally recognised World and National heritage site and contains Commonwealth heritage listed places. Australia is obligated to protected Indigenous heritage values and most managers are aware of these obligations, including at international, national and state levels. • While some managers may be aware of many of these broader influences, their intent is not always clear in legislation, plans (including the Reef 2050 Plan) and other documents related to the Reef (Workshop participants 2023). • **International conventions** and statements relevant to Indigenous heritage include: – the World Heritage Convention 1972, (Australia is obligated to protect the Outstanding Universal Value of World Heritage listed places - strong on-going linkages between Traditional Owners and the Reef form part of the suite of attributes associated with the inscribed natural heritage values).	Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Convention on the protection of the Underwater Cultural heritage tabled to the Joint Standing Committee on Treaties (UNESCO). Ratification will support the better protection of underwater cultural heritage and will facilitate better collaboration with other regional States to protect their underwater cultural heritage. – Protection of the World Cultural and Natural Heritage, 1972 – Convention on Biological Diversity, 1992 – The Universal Declaration of Human Rights 1948 – The UN Global Compact 2000 – The United Nations Guiding Principles on Business and Human Rights 2011 – The Indigenous and Tribal Peoples Convention 1989 – The Convention for the Safeguarding of the Intangible Cultural Heritage 2003 – The UN Declaration on the Rights of Indigenous Peoples 2007, affirms that Indigenous people have the right to: **be consulted in good faith** in order for governments to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them (Article 19); **determine and develop priorities and strategies** for exercising their right			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		to development (Article 23); determine and develop **priorities and strategies** for the development and use of their lands or territories and other resources (Article 32). • National – The Reef Authority administers the Commonwealth *Great Barrier Reef Marine Park Act 1975*, which includes protection and conservation of heritage values in its main object, on equal standing with the environment and biodiversity (which are also natural heritage). Ecologically sustainable use is secondary to the protection and conservation of the environment, biodiversity and heritage. – the *Great Barrier Reef Marine Park Act* and its supporting Great Barrier Reef Marine Park Regulations 1983 (the Regulations) – *Environment Protection and Biodiversity Conservation Act 1999* regulates actions that have, will have or are likely to have, a significant impact on matters of national environmental significance. – the Independent Review of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) found that the **Act fails to respect and harness the knowledge of Indigenous Australians to better inform how the environment is managed** and that the Act **overtly prioritises the views of Western science** at the expense			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		of the knowledge and values held by Indigenous communities. Despite their involvement in land/sea protection the EPBC Act **does not incorporate the rights of Indigenous Australians in decision making** and stated, '[r]eform is needed to ensure that Indigenous Australians are listened to and decision-makers respectfully harness the enormous value of Indigenous knowledge of managing Country'. There was a call for 'the inclusion of Indigenous knowledge in all decision making.' – National Environmental Standards are proposed to guide decision making and are expected to cover First Nations engagement and participation in decision making. – *Native Title Act 1993* (recognises and protects native title and includes a mechanism for determining claims to native title). – The heritage values of the Marine Park include 'its natural and cultural environment having aesthetic, historic, scientific or social significance, or other significance, for current and future generations of Australians' (Marine Park Act and EPBC Act) – Other relevant legislation relevant to Indigenous cultural heritage includes the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (ATSIHP Act), the *Protection of Movable Cultural Heritage Act 1986*.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Aboriginal and Torres Strait Islander Heritage Strategy (2019) (refer CO1) identifies a range of influences on Indigenous heritage and aims to improve the condition of Indigenous heritage values i n the Marine Park. It includes Guiding Principles reflecting national and international best practice and actions which operationalise these principles across the Marine Park. – **Management plans** for protected areas throughout the Region recognise broader obligations in relation to Indigenous heritage. – Enabler C of the Reef 2050 Plan, Monitoring, evaluation and adaptive management, notes that 'Indigenous heritage monitoring is an important focus area under the Reef 2050 Plan, with the Strong Peoples – Strong Country Monitoring Framework connecting the health of the Reef and its catchment to the quality of life enjoyed by Aboriginal and Torres Strait Islander peoples. It provides a Traditional Owner-led approach for systematic monitoring of the condition of Indigenous cultural values, which are important to understanding Reef health. This framework will facilitate the measurement of progress against the Plan's Indigenous heritage objectives and Indigenous heritage goals as well as parts of the Reef Authority's Aboriginal and Torres Strait Islander Heritage Strategy for the Marine Park. Work under this framework will be integrated into the Reef 2050 Integrated Monitoring and Reporting Program over time.'			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The First Nations Heritage Protection Alliance (2021) (comprising Aboriginal Land Councils, Native Title Representative Bodies and Aboriginal and Torres Strait Islander Community Controlled Organisations), is working to reform protections that preserve cultural treasures for future generations and to **co-design partnership** with the Alliance communities to reform cultural heritage laws, including the review and restructure of process, procedure and protocols for First Nations cultural heritage protections (Stage 1 concluded in June 2022; Stage 2 is testing and exploring options for reform with stakeholders at the regional level). **Challenge**: • Better application of relevant international and national principles across all areas of Reef planning and management.			
CO5 The **Traditional Owners and other Aboriginal and Torres Strait Islander peoples** relevant to Indigenous heritage are **well known** by managers.	3	• There are 70 Traditional Owner groups distributed across the Reef and while they are '*broadly known there is less specific information as to the exact composition of these groups, especially the less established groups with no Native Title and this makes it difficult to know who the authorised person is to contact*' (Workshop participant 2023). – Lack of information particularly in regions where Traditional Owner connections are less well established. – This can also impact compliance checks in relation to take across the Reef (Workshop participant 2023).	Traditional Owner Partnerships Strategy RJFMP 5 Year Business Plan RJFMP Annual Operational Plan Land and Sea Country | Reef Knowledge System Annual Report 2021-2022	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Knowledge of Traditional Owners is better with the Reef Authority and QPWS than some other organisations and agencies (Workshop participants 2023). • The number of Traditional Owner groups is growing with ongoing Sea Country determinations and there is not always good documentation of Traditional Owner groups (Workshop participant 2023). • There is some contact between most Traditional Owner groups and the Reef Authority across a number of projects and in a wide range of engagement processes. • The Reef Authority fosters Indigenous community engagement through: – Reef Authority **Marine Park Board** has had a Traditional Owner from the Reef Region as a member since about 1996, contributing to the setting of policy and management direction for the Marine Park (4 x pa) – **Indigenous Reef Advisory Committee** (IRAC) - advises on ways to facilitate partnerships, enhance engagement and build capacity with Traditional Owners in the management of marine resources (2x pa). – **Tourism Reef Advisory Committee** has three Traditional Owners (2x pa).	Introduction: Our partnerships - Cultural knowledge and Traditional Owners – p3, 4		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Reef 2050 Reef Advisory Committee** membership was expanded to include a male and a female Reef Traditional Owner, along with a proxy member for each. – Local Marine Advisory Committees - key members from local Indigenous communities were encouraged to nominate for the 2021-24 LMAC term. LMACs meet four times a year and currently have eight Traditional Owner members, and five people that represent the Indigenous community (5x pa). – **TUMRA**s (a formal management tool used by Traditional Owners to develop unique partnerships with Reef Authority and the DES) - they are made in accordance with Part 2B of the Regulations. – science and management workshops for Traditional Owners – compliance training, and – **Engagement and Participation Framework** (refer PR3). • **Actor Network Mapping project**: Mapping working agreements between the Reef Authority, partners, stakeholders, and community of practice - maps the existing actors within a network that connects the Reef Authority to the organisations and institutions they engage for research and management practice. Project goals include: to provide information to the Reef Authority's science for management			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		sector that will help inform future work; to identify gaps in existing Reef management partnerships; and to help inform management decision-making process by identifying actors in the Reef management landscape solely from a Reef Authority centric perspective. • Permission system guidelines provide information to Marine Parks permission applicants with information about Indigenous heritage values. The Woppaburra guidelines also provide applicants with contact details of Traditional Owners they should consult with if they intend to conduct permitted activities in the Woppaburra TUMRA area. • Reef Authority staff attended the National Reimaging Conservation Forum (2022). • **Reef Knowledge System** provide key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community. • **Sea Country values (SCV) mapping project** (refer CO2, CO3). • The Reef Authority has strong engagement with Traditional Owners through the Land and Sea Country Partnerships program and the Joint Field Management Program – which has a specific work strategy on Indigenous engagement. Challenge: • Better resourcing to ensure Traditional Owner groups can be easily identified by relevant organisations that wish to engage with them and thus enhance connections among all groups.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PLANNING					
PL1 There is a **planning system** in place that effectively **addresses Indigenous heritage**	3	• **Planning is an important activity and structure of governance**, shaping the ways we organise space and fulfill our relationships with place (Porter 2017). • **An effective Reef planning system should be socially inclusive**, engaging with Traditional Owners on their own terms in their own way. – **Land/sea use planning in general has been slow to effectively involve Traditional Owners** or consider their rights. • **Reef planning operates at several scales** (international to local) and incorporates both marine and terrestrial components. The system comprises complex layers of legislation, plans, strategies, agreements, conventions etc (refer PL2 and CO4 for a comprehensive list of relevant documents) that are developed and overseen by various jurisdictions including a range of government, non-government institutions and organisation. • **Traditional Owners have always had their own planning systems** (i.e. Indigenous planning – often community based, applying to Indigenous places, applying Indigenous knowledge and world views and making decisions using accepted processes, institutions and management). These systems have transitioned over time.	**Annual Report 2019-2020:** Management and Accountability: Reflect Reconciliation Action Plan, p84 **Annual Report 2020-2021z;** Introduction: Managing the Reef – Reef 2050 – p3 Overview: About the Great Barrier Reef Marine Park Authority, p8 Performance information analysis: Outcome 1, Portfolio Budget Statement – The Reef is protected – Policy and Planning Strategic Roadmap, p16, 17. Program area 2: Enhancing Reef resilience through innovation, management and regulation of the	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– There is no one planning system that reflects all Traditional Owner groups – '*there are lots of clan groups with different ways of organising themselves….and this takes place over a very large area*' (Workshop participant 2023). • Traditional Owners have maintained **strong links with their country** and are trying to secure a future that acknowledges their complex and continuing relationships between them and their environment. Planning has an important role to play. – **Planning at the local level** (e.g. Management plans within TUMRA areas) is effective in incorporating Traditional Owner perspectives to better protect and manage Indigenous heritage (Workshop participants 2023). – **Protected area management plans** are effective in incorporating and addressing Indigenous heritage (Workshop participants 2023). • At the state level, Queensland's **Planning Act 2016** was the first legislation in Australia to acknowledge that planning should **value, protect and promote Aboriginal and Torres Strait Islander knowledges, values and traditions**. – Entities preparing planning instruments (e.g. local planning schemes, regional plans, state planning policies etc) need to engage with Indigenous peoples from the beginning of the process and develop partnerships built on mutual respect and understanding.	Marine Park and our in-field presence - p26 COVID-19 Response – p34 Sustainable Use of the Reef; Traditional Owner Partnerships Strategy 2022-2027 – p18, 19		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The Act doesn't include Sea Country but does address terrestrial/coastal matters that may impact mainly inshore Indigenous heritage values. • The overall **Reef planning system** accepts, to some extent, the legitimacy of Indigenous planning and is trying to understand its knowledges, processes and institutions. – This system is beginning to 'connect' state-based planning with Indigenous planning through facilitated partnerships, collaboration, and institutional/statutory connectors between the two planning system and involving collective action. – It has struggled to facilitate Traditional Owners in building their capacity through organisations that reconnect people to land/sea country and enable Indigenous law and practice and ensuring that **Traditional Owners meet their needs, achieve their goals and practicing tradition and culture**. • For ethical, political and legal reasons the planning system is starting to improve engagement with Traditional Owners and their relationships and aspirations for their land and seas. **Traditional Owner communities are reworking the planning system to achieve their aspirations:**			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Indigenous Land use Agreements – provide a framework for reclaiming and using planning to realise local visions for land and sea country. o TUMURAs - acknowledge that Traditional Owner planning, carried out by Traditional Owner communities exists beyond 'mainstream state-based planning, as an important form of planning in its own right. – The Reef Authority has agreed to move to implementing co-management through management tools including Plans of Management, S39za coupled with formal partnerships. Scoping options to improve co-management are being progressed. A best practice literature review and analysis of Traditional Owner aspirations was completed. – Values Based Management Framework prioritises Traditional Owner participation in planning and the identification of Indigenous heritage values (although this has had limited application). Consultation and joint planning are promoted and encouraged through this process and Traditional Owners have had extensive input into management planning for a growing number of protected areas. Planning for CYPAL parks occurs through a joint management process. • Within the planning system, including within its institutions, the authority to set agendas, guide processes and protocols for participation, set priorities and make			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		decisions often resides with non-Indigenous authorities. The planning system often merely 'includes' Traditional Owners rather than allow them to set a 'self-determined' agenda based in the laws and sovereign practices of their nations/communities (refer PL6 for a discussion of Traditional Owner engagement). – Traditional Owners are represented on: – LMACs and share their views and values with managers. – Indigenous Reef Advisory Committee (IRAC) advises the Reef Authority Board on its management, programs and policies and strives to ensure that the Reef Authority's planning and management, programs and policies consider and include Traditional Owner values, aspirations and recommendations. • An important aspect of the planning system is also in ensuring that Traditional Owners 'see themselves' in their land/sea country. Throughout the Reef there are opportunities to make Indigenous presence visible (including at a basic level Indigenous design, materials and symbolism). • Planning scholarship (including the training of planners) has limited engagement with Indigenous perspectives and practicing planners within this system may often fail to understand and effectively address Traditional Owner visions. Challenges			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Ensuring that meaningful participation of Traditional Owners in the planning system reflects multiple worldviews, shared authority, and place-based histories. In an improved planning system, some planning will be undertaken by Traditional Owners, others by non-Indigenous communities, and some bridging the two within a balanced set of power relations (Walker 2017). Establishing and maintaining this system requires adequate resourcing and capacity building. • Addressing the overlaps between planning tools such as Healthy Country plans, management plans, new style Plans of Management and other tools that exist outside the Marine Park and protected area systems (Workshop participant 2023).			
PL2 The **planning system** for Indigenous heritage addresses the **major factors influencing** the Great Barrier Reef Region's **values**.	3	• There is a complex planning system in place for addressing Indigenous heritage (refer PL1) and various international and national influences on this system (refer CO4). • There are several planning tools, including zoning plans, plans of management, permissions, policies and strategies, formal agreements and site management arrangements to address Indigenous heritage. Various approaches are used, including education and awareness raising, environmental impact assessment, monitoring, stewardship programs, habitat protection and restoration works, and compliance and enforcement. Management is enhanced through partnership arrangements with Traditional Owners (refer OC7); local, state and federal government agencies; scientists; industries;	Annual Report 2020-2021: Traditional Owner Stream – p25, 26 Corporate Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		businesses and the community. Traditional owners, industry and community advisory groups can provide input into the planning process. • The **Commonwealth and the State government have agreed to fund the establishment** of an **Indigenous Coordination Taskforce** that includes a **Board and a Coordination Unit** staffed with secondee roles from both the Commonwealth and State to initially establish the Board and Coordination Unit. Legislation, Zoning Plan and TUMRAs • Zoning Plans – provide spatial control of use and, to a lesser extent, access within the Marine Park. It establishes the framework for extractive use and the need for permits for some uses. Zoning plans are developed under Part 5 Division 2 of the Great Barrier Reef Marine Park Act 1975. Complementary arrangements are in place in adjacent areas under Queensland jurisdiction. – recognise that under the Native Title Act, common law rights and interests can be expressed by Aboriginal or Torres Strait Islanders in relation to their land and waters and certain rights and interests are preserved unless extinguished; or, if the activity does not meet the definition of rights and interests (e.g. commercial sale of turtle meat) (GBRMP Act (Cwlth) and Great Barrier Reef Coast Marine Park Act (Qld).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– acknowledge the rights and interests of Aboriginal and Torres Strait Islanders in the Marine Parks by providing for the management of the TUMR, including traditional hunting, in accordance with Aboriginal and Torres Strait Islander custom and tradition. • The Managing Agencies are unlikely to grant permission to someone for an activity that is likely to significantly impact on Indigenous Heritage – unless it can be avoided or minimised. Great Barrier Reef Regulations require all permit applications to undergo an assessment to ensure Indigenous Heritage values are not significantly impacted (see r88Q). • The long-term vision for the Reef Authority, the Reef 2050 Plan and Traditional Owner Implementation Plan includes: Strengthening Traditional Owner involvement in marine park policy and management; Greater understanding of the location of, and protection of Indigenous heritage values; and increased capacity of Traditional Owners to manage their sea country. • An accredited Traditional use of marine resources agreement (TUMRA) (part 2B of the Great Barrier Reef Regulations 1983) is a voluntary statutory agreement between Traditional Owners as to how they want to undertake activities (within the Marine Parks) as part of Aboriginal and Torres Strait Islander people's customs or traditions, for the purposes of satisfying personal, domestic or communal needs. Once accredited, these agreements only bind the Traditional Owners who are party to the agreement.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The TUMRA is based on Traditional Owner-designed and led Sea Country management agreements in the Marine Park. Some TUMRAs include Traditional Owner led plans to monitor and protect indigenous heritage. – **10 accredited** TUMRAs, which support 18 Traditional Owner clan groups, covering approximately 43% of the coastline. An Indigenous Land Use Agreement brings the total approximate coverage of agreements to 46%. (about 22% of the Ree's area) The Darumbal TUMRA was signed in 2022. – TUMRAs recognise and support Traditional Owner lores and customs with a robust legislative framework under the Marine Park Act 1975, Great Barrier Reef Marine Park Regulations 2019 and Great Barrier Reef Marine Park Zoning Plan 2003. They are a unique partnership agreement that recognises and supports the Native Title rights and interests of Traditional Owners who hold an inherent spiritual connection to the Reef. – Through the agreement process, Traditional Owners agree on a range of complex matters, including maritime estates (where lore governs boundaries). TUMRAs can describe how Traditional Owner groups wish to manage their traditional use of marine resources, including sea country planning and harvest areas, community permits and compliance plans, their role in sea country compliance (including unauthorized practices – poaching), research and monitoring of plants and animals; the protection of			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		cultural heritage values and the management of human activities in the Marine Park. – The Reef Authority has commenced new partnerships in developing two new marine resource agreements. – TUMRA group activities include, employing marine resource agreement coordinators, junior ranger programs and, recording/promoting/protecting heritage values such as burial sites, song/ storylines, women's/men's places and fish traps. Marine resource agreement groups also conduct mangrove/coral/water quality and seagrass research and monitoring projects. These projects include ongoing monitoring of iconic species such as turtle, dugong, crocodile, stingrays and swordfish on Country. – The Reef Authority has established a general policy and planning section that includes staff with TUMRA expertise working to strengthen and expand TUMRAs. • In 2023 - jointly managed island national parks (Cape York Peninsula Aboriginal land) have been dedicated under four separate Indigenous Management Agreements. These agreements have a strong cultural values protection and management focus. • Changes to the Great Barrier Reef Marine Park Regulations require Reef Authority assessors to assess the relevant impacts of the proposed conduct on the environment, biodiversity and heritage values. • 2001 UNESCO Convention on the protection of the Underwater Cultural heritage tabled the Joint Standing			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Committee on Treaties. Ratification will support the better protection of underwater cultural heritage and will facilitate better collaboration with other regional States to protect their underwater cultural heritage. • Queensland's' Human Rights Act (2020) provides a statutory framework for the protection and promotion of human rights in Queensland, e.g. s28 relates to the protection of distinct Cultural Rights of First Nations People to include the rights to practise their beliefs and teachings, use their languages, protect and develop their kinship ties, and maintain their relationship with the lands, seas and waterways). • Reef 2050 Plan (2021-25) - incorporates 23 actions relating to Traditional Owners. The updated Reef 2050 Plan (2021-25) has a greater focus on acknowledging Traditional Owners' aspirations for protecting the Reef and includes Traditional Owner specific objectives and goals to achieve the overarching outcome of Healthy Reef, Healthy People. The Plan has a strong emphasis on actions that recognise Traditional Owner rights and interests; and work towards increased participation, voice and capacity in governance processes for Reef protection and management. The Plan's long-term vision includes: Strengthening Traditional Owner involvement in marine park policy and management; greater understanding of the location of, and protection of Indigenous heritage values; and increased capacity of Traditional Owners to manage their sea country.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Reef 2050 Traditional Owner Implementation Plan (2022) – identifies pathways for implementing Reef Plan actions. Culturally appropriate communication products including an animation and timeline were produced to inform community and government of the long history and desired path forward. – provides an **operational platform to coordinate and drive the delivery of actions.** – **covers four work areas: climate, land, sea, partnerships and capacity building, and two enablers: knowledge and investment**. They incorporate existing (funded) programs, existing programs with additional action required (partially funded), and a **suite of new actions (currently unfunded)** required to achieve Traditional Owners and Reef 2050 partners shared outcome for a 'Healthy Reef and Healthy People.' – through the implementation of the Plan managers will participate in Traditional Owner led initiatives to further understand and agree on concepts such as, cultural authority, formal partnerships, co-management, co-governance, co-design, joint management and what is meant by Traditional Owner rights and interests. – Signifies a departure from Traditional Owners reliance on government to include them in government led initiatives to one where **Traditional Owners are leading on programs and projects that are significant to them.** Plans of Management			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Can apply to various sections of the Reef, usually high use areas and can incorporate Indigenous values and statements about their protection and employ co-governance and co-management arrangements: • Whitsunday's Plan of Management includes consideration and acknowledgement of TUMR. • The Cairns Plan of Management recognises TUMR as part of indigenous values but does not expressly manage it. • A new POM in the Southern region of the Marine Park will ensure impacts on cultural values are considered and appropriately managed. The use of a 39ZA is being explored. Special Interest Plan of Management • Currently there are no s39ZA agreements established in the Marine Park. • A 39ZA agreement is a Special Interest Plan of Management (Under part VB of the GBRMP Act) that can be put in place with a community group (i.e. 'a group of people who are representative of a community group that has a special interest in an area of the marine park' e.g. a Traditional Owner group). • This type of Plan of Management could be for a species or ecological community within the area concerned (i.e. Traditional Use). • The Act further provides that 'if the Reef Authority considers it appropriate….the community group is to manage the area or			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the species or ecological community within the area jointly with the Reef Authority in accordance with the plan'. • CBA1 action in the Reef 2050 Plan states 'Review current mechanisms and processes to improve benefits to Traditional Owners engaged in sea country management' – one interpretation of the intent of this action is to examine potential application of 39ZA to Traditional Use. Special Management Areas (SMA) • Ten SMAs are specified under s45 of the Marine Park Regulations, the most recent being for maritime cultural heritage protection (2016). SMAs can be used to protect isolated/known tangible indigenous heritage e.g. fish traps, middens, underwater burial grounds from all or certain types of activities e.g. anchoring. • There are no SMAs in place specifically for the purpose of protecting Traditional Use activities or Indigenous heritage. Policies (include strategies, policies, site management arrangements, position statements and guidelines) Policies • Co-management Principles (2022). This policy outlines eight principles that are to be applied in the Reef to 'create a foundation for co-management' including in decision-making, policy and plan development and management actions.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Strategies • Aboriginal and Torres Strait Islander Heritage Strategy (2019) – reflects Indigenous heritage values and will provide a 5-year strategy to improve protection of Indigenous heritage within the Region. This will be the key planning tool under which actions and programs will be set. Progress on the Strategy's 30 actions continued throughout 2021–22 including the $3 million Reef Trust investment in Strengthening Sea Country Partnerships in the Reef. • Traditional Owner Partnerships Strategy (2021-22) – launched by the Reef Joint Management Program to strengthen and enrich cooperation with Traditional Owners and First Nations people of the World Heritage Area. – The strategy will build on the strong relationships that the Reef Authority and QPWS have with many Traditional Owners and First Nations communities. The Program is committed to increasing Traditional Owner involvement in field management activities and expanding collective management of the World Heritage Area. – This strategy will guide future investment in Traditional Owner partnerships (particularly Program funded initiatives). The strategy complements the Aboriginal and Torres Strait Islander Heritage Strategy for the Marine Park and provides a culturally safe environment for meaningful partnerships.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Commonwealth Heritage Listed Places and Properties Heritage Strategy 2022-25 (2022) identifies relevant aspects of Indigenous heritage values in this context. Each heritage listing recognises different values in the Marine Park and includes obligations for the identification, protection, monitoring and reporting of heritage. • Queensland First Nations World Heritage Strategy was co-designed and developed with First Nations people and seeks to centre Country and people across all aspects of World Heritage. The Strategy demonstrates how the Queensland Government will empower First Nations peoples and local communities to better identify, protect, conserve, present and transmit to future generations the irreplaceable values of World Heritage areas. • Lama Lama Hunting Strategy – developed under the TUMRA to set in place rules for how authorised Traditional Owners should sustainably hunt within the TUMRA area. Guidelines, values mapping and educational material • Traditional Owner Heritage Assessment guidelines recommend applicants consult directly with the relevant Traditional Owners before submitting a Marine Parks permission application so appropriate avoidance and mitigation measures can be identified early;			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Woppaburra Traditional Owner Heritage Assessment Guidelines (2017) developed with Woppaburra Traditional Owners map the cultural heritage values in the Keppel Islands region to help inform permit assessments by the Reef Authority (accompanied by a consultation protocol to use when proposing to undertake activities in Traditional Owner estates). • Historic heritage assessment- other places of historic and social significance (2017); and DMS4 Cultural Protocol/ Guidelines/Data Sharing Agreement Template. These are targeted at internal agency assessors (assessing permit applications) and proponents who apply for permits to ensure everything is done to consider impacts on Indigenous heritage and pre-emptively avoid or mitigate those. • Indigenous participation in tourism and its management (2005)- to facilitate Indigenous people owning, operating and being involved in tourism operations. Indigenous Special Tourism Permissions apply to Cairns (5 permits), Hinchinbrook (3 permits), Whitsundays (5 permits). Other plans and frameworks • Reef 2050 Plan (2021-25) has a focus on acknowledging Traditional Owners' aspirations for protecting the Reef and includes Traditional Owner specific objectives and goals (Reef 2050 Objectives and Goals) to achieve the overarching outcome of Healthy Reef, Healthy People. The Plan has a strong emphasis on actions that recognise Traditional Owner			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		rights and interests; and work towards increased participation, voice and capacity in governance processes for Reef protection and management. • **Policy and Planning Strategic Roadmap** (2019) - aims to better protect key Reef values, enable ecologically sustainable use and work with Traditional Owners and partners. It aims to deliver cohesive forward-planning that is more risk based, strategic, efficient and adaptive. The Roadmap covers significant areas of the Reef Authority's regulatory approach, including Marine Park policy (e.g. future-focused intervention and permit guidance, tourism and other Marine Park use and protection policies), the TUMRA Program, implementation of the Aboriginal and Torres Strait Islander Heritage Strategy, development of further co-management opportunities and Marine Park planning (including zoning, plans of management and site planning). The Roadmap comprises five key themes of work: knowledge, risk, Traditional Owners, tools and resilience. • The Reef Authority has delivered on its Reflect Reconciliation Action Plan and has developed an Innovate **Reconciliation Action Plan** (2022). • **Reef 2050 Plan Investment Framework** – identifies Traditional Owner actions as a priority area for future investment, including improving involvement of Traditional Owners. • The Gurra Gurra Framework 2020–2026 supports DES to reframe relationships with First Nations peoples by holding			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Country and people at the centre, including policy, programs, and service delivery and to work in partnership to build a strong and shared future. This Framework aims to assist DES to meet existing and emerging legislative obligations under the United Nations Declaration on the Rights of Indigenous Peoples; the *Native Title Act 1993* (Cth); the *Torres Strait Islander Cultural Heritage Act 2003* (Qld); the *Aboriginal Cultural Heritage Act 2003* (Qld); the *Human Rights Act 2019* (Qld); the *Nature Conservation Act 1992 (Qld);* other legislation; and obligations and commitments outlined in our agreements and contracts. Implementation of the Framework aligns with whole-of-government strategic initiatives such as Tracks to Treaty and Local Thriving Communities. • **Traditional Owners of the Great Barrier Reef: The Next Generation of Reef 2050 Actions** (2019) - supports Traditional Owners to celebrate and document their achievements in securing a more 'joined-up' approach to **governance and management** across the Reef. It identifies their **core values**, aspirations and plans regarding the governance and management of Sea Country and reviews Reef 2050 Plan commitments. • **Management Plans** for a range of protected areas, Indigenous Protected Areas, Sea Country Plans, Land and Sea plans, e.g. Raine Island Cultural Heritage Management Plan (2018) - informs collaborative decision making; Curtis			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Island NP Indigenous Engagement and Cultural Heritage Strategy covers four Traditional Owner groups. • **Sea Country Management Plans** help Indigenous communities describe their objectives for the use, conservation and management of sea country and to work with others to achieve them. A Sea Country Plan seeks to marry Indigenous community priorities and aspirations with those of others with an interest in sea country, including government. The process of sea country planning is about encouraging people and organisations to work together towards sustainable management of marine environments. • **Values Based Planning Framework** (QPWS) provides a planning and resourcing platform that clearly recognises Indigenous cultural values as a significant focus of protected area planning i.e. including Traditional Owner connection to country as a 'key value in management plans, along with desired outcomes and strategic management directions. Consultation and joint planning are promoted and encouraged through this process. Traditional Owners have had extensive input into management planning for a growing number of protected areas, e.g. planning for CYPAL parks occurs through a joint management process. • Sea Country values mapping has been a focus of the marine resource agreement groups with some significant cultural values recorded and shared. The first publicly available product is from Mandubarra Traditional Owners (2021).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Activities may include: planning or product development including identification of saltwater heritage values and sites, threats to cultural heritage values, cultural landscapes, and cultural species; and development of Sea Country Management Plans, SCV maps or associated products or resources to capture cultural heritage values of sea country for TO groups along the Reef. • Reef Knowledge System —provides up to-date information about the Reef to guide effective management decisions and enhance monitoring of Reef 2050 Plan progress. Sharing of Indigenous heritage information will be captured through the System and negotiated through Data Sharing Agreements with the knowledge holders (Land and Sea Country | Reef Knowledge System; Maps; Planning; Strategy Permits and permissions • Improvements to the permission system also required public consultation, including targeted Traditional Owner consultation for proposed higher risk activities (i.e. assessment approaches Public Information Package, Environmental Impact Statement and Public Environmental Report). Consultation requirements to be stipulated in the terms of reference for each relevant application. • Entry into protected zones under the Australian Underwater Cultural Heritage Act 2018 is controlled by a permitting system, which is managed in Queensland by DES.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Internal documents such as templates, guidelines and procedures which are used to administer the Permission System are being developed. Partnerships • Increasing and establishing new partnerships with Traditional Owner groups to help manage SCV through Marine Park management partnerships through additional Traditional Owner estate-specific permissions Assessment Guidelines or to inform other management measures (e.g. protection of significant sites through planning, information to support permit assessments and on-ground management activities). • Additional opportunities for capacity building, Traditional Ecological Knowledge sharing and recording and fee-for-service arrangements for TO groups. Challenge: • Updating relevant planning documents to enhance effective planning that incorporates Traditional Owners and Indigenous heritage matters.			
PL3 **Actions** for implementation regarding Indigenous heritage are **clearly identified** within the plan	3	• Actions in relation to Indigenous heritage are identified in diverse documents (refer CO1 and PL2). • The Reef 2050 Plan **has a strong emphasis on actions** that recognise Traditional Owner rights and interests (23 actions); and work towards increased participation, voice and capacity in governance processes for Reef protection and management in relation to Indigenous heritage.	Managing Traditional Use Corporate Plan Field Management Business Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef 2050 Traditional Owner Implementation Plan (2022) (refer CO1) brings Traditional Owner and supporting actions from across the Reef 2050 Long-Term Sustainability Plan (2021-2025) together into one place, providing a cohesive framework and operational platform for delivery. • The Reef Authority Corporate Plan 2022-23 includes heritage e.g. working with Traditional Owner groups to develop new TUMRAs. • Aboriginal and Torres Strait Islander Heritage Strategy (2018-2023) sets 5-year actions to be implemented. • **Field Management Program Business Strategy** sets high level strategic direction and actions for Indigenous engagement, which includes planning for and protecting Indigenous Heritage. • Reef 2050 Traditional Owner Actions and governance arrangements – IEP (Indigenous rep)/RAC (Traditional Owner Rep) • **RIMREP** Projects from the Design phase: DMS4 and RIMREP Indigenous Heritage Expert Theme Group (design). • Other specific plans and strategies include: – Queensland First Nations World Heritage Strategy (refer CO1, PL2) – **Aboriginal and Torres Strait Islander Heritage Strategy** (refer CO1, PL2)	Qld Protected Area Management Plans RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System Toolkit for safeguarding Indigenous heritage and knowledge Annual Report 2020-2021 (Performance information analysis: Outcome 1, Portfolio Budget Statement – The Reef is protected – Policy and Planning Strategic Roadmap, Knowledge Stream, p17)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Traditional Owner-led Sea Country values mapping and Sea Country Plans - 10 of the marine resource agreement partners progressed in identifying and recording their Sea Country values. Sea Country values mapping is foundational to sharing information with managing agencies to allow improved heritage management. (refer PL2). – Plans of Management and other area-based plans (refer PL2). – TUMRAs – Field Management Annual Business Plans recognize Indigenous engagement and indicate targets, performance indicators and activities that promote Indigenous partnerships in heritage management. • In 2017 the Department commissioned a consortium of Indigenous and research organisations with the purpose of supporting effective coordination and partnership with Reef Traditional Owners on the implementation of the Reef 2050 Plan. *Traditional Owners of the Great Barrier Reef: The Next Generation of Reef 2050 Actions* was published in 2018 and included 10 key recommendations. In November 2022, Minister Plibersek, Commonwealth Minister for the Environment and Water, committed to an official response to the recommendations in the Report. Challenge:			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• '*Traditional Owners know what they want, how they want to do it. Now it is about implementation, which is a bit ad hoc*' (Workshop participant 2023).			
PL4 **Clear, measurable and appropriate objectives** for management of Indigenous heritage have been documented.	3	• Most plans (refer CO1, PL1, PL2, PL3), including the Reef 2050 Plan include Traditional Owner specific objectives and goals to achieve the overarching outcome of Healthy Reef, Healthy People. These objectives and goals are linked with the Strong Peoples Strong Country framework and the Reef Traditional Owners aspirations. • Each year and every five years the **Joint Field Management Program** reviews its annual business plan and 5-year business strategy. This plan and strategy contain clear, measurable and appropriate objectives for the management of cultural heritage. • The Reef Authority is currently reviewing the Aboriginal and Torres Strait Islander Heritage Strategy (Strategy) to ensure the document aligns to the Reef 2050 Traditional Owner Implementation Plan. The Strategy is also being updated to include Key Performance Indicators (KPIs) to monitor and evaluate the effectiveness of its implementation. **Challenge:** • assessing the appropriateness of the objectives in the face of increasing stressors to the Reef, such as climate change.	Reef 2050 Long-Term Sustainability Plan Objectives and Goals RJFMP Traditional Owner Partnership Strategy	Adequate	Stable
PL5 There are plans and systems in place to	2	• Several recent monitoring projects have been developed:	RIMReP Web pages	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
ensure **appropriate and adequate monitoring information** is gathered in relation to Indigenous heritage.		– IMR RTP Sustainable use and benefits monitoring project (SEABORNE) (2021-2024) will design a monitoring program to help managing agencies make informed decisions sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values. – IMR RTP Integrated Reef stewardship monitoring project (PROTECT) (2021-2024) - will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes. No results yet. – IMR RTP Monitoring collective capacity and implementation (Governance) (2021-2024) - will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. No results yet. – IMR RTP Strong People Strong Country Framework project - This project aims to build capacity for Traditional Owner leadership of monitoring and reporting in the Reef and to incorporate traditional knowledge and practice into decision making. Phase 2 involves the development of a set of objective indicators, which aim to provide information and insights about the condition and trends in Indigenous heritage values in the Reef and its catchments. • Reef Integrated Monitoring and Reporting Program (RIMReP) aims is to develop a knowledge system that enables	RIMReP – Reef Knowledge System RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23 RIMReP Annual Business Plan 2021-22 RIMReP Annual Business Plan 2020-21		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		resilience-based management of the Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. – The design phase of RIMReP was completed in 2019. It delivered the structure, program and monitoring design, an implementation roadmap, and an initial release of the Reef Knowledge System. – In the implementation phase effort has been directed toward continuing the scoping and implementation of a fit for purpose Data Management System, progressing the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement. – The Reef Knowledge System is the centrepiece of RIMReP - it provides interactive up to-date information about the Reef to guide effective management decisions. It will show monitoring and modelling data from a wide range of sources in useful and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken. • A fit for purpose **Data Management System** (DMS) is the critical infrastructure to underpin the successful delivery of RIMReP and related reporting activities, management systems and decision support tools. The scoping phase of the DMS in 2020-21 identified the size, scale and maturity of data sets critical for initial inclusion in RIMReP. It also defined the			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		infrastructure requirements and environments and the best estimate of ongoing operational requirements. 153 unique data sets from 73 organisations or programs were identified. The architecture of the DMS is conceived as a FAIR (findable, accessible, interoperable and reusable) compliant, data-agnostic, scalable 'future-proof' and service-oriented system that will collect data and metadata from data providers, store/cache data collections, apply transformations and provide a delivery mechanism through a rich API interface. It will include an interoperable metadata sub-system: an open and easily accessible catalogue, based on standards, of all datasets relevant to RIMReP. The design and build will occur from 2022-24. • Toolkit for safeguarding Indigenous heritage and knowledge: Funded by Reef Plan partners for the RIMReP - this report recognises the rights of Indigenous people to protect/ safeguard/ manage their heritage and respects their rights in traditional knowledge and traditional cultural expression. It provides a framework for making formalised arrangements through the Protocol, Guidelines, and 'Indigenous Knowledge Sharing Agreement Template', and articulates best practice principles and objectives for parties engaging with Great Barrier Reef Traditional Owners. To date, this tool is little used (Workshop participants 2023). • The Reef Authority monitors and reports on **the Land and Sea Country Partnerships Program** – which include the			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		TUMRA program and Cultural Knowledge Management System. Six monthly progress and annual reports are provided to DCCEEW. • Some higher risk permitted activities require an Environmental Management Plan of which a Traditional Owner heritage management plan is a component, where relevant. The EMP includes monitoring requirements associated with protecting values from potential impacts of the permitted activities. • The Whitsunday national park islands (2021) have undertaken monitoring and research strategies that include monitoring of Indigenous heritage values in the Region. Challenge: • Long-term resourcing and implementation of the monitoring programs that are in development and being piloted.			
PL6 The **main stakeholders** &/or the local community are **effectively engaged in planning** to address Indigenous heritage	3	• Traditional Owners of the Reef assert their inherent rights and interests from their continuing connection to Land and Sea Country. As custodians of land and sea, **Traditional Owners assert that their special rights and interests extend beyond the definition of 'stakeholders'** (refer CO5 and PL1 which describes the planning system and PL2 for a range of strategies, guidelines and plans). • Stakeholder engagement is '*moving in the right direction but we are not there ye*t. It needs to be simpler and more streamlined' (Workshop participant 2023)	Indigenous participation in tourism Tourism Management Action Strategy RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System Annual Report 2019-2020	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Mainstream planning has often poorly conceptualised its relationship with Indigenous communities, often viewing them as stakeholders rather than individuals and groups with Indigenous sovereignty, political authority and land/sea claims within the spaces in which planning occurs. • The UN Declaration on the Rights of Indigenous Peoples calls on states to obtain free, prior and informed consent of Indigenous people through their representative institutions before adopting legislative or administrative measures that would affect them and provides an international framework for best practice engagement. Indigenous engagement in Australia is not based on a comprehensive legal framework or treaty that enshrines certain rights for Indigenous peoples (Samuels 2020). • The Reef 2050 Plan has a strong emphasis on actions that recognise Traditional Owner rights and interests; and work towards **increased participation, voice and capacity in governance processes** for Reef protection and management. Actions in the plan also identify where stakeholders and partners need to improve their cultural capability and are needed to help achieve Traditional Owner aspirations. • **Effective engagement** in the planning system incorporates: – the **opportunities** for engagement (especially incorporating long-term relationships, accessibility and appropriate time frames); – **effective governance and capacity** (within Indigenous community and other organisations – to enable	Performance: Program Area 3 – Educating and fostering stewardship to enhance protection of the Reef, p52		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Indigenous community to negotiate their aspirations and for government/others to respond in a flexible and timely way; to have agreed clear outcomes, clarity about roles and responsibilities and how to discharge them) – **inclusive, equitable and adequate representation** (understanding the Indigenous community, its membership, governance and who can represent its views); – effective **communication** (built on **trust and respect and is sustained**) and information- requires understanding of and cultural competency to respond to Indigenous history, cultures and contemporary social dynamics and diversity and valuing the cultural skills and knowledge of community organisations; – openness and **transparency** (including clarity about desired outcomes, process, clearly defined roles and responsibilities in agreements and partnerships and mutual accountabilities); – effective facilitation; – **communication** of outcomes; and – measurement of **satisfaction** (including joint planning of monitoring and evaluation to meet the rights and needs of each party). Effective engagement is essential for developing strong, effective and sustainable policies and programs that meet stakeholder and community needs and better deliver outcomes. It builds trust, avoids duplication of consultation			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		with the same audience and creates efficiencies for managing organisations. • **Engagement can involve a spectrum of activities** that require different levels of engagement, timeframes, resources and concern about the decisions that are made. For example Traditional Owner engagement: a) often consists of '**informing**' i.e. providing balanced, objective information to assist in understanding a problem, alternatives, opportunities and/or solutions: – Reef Knowledge System – available to all stakeholders to raise awareness of relevant Indigenous heritage issues) – **Targeted education and stewardship programs** assist the Reef Authority to establish mutually beneficial relationships with Traditional Owners, the community and others at all stages of learning. b) often consists of '**consulting**' (to obtain feedback on analysis, alternatives, decisions) e.g. the Indigenous Advisory Committee (IRAC): advises the Minister for the Environment in the operation of the Environment Protection and Biodiversity Act 1999 (EPBC Act), taking into account the significance of Indigenous people's knowledge of the management of land and the conservation and sustainable use of biodiversity; and advises on ways to facilitate partnerships, enhance engagement and build capacity with Traditional Owners in the management of marine resources.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Information/data collection** - through various programs and a range of sources e.g. a diverse range of knowledge from Traditional Owners, scientists, stakeholders and Reef Authority staff, which informs management decisions and provides evidence-based advice to the government, the public and stakeholders. Information is shared with various stakeholders, through publications such as the Reef summer snapshot and Marine Monitoring Program reports, along with briefings and engagement opportunities. c) may incorporate '**involving**' (work directly throughout the process to ensure relevant concerns/aspirations are understood and considered) – The **Values Based Management approach** (QPWS) identifies relevant Traditional Owners and seeks ways and means of involving them in the planning processes from the initial identification of values and threats through the implementation of management actions. – **RIMReP partners**, including Traditional Owner members, will deliver the Annual Business Plan together and maintain momentum to achieve the Program's vision and Guide program delivery by providing a forum for cross-agency advice, coordination and input, including stakeholder advice. – Four Traditional Owner Members sit on the **RIMReP Governance groups** to provide guidance and advice on cultural, social, economic, and other matters,			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision. – John Brewer Reef Site Plan states: 'Clause*14. Manbarra Peoples have been involved in the development of this site plan in recognition of their long connection to the area. Their involvement contributes to the Authority's long-term strategy for working with Aboriginal and Torres Strait Islanders in protecting values and increasing co-management in the Marine Park.*' – LMAC supported projects – Deadly Science d) Involves some **'collaborating'** (partnering with Indigenous communities in each aspect of the decision – developing alternatives, identify preferred solution) – the Reef Authority has agreed to move to implementing **Co-management** through various management tools including Plans of Management, S39za coupled with formal partnerships (as outlined above) also (See information on Plans of Management) this is likely to occur in 2023. Principles were developed with the Indigenous Reef Advisory Committee to guide ongoing co-management efforts. o 'Lots of Traditional Owner groups are better equipped to engage and more support has been provided to the TUMRA program' (Workshop participant). o Existing groups also lend support to newer Traditional Owner groups to facilitate engagement.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		○ Greater presence on Indigenous rangers on country also facilitates improved engagement. e) is beginning to show evidence of **'empowering'** (to place final decision-making in the hands of the Traditional Owners. For example: – The Gurra Gurra Framework (2020-26) supports DES to reframe relationships with First Nations peoples by holding Country and people at the centre, including policy, programs, and service delivery and to work in partnership to build a strong and shared future. The Framework seeks to 'understand and respect the diversity of First Nations cultures…., the collectivist nature of decision-making, the importance of Elders and other knowledge keepers, and the primacy of relationships and connection to Country above all things' (p.6). The process considers structures and the people who work within those structures; the functions, and the processes that deliver on those functions; and governance and leadership. This involves working in partnership from the earliest stages of development through to implementation and evaluation; working together to define outcomes and benefits; empowering First Nations leadership; structurally **enabling co-governance** and co-stewardship; respecting community-led decision-making processes and timeframes; and exploring new ways of working through co-design and co-delivery.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Partnerships** - various **TUMRAs** (refer Topic TUMR Table 47) represent a **co-management approach**, where engagement is based on Indigenous aspirations and priorities within an Indigenous framework, process, context and time frame, one that is Indigenous-driven. There is increasing evidence of sustained engagement processes that provide Indigenous people with the opportunity to actively participate in decision making from the earliest stage of defining the problem to be solved, with participating continuing during the development of policies, programs and projects and the evaluation of outcomes. There are currently 10 accredited agreements, covering approximately 43 per cent of the Reef coastline, and one Indigenous Land Use Agreement (Kuuku Ya'u), which brings the total to 46% (Annual Plan 2021-2). – The Reef Authority commenced new partnerships with Traditional Owner groups to develop **four new Traditional Owner-led agreements**. – **Reef 2050 Traditional Owner Implementation Plan** (refer PL2) - Traditional Owner led and builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products help			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		to inform community, government and stakeholders of the long history and desired path forward. – The development of the John Brewer Reef Site Plan included working with Manbarra Traditional Owners to understand the cultural values of the area. The Mandubarra Sea Country Cultural Values: 2019-2020 mapping project, involved two workshops with Mandubarra Traditional Owners to develop a plan to protect the cultural values identified in this document. – **Queensland First Nations World Heritage Strategy** was co-designed and developed with First Nations people and seeks to centre Country and people across all aspects of World Heritage to better identify, protect, conserve, present and transmit to future generations the irreplaceable values of World Heritage areas. – The Australian and Queensland governments have committed to scope and establish a **Traditional Owner Sea Country Alliance** as part of the Reef 2050 Governance structure. The Alliance 'will make it easier to engage and reduce fatigue' (Workshop participant 2023) (refer Agreement to Partner 2023). Challenges: • Improving the ways in which Traditional Owners are engaged, e.g. there is overwhelming evidence of a rush 'to engage'			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		with Traditional Owners as stakeholders in relation to Reef matters, such that many representatives and organisations may be fatigued. Often the 'engaging' is done on the terms of non-Indigenous institutions, with Traditional Owners being thought of as one more stakeholder at the table in a planning system that does not itself change (Porter 2017). • Traditional Owners are often recruited as 'voices' to attend consultations and may be considered to be 'speaking for' Indigenous peoples in general. • Fragmented and 'siloed' government arrangements in relation to engagement, with each agency trying to engage with the same Indigenous organisations, not responding holistically and thus placing burdens on Indigenous peoples (Workshop participant 2023). A suggested approach is to have more 'round tables and to meet on a more regular basis' (Workshop participant 2023). • Engagement in communities where there may be fractured governance, limited capacity and leadership can be difficult (Workshop participant 2023). • **Capacity building** may help to ensure Traditional Owners can engage meaningfully; and non-Indigenous decision makers understand the importance of other ways of knowing and engaging in genuine partnerships. • **More effective engagement requires adequate resourcing** (as effective consultation is time consuming and resource intensive) (Workshop participant 2023).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PL7 Sufficient **policy** currently exists to effectively address Indigenous heritage	3	• Refer PL2 where a range of policies were discussed (Note: policy infers the principles or protocols to guide decisions – they are not strategies or plans). • The **Policy and Planning Strategic Roadmap** incudes a specific theme addressing Traditional Owners. • A range of policies are also in place in other management agencies, especially in relation to Indigenous employment, engagement, cultural data access and storage and use of Traditional marine resources. • The **Aboriginal and Torres Strait Islander Heritage Strategy** addresses the broad framework of Indigenous policy issues for the Reef Authority, in conjunction with other policies (i.e. relating to permissions). • **Position Statement on conservation of dugongs** in the Great Barrier Reef - dugongs have high cultural, social and spiritual significance for Indigenous Australians and feature in Indigenous stories and art. (Note: Dugong Taskforce no longer exists – but was highly effective). Challenge: • lack of effective policy in a range of organisations that address Indigenous heritage issues, including DES (QPWS) and local government (Workshop participant 2023).	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PL8 There is **consistency across jurisdictions** when planning for Indigenous heritage	3	• One of the strengths of management of the Reef is the recognition of the need to provide consistency due to the diverse jurisdictional complexities in Reef management (refer PL1 for a discussion of the planning system; PL2 for a discussion on relevant documents; and RP3 for a discussion of the governance system and jurisdictional complexities). • The Great Barrier Reef Intergovernmental Agreement (2015) commits to 'ensure that Indigenous traditional cultural practices continue to be recognised in the conservation and management of the Great Barrier Reef and provides a framework for the Australian and Queensland governments to work together to protect the Reef. The Agreement reflects the shared vision for the future outlined in the Reef 2050 Plan and renews the Australian and Queensland governments' commitment to protecting the World Heritage Area including its Outstanding Universal Value. • The Queensland Great Barrier Reef Coast Zoning Plan and the Commonwealth Marine Park Zoning Plan has **complimentary zoning**. • Reef 2050 Traditional Owner Implementation Plan (2022) provides consistency across three key partners (DCCEEW, OGBR and Reef Authority) regarding Indigenous heritage values. It builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance	Cumulative impact policy/Net Benefit Policy **Annual report 2021-2022** Sustainable Use of the Reef; Supporting Traditional Owners and land and Sea Country Rangers – p19. Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the delivery of actions to achieve their aspirations under the Reef 2050 Plan. • **Reef 2050 Plan** is the overarching framework for protecting and managing the Reef and is a joint product (Australian and Queensland Government and the Reef Authority). • There is strong alignment between the Reef Authority and QPWS&P under the Joint **Field Management Program,** which includes a strategy for Indigenous engagement. An interdepartmental informal working group aims to increase alignment and consistency between Indigenous Ranger programs, the JFMP and the TUMRA program. • **TUMRAs** are jointly accredited by the Reef Authority and Queensland Government. • The Reef 2050 Traditional Owner Implementation Plan aligns with the **Aboriginal and Torres Strait Islander Heritage Strategy**. • At a more local scale, the Reef Authority is working collaboratively with the State to assist **Mandubarra Traditional Owners** in protecting cultural heritage values identified in the Mandubarra Sea Country Cultural Values: 2019-2020 mapping project. This will ensure values within the Marine Park and adjacent intertidal areas and islands are protected. • The Reef Authority is developing a **Traditional Owner Payments Policy** to effectively and meaningfully engage First			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Nations peoples to provide cultural advice and participate in Reef Authority processes (due for completion in 2023). • Fee-for-service arrangements are in place for four different First Nations groups: Girringun for delivery of a range of services through a works contract; Dawul Wuru for delivery of bird surveys by Yirrganydji rangers; Gidarjil for delivery of a range of services through a works contract (Reef Trust Offset funding); and Wulgurukaba for delivery of a range of services through a works contract (part Department of Environment and Science Reef Package funding). Challenge: • overlaps in planning, and the separation of islands from the adjacent sea country in agency plans, can be confusing for Indigenous people and for the general public.			
PL9 **Plans** relevant to Indigenous heritage **provide certainty regarding where uses may occur**, the type of activities allowed or specifically disallowed, conditions under which activities may proceed and circumstances where	3	• Most plans regarding access to resources and extractive activities (e.g. Traditional use) are clear and provide certainty. This includes Zoning Plan(s); permits, Plans of Management; site planning arrangements; and TUMRA's (a diverse array of plans was discussed in PL2 and information on TUMRAs is available in TUMR Topic Table 47). • **Sea Country Values Mapping projects** establish more integrated SCV mapping/ product developments and management partnerships. This will help to provide certainty in relation to uses in the Reef. • Woppaburra-Impact Assessment Guidelines (refer PL2) map the important cultural values in the Keppel Islands region to	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
impacts are likely to be acceptable.		help inform permit assessments by the Reef Authority and indicate where uses occur. • Traditional Owner Heritage Assessment guideline information for consideration when assessing the potential impacts from hazards derived from proposed activities. In consultation with Traditional Owners (particularly through targeted consultation with assessment approaches PIP, PER and EIS), appropriate avoidance and mitigation measures should be identified. • Low risk activities are generally well addressed in existing plans (e.g. tourism activities and research). • Island booking protocols have been developed as part of the CYPTRP to limit visitation in accordance with the caps placed by Traditional Owner groups e.g. Yamarrinh Wachangan Islands NP (CYPAL) to protect impacts on islands. Challenges: • Apart from the Woppaburra Guidelines and other spatial management tools listed above, there is uncertainty for other Traditional Owner Groups. Areas outside TUMRAs generally do not explicitly specify important areas in the Reef Region for Indigenous heritage protection and locations where particular activities should be precluded. • The **permission system** provides avenues for protecting Indigenous heritage values for permitted activities **only when the activity is location specific and when the activity is of higher risk** that trigger assessment approaches that involve public comment and targeted Traditional Owner consultation.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		The **Native Title Notification** process which applies to all permission applications**, does not currently assist in protecting Indigenous heritage values**. • Adequate planning arrangements are needed to protect Indigenous heritage values from **activities that do not require a permission (such as public access and use)**.			
INPUTS					
IN1 **Financial resources are adequate** and **prioritised** to meet management objectives to address Indigenous heritage	2	• The **Reef Protection package** (to 2030) provides the Reef Authority with an additional $17.4 million for Traditional Owner programs, to support implementation of the Aboriginal and Torres Strait Islander Strategy (including additional actions emerging from the **Traditional Owner Implementation Plan** (TOIP) and will boost the Reef Authority's funding for the TUMRA program. • The Reef Authority and the Commonwealth Government committed to the implementation of the Traditional Owner Implementation Plan (2022). The Commonwealth government is investing: – $1.1 million per year over three years financial support for the establishment of a **Traditional Owner Taskforce and Board**. This funding will support the establishment of an Indigenous Coordination Unit that will engage with Traditional Owners to develop a preferred model for a **Sea Country Alliance** and strategically coordinate the delivery of Reef 2050 Traditional Owner actions.	Indigenous Land and Sea Rangers - location and achievements RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System RIMReP Annual Business Plan 2022-23 Annual Report 2019-2020: Overview, p16. Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– $4.7 million per year over three years for the **Taskforce** to implement elements of the Traditional Owner Implementation Plan in addition to other existing program funding. – Investing $10 million to the **Traditional Owner Future Fund** in addition to the existing $10 million with the GBRF funding. Money to be invested in 25/26 financial year. • The Aboriginal and Torres Strait Islander Heritage Strategy is designed to keep the Indigenous heritage of the Reef strong, safe and healthy. Progress on the Strategy's 30 actions has continued, including $3 million Reef Trust investment in Strengthening Sea Country Partnerships in the Reef. • Toolkit for safeguarding Indigenous heritage and knowledge (2020), used as a guidance tool for RIMReP. Sharing of Indigenous heritage information will be captured through the RIMReP Reef Knowledge System (as related to Reef 2050) and negotiated through Data Sharing Agreements with the knowledge holders. $218,250 (GST inclusive) is allocated under the RIMReP Annual Business Plan 2022-23 to support communication and engagement activities with Traditional Owners regarding the development of RIMReP. • Commonwealth and Queensland Governments have agreed to fund **investment into a Traditional Owner Future Fund for the Reef** to underpin long term and sustainable support for achieving Traditional Owner aspirations and support partnership arrangements to enable program delivery and investment leverage.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Queensland Indigenous Land and Sea Ranger Program** (DES): The 2020 State Budget provided a funding boost for Indigenous Land and Sea Rangers, to bring them to a total **of 200 positions across Queensland by 2024**. Currently this program funds 90 Indigenous Rangers in the Great Barrier Reef Catchment area. The Australian Government committed an additional $3 million to the Queensland Indigenous Land and Sea Ranger Program. • **Reef Joint Field Management Program** has a $1M per annum program for funding Traditional Owner projects aligned with RJFMP objectives and guided by the RJFMP Traditional Owner Partnership Strategy. The Program is funded and run by the Australian and Queensland governments. It undertakes activities to support the operational and day-to-day management of the Marine Park, the Queensland Government's adjacent Reef Coast Marine Park and national park islands. • Management is enhanced through partnership arrangements with Traditional Owners, the community, businesses, industries, scientists and governments, which provide additional financial resources to Reef management. Challenges: • further resources to support resolution of Sea Country native title claims across the Reef and undertake co-management opportunities on island protected areas			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• obtaining consistent and long-term funding to enhance Traditional Owner engagement in managing Sea Country. 'Not all Traditional Owner groups are adequately resourced' (Workshop participants 2023).			
IN2 **Human resources** within the managing organisations are adequate to meet specific management objectives to address Indigenous heritage	3	• Relevant agencies, including the Reef Authority are relatively well resourced to support Indigenous heritage protection. – An APS6 officer dedicated to Traditional Owner engagement will be placed in the Marine Spatial Planning team for the development of the new POM in the Southern region of the Marine Park. – In 2021 an EL1 position was put in place and filled to provide the Reef Authority with advice relating to strategic direction and partnerships. In 2022 an APS6 role was developed to assist the EL1 role in providing advice relating to strategic direction and partnerships – in particular co-management. • Resourcing in the Department of Environment and Science in the Reef 2050 Joint Secretariat team dedicated to Traditional Owner aspirations under the Reef 2050 Plan is 0.5FTE A08 (Manager), 0.8FTE A07. • The Reef and Marine Parks Region has a new AO6 Indigenous Partnership Coordinator and an AO4 Indigenous identified project officer who deliver the RJFMP Traditional Owner Partnerships Strategy. • The Queensland Government committed to doubling the number of Indigenous Land and Sea Ranger positions by	RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP Annual Business Plan 2022-23 Annual Report 2020-2021: Performance: Supporting Land and Sea Rangers – p19.	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		creating 100 new positions from 2021-2024. The first tranche – 54 rangers for 13 communities commenced in 2022. Funding will assist purchase of small vessels to assist ranger teams in monitoring sea Country and undertaking clean-ups. • Currently RIMReP for the Traditional Owner Communications and Engagement Project has 60 days allocated of resourcing to delivery/support of the project. This is sufficient to undertake general communication and engagement in order to raise awareness of RIMReP. • Indigenous work placements: During the 2020–21 financial year, two contractual work placement arrangements and a part-time work placement were established within the RJFMP in partnership with Darumbal Enterprises and the Yintjingga Aboriginal Corporation. Facilitating Traditional Owners working on country and gaining experience as marine parks rangers is a key objective of the Indigenous work placement arrangements developed by the RJFMP. Work placements are strengthening two-way cross-cultural information and skills sharing with Traditional Owner groups in the Reef. • The Crown–of–thorns Starfish Control Program, led by the Reef Authority in partnership with the Reef and Rainforest Research Centre and the Reef Foundation resulted in the culling of more than 1.1 million coral-eating starfish and protecting 700,000 hectares of coral reefs (since 2012). The program is providing more than 145 Reef jobs directly, including employment opportunities for Reef Traditional Owners.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority provides expert advice on heritage matters through the **Indigenous Reef Advisory Committee** (IRAC – 12 members.) • DCCEEW provides expert advice on heritage matters through the **Indigenous Advisory Committee** (IAC – 10 members). • The Joint Field Management Program employs about 115 staff. Aboriginal and Torres Strait Islander people comprise more than five per cent of the workforce and contribute to improving cultural awareness and strengthening collaboration with the Aboriginal and Torres Strait Islander community and Land and Sea Rangers. • Some human resources are available to facilitate consultation with Traditional Owners (e.g. TUMRAs), although there are gaps. • Gurra Gurra Framework (2020-26) emphasises the need for: '**cultural capability'** i.e. in terms of skilling the DES workforce to build and sustain permanent relationships with First Nations peoples; and a workforce that considers attraction, recruitment, retention, career pathways and cultural safety. Key initiatives are: 'Improving cultural capability and agility', focused on increasing cultural understanding and ability to apply this knowledge and increasing learning opportunities to build cultural proficiency; and 'attract and develop First Nations people to our workforce' by strengthening employment pathways for First Nations staff to progress through the agency, reducing barriers, building retention and progression initiatives.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The availability of **human resources in TUMRA areas is unclear**. Indigenous rangers work with some Traditional Owner groups with TUMRAs and undertake a range of important on-country activities, including Sea Country Values Mapping, COTS control, pest management, bird surveys and compliance activities and the like. In general more paid workers would enhance management of Sea Country by Traditional Owners. Challenges: • While positions may be available, the Reef Authority and other agencies indicated that there were challenges in attracting staff and also retaining staff - '*there is constant revolving doors of people in this space and this affects relationship building*' (workshop participant) • Loss of knowledge and capability were significant concerns and personnel indicated the need for strategies to retain knowledge within relevant agencies.			
IN3 The **right skill sets and expertise** are currently available to the managing organisations to address Indigenous heritage	3	• Expertise and relevant information on Indigenous heritage is available from diverse sources including: Reef Authority - **Indigenous Reef Advisory Committee**; two dedicated Social Scientists (employed by the Reef Authority); engagement with numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science Community for the Reef and Reef 2050 (Human Dimensions consortium, AIMS and others).	RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System RIMReP Annual Business Plan 2022-23	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority employs many staff who are Traditional Owners of the Reef or Aboriginal and/or Torres Strait Islander peoples and thus encompasses a range of skill sets and experiences relevant to management of Traditional Use, heritage and partnerships. • **Cultural competency training** for all Reef Authority staff (as part of the annual mandatory training for FY 22/23); and prioritised for all DES staff as well as other guidance material such as how to apply the provisions of the *Human Rights Act 2019*. • The Gurra Gurra Framework 2020–2026 will help DES to reframe relationships with First Nations peoples by holding Country and people at the centre of policy, program and service delivery. Engagement principles are being developed under the Gurra Gurra framework to guide DES staff. • **RIMReP** can provide guidance and advice on cultural, social, economic, and other matters, engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision. Sharing of Indigenous heritage information will be captured through the Reef Knowledge System and negotiated through Data Sharing Agreements with the knowledge holders. • Toolkit for safeguarding Indigenous heritage and knowledge (2020) should be used as a guidance tool for RIMReP. However, there has been little implementation to date (Workshop participant 2023).	Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Land and Sea Ranger Programs and Indigenous Ranger Programs employ and train Indigenous Rangers who work throughout the Reef Region. • Consultation for the development of the Aboriginal and Torres Strait Islander Heritage Strategy identified the following issues: – **Loss of Indigenous knowledge** is a major risk to heritage in the Reef. The passing of elders loses knowledge irretrievably. Difficulty in exercising cultural rights and responsibilities, such as loss of access and lack of resources, since the disruption of the traditional lifestyle creates challenges in transferring knowledge to the younger generation. Without the systemic passing on of cultural knowledge that occurred prior to European disruption, heritage is at risk of not being passed on to the next generations, and thus lost forever. – **Lack of on-ground management capacity** and opportunities for Traditional Owners. Limited access to marine areas due to not having suitable boats, and limited resources to conduct protection and rehabilitation activities prevent active management. On-ground management requires competent organisations with strong governance in place that have cultural authority to make decisions, and resources such as boats and rangers to implement management activities. Without on-ground management, cultural and legislative rules and responsibilities cannot be implemented or enforced.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The lack of knowledge of Indigenous heritage by other Reef managers and users, including the Reef Authority, puts heritage at risk of being impacted unintentionally. Challenge: • *'Trust is a big issue as government does not always have great relationships with Traditional Owners… We now have a new language of co-design and new language around engagement… Engagement is a way of the past. Partnering is the way we are going and should have been going for a long time… There are multiple ways, interlinkages and decision making does not fall centrally. In the past this* (i.e. centralised decision making) *has caused trust deficits…* (In response) *government needs internal* ***capacity in terms of cultural competency …and related training***' (Workshop participant 2023).			
IN4 The necessary **biophysical information** is currently available to address Indigenous heritage	3	• Indigenous heritage includes natural heritage values (such as biodiversity and ecosystem **health**). Therefore, any biophysical information relevant to species or habitats is important to Indigenous Heritage (refer Biodiversity Topic Table 32). In general biophysical information is improving due to an increased focus on monitoring across the Reef but remains limited and 'patchy' across the Reef. • **Reef Knowledge System** hosts: – several Land and Sea Country webpages, which provide key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community.	Recovery Plan for Marine Turtles – 2017 Cumulative impact policy/Net Benefit Policy Raine Island program Maps | Reef Knowledge System Reef explorer | Reef Knowledge System	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– the Land and Sea Country Maps page provides spatial information relevant to Traditional use of marine resources. – **coral reef habitat mapping layers** through the Reef Explorer interface: geomorphic, benthic, and bathymetry (to 20m depth) maps and a satellite image mosaic; an internal interactive dashboard, the Resilient Reefs Network Guidance Tool, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park – Sharing of Indigenous heritage information will be negotiated through Data Sharing Agreements with the knowledge holders. • AusSeabed Marine Data Portal and Product catalogue – Geoscience Australia host a very high-resolution bathymetry map of the Reef, including the continental shelf. • Geospatial Hub hosts inter-Reefal and continental slope data for identifying plane/slope. • The **Permissions Cultural Heritage Referral project** is improving the Reef Authority's ability to include Traditional Owner cultural knowledge in permit decisions. Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi) are currently involved. These four TUMRA groups provide comments, in a formal and structured way, on location-specific permit applications. TUMRA groups can identify potential impacts to cultural values.	Reef Knowledge System - Resilient Reefs Network (gbrmpa.gov.au) RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System https://hdl.handle.net/11017/3681RIMReP Annual Business Plan 2022-23 Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Jointly with QPWS, comments are included in permit assessments. The permits' team facilitates discussion between TUMRA groups and applicants where appropriate. This process helps to manage and mitigate risks where applicable. • **TUMRA Program and Sea Country Values Mapping** activities led by saltwater Traditional Owner groups generate opportunities to identify saltwater heritage values and sites, threats to cultural heritage values, cultural landscapes, and cultural species and often facilities Traditional Ecological Knowledge sharing. • Toolkit for safeguarding Indigenous heritage and knowledge (2020) should be used as a guidance tool for RIMReP. However, to date, implementation has been limited (Workshop participant). • The Australian and Queensland governments' policy on cumulative impact management will provide a comprehensive and systematic framework to assess impacts on species and their supporting habitats. • **Turtle nesting habitat monitoring** (Reef 2050 Plan BA20): The nesting beaches of Reef are mostly known and key sites monitored for nesting success. DES monitors annually marine turtle nesting at key index nesting beaches for marine turtles in eastern Queensland. Through the Nest to Ocean program monitoring and a range of predator (pig, fox, dog and goanna) control activities are undertaken. Additionally specific interventions, such as translocation of nests at risk of inundation, occurs on loggerhead nesting beaches. The Raine			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Island program address specific nesting success issues at various scales and involves Traditional Owners. Challenge: • information on physical location and values of cultural heritage sites are a large gap.			
IN5 The necessary **socio-economic information** is currently available to address Indigenous heritage	2	• **Social and Economic Long-Term Monitoring Program (SELTMP)** (refer PL5) - aims to create a greater understanding of how people use and benefit from the Reef, including Traditional Owners. The updated broad objectives of SELTMP are to: monitor changes in community attitudes towards the Reef, its values and management, and the perceived threats to those values; predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health; monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR; and assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition and the wider system. • Sharing of Indigenous heritage information will be captured through the **RIMReP Reef Knowledge System** (as related to Reef 2050) and negotiated through Data Sharing Agreements with the knowledge holders. The system provides key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community.	SELTMP Core module pilot data dashboard SELTMP Core Module Report SELTMP Core Module 2021 Survey dataset: Regional Report Cards social survey dashboard Regional Report Cards Module Report Regional Report Cards 2021-22 Social Survey dataset Integrated Monitoring and Reporting Land and Sea Country RIMReP Web pages RIMReP Business Strategy 2020-25	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Toolkit for safeguarding Indigenous heritage and knowledge (2020) should be used as a guidance tool for RIMReP. However, to date there has been little implementation (Workshop participant 2023). • Human Use Dashboard (2021-2023) - aims to produce a prototype dashboard that will provide access to human use data to Reef managers. The user-friendly interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs. It uses the IT Cloud environment to allow for data flow. • 'Science and Knowledge Needs for Management' (2021) – refer IN4.	RIMReP – Reef Knowledge System RIMReP Annual Business Plan 2022-23		
IN6 The necessary Indigenous heritage information is currently available to address Indigenous heritage	3	• Traditional Owner Implementation Plan acknowledges the value of Traditional Knowledge as Indigenous science and when aligned with western science provides for greater management and protection of the Reef. However, 'For many of us, separation from Country has meant a loss in intricate connections and knowledge' (Heart of the Reef - A Call for Healing). • Science and Knowledge Needs for Management (2021) – refer IN4. • Much Indigenous heritage information is retained and shared by Traditional Owners with their family group and due to custom or sensitivities this information may not be shared or disclosed to the Reef Authority. In general, information on physical location and values of cultural heritage sites are poorly documented (refer CO1 for information on Indigenous heritage values). The locations of sacred sites are not widely	Annual report 2021-2022 (Sustainable Use of the Reef; Indigenous Ranger Work Placements; Embedded Indigenous Rangers, Diver Training in Partnership with the Tourism Industry – p19) Annual report 2021-2022 (Performance: Program area 2: Enhancing Reef resilience through innovation, management and regulation of the Marine Park and our in-	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		known outside Traditional Owner groups in order to respect cultural tradition and protect the sites. There is limited knowledge of Indigenous heritage archaeological sites (especially Cape York, Princess Charlotte Bay and most islands). Many sites are submerged. • Implementing the 'Strong Peoples-Strong Country Framework' was identified as one of the Priority Monitoring Gaps in the Reef Authority's prospectus in 2021 - which provides an overview of the priority monitoring gaps identified to support the implementation of the Reef 2050 Integrated Monitoring and Reporting Program. The Framework aims to build capacity for Traditional Owner leadership of monitoring and reporting in the Reef. Phase 2 involves the development of a set of objective indicators, which aim to provide information and insights about the condition and trends in Indigenous heritage values in the Reef and its catchments. • The Toolkit for safeguarding Indigenous heritage and knowledge was made available on the eLibrary in 2020 for access by Traditional Owner groups. • Woppaburra Guidelines - increases Traditional Owner input into permitting decisions, and to prevent impacts to traditional use and heritage values (Before applications are accepted and assessed). • Information on the physical location and values of cultural heritage sites are poorly documented. • Land-and-sea-country page of the Reef Knowledge System	field presence - Corporate result 2.1: Expert knowledge is used - Online permissions and environmental management charge system p26) Annual Report 2019-2020 (Introduction: Governance, p14; Performance: Program area 2 - Compliance Management and Surveillance Reef Joint Field Management Program. The RJFMP – Improving recreational fishing compliance with Marine Park zoning, p47. Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• contains relevant information, maps, reports and links related to 'Land and sea country'. • The **Cultural Knowledge Management System** has a module which will enable the Reef Authority and Traditional Owners (with password access) to store culturally sensitive information relevant to different Traditional Owner groups (e.g. story lines, voice recordings, sensitive locations). The database can be accessed externally to allow Traditional Owners with a login and password to enter their own information and manage it. This component of the system is not being used until the separate project – Cultural Protocol and data sharing agreement template is complete. The Reef Authority is using a precautionary approach to ensure that the right permission and systems are in place to hold and protect culturally sensitive material. • The **Permissions Cultural Heritage Referral project** is improving the Reef Authority's ability to include Traditional Owner cultural knowledge in permit decisions. Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi) are currently involved and provide comments, in a formal and structured way, on location-specific permit applications. TUMRA groups can identify potential impacts to cultural values. Jointly with QPWS, comments are included in **permit assessments**. The permits team facilitates discussion between TUMRA groups and applicants where appropriate. This process helps to manage and mitigate risks where applicable.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Sea Country Values Mapping projects** facilitates planning or product development including identification of saltwater heritage values and sites, threats to cultural heritage values, cultural landscapes, and cultural species. These is built upon Traditional lore, customs and cultural authority governance systems led by saltwater Traditional Owner groups. • **TUMRAs** are based on Traditional Owner knowledge of their Sea Country and this informs planning and management (refer TUMR topic Table 47). • **Indigenous rangers** are working within the program while employed by their respective Traditional Owner corporations. In 2021–22 three placements were completed by rangers from the Rinyirru (Lakefield Aboriginal Corporation), the Lama Lama (Yintingga Aboriginal Corporation) and Darumbal Enterprises Pty. Representatives from Gunggandji-Mandingalbay Yidinji Peoples Prescribed Body Corporate Aboriginal Corporation and Mandubarra Aboriginal Land and Sea Incorporated commenced six-month work placements. The rangers work with Program staff, building stronger relationships, exchanging knowledge, and gaining new skills and qualifications. • **Traditional Owner Corporations** similarly work within the Program work units while employed by their Traditional Owner Corporations, however these arrangements tend to extend for longer timeframes, further strengthening working relationships and enabling co-stewardship. Gidarjil rangers have been embedded with program staff at the Gladstone			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		work base since 2020 which was part Reef Trust Offset funding. Wulgurukaba rangers have been embedded at the Magnetic Island work base since 2020–21 which was part funded by the QPWS&P capital works funding. The rangers work alongside program rangers undertaking various activities, including vessel patrols, monitoring, planned burns, pest projects and infrastructure maintenance. • The program prioritised supporting 16 Indigenous Land and Sea rangers from 10 different groups to complete Open Water and Advanced Open Water Diver training in Cairns, on Gunggandji and Yirrganydji Sea Country. The dive instructors included a Dauareb man from the Murray Islands who worked with the rangers from groups between Bowen and Cape York. The training supports increasing partnerships with Traditional Owners and provides a pathway for Indigenous rangers to deliver in-water activities such reef monitoring and rehabilitation. Further mentoring is planned with these rangers in 2022–23 through participation in marine parks patrols, to further strengthen their skills and confidence in protecting the Reef. • Information is collected through various programs and draws on knowledge from a range of sources, including Traditional Owners, scientists, stakeholders and Reef Authority staff. This informs management decisions and provides evidence-based advice to government, stakeholders and the public. Information is shared through publications, such as the Reef summer snapshot and Marine Monitoring			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Program reports, along with briefings and engagement opportunities. • The Reef Authority's compliance responsibilities are delivered through the **Reef Joint Field Management Program** and permissions system. The Reef Authority relies on intelligence from patrols, Traditional Owners and many other sources to deter and detect illegal activity. The compliance program delivers on initiatives under the Blueprint and the Reef 2050 Plan to protect marine habitats and support Reef resilience. • In 2021–22, the Reef Authority improved its efficiency and records management with **automation and systems enhancements**, such as: capturing, using and reporting on cultural information to support the Enhancing Traditional Owner Engagement in the Permission System project. • The recreational fishing project continued to encourage marine parks users to report suspected illegal activity using a 24-hour hotline or the Reef Authority website and via a dedicated Protect your Patch campaign. During 2019–2020, 81 incident reports were received with 67 reports from members of the public and 14 reports from Indigenous Ranger Groups, slightly down from the 84 reports received in 2018–19 (56 public and 28 Indigenous Ranger Group reports). COVID-19 has had a significant impact on the number of reports. • **Indigenous Reef Advisory Committee** advises the Reef Authority Board on its management, programs and policies. Advice from the Committee helps to ensure that			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		management; programs and policies consider and include Traditional Owner aspirations and recommendations. Challenge: • 'Data management and data sharing are challenges. Traditional Owner data is not well described. There is no systematic data sharing system and information is protected…Appropriate mechanisms will help to ensure that people manage their own data or knowledge including consideration of how others interact with that information' (Workshop participant 2023). Resourcing to address data issues is challenging.			
IN7 The necessary **historic heritage** information is currently available to address Indigenous heritage	2	• Great Barrier Reef Heritage Strategy includes Commonwealth Heritage Listed places and properties. Commonwealth historic heritage sites in the Marine Park owned or managed by the Reef Authority include: Dent Island Lightstation, Lady Elliot Island Lightstation, Low Islets Lightstation and Low Island. Low Island meets Commonwealth Heritage List criteria for Indigenous Tradition i.e. the place has significant heritage value because of the place's importance as part of Indigenous tradition, the Kumu Yalanji and Yiriganji Traditional Owner groups visited the site regularly. Little information is available on these Indigenous traditions. Low Islets Lightstation and Low Island is a popular tourist destination and the pressures placed on this fragile site are managed through the Cairns Area Plan of Management.	Workshops Interviews	Limited	NA

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority has guidelines for permission decisions, including the Traditional Owner heritage assessment and Woppaburra Traditional Owner heritage assessment. • The Reef Authority's Corporate Plan aims to safeguard the Reef's heritage. The Reef Joint Field Management Program is the main planning tool to protect and conserve Commonwealth islands and their heritage values. • Low Isles Lightstation and Low Island Management Plan (under development) and Low Island and Low Islet Lightstation Heritage Register • The Reef Authority considers indigenous heritage within specific management plans for Commonwealth heritage sites, e.g. for Low Isles this includes the *Bama Ngulkurrku Wawu Wawurrku Bundangka Bubungu Jalunbu, Healthy Mob, Healthy Land and Sea, Eastern Kuku Yalanji Indigenous Protected Area Management Plan*. Challenge: • information, for most parts, is retained by Traditional Owners, many of whom have their own information management databases.			
IN8 There are additional sources of non-government input (e.g. volunteers) contributing to	3	• Traditional Owners across the Reef, and their organisations contribute to a range of efforts to protect their sea country and heritage. Traditional Owners working on country undertake this work usually on a voluntary basis – Eyes and Ears, monitoring, beach clean ups, restoration.	Tangaroa Blue Marine Debris Education Land and Sea Country | Reef Knowledge System	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
address Indigenous heritage		• **Reef Knowledge System** hosts several Land and Sea Country webpages - the Land and Sea Country Planning page provides links to non-government involvement to Indigenous heritage.	Planning | Reef Knowledge System		
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are **effectively engaged** in the ongoing management of Indigenous heritage	3	• Stakeholders have been addressed in C05 (well known), PL1 (planning system), PL6 (engaged in planning), IN8 (Non-government input), PR2 (local community) and PR3 (governance system). • Traditional Owners of the Reef assert their inherent rights and interests from their continuing connection to Land and Sea Country. As custodians of land and sea, **Traditional Owners assert that their special rights and interests extend beyond the definition of 'stakeholders'** (refer CO5 and PL1). • Types of engagement and supporting evidence were outlined in PL6. • Traditional Owners stated that *'we have not been heard and what we have said has not been interpreted in the way that we would have expected'* (p.iv). The Traditional Owner Implementation Plan represents '*a significant departure from a government-led process to one where we have our hands on the steering wheel*' (p.iv). It is based on a more holistic and inclusive approach to the formal governance and management of the Reef. It is based on effective partnerships that empower Traditional Owners to lead, co-design and co-deliver management programs, resulting in better coordination of programs across the Reef and catchment.	Public consultation Annual Report 2019-2020 Performance: Program area 2 – Policy and Planning Strategic Roadmap – Knowledge Stream, p42.	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• As rights holders, Traditional Owners are engaged through their own practices and partnerships with managing agencies and other stakeholders to look after their Sea Country and associated Indigenous heritage. Traditional Owners have formed organisations to manage land and sea programs through administration, project officers and rangers. These organisations may have partnerships with other organisations that also contribute to heritage management. • An 'Agreement to Partner' (November 2023) between Clth and Qld government Ministers and the Reef 2050 Traditional Owner Steering Groups members was signed to 'adopt more holistic and inclusive approaches to the governance and management of the Reef', 'build more effective formal partnerships and grow capacity - to empower Traditional Owners to lead, co-design and co-deliver management policy and programs', and 'deliver the Reef 2050 Traditional Owner Implementation Plan, better coordinate programs across the Reef and Catchment' and others, along with a series of 'partnership principles' that include free, prior and informed consent, power sharing, empowerment and access and benefit sharing. • A range of stakeholders are involved in on ground management e.g. through ranger programs such as the Working on Country Program (Cwlth) and Land and Sea Rangers Program (Qld) and the Reef Joint Field Management Program.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– On ground engagement between QPWS and Traditional Owners is reported to be 'good', with officers showing 'respect' to Traditional Owners. Indigenous and non-Indigenous rangers are working together on country to achieve outcomes e.g. checking sites and undertaking mitigation work (Interviewee 2023). • **Indigenous Reef Advisory Committee**, which comprises Traditional Owners: – Provides strategic guidance on Indigenous Partnerships matters – Provides advice on the application of world's best practice principles to sea country planning and implementation – Recommends ways to facilitate partnerships, build capacity and engage with Traditional Owner groups in the management of marine resources in the Great Barrier Reef. • Other fora that include Traditional Owner guidance on Indigenous heritage and matters related to sea country management are the Tourism RAC and LMACs (11) are engaged in the management of Indigenous heritage. • Joint management arrangements are in place between the Commonwealth and Queensland governments to address Indigenous heritage. • The Reef Authority continues to develop **a Partnerships Framework** (to be in place by September 2023), which will guide the Reef Authority on how to effectively enter into formal partnerships. Formal partnerships will be co-designed			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		with shared decision-making and co-benefits. The Partnerships Framework and the **Engagement and Participation Framework** are essentially interdependent. • The Reef Authority will be collaborating with Traditional Owners in the development of the new **Plan of Management for the Southern region**. • Manbarra Traditional Owners collaborated to develop the John Brewer Reef Site Plan. The Reef Authority is working with Mandubarra Traditional Owners to protect values identified in their cultural values mapping project. • Sea Country mapping projects are underway (refer PL2) • The Reef Authority has agreed to move to implementing co-governance through a range of management tools including Plans of Management, TUMRAs (refer TUMR Topic Table 47), ILUAs. • The Reef Authority is currently developing a **Traditional Owner Payments Policy** to effectively and meaningfully engage First Nations peoples to provide cultural advice and participate in Reef Authority processes. This piece of work is due for completion in 2023. • **Reef 2050 Traditional Owner Implementation Plan** builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Actions for partners and stakeholders are identified by Traditional Owners in the plan.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Public consultation on Applications/Plans:** The Reef Authority consults with the public on a range of matters that concern the Marine Park, including permit applications and proposed developments. • The Land and Sea Country Partnerships Program aims to strengthen communications between local communities, managers and reef stakeholders to build a better understanding of Indigenous issues in relation to the management of the Marine Park. • Aboriginal and Torres Strait Islander Heritage Strategy engagement. • AIMS identifies four levels of engagement with Traditional Owners, ranging from basic engagement, to consultation, joint AIMS-Traditional Owner co-led projects with co-design and co-delivery, and Traditional Owner led projects with AIMS support. The level of engagement will depend on the type of project being developed and implemented. **Challenges:** • A reef-wide approach to engaging effectively with Traditional Owners • 'The ability of Traditional Owners to be able to commit to a multi-level system of engagement….there are lots of people asking for advice' (Workshop participant 2023) • Lack of access, resources and funding to access and care for sites			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Information management – passing on of knowledge, electronic storage of knowledge • Lack of recognition of the interconnectedness of the environment, culture and people. • '*Many Traditional Owner groups are looking at how to take the next step to co-governance – a true partnership where Traditional Owners have a real say….Currently we (government) are working with a pilot group to see how to do it (on Cape York). Many groups want this, but we are struggling internally in delivering …a true partnership and design co-governance that works for everyone*' (Workshop participant 2023). • Trust is a big issue as government does not always have great relationships with Traditional Owners…We now have a new language of co-design and new language around engagement….Engagement is a way of the past - partnering is the way we are going and should have been going for a long time….There are multiple ways, interlinkages and decision making does not fall centrally. In the past (centralised decision making) has caused trust deficits…(In response) government needs internal capacity in terms of cultural competency …and related training' (workshop participant 2023) • '*Traditional Owners don't trust government. What are we doing to fix the trust? We need joint decision making - a co-management model with Traditional Owners fully involved as a partner – that is the key gap*' (Workshop participant 2023).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Information management – passing on of knowledge, electronic storage of knowledge.			
PR2 The **local community** is **effectively engaged** in the ongoing management of Indigenous heritage	3	• Traditional Owners are essentially the 'local community' in relation to traditional use (refer PR1). • A requirement of all **TUMRA** contracts is that the TUMRA coordinator attends LMAC meetings within their area. This facilitates communication and awareness of traditional use management and other synergies and partnerships that are possible through the community. • The TUMRA team provided an overview of the program to the LMAC network (Nov 2022). • The **Permissions Cultural Heritage Referral project** is improving the Reef Authority's ability to include Traditional Owner cultural knowledge in permit decisions. Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi) are currently involved. These four TUMRA groups, that also have Sea Country Values (SCV) Mapping projects, provide comments, in a formal and structured way, on location-specific permit applications. TUMRA groups can identify potential impacts to cultural values. Jointly with QPWS, comments are included in permit assessments. The permits team facilitates discussion between TUMRA groups and applicants where appropriate. This process helps to manage and mitigate risks where applicable. • The Reef Authority continues to develop **a Partnerships Framework** (to be in place by September 2023), which will	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		guide the Reef Authority on how to effectively enter into formal partnerships. Formal partnerships will be co-designed with shared decision-making and co-benefits. The Partnerships Framework and the **Engagement and Participation Framework** are essentially interdependent. • Traditional Owner Implementation Plan – planned community engagement to develop an alliance. • PTUKI Protocol for CYPAL areas (refer OC7). • There is strong engagement with Traditional Owners through the Reef **Joint Field Management Program** which includes a strategy for Indigenous Engagement and activities to involve Traditional Owners in management, protection and compliance activities (e.g. Service level agreements with Girringun Rangers, Traditional Owner presence on marine parks vessels). • Port Curtis Coral Coast Traditional Owners (4 groups under one TUMRA) have developed a number of significant partnerships with various entities in their local community to effectively manage their Indigenous heritage. • Woppaburra Traditional Owners in partnership with the North Keppel Island Environmental Education Centre have developed a strong culture of cooperation and knowledge sharing. Woppaburra cultural values are promoted in the School Curriculum and their traditional use of marine resources is included on interpretive signage around the island. Through the partnership Woppaburra are hosted by			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the Centre in an annual on–country weekend. Note that no Woppaburra people actually live on-country. • **Raine Island Recovery project** is a partnership with Traditional Owners and park managers to monitor the values and restore the Island where the values are being impacted.			
PR3 There is a **sound governance system** in place to address Indigenous heritage	2	• **Traditional Owners live under two laws** – their own and those of non-Indigenous Australia – i.e. Traditional Owners need to maintain the internal effectiveness and legitimacy of their governance and need to be effective and credible with external stakeholders (AIGI 2023) that include other organisations, groups, communities, businesses, companies, governments, economic forces and laws. • Management of Indigenous heritage in the Reef is **complex** and involves numerous State and Commonwealth legislation and policy. The Marine Park Act provides the head of power for consideration and protection of cultural values. The Regulations allow consideration of potential impacts on cultural values through the permitting process (see r88Q) and provide for the accreditation of TUMRAs (part 2B). Plans of Management and site planning arrangements provide some consideration for cultural heritage and aim to minimise conflicting use, but mostly with recreational users and tourism rather than major developments (Refer PL2 for relevant legislation, plans, strategies related to Indigenous heritage).	Great Barrier Reef Marine Park Act 1975 (s2A – protection of cultural values) Great Barrier Reef Marine Park Regulations (part 2B TUMRA's and r 88Q) Raine Island Reference Group Terms of Reference Governance Structure Raine Island Planning | Reef Knowledge System Strategy | Reef Knowledge System Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• For **Traditional Owners effective governance means** having rules, structures and processes that are capable of achieving identified objectives. – This governance must be **legitimate** i.e. the rules, structures and processes are seen as credible and worthy by your members (Indigenous Governance Organisation 2023). – Contemporary Indigenous governance refers to the 'melding of our traditional governance with the requirement to effectively respond to the wider governance environment' (Godda 2012, Indigenous Social Justice Commissioner -Social Justice Report). It incorporates how Traditional Owners organise their families, communities, manage their resources, share knowledge, and take action. Traditional Owner social and philosophical systems, cultural values, traditions, rules and beliefs are central to this governance system (Aust Indigenous Governance Institute, 2023). – 'Aboriginal and Torres Strait Islander people put their culture at the heart of their governance' (AIGI 2023). – The distinguishing characteristics of **Indigenous governance in the Reef** typically include: √ Consensus-building in decision making √ Elders and cultural leaders included with clear roles √ Group focussed resource sharing			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		√ Cultural and traditional ties as a basis for recognition of land and sea tenure √ Community cohesion-based relationships (Commonwealth of Australia 2018: 26) • Other forms of governance arrangements relevant to the Reef include: – Corporate and organisational entities e.g. Indigenous corporations and associations – Native title related organisations e.g. Land and Sea Ranger Programs – Geographically defined organisational governance e.g. Girringun Aboriginal Corporation (Cardwell) comprising an alliance of nine tribes. – Deeds of Grand in Trust e.g. Aboriginal and Torres Strait Shire Councils within Reef catchments – Native Title Representative Bodies e.g. four in the Reef include Cape York Land Council, North Queensland Land Council, Queensland South Native Title Services and Torres Strait Regional Authority. – Natural Resource Management groups – Formalised local arrangements e.g. TUMRAs and ILUAs – Informal committees, boards and taskforces e.g. Sea Country Forums. • There is no 'one size fits all' governance arrangement for Indigenous heritage – the gap is in **connection and learning from each other** and also in **connecting with existing structures such as the IRAC** (Interviewee 2023)			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Commonwealth and State governments have agreed to establish a **Reef Traditional Owner Sea Country Alliance** to be developed by the Indigenous Coordination Unit (funding was committed in 2022). • Commonwealth and State governments have agreed to establish a **Reef Traditional Owner Sea Country Alliance** to be developed by the Indigenous Coordination Unit (and funding was committed in 2022). • The governance system is beginning to show evidence of **'empowering'** (i.e. to place final decision-making in the hands of the Traditional Owners. For example: – The Gurra Gurra Framework (2020-26) reframes relationships with First Nations peoples by holding Country and people at the centre, including policy, programs, and service delivery and working in partnership to build a strong and shared future. The Framework seeks to 'understand and respect the diversity of First Nations cultures…., the collectivist nature of decision-making, the importance of Elders and other knowledge keepers, and the primacy of relationships and connection to Country above all things' (p.6). The process considers structures and the people who work within those structures; the functions, and the processes that deliver on those functions; and governance and leadership. This involves working in partnership from the earliest stages of development through to implementation and evaluation; working together to define outcomes and benefits;			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		empowering First Nations leadership; structurally **enabling co-governance** and co-stewardship; respecting community-led decision-making processes and timeframes; and exploring new ways of working through co-design and co-delivery. Initiative 8 in the Framework focuses on '**strong governance'** and the need to review existing governance structures to appropriately '**embed shared responsibility** for the implementation of the Framework….; and consider potential gaps in existing structures **ensuring First Nations people are represented with the governance process**' (p.19). – **Partnerships** - various **TUMRAs** (refer Topic TUMR Table 47) are moving towards a **co-governance approach**, where engagement is based on Indigenous aspirations and priorities within an Indigenous framework, process, context and time frame, one that is Indigenous-driven. There is increasing evidence of sustained engagement processes that provide Indigenous people with the opportunity to actively participate in decision making from the earliest stage of defining the problem to be solved, with participating continuing during the development of policies, programs and projects and the evaluation of outcomes. There are currently 10 accredited agreements, covering approximately 43 per cent of the Reef coastline, and one Indigenous Land Use Agreement. 'We do not have co-governance yet. It is co-management…ideas about protected areas come from government not Traditional Owners' (workshop participant).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The Reef Authority commenced new partnerships with Traditional Owner groups to develop **four new Traditional Owner-led agreements**. The Reef Authority is actively seeking co-management opportunities with Traditional Owners on all island protected areas (workshop participant). **Reef 2050 Traditional Owner Implementation Plan** (refer PL2) - Traditional Owner led and builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products help to inform community, government and stakeholders of the long history and desired path forward. At the local level, the development of the John Brewer Reef Site Plan included working with Mandubarra Traditional Owners to understand the cultural values of the area. The Mandubarra Sea Country Cultural Values: 2019-2020 mapping project, involved two workshops with Mandubarra Traditional Owners to develop a plan to protect the cultural values identified in this document. – **Queensland First Nations World Heritage Strategy** was co-designed and developed with First Nations people and seeks to centre Country and people across all aspects of World Heritage to better identify, protect, conserve, present and transmit to future generations the irreplaceable values of World Heritage areas.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Strong and strategic Indigenous leadership is in place, with guidance from Elders. • Governments and other agencies are striving to provide leadership and secure adequate resources and culturally competent staff capable of building trusting relationships. Lack of human resources and skill sets (refer IN2, IN3) are limiting factors currently as is short-term funding and support. • Investments are being made to strengthen the governance and capacity of Indigenous and government partners for effective partnership. These efforts start early and continue over the long term and build on existing community organisations and governance structures. • On Raine Island a Reference Group has been established to manage the ILUA. Strong Traditional Owner representation and a governance structure ensures all activities on Raine Island are conducted in a way to protect indigenous heritage. • The Reef Knowledge System - the Land and Sea Country Maps, Planning, and Strategy pages provide links to governance arrangements relevant to Indigenous heritage. • In terms of representation: an additional Traditional Owner position added to Reef 2050 Advisory Committee to provide for one male and one female Traditional Owner member; and additional Indigenous heritage expertise has been added to the Reef 2050 Independent Expert Panel. • The Reef Authority has adopted the Engagement and Participation Framework, which promotes a best practice approach to engagement, collaboration, and partnerships.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		The Reef Authority is training staff and aims to embed the Framework to deliver a consistent approach to how the Reef Authority engages and partners regardless of who the stakeholder is. • The RJFMP have established a governance group a to manage the delivery of the RJFMP Traditional Owner Partnership Strategy and aid coordination and cooperation with Traditional Owners working and living in sea country. • Recent research (Walpole and Hadwen, 2022) in relation to governance generally contends that 'the strategic planning environment for the GBR is lagging behind the state of knowledge'. Challenges: • 'sound governance – we are not doing it – we haven't met this indicator' (Workshop participant 2023) • Some aspects of governance are working (e.g. administration, operational) and some are not (e.g. effective consideration of indigenous heritage in the permissions system) (Workshop participant 2023) • **enhancing the governance capacities** of families, clans, tribes, sub-regions and regions • **enhancing and resourcing linkages among Traditional Owner groups** and with other structures and decision-making groups, including the IRAC (Interviewee) • normalising rights-based agreement making through policy, procedures and ongoing participation and support to			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		mobilise approaches for co-governance (and co-management) across the Reef at regional, sub-regional and local scales • understanding the complex governance arrangements relating to Indigenous heritage, especially in relation to State and Commonwealth jurisdictions of islands and waters • **amending legislation to facilitate co-governance** arrangements with Traditional Owners (e.g. Marine Park Act) • multiple organisations addressing matters that may impact on Indigenous heritage (e.g. tourism, fishing, shipping, defence, education and others) • loss of expertise and knowledge within relevant agencies related to Indigenous heritage. • **capacity building** to help ensure Traditional Owners can engage meaningfully; and non-Indigenous decision makers understand the importance of other ways of knowing and engaging in genuine partnerships. • **limited resources, significant demands** from the members of Indigenous organisations and government and the complex governance environment place a heavy demand on most Indigenous organisations – trying to do too much, with too little. Rebuilding organisational governance may help to address these challenges (Aust. Indigenous Governance Institute). • equity issues, in particular the **engagement of women** (equal representation, decision making power, respect and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		recognition of women's voices, leadership, structural barriers to women's participation) - 'rebuilding Indigenous governance to strategise to support women's active participation' (IAGI 2023). • establishing **regional governance models that include Traditional Owners** and that can inform Reef management.			
PR4 There is effective **performance monitoring**, including. regular assessment of appropriateness and **effectiveness of tools**, to gauge progress towards the objective(s) for Indigenous heritage	3	• The performance planning protocols within the Reef Authority evaluate how effective staff have been at achieving their work programs against the Corporate Plan and Annual Operating Plans. In general, all programs reliant on external or project funding are required to monitor and evaluate performance. • MERI Plan for the Land and Sea Country Partnerships Program is in place. • **Reef 2050 Indigenous Heritage Indicator Project** (RIMReP): CSIRO supported an Indigenous Heritage Expert Group under the RIMReP to develop Indigenous heritage indicators to monitor progress under Reef 2050. The project product was to be a Traditional-Owner developed monitoring framework and indicators. • Reef Partners in collaboration with the Indigenous Coordination Taskforce will develop key performance indicators for the implementation of the Traditional Owner Implementation Plan (to be developed in 2023). • The continued resourcing of a dedicated Policy and Planning section enabled the Reef Authority to progress implementation of the **Policy and Planning Strategic**	Indigenous Partnerships Section Business Strategy **Annual Report 2019-2020:** Performance: Program area 2 – Traditional Use of Marine Resources Agreements (TUMRAs) – Analysis of Performance Against Purpose – Policy and Planning, p49	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Roadmap. Achievements include releasing a draft Interventions Policy for public comment and cultural mapping projects as part of the Aboriginal and Torres Strait Islander Heritage Strategy. • The Reef Authority reports to DCCEEW on its performance, and the performance of TUMRA groups under the Land and Sea Country Partnerships program bi-annually. Nearly all milestones under this program have been met, and the program is on track to meet all deliverables. • It is unclear the extent to which monitoring interrogates how interventions work together as a group and in sequence. Challenges: • Morrison et al. (2020) question the effectiveness of performance monitoring generally - 'analysis of 40 years of GBRMPA Annual Reports highlights a continuous pattern of mismatches between threats identified by the Reef Authority and subsequent management goals, as well as mismatches between management goals and subsequent management interventions' • Supporting performance monitoring of all programs of relevance to Indigenous heritage. – Simplifying onerous reporting and overlaps in reporting.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Embedding Traditional Owners in all aspects of Reef monitoring and evaluation using culturally appropriate approaches (Strong Country – Strong People Framework). • TUMRAs have been successful at building relationships between the Reef Authority and Traditional Owner groups but concerns are expressed at the 'need for more local structures to address Traditional Owners' concerns and address issues raised by them… and more effective tools' to address management issues (e.g. hunting)			
PR5 Appropriate **training** is available to the managing agencies to address Indigenous heritage	3	• Please refer IN3 where skills and expertise in relation to Indigenous heritage were discussed. • **Cultural competency training** for all Reef Authority staff will be undertaken as part of the annual mandatory training for 2022-23. The Queensland Government has mandatory cultural competency online training. Additional training is offered through Departmental training resources with Indigenous owned organisations to build cultural capability. • **The TUMRA programs' mentoring and 'buddy' system** between established TUMRAs and developing ones has been a significant capacity builder for saltwater Traditional Owners. The mentoring and development in a two-way partnership between TUMRA Program Manager (within the Reef Authority) and the TUMRA Coordinator (within Traditional Owner Group) is central to the capacity and development of the TUMRA Program. TUMRA Programs offer many pathways for skills and certification.	Annual Report 2019-2020 Introduction: Working with Traditional Owners. P12 Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Sea Country Values Mapping activities provide various and diverse** opportunities for saltwater Traditional Owner and groups to build capacities, skills and/or certifications through planning or product development, establishing or building management partnerships and especially when integrating mapping/product developments. • **Reef Guardian Councils program** includes networking and professional development to share knowledge, best practice and information to assist our local government partners to help manage catchment impacts on the Reef. • Gurra Gurra Framework (2020-26) emphasises the need for: **'cultural capability'** i.e. in terms of skilling the DES workforce to build and sustain permanent relationships with First Nations peoples; and a workforce that considers attraction, recruitment, retention, career pathways and cultural safety. Key initiatives are: 'Improving cultural capability and agility', focused on increasing cultural understanding and ability to apply this knowledge and increasing learning opportunities to build cultural proficiency; and 'attract and develop First Nations people to our workforce' by strengthening employment pathways for First Nations staff to progress through the agency, reducing barriers, building retention and progression initiatives. • **On-ground action** is integral to the management of the Reef, particularly through incident response. To further support and empower Indigenous Rangers, the Reef Authority co-			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		facilitated training to provide the opportunity to **cross-pollinate traditional knowledge and expertise with western science** to better protect traditional estates and, ultimately, the Reef. Twenty-eight Indigenous rangers graduated from our compliance training course in March 2020, joining more than 50 rangers who have achieved nationally recognised accreditation. • **Eyes and Ears Compliance Training** assists Traditional Owners to understand: Zoning - how different users can utilise the Marine Park and what the zoning means for them; How Native Title works with the Zoning and other marine legislation; How to identify local issues/risks; How to identify stakeholders/knowing who to contact if they suspect illegal activity; To assist participants obtain high standard surveillance and evidence collection, such as photographs, notes, location evidence and sufficient details to identify potential suspects. • A detailed **inspector's package** has been delivered under the Field Management Program to broaden staff knowledge of cultural issues and to manage interactions with Indigenous members in an operational environment. Publicly available guidance material (i.e. Traditional Owner heritage assessment and Woppaburra Traditional Owner heritage assessment guidelines) provide information about Indigenous heritage. The Reef Authority regularly hosts legislation training for all staff.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR6 Management of Indigenous heritage is **consistently implemented** across the relevant jurisdictions	3	• Governance and planning system jurisdictional arrangements are very complex (refer PL1 and PL2 which address jurisdictional issues in relation to the planning system, PL8 which addresses consistency across jurisdictions when planning, and PR3 which addresses the governance system). • **Reef 2050 Plan** details coordination of actions to better address Indigenous heritage and Traditional Owner involvement in management and protection of the Reef. • The Reef 2050 Traditional Owner Implementation Plan is supported by all Reef 2050 partners across jurisdictions to better coordinate actions that address Indigenous heritage and Traditional Owner involvement in the management and protection of the Reef. It builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. • The Reef Authority and the Reef **Joint Field Management Program** coordinate their work and approach in relation to Indigenous heritage. • **Joint Marine Parks permits** are assessed on matching criteria and the cultural referral program informs both State and Commonwealth marine parks permit assessments and decisions to ensure potential impacts to cultural heritage are consistently considered (note: this covers only Marine Parks and not Queensland islands).	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The **Permissions Cultural Heritage Referral project** is improving the Reef Authority's ability to include Traditional Owner cultural knowledge in permit decisions. Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi) are currently involved. These four TUMRA groups provide comments, in a formal and structured way, on location-specific permit applications. TUMRA groups, including those with Sea Country Values (SCV) Mapping activities, can identify potential impacts to cultural values. Jointly with QPWS, comments are included in permit assessments. The permits team facilitates discussion between TUMRA groups and applicants where appropriate. - Indigenous rangers may be employed across a number of different programs and organisations and in general these cross jurisdictional programs work well, with rangers and others working together to protect Indigenous heritage values. • At the local scale, the Reef Authority is working collaboratively with the State to assist Mandubarra Traditional Owners in protecting cultural heritage values identified in the Mandubarra Sea Country Cultural Values: 2019-2020 mapping project. This will ensure values within the Marine Park and adjacent intertidal areas and islands are protected. Challenge: • Permitted activities in the marine parks are 'a confusing space for Traditional Owners' (workshop participant) with			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		government decision making reflecting hard boundaries whereas Traditional Owners recognise connections to country across land and sea. 'Traditional Owners have a say… but we can't remove the permits that are there…managing this is difficult…but now if Traditional Owners say no (to an activity or use) the Reef Authority can permit the use (e.g. research) outside the area' (workshop participant).			
PR7 There are effective processes applied to **resolve differing views/ conflicts** regarding Indigenous heritage	2	• The new permit system and related guidelines (refer PL2) are improving the Reef Authority/QPWS&P's ability to consider possible impacts of uses on Indigenous heritage. • TUMURA and ILUA processes are in place to help resolve differing views about Indigenous heritage and establish agreed plans of management (refer PR1). • The Reef Authority is developing a **Traditional Owner Payments Policy** to engage First Nations peoples to provide cultural advice and participate in Reef Authority processes (due for completion in 2023). • The **Engagement and Participation Framework** aims to deliver a consistent approach to how the Reef Authority engages and partners regardless of who the stakeholder is. • Traditional Owners are engaged in a range of fora, including the IRAC, TRAC, Advisory Board, LMACs and can express their views and engage in processes to resolve differing views (and potential conflicts). Challenges:	Workshops Interviews	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• given the gaps in cultural heritage knowledge (location, type of heritage, who speaks for country in some areas of the Region) (refer IN6) it remains difficult for the Reef Authority to pre-emptively avoid conflicts of interest and protect Indigenous Heritage • resolving differing views among Traditional Owner groups.			
PR8 **Impacts** (direct, indirect and cumulative) of activities associated with Indigenous heritage are appropriately considered.	2	• The condition and trend of values relevant to Indigenous heritage were addressed in CO2; a range of impacts were identified in CO3; and the role of the planning system in addressing major factors influencing Reef values was addressed in PL2. • Indigenous heritage values incorporate: sacred sites, sites of particular significance and places important for cultural tradition; structures, technology, tools and archaeology; stories, songlines, totems and languages; and cultural practices, observances, customs and lore (refer CO1). Importantly, these Traditional Owner heritage values are connected to and inter-related with other types of heritage and need to be considered in relation to biodiversity, social, aesthetic, historic heritage and scientific values. Various uses and activities undertaken within the Reef Region have the potential to impact on these values. • The **consequential and cumulative impacts of activities associated with indigenous heritage are not optimally understood**.	The Gurra Gurra Framework Queensland First Nations World Heritage Strategy Workshops Interviews	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The **permit system** requires consideration of impacts on Indigenous Heritage before any permissions are granted (generally direct and indirect impacts). • The Traditional Owner Heritage Assessment Guidelines identify several hazards (e.g. artificial light, changes in human use, hydrodynamics, ecological processes, noise, nutrients, sea temperature etc) and potential impacts on Indigenous heritage values. These impacts are considered before any permissions are granted and applicants are encouraged to contact Traditional Owners directly. • The **Woppaburra Assessment Guidelines** are a good model for how impacts can be better assessed. • The Reef Authority works with Traditional Owners and scientists to access the best information available on culturally important species such as dugong and green turtles. Scientists can estimate the total losses these populations can withstand and still maintain population recovery or increases. Traditional Owners use these estimates as the basis for determining ecologically sustainable levels of take within their TUMRA. • Green turtles and dugong are vulnerable to a range of impacts including boat strike, habitat degradation, by-catch, pollutants, marine debris and disease. Current known legal hunting by Traditional Owners is considered to be sustainable, provided other threats are addressed. • Illegal hunting of threatened species by people who are not Traditional Owners (known as poaching) is a concern of Traditional Owners and managing agencies.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Challenge: – While some direct and indirect impacts are considered, especially in the permissions system, several key stressors are less well considered, especially the cumulative and additive impacts of climate change, on Indigenous heritage values.			
PR9 The best available **biophysical research** and/or **monitoring information** is applied appropriately to make **relevant management decisions** regarding Indigenous heritage	3	• Refer IN4 where biophysical information is discussed and the Biodiversity topic (Table 35) (core part of Indigenous Heritage). Refer PR8 regarding the scientific information relied upon by Reef Authority permit assessors to determine sustainable take limits under a TUMRA. • There are several gaps in biophysical knowledge relevant to Indigenous heritage. However, in relation to the available information, this is generally applied to assist in management decision making in relation to Indigenous heritage. • Aerial dugong research (2022-23) information will be considered along with any other scientific research to inform future assessment of TUMRA applications in the Reef. • Improvements to the permission system – include the mandatory requirement to consider monitoring and managing relevant impacts. In some cases biophysical research and monitoring will be required to understand the implications of the proposed activity on the known values within the vicinity to develop effective avoidance and mitigation measures. Monitoring includes background, works or operational monitoring and long-term monitoring (as described in the	Dugong Census Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Assessment Guidelines). Further, EMP as part of a permit requirement includes monitoring requirements designed to manage potential impacts of the values of the Marine Park. Challenge: • While there is extensive research into trends in relation to climate change and impacts on reefs, the extent to which this information informs the Reef governance system and management decision making is unclear, including in relation to Indigenous heritage values and Traditional use.			
PR10 The best available **socio-economic research** and/or monitoring information is applied appropriately to **make relevant management decisions** regarding Indigenous heritage	2	• The Reef Authority works closely with diverse Traditional Owner clan groups and relevant information is used to assist in decision making (refer to IN5 where socio-economic information is discussed; IN6 for development of cultural protocols and data sharing agreement templates; and PR1 which includes socio-economic values relevant to TUMRAs). • Social and Economic Long-Term Monitoring Program (SELTMP) provides information required for adaptive management of the changing Reef social-ecological system. The objectives of SELTMP relevant to this indicator include to: monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the Reef; and assess and monitor social and economic vulnerability, and adaptive capacity of Reef communities to changes in Reef condition and the wider system. • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment - reviewed	SELTMP Core module pilot data dashboard SELTMP Core Module Report SELTMP Core Module 2021 Survey dataset: Regional Report Cards social survey dashboard Regional Report Cards Module Report Regional Report Cards 2021-22 Social Survey dataset Integrated Monitoring and Reporting - Great Barrier	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		common frameworks that conceptualise the relationship between people and nature to identify which parts of the system influence environmental outcomes, and factors relevant to designing policy or influencing behaviours. • **The Strong People-Strong Country Framework** – phase 2 involves developing a set of objective indicators to provide information and insights about the condition and trends in Indigenous heritage values in the Reef and its catchments. • **Reef Knowledge System** hosts several Land and Sea Country webpages, which provide key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community; the Land and Sea Country Research and Monitoring page provides links to research and monitoring relevant to Indigenous heritage. • **Sharing of Indigenous heritage information** will be captured through the **RIMReP Reef Knowledge System** (as related to Reef 2050) and negotiated through **Data Sharing Agreements** with the knowledge holders. The system provides key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community. • Toolkit for safeguarding Indigenous heritage and knowledge (2020) should be used as a guidance tool for RIMReP. However, to date there has been limited implementation (Workshop participant 2023). • **Human Use Dashboard** (2021-2023) - aims to produce a prototype dashboard that will provide access to human use	Reef Foundation (Human dimensions Monitoring projects) Land and Sea Country | Reef Knowledge System Research and monitoring | Reef Knowledge System		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		data to Reef managers. The user-friendly interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs. It uses the IT Cloud environment to allow for data flow. • 'Science and Knowledge Needs for Management' (2021) – refer IN4. • **Social value assessment guidelines** help ensure socio-economic implications of a proposed activity are understood. • **Improvements to the permission system** - include the mandatory requirement to consider monitoring and managing relevant impacts. In some cases socio-economic research and monitoring will be required to understand the implications of the proposed activity on the known values within the vicinity to develop effective avoidance and mitigation measures. Monitoring includes background, works or operational monitoring and long-term monitoring (as described in the Assessment Guidelines). EMP as part of a permit requirement includes monitoring requirements designed to manage potential impacts of the values of the Marine Park.			
PR11 The best available **Indigenous heritage** information is applied appropriately to make relevant **management decisions** regarding Indigenous heritage	3	• There is very little site-specific information available on Indigenous heritage. Many places of significance are not well documented and only some are listed. It is important to also recognise that both Indigenous and historic heritage values will continue to evolve to represent the flow of history and changing community perceptions (refer IN6).	RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There are gaps in Indigenous heritage knowledge (and related management): – **places of significance** for Traditional Owners, including sacred sites, spiritual sites, burial sites, songlines and ceremonial sites — some of which may not be at all obvious – **tangible places of importance** for Indigenous people, including middens, fish traps, scarred trees, camp sites and rock art sites – **archaeological sites or Indigenous places** recognised as being of national significance (for example, the axe quarry on South Molle Island and the 'contact' rock art of Flinders Island) – intangible **story places and songlines** and their connections to biodiversity values and ecological processes – **places or totems** and the reasons they are of contemporary value to Indigenous people – Indigenous **place names and language** relevant to the Region. Some have been recorded (for example, Bandjin Reefs or Woopaburra place names) but many more need to be before this knowledge is lost. – Story Place - Information on traditional connections to sea – is a reference database that shares information and	RIMReP Annual Business Plan 2022-23		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		knowledge about Traditional Owners and their relationship with land and sea country in the Region. • The **Permissions Cultural Heritage Referral project** is improving the Reef Authority's ability to include Traditional Owner cultural knowledge in permit decisions. Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi) are currently involved. These four TUMRA groups, including those with Sea Country Values (SCV) mapping activities, provide comments, in a formal and structured way, on location-specific permit applications. TUMRA groups can identify potential impacts to cultural values. • **Co-governance** and **co-management** arrangements will assist in ensuring that relevant Indigenous heritage information is included in relevant management tools (e.g. Plans of Management, Special Management Areas and others) • The Reef Authority is currently developing a **Traditional Owner Payments Policy** to effectively and meaningfully engage First Nations peoples to provide cultural advice and participate in Reef Authority processes. This piece of work is due for completion in 2023. • **Sea Country values mapping project** is expanding and building on the Aboriginal and Torres Strait Islander Heritage Strategy key foundational activities. These projects establish more integrated SCV mapping/product developments and management partnerships. They are built upon Traditional Lore, Customs and Cultural Authority governance systems led by saltwater Traditional Owner (TOs) groups. The **Mapping**			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		activities often include planning or product development including identification of saltwater heritage values and sites, threats to cultural heritage values, cultural landscapes, and cultural species. • Jointly with the Queensland Parks and Wildlife Service, **comments are included in permit assessments**. The permits team facilitates discussion between TUMRA groups and applicants where appropriate. This process helps to manage and mitigate risks where applicable. • Sharing of Indigenous heritage information will be captured through the **RIMReP Reef Knowledge System** and negotiated through Data Sharing Agreements with the knowledge holders. The Reef Authority is building on existing work with Traditional Owners to develop a **partnering framework** to ensure that the Reef Authority genuinely embeds Traditional Owners and their knowledge in policies and programs for a better-managed Reef. • Woppaburra Heritage Assessment Guidelines provide location specific information about their heritage values. However, it does not replace the need to consult directly with Traditional Owners about matters and proposed activities in their land and sea country.			
PR12 The best available **historic heritage** information is applied appropriately to make relevant management	3	• Where available the best historic heritage information is applied (refer IN7) • In some cases historic heritage assessment guidelines provide location specific information about Indigenous heritage values. The information available is limited and most of the references	Dent Island Light station Heritage management plan	Limited	NA

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
decisions regarding Indigenous heritage		relate to Woppaburra (the only location specific Indigenous guideline developed). There is the need to consult directly with Traditional Owners about matters and proposed activities in their land and sea country.			
PR13 **Relevant standards** are identified and being met regarding Indigenous heritage	3	• Refer PL2 where cultural protocols and a data sharing agreement standard are discussed. • The Gurra Gurra Framework 2020–2026 aims to assist the governments to meet existing and emerging legislative obligations under: the United Nations Declaration on the Rights of Indigenous Peoples; the *Native Title Act 1993* (Cwth); the *Torres Strait Islander Cultural Heritage Act 2003* (Qld); the *Aboriginal Cultural Heritage Act 2003* (Qld); the *Human Rights Act 2019* (Qld); the *Nature Conservation Act 1992 (Qld);* other legislation; and obligations and commitments outlined in our agreements and contracts. The implementation of the Framework aligns with whole-of-government strategic initiatives such as Tracks to Treaty, Reframing Relationships and Local Thriving Communities. The Framework demonstrates commitment to create permanent and productive relationships with First Nations peoples, to work in partnership to build a strong and shared future. • **Indigenous Heritage Strategy** incorporates guidelines and standards for Indigenous heritage conservation. • Queensland First Nations World Heritage Strategy was co-designed and developed with First Nations people and seeks	RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System RIMReP Annual Business Plan 2022-23	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		to centre Country and people across all aspects of World Heritage and is based on relevant principles/standards. • National Environmental Standards are proposed to guide decision making and are expected to cover First Nations engagement and participation in decision making. • The *Environment Protection and Biodiversity Conservation Amendment (Standards and Assurance) Bill 2021* was introduced into Federal Parliament. The related Report criticises the EPBC Act for its failure to respect and harness the knowledge of Indigenous Australians to better inform how the environment is managed e.g. the Act does not incorporate the rights of Indigenous Australians in decision-making processes, causing Australia to lag in the implementation of its key international commitments relating to Indigenous people's rights…'the EPBC Act overtly prioritises the views of Western science, at the expense of the knowledge and values held by Indigenous communities'. Relevant standards are proposed to address this limitation. • Toolkit for safeguarding Indigenous heritage and knowledge (2020) incorporates standards for safeguarding Indigenous heritage and knowledge. However, there has been limited implementation to date (Workshop participant 2023). • Cultural Capability Framework (refer PL2). • RIMReP is a partnership involving Australian and Queensland government entities, together with Traditional Owners. Four Traditional Owner Members sit on the RIMReP Governance groups to provide guidance and advice on cultural, social,			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		economic, and other matters, engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision.			
PR14 **Targets** have been established to benchmark management performance for Indigenous heritage	3	• Clear targets for Reef Rescue projects have been established to benchmark performance (refer MERI Plan). • **Reef Joint Field management Program** – has a specific 5-year business strategy which includes Indigenous engagement with established targets to benchmark performance (e.g. set number of TUMRA meetings attended, target to increase the number of Traditional Owners on Marine Parks vessels over time). • Reef 2050 Plan focuses on acknowledging Traditional Owners aspirations for protecting the Reef and includes Traditional Owner specific targets to achieve the overarching outcome of Healthy Reef, Healthy People. • The Aboriginal and Torres Strait Islander Strategy sets out **outcomes, objectives, and actions** for gaining more information on Indigenous heritage, protecting it through Reef Authority processes and managing it in collaboration with 10 – 11 Traditional Owner groups through the TUMRA program. • Traditional Owner Implementation Plan • Indigenous Heritage Strategy has a range of targets.	Objectives and Goals	Adequate	Stable
OUTPUTS					
OP1 To date, the actual management	3	• The Land and Sea Country Partnerships Program specified a number of key deliverables and yearly targets to be achieved over the five-year duration of the program.	Workshops Interviews	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
program (or activities) have progressed in accordance with the planned work program for Indigenous heritage		• The **expansion of the Reef Joint Field Management Program**, conducted in partnership with the Queensland Government, continued to roll out in 2020–21, despite impacts from COVID-19. The program delivers practical and critical on-ground actions to protect Indigenous heritage. • The Aboriginal and Torres Strait Islander Heritage Strategy for the Marine Park is in place. It contains 30 short- to long-term actions to keep the Indigenous heritage of the Reef strong, safe and healthy. – more than 90 per cent of actions are underway, of which, 60 per cent are on track and 30 per cent are on track with limitations. Substantial progress on major foundational activities and additional resourcing led to significant achievements in implementing the strategy. • Indigenous representation in governance of the Marine Park increased, with a new Indigenous Reef Advisory Committee appointed and Indigenous membership on the Tourism Reef Advisory Committee, Local Marine Advisory Committees and the Reef 2050 Integrated Monitoring and Reporting Program Executive Group. • The Reef Authority commenced new partnerships to develop two new TUMRAs. The expansion of the TUMRA program supports the identification of cultural authority and Sea Country boundaries and provides capacity for Traditional Owner clan groups to engage in broader Marine Park management. The Mandubarra Aboriginal Land and Sea Incorporation (Traditional Owners from the Kurramine			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Beach/Innisfail area) are the 10th Traditional Owner group to implement a TUMRA). • The Reef Authority invested in Traditional Owner-led Sea Country values mapping of almost 25 per cent of the Reef coastline. Nine of the marine resource agreement partners progressed in identifying and recording their Sea Country values. Sea Country values mapping is foundational to sharing information with managing agencies to allow improved heritage management. The first publicly available product is from Mandubarra Traditional Owners. • A suite of projects to support increasing Traditional Owner involvement in the Marine Park permissions system were progressed. These projects are multi-year and seek to transform the consideration of potential impacts on Indigenous heritage by inviting Traditional Owner clan groups with known cultural authority to provide advice on relevant Marine Park permit applications. • Communication and education activities increased throughout 2020–21 to improve public awareness and promote the inherent rights and connection of Traditional Owners. Major funding was secured to embed Indigenous content throughout a co-designed Reef HQ Aquarium, which is currently under renovation.			
OP2 **Implementation** of management documents and/or	3	• Refer OP1 and OP3 and PL2 for a discussion of the key documents related to Indigenous heritage.	Workshops Interviews	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
programs relevant to Indigenous heritage have progressed in accordance with **timeframes** specified in those documents		• An outcome of the 2020 review of Reef 2050 Plan was The Reef 2050 Traditional Owner Implementation Plan (2022) (Refer PL2). • The Annual Report (2021–22) states that more than 90 per cent of actions are underway. **70 per cent of the strategy's actions are on track and 20 per cent are on track with limitations**, due mainly to resource constraints limiting new engagement with Traditional Owner groups (the Reef Authority has secured additional resourcing to meet the 75 per cent on track target in future years). • A number of modified work arrangements were in place in response to the COVID-19 pandemic. On-ground activities were delivered across the World Heritage Area in 2019–20. However, there were **reductions in field delivery and some activities** including regular contact and delivery of activities with First Nations People.			
OP3 The **results** (in OP1 above) have achieved their stated management **objectives** for Indigenous heritage	3	• Relevant policies, plans, strategies, guidelines are outlined in PL2. – TUMRA development includes standardised contracts for all TUMRAs. Enhanced compliance around TUMR has occurred through the development and delivery of a two-year specialised indigenous ranger program. • Implementation of other planning and management tools for TUMR (i.e. 39ZA agreement, site management plan, special management area, data sharing agreements and a formal Traditional Use reporting system) have not occurred.		Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		However, there is capacity to explore the application of these tools in future. • Aboriginal and Torres Strait Islander Heritage Strategy - the extensive engagement process has achieved the required results with the strategy being heavily informed by Traditional Owner feedback. • Increased Indigenous representation in Marine Park governance, with regular meetings of the Indigenous RAC and an increased Indigenous membership on the Tourism RAC, LMACs and the Reef 2050 Integrated Monitoring and Reporting Program Executive Group. • Securing several new investments and partnerships to develop four new TUMRAs and enhance existing agreements. • Securing new investment to expand Traditional Owner-led Sea Country values mapping, which is shared with agencies for better heritage management. • Various projects to increase Traditional Owner involvement in the Marine Park permissions system — these projects invite clan groups with known cultural authority to provide advice on relevant Marine Park permit applications (for example, the Reef Authority has started referring location-specific permissions applications to Mandubarra Traditional Owners for advice). • Communication and education activities throughout 2021–22 to improve public awareness and promote the rights and connection of Traditional Owners — this included a new Sea			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Country e-newsletter to promote Traditional Owner activities and further co-design work on the Reef HQ Aquarium to embed Indigenous content.			
OP4 To date, **products or services** have been produced in accordance with the stated management **objectives** for Indigenous heritage	3	• Relevant policies, plans, strategies, guidelines are outlined in PL2. • The products that have been produced are in accordance with the stated management objectives for Indigenous heritage (refer OP1 and OP3). • Land and Sea Country Program, TUMRA program, Woppaburra Guidelines, Lama Lama Research Strategy. • Field Management Program - increase in Traditional Owner presence on Marine Parks vessels. • Guidance material for the permission system - Woppaburra the only location specific guidelines currently developed. Although broader Traditional Owner heritage assessment guidelines) have been developed. • The **Sea Country Connections Program** has been delivered to Indigenous students from a Townsville school. The program includes information on how Traditional Owners are working with governments to manage their Sea Country, Traditional Owner (Warrgamay and Bandjin) language names for many species on display at Reef HQ Aquarium and Dreamtime stories connected to Sea Country.. • Reef 2050 Plan activities have progressed satisfactorily e.g. Heritage Strategy • Protocol for managing culturally sensitive information.	Reef Facts – traditional Owners of the GBR: Annual Report 2019-2020: Performance: Program Area 3 – Formal Reef Education, p57. Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Cultural knowledge management system holding negotiated and agreed information. • Improvements to permission system (in line with Reef 2050 Plan).			
OP5 Effective **knowledge management systems** regarding Indigenous heritage are in place within agencies	3	• Supporting the release of the Reef 2050 Traditional Owner Implementation Plan (2022) were culturally appropriate communication products including an animation and timeline to inform community, government and stakeholders of the long history and desired path forward for Traditional Owners of the Reef. • DES launched **Jawun**, an internal knowledge and resource hub accessible by all staff. It contains information about culture, heritage, legislation, communities, respectful engagement, case studies and other resources that will contribute to implementing the vision and principles of the Gurra Gurra Framework. It aims to increase shared understanding of First Nations culture and heritage and contribute to stronger outcomes for community and Country. • DES quarterly **Native Title and Cultural Heritage Newsletter** is distributed DES-wide to keep staff informed about important changes, legislation, case law, decisions regarding Native Title and Culture Heritage. • The **Reef Knowledge System** currently hosts several Land and Sea Country webpages, which provide key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community.	Land and Sea Country | Reef Knowledge System RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System RIMReP Annual Business Plan 2022-23 See also Department of Environment website http://www.environment.gov.au/topics/heritage/about-australias-heritage Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• RIMReP is a partnership involving Australian and Queensland government entities, together with Traditional Owners. Four Traditional Owner Members sit on the RIMReP Governance groups to provide guidance and advice on cultural, social, economic, and other matters, engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision. • Toolkit for safeguarding Indigenous heritage and knowledge (2020) is designed as a guidance tool for RIMReP Sharing of Indigenous heritage information will be captured through the RIMReP Reef Knowledge System (as related to Reef 2050) and negotiated through Data Sharing Agreements with the knowledge holders. Future engagement requirements for RIMReP. To date, there has been limited implementation (Workshop participant 2023). • The Heritage Database contains information about natural, historic and Indigenous places located within the Marine Park, as well as Indigenous places. • Management of scientific information procedures are in place and are delivered at whole-of-Reef Authority using RefWorks as its database and citation management tool. • Spatial information and datasets arising from research conducted on in the Marine Park are housed and managed by the Reef Authority's Spatial Data Centre. Heritage programs are becoming increasingly spatial in focus and output, generating a variety of spatial datasets about the Region's values, its use and impacts. As a consequence, the process of			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		gathering, synthesising, interpreting and delivering these datasets is becoming increasingly important. Continued collaboration between the Reef Authority and its partners will help to identify and address gaps in spatial data and opportunities to share data and make it more 'discoverable' by others. • Cultural Knowledge Management System (CKMS) designed and implemented. TUMRA staff use it to record on country meetings and events and manage TUMRA contracts and deliverables (from a project management perspective). It has a module that would enable the Reef Authority to hold culturally sensitive information relevant to different Traditional Owner groups (e.g. story lines, voice recordings, sensitive locations). The database can be accessed externally to allow Traditional Owners with a login and password to enter their own information and manage it. Guidance materials are publicly available through the Reef Authority e-library system. • Protocol for managing culturally sensitive information. • Cultural knowledge management system holding negotiated and agreed information. • Improvements to permission system (in line with Reef 2050 Plan).			
OP6 Effective systems are in place to **share knowledge** on	3	• Eleven island national parks in Cape York Peninsula have been transferred to Indigenous ownership, Marpa NP (CYPAL), Wuthara Island NP (CYPAL), Mitirinchi Island NP (CYPAL), Ma'alpiku Island NP (CYPAL), Piper Islands NP (CYPAL),	Workshops Interviews	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
Indigenous heritage with the community		Howick Group NP (CYPAL), Flinders Group NP (CYPAL), Wuthathi (Sir Charles Hardy Group) NP (CYPAL), Wuthathi (Saunders Islands) NP (CYPAL), Hope Islands NP (CYPAL), Yamarrinh Wachangan Islands (Denham Group) NP (CYPAL). Each land handback includes considerable media coverage with DES Media advising the Eastern Kuku Yalanji handback in 2021 (which includes Hope Islands NP (CYPAL) attracting 58 mentions, a potential reach of 676,564 people and an ASR of 1,362,871. • Supporting the release of the Reef 2050 Traditional Owner Implementation Plan (2022) were culturally appropriate communication products including an animation and timeline to inform community, government and stakeholders of the long history and desired path forward for Traditional Owners of the Reef. A website to house all this information and to keep community and partners up to date was established called ReefTO. • **Jawun** is a key deliverable from the Gurra Gurra Framework and is being co-developed with staff to increase our shared understanding of First Nations culture and heritage and contribute to stronger outcomes for community and Country. Jawun is an internal knowledge and resource hub accessible by all staff and contains information about culture, heritage, legislation, communities, respectful engagement, case studies and other resources that will contribute to implementing the vision and principles of the Gurra Gurra Framework.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Social media and communications outputs** (refer Land and Sea Country Partnerships reports). • Regular articles in CEO's Updates produced on a monthly basis. Challenges: • While there is good management and partnerships between certain sections of the Reef Authority (Field Management Program) with Traditional Owner groups, this is not as strong as it could be across government (and within the Reef Authority as a whole). • Greater cultural competency and understanding of Traditional use are needed. In addition, a greater understanding of how much traditional use occurs and where, are needed to support evidence-based statements about traditional use, inform spatial management under TUMRAs and understand its role relative to other pressures such as entanglement, habitat loss and climate change.			
OUTCOMES					
OC1 The relevant managing agencies are to date **effectively addressing Indigenous heritage** and moving towards	3	• In general the managing agencies are more effectively addressing Indigenous heritage. In particular the TUMRA program remains in place and has grown and more TUMRA groups are interested in cultural heritage projects on country. • There have been improvements in the way in which Traditional Owners are consulted through the permission system/ DMS4/ RIMREP Indigenous Expert working group.	RIMReP Web pages RIMReP Business Strategy 2020-25 RIMReP – Reef Knowledge System	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
the attainment of the desired outcomes.		• **Gurra Gurra Framework** (refer PL7, IN3, PR5,8,13, OP5,6) including the First Nations Engagement Framework and the Agreement Making Framework aim to improve relationships and engagement with First Nations peoples. • The **Cape York Peninsula Tenure Resolution Program** has created 32 jointly managed national parks. Management of the national parks (Cape York Peninsula Aboriginal land) is vested in an Indigenous Management Agreement (IMA) which is underpinned by an Indigenous Land Use Agreement, Each IMA has dedicated annual perpetual funding and which can be used for cultural heritage projects – e.g surveys and plans. • IMAs provide for the establishment of Restricted Access Areas to protect sites of cultural heritage significance; and the framework which allows closures of certain areas on the NP (CYPAL) to undertake cultural practices. • **RIMReP** provides guidance and advice on cultural, social, economic, and other matters, engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision. The Toolkit for safeguarding Indigenous heritage and knowledge is a guidance tool for RIMReP but has been little used to date (Workshop participant 2023). • Sharing of Indigenous heritage information will be captured through the RIMReP **Reef Knowledge System** (as related to Reef 2050) and negotiated through Data Sharing Agreements with the knowledge holders. Future engagement requirements for RIMReP.	RIMReP Annual Business Plan 2022-23 Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Aboriginal and Torres Strait Islander **Heritage Strategy** for the Marine Park contains 30 short-to long-term actions that aim to support Traditional Owners to keep their Indigenous heritage strong, safe and healthy. Heritage encompasses 'everything in Sea Country', which is both tangible and intangible. Achievements that are addressing desired outcomes include: - **a trial of the Traditional Owner Place Specific Assessment Guidelines** was completed with Woppaburra Traditional Owners, and proved to be a practical and valuable tool to facilitate the effective consideration of Indigenous heritage values in permit assessments - the **Sea Country Values Mapping Project** provided resources to assist Traditional Owner groups to map their values and decide on the cultural information to share for management purposes - **the Sea Country Communications Plan promoted cultural change** and cross-cultural training delivered through the implementation of the Reflect Reconciliation Action Plan - the launch and delivery of the **Reef Discovery Course Indigenous Heritage Module** to tour operators. Implementing the Aboriginal and Torres Strait Islander Heritage Strategy contributes to protecting both the environment and Indigenous heritage. It facilitates greater partnerships between Traditional Owners – who hold knowledge and expertise on Indigenous heritage and sustainable management – and the Reef Authority, which has policy, planning, permitting, compliance and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		management tools to assist Traditional Owners looking after their country and heritage. • The implementation of strategy actions has progressed **throughout 2020–21, with more than 90 per cent of actions underway, of which, 60 percent are on track** and 30 per cent are on track with limitations. Substantial progress on major foundational activities and additional resourcing led to significant achievements in implementing the strategy. The activities are a shared responsibility across the Reef Authority and will be reported in more detail in relevant section areas of responsibility throughout the annual report. However, key highlights are: - **Indigenous representation in governance of the Marine Park increased**, with a new Indigenous Reef Advisory Committee appointed and Indigenous membership on the Tourism Reef Advisory Committee, Local Marine Advisory Committees and the Reef 2050 Integrated Monitoring and Reporting Program Executive Group. - The Reef Authority commenced **new partnerships to develop two new TUMRAs**. The expansion of the program supports the identification of cultural authority and Sea Country boundaries and provides capacity for Traditional Owner clan groups to engage in broader Marine Park management. - The Reef Authority invested in Traditional Owner-led Sea Country values mapping of almost 25 per cent of the Reef coastline. Nine of the marine resource agreement partners			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		progressed in identifying and recording their Sea Country values. Sea Country values mapping is foundational to sharing information with managing agencies to allow improved heritage management. The first publicly available product is from Mandubarra Traditional Owners and can be viewed on the Reef Authority's website. - A **suite of projects** to support increasing Traditional Owner involvement in the Marine Park permissions system were progressed. These projects are multi-year and seek to transform the consideration of potential impacts on Indigenous heritage by inviting Traditional Owner clan groups with known cultural authority to provide advice on relevant Marine Park permit applications. • **Communication and education** activities increased throughout 2020–21 to improve public awareness and promote the inherent rights and connection of Traditional Owners. Major funding was secured to embed Indigenous content throughout a co-designed Reef HQ Aquarium, which is currently under renovation. • The Reef Authority's Policy and Planning Strategic Roadmap aims to better protect key Reef values, enable ecologically sustainable use and work with Traditional Owners and partners, including the tourism industry. It is a significant undertaking that will deliver cohesive forward planning that is more risk-based, strategic, efficient and adaptive. The implementation of the Roadmap is progressing well with substantial achievements actioned in 2020–21. The full			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		implementation of the Roadmap will be progressed over several years and is updated to reflect work that has commenced or is completed, and as new areas of work are added. The Roadmap covers significant areas of the Reef Authority's regulatory approach, including: - Marine Park policy (e.g. future-focused intervention and permit guidance, tourism and other Marine Park use and protection policies) the TUMRA program. - implementation of the Aboriginal and Torres Strait Islander Heritage Strategy and, development of further co-management opportunities permissions streamlining Marine Park planning (including zoning, plans of management and site planning). - The Roadmap comprises five key themes of work: knowledge, risk, Traditional Owners, tools and resilience. Work on the knowledge stream has been slower than the other streams. To date, work to collate Marine Park value and use information for planning purposes has been limited to targeted issues and locations. Broader understanding of Marine Park use changes has not progressed due to other priorities. The Reef Authority is actively pursuing projects with the Science for Management section to address some of these limitations.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC2 The outputs relating to Indigenous heritage are on track to ensure **the values** of the Great Barrier Reef are protected (refer CO1)	2	• Refer to OC1 for a discussion of the main outputs, CO1 for the key values, and PL2 for a list of key documents and OP1-6 for an overview of the main outputs. • Refer PR4,9,10,11,12 where a range of monitoring information is detailed in relation to protecting Reef values. • Condition and trend in relation to heritage values (refer CO2) concludes that m**any of the Indigenous heritage values of the Reef Region are graded as being in poor condition**. • 'There has been so much damage to our Country and she is struggling to recover from threats on a scale never faced before. Country is stressed, Country is crying' (Heart of the Reef – A Call for Healing). • Some natural values such as coral reefs, seagrass beds and some species (e.g. turtles, dugong) are well studied and Traditional Owners, in general are aware of their condition and trends. However, the ongoing impacts of climate change, combined with other stressors such as sediment input, COTS and others can result in rapid change in the condition of diverse components of the Reef. Challenges: • In spite of efforts and outputs to maintain and protect indigenous Heritage values, these are still declining. This is due partly to the effects of climate change and the passing on of elders but is offset by greater opportunities for people to re-connect with country.	Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Traditional Owners with connections to the Region maintain their cultural practices and customs. However, because Indigenous heritage values are closely tied to land and sea country, values have deteriorated with deterioration of the environment.			
OC3 The **outputs** (refer OP1 and 3) for Indigenous heritage are **reducing the major risks and the threats** to the Great Barrier Reef	2	• Refer OC1, CO1,2,3 (and outputs identified in the Biodiversity topic (Table 35), many of which are specifically applicable to Indigenous Heritage). • Outputs are reducing some of the risks, including risks from inappropriate developments and recreation; and are striving to support Traditional Owners to maintain their cultures in spite of many threats and socio-economic changes. • Threats originating from climate change and from widespread social change are not being reduced. Challenges:	Workshops Interviews	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Enhancing the resourcing** of Traditional Owner groups to address relevant matters on-country and reduce major risks and threats. • Improving coordination of programs and actions - 'There is lots of money, but the **delivery is inefficien**t' (Workshop participant 2023).			
OC4 **Use** of the Great Barrier Reef relating to Indigenous heritage is **demonstrably environmentally sustainable**	2	• While for many cultural practices remain strong, other Indigenous heritage values have deteriorated with changes in the environment (often related to climate change and other major stressors) and condition of tangible heritage (refer CO1-5). • For the purpose of assessing the condition of components with Indigenous heritage value, the Reef Authority puts Indigenous heritage components into four groups: Sacred sites, sites of particular significance and places important for cultural tradition; Aboriginal and Torres Strait Islander structures, technology, tools and archaeology; Stories, songlines, totems and languages; and Cultural practices, observances, customs and lore. • Consultation for development of the Aboriginal and Torres Strait Islander Heritage Strategy identified: Places of Aboriginal and Torres Strait Islander **heritage values have not been systematically identified and many have deteriorated**, especially around developed areas and on islands; and some species of cultural significance, such as whales, dugongs,	Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		turtles, rays, sharks and dolphins, and other coastal resources, are under pressure, especially in areas south of Cooktown. • **Various species recovery plans and strategies have identified ongoing threats** to a number of marine species e.g. turtles (climate change, marine debris including 'ghost nets'; Traditional Owner use (e.g. egg harvesting in Gulf of Carpentaria green turtles, Arafura Sea flatback turtles and north-eastern Arnhem land hawksbill turtles; international commercial fishing (high risk for the hawksbill turtle). Dugong – poor condition, but variable in response to seagrass habitats (Marsh and Hamman 2016).			
OC5 Use of the Great Barrier Reef relating to Indigenous heritage is demonstrably **economically sustainable**	2	• Economic sustainability in terms of cultural use may be understood differently among stakeholder groups. Uses such as hunting and collection may have a very high cultural value but not necessarily monetary value. Selling of turtle and dugong meat is illegal. • The Reef faces many challenges, including the impacts of climate change, which will impact on the Reef environment (e.g. ecosystems and species). This will impact traditional practices, language relevant to the environment, passing on of skills, practices etc. • Several TUMRA groups are establishing partnerships with tourism operators. For example, Yirrganydji and Gunggandji Traditional Owners partner with Reef magic and Sunlover Cruises in Cairns to run on-country cultural activities (for example Junior Ranger field trips), develop Traditional Owner	Workshops Interviews	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		cultural interpretation materials (e.g. TUMRA and Traditional Owner videos) for presentation on vessels to tourists in transit to or through Traditional sea country estate and to develop career pathways for Traditional Owners on tourist vessels. • Many Land and Sea Ranger and Indigenous Ranger Programs provide social and economic benefits.			
OC6 **Use** of the Great Barrier Reef relating to Indigenous heritage is demonstrably **socially sustainable**, in terms of **understanding and/or enjoyment**	2	• While there is good management and partnerships between certain sections of the Reef Authority/FMP with Traditional Owner Groups, this isn't as strong as it could be across government and the wider community. Greater **societal cultural competency and understanding of Traditional use** and its value is needed. - **Loss of Indigenous knowledge is a major risk to heritage in the Reef**. The passing of elders loses knowledge irretrievably. **Difficulty in exercising cultural rights and responsibilities**, such as loss of access and lack of resources, since the disruption of the traditional lifestyle creates **challenges in transferring knowledge** to the younger generation. Heritage is intricately linked with the people to whom it belongs. **Without the systemic passing on of cultural knowledge that occurred prior to European disruption, heritage is at risk of not being passed on to the next generations, and thus lost forever. This also includes the loss of language among diverse groups.** - A further risk to heritage is a **lack of on-ground management capacity and opportunities for Traditional Owners**. Limited access to marine areas due to not having	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		suitable boats, and limited resources to conduct protection and rehabilitation activities prevent active management. On-ground management requires competent organisations with strong governance in place that have cultural authority to make decisions, and resources such as boats and rangers to implement management activities. Without on-ground management, cultural and legislative rules and responsibilities cannot be implemented or enforced. - **The lack of knowledge of Indigenous heritage by other Reef managers and users**, including the Reef Authority, puts heritage at risk of being impacted unintentionally. Without information on heritage, the Reef Authority can't consider it during assessment or planning processes. Without use of Traditional Owner knowledge in decision making, decisions can impact on heritage irreversibly. • The DES Cape York Peninsula Tenure Resolution Program negotiates Island Book Protocols in conjunction with Traditional Owners for commercial tour access to islands. This places restrictions on how islands area accessed and any cultural requirements. IBPs were signed in 2021 for Hope Islands NP (CYPAL) and in 2022 for Yamarrinh Wachangan Islands (Denham Group) NP (CYPAL).			
OC7 The relevant managing agencies have developed **effective partnerships** with	3	• One of the strengths of the management of the Reef are the partnerships that have been developed (refer CO5, PL4 and PL6, IN8, PR2, 3, OC4). Partnerships between Traditional	Woppaburra Traditional Owner Heritage Assessment	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
local communities and/or stakeholders to address Indigenous heritage		Owners and other land and sea managers are important to assist with managing a diverse array of external pressures. • The Traditional Owner Partnerships Strategy (2022-27) (RJFMP) aims to strengthen and enrich partnerships with Traditional Owners and First Nations people of the WHA. The strategy will build on the strong relationships that the Reef Authority and QPWS have with many Traditional Owners and First Nations communities. The Program is committed to increasing Traditional Owner involvement in field management activities and expanding collective management of the World Heritage Area. The strategy will also guide future investment in Traditional Owner partnerships (particularly Program funded initiatives), and it complements the Aboriginal and Torres Strait Islander Heritage Strategy and provides a culturally safe environment for meaningful partnerships. • The Reef Foundation's international partnerships and building of a co-design action framework aims to embed co-design principles, practices and learnings into the co-design and delivery of partnership programs (in partnership with the Auckland Co-design lab and Cause Collective NZ). • The Reef Authority collaborated with Manburra Traditional Owners to incorporate cultural values in the John Brewer Reef Site Plan. • Strong partnerships have been built in developing TUMRAs, ILUAs, and Indigenous Management Agreements: - In 2022 the **Ipima Ikaya Aboriginal Corporation RNTBC** and the State entered into an Indigenous Land Use	Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Agreement and two Indigenous Management Agreements to jointly manage the Apudthama National Park (Cape York Peninsula Aboriginal Land) and the Yamarrinh Wachangan Islands (Denham Group) National Park (Cape York Peninsula Aboriginal Land). - Entered into a PTUKI Protocol to guide how researchers access and undertake studies on natural resources within the national parks (CYPAL). This protocol implements a respectful governance arrangement where there is formal notification, involvement and data sharing between western science and Traditional Owners. agreement between Atambaya, Ankamuthu (Seven Rivers) and Gudang/ Yadhaykenu peoples and the State. - The TUMRA program has established strong partnerships with over 17 Traditional Owner clan groups (via 10 TUMRAs). The Reef Authority commenced new partnerships with Traditional Owner groups to develop **four new Traditional Owner-led agreements**. • The **Gurra Gurra Framework** provides the guiding principles to ensure Country and First Nations People's rights are at the forefront for the State government and will provide minimum standards, principles and guidelines on effective engagement with First Nations People (delivery expected by mid to late 2023). • Raine Island Recovery Project has established effective partnerships with several Traditional Owner Groups, leading to			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		outcomes for science, monitoring and restoration (Raine Island Management Plan). • Building community partnerships for resilience at the local scale, including Reef Foundation projects in the Cairns-Port Douglas region e.g. Coral Nurture Program partnership between tourism and science to support stewardship and adaptation at key tourism locations. • Under the CYPAL the QPWS follow a 'Permits to take, use, keep or interfere with Natural Resources Protocol' (PTUKI) where researchers want to take things within a Traditional Owners land/sea country. This protocol implements respectful governance arrangements where there is formal notification, involvement and data sharing between western science and Traditional owners. The Shelburne Bay agreement was put into place in 2016 with the Wuthathi Traditional Owners. • Information Sheets produced by Traditional Owner groups (in partnership with QPWS) advice visitors and researchers on how to conduct their activities within their land and sea country (e.g. Stanley Island in the Flinders Group National Park (Cape York Peninsula Aboriginal Land) which is owned by the Cape Melville, Flinders and Howick Islands Aboriginal Corporation). • Woppaburra Guidelines is the first of its kind and was built form developing effective partnerships with Woppaburra Traditional Owners. It is currently being implemented throughout the permit system for any activities that meet the trigger points for referral in the Keppel Island group.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority continues to develop **a Partnerships Framework** (to be in place by September 2023), which will guide the Reef Authority on how to effectively enter into formal partnerships. Formal partnerships will be co-designed with shared decision-making and co-benefits. The Partnerships Framework and the Engagement and Participation Framework are essentially interdependent. Challenges: • Research partnerships that involve leading research institutions jointly collaborating with Traditional Owners to plan and negotiate a long-term strategy for supporting their knowledge and research needs (Traditional Owner Aspirations Project). • Accessing government funding through the Great Barrier Reef Foundation and other partners to provide direct input into a range of relevant programs that will enhance outcomes for Indigenous heritage (Workshop participant 2023).			

Land-based Run-off

Table 45: Calculation of grades for Land-based Run-off

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The values of the Great Barrier Reef relevant to Land Based-Run Off are understood by managers	4	• The Reef is managed by diverse partners and stakeholders (the Authority, Queensland and Australian government agencies, local government, industry bodies, NRM bodies, Traditional Owners, local community, and others). The GBR is globally recognized for its environmental, social, and economic values. In general, the key values include: Ecological – One of the richest and most complex natural ecosystems on Earth, and one of the most significant for biodiversity conservation. – Values Based Park Management Framework (VBMF) and values assessments completed: – Twenty-three island protected areas have had a values assessments undertaken, including five that were completed with first nations partners for Cape York Peninsula Aboriginal Land (CYPAL). – RJFMP in collaboration with Birdlife Australia has identified Key Biodiversity Areas based upon internationally accepted criteria for seabirds.	• Reef 2050 Long-Term Sustainability Plan 2021–2025 • Position Statement Water Quality • Position statement: Marine debris (Document no. 100481) • 2017 Scientific Consensus Statement • Reef 2050 WQIP case studies • Queensland Reef Water Quality Program (QRWQP) • The Reef Authority's Position Statement on Water Quality	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The Aquatic Conservation Assessments (ACA) provide detailed information on the conservation values for riverine and non-riverine wetlands in the Reef Connecting Catchments to assist with a range of planning and policy actions. Terrestrial values are identified through the Biodiversity Planning Assessments (BPA). These are being updated. Aesthetic – Regional Sustainability Planning Project on OUV (Defining the aesthetic values of the Reef WHA) (DCCEEW) aims to better define aesthetic values and develop a method for identifying and mapping these values. – Above water aesthetic quality of GBR islands and waters as well as below water fish and coral habitat health all contribute to the perceived Aesthetic value of the Great barrier reef (NESP2 Aesthetic Value Final Report , 2018 and Waters, 2022). Economic – Supports 64,000 Jobs across both the Queensland region and the greater Great Barrier Reef Regions (Deloitte, 2017). – The total Australia-wide value-added economic contribution generated in the Reef catchment in 2016 was $6.4 billion (Deloitte Access Economics 2017) which includes tourism, recreation, commercial fishing and scientific research and management.	• Reef 2050 Water Quality Improvement Plan		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Social/Cultural – Indigenous and non-indigenous cultural heritage, for example: o Custodial, spiritual, cultural and traditional heritage, hunting, gathering and ritual responsibilities. o Symbols, landmarks and icons (such as waterways, turtles and frogs). o Lifestyles (such as agriculture and fishing). - Cultural and spiritual values, of water, means its aesthetic, historical, scientific, social or other significance, to the present generation or past or future generations. (Eastern Cape WQIP) - Significant place of recreation and cultural pride for GBR catchment residents with SELTMP Survey results indicating 90% feeling pride in the World Heritage Title for the GBR (Monitoring human dimensions of the Great Barrier Reef). • Numerous documents describe these values in greater detail and the subsequent role Land Based Run Off has for them. Of note are: – Great Barrier Reef Outlook Report 2019 which is published by the Reef Authority and includes information about the values of land-based run-off			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The seven basin assessments provide a summary of the state of the basin's ecological assets and the ecosystem service they provide to the Great Barrier Reef – State Party Report on the state of conservation for Australia's Great Barrier Reef from 2022 – The Reef Authority's Position Statement Water Quality released in 2021 and – The Scientific Consensus Statement in 2017 (Being updated now for release 2023) – Deloitte At what price? The economic, social and icon value of the Great Barrier Reef which helps define the economic value of the reef. – Reef 2050 Water Quality Improvement Plan 2017-2022 (Reef 2050 WQIP) which is nested underthe Great Barrier Reef 2050 Long-Term Sustainability Plan. – Reef Wetlands Strategy - promotes an integrated approach to catchment management that considers the multiple values of wetlands in a whole-of-system context. – Design and implementation of social surveys for Regional Report Cards in the Great Barrier Reef catchment. – Various NRM Water Quality Plans Eastern Cape WQIP , Barron Trinity Inlet WQIP , Burdekin Dry Tropics WQIP etc. • All of which continue to indicate land-based run off, largely as a consequence of farming practices upstream, as a major contributor to the continued poor state of reefs. The Scientific Consensus Statement (SCS) 2017 reviewed the scientific			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		knowledge of water quality and ecosystem health issues in the Great Barrier Reef from the 2013 statement. It outlines the GBR marine and coastal aquatic ecosystem status and condition, identifies the primary drivers, pressures and threats to these systems and the known effects of land-based pollutants based on the understanding derived through monitoring and modelling as well as many scientific/research studies (SCS's reference over 2000 peer reviewed published studies). The primary sources of land-based pollutants considered hazards to the GBR ecosystems were also identified as fine sediment, nutrients and pesticides. The risk assessment (likelihood, consequences and quantified risk) to the GBR coastal aquatic and marine ecosystems, particular from different nutrient species, suspended sediment (including different size fractions) and pesticides. Management of these risks was then also considered alongside a supposition of any remaining knowledge gaps. These knowledge gaps have been consolidated and ranked in significance within the Reef 2050 Water Quality Research, Development and Innovation Strategy 2017 - 2022. Revision of these documents (beginning with the WQIP and progressing to the Paddock to Reef program overall) is underway to determine their effectiveness in depicting and protecting the values of the great barrier reef. Challenges: • Greater work may need to be done to further understanding of local farmers and communities, particularly cane farmers,			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		on the impact of their work on values of the Great Barrier Reef to further adoption of best practice farming techniques. • Impacts from stronger storm energy as a result of climate change is understood as a risk. Efforts such as the eReefs program seek to monitor this however the lack of easy access to this data (not yet integrated to Dashboard) may limit mangers comprehension. • Current public perceptions of aesthetic value of the reef may be out of line with shifting outcomes expected for the changing reef (NESP2 AestheticValue Final Report , 2018 and Waters, 2022).			
CO2 The current condition and trend of values relevant to Land Based-Run Off are known by managers	4	• There appears to be a generally high level of understanding among managers of the Great Barrier Reef regarding trends in condition of values associated with the Great Barrier Reef. This is largely a result of numerous ongoing monitoring programs which provide continuous data on reef and associated ecosystem health in relation with targets for water quality. This data can then be integrated during catchment management planning to provide for more accurate targets and management goals. Some key monitoring programs include: – GBRMPA's Marine Monitoring Program (MMP) – The Paddock to Reef Integrated Monitoring, Modelling and Reporting Program (Paddock to Reef program) and Associated Water Quality Report Cards.	• Reef 2050 Long-Term Sustainability Plan 2021–2025 • Position Statement Water Quality • Position statement: Marine debris (Document no. 100481) • 2017 Scientific Consensus Statement • Reef 2050 WQIP case studies	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Regional Report Cards: 2022 Report Card - Wet Tropics Waterways, 2021 Report Card - Dry Tropics , 2021 Report Card - Mackay, 2022 Report Card – Fitzroy, 2022 Report Card - Gladstone – The Great Barrier Reef Marine Park Authority issues weekly Reef health reports during summer and monthly reports during the cooler months. – The UNESCO World Heritage Committee monitors the state of conservation of all properties on the World Heritage List. It is regularly updated about achievements, new investments, and key policy changes to protect the Great Barrier Reef. – RIMReP brings together information to guide Reef management decisions. Access information through the Reef Knowledge System which enables the early detection of trends and changes in the Reef's environment. – Statewide Landcover and Trees Study (SLATS) designed to help monitor retention of native vegetation which in turn helps to better quantify key conservation values such as biodiversity, land degradation prevention and water quality outcomes. This study uses satellite imagery to monitor changes in Queensland's woody vegetation. A Native Vegetation Scientific Expert Panel has been established to help understand the factors behind land clearing identified in the SLATS report. – The Great Barrier Reef Marine Park Authority publishes the Great Barrier Reef Outlook Report every five years	• Queensland Reef Water Quality Program (QRWQP) • The Reef Authority's Position Statement on Water Quality • 2019 Outlook Report (section 6.5) • Reef Water Quality Report Cards • Priority monitoring gaps prospectus for RIMReP (2021) • GBRF Critical Monitoring Gaps		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		which examines the Great Barrier Reef's health, pressures and likely future. – AIMS long term monitoring program for the reef has been ongoing for 35 years and provides essential information of fish and coral communities which are key to understanding the biodiversity values of the reef. Available to the public via the Reef Reports Hub along with annual summary reports. – The eReefs marine models provide a hydrodynamic model to predict the physical state of the system, a sediment transport model predicting the fate of suspended fine sediments and a biogeochemical model for water column and benthic production, water quality and nutrient cycling. – The GBRMPA Marine Monitoring Program Annual Report 2021-22 Water Quality Helps monitor the annual condition and long term trends in coastal water quality and specifically aids in observations of flood plumes. – CSIRO Social and Economic Long-Term Monitoring Program (SELTMP) in particular the new 2022 Design and implementation documents for social surveys for use in the Regional Report Cards in the Great Barrier Reef catchment. • These monitoring programs work in tandem with citizen science and other reef watch efforts to inform management on the reef.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Current Trends in Land Based Run off as described by above projects: • In general, the inshore reefs continue to be in poor condition overall. Water quality ratings according to the Marine Monitoring Program indicate some improvements in inshore water quality with the average for measured areas being defined as "moderate" in quality. The Scientific Consensus Statement 2017 reviewed the scientific knowledge of water quality and ecosystem health issues in the Great Barrier Reef from the 2013 statement. It outlines: the GBR marine and coastal aquatic ecosystem status and condition, identifies the primary drivers, pressures and threats to these systems and the known effects of land-based pollutants based on the understanding derived through monitoring and modelling. The sources of land-based pollutants considered hazards to the GBR ecosystems were also identified as fine sediment, nutrients, and pesticides. The risk assessment (likelihood, consequences, and quantified risk) to the GBR coastal aquatic and marine ecosystems, particular from different nutrient species, suspended sediment (including different size fractions) and pesticides. Management of these risks was then also considered alongside a supposition of any remaining knowledge gaps. A revised version of this report is underway to help re-establish these metrics for future policy. More recent policy such as the 2019 Great Barrier Reef Outlook Report seems to reiterate much of the same general values and trends noting some key gaps in knowledge such as the			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		sources and transformations of key Particulate and dissolved organic nutrients (Waterhouse, J. et al. 2017). Challenges: • The eReef's efforts to model sediment transport are notable and valuable particularly regarding its ability to help monitor and account for the impact of storm energy into the catchment. However, information from this is still preliminary and has yet to be fully integrated into easily accessible platforms such as the MMP Dashboard where they can be easily accessed by management. This may be limiting its current usefulness. • Regional Report cards provide a more detailed description of how projects are progressing toward water quality targets in the various basins and estuaries. Of significance is the discrepancy across surveyed topics in what values are assessed against. This is largely due to variation in importance of given issues to the various catchments however regarding issues of social value which would seemingly be applicable to all regions the rational for not including this aspect (Only 2 had clearly done so in most recent reports) becomes less clear and may indicate an area which requires additional work. Most areas did seem to participate to some degree in the CSIRO SELTMP project however specific information on the results for their areas were missing in most reports.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Inshore water quality is not reported in the marine monitoring program for all regions making it hard to reliably define the general trend across the whole of reef. • Understanding of the impacts associated with historic sediment and its ability to be resuspended is limited as is information on how timeframes around enacting remediation works and seeing benefits to the reef.			
CO3 Impacts (direct, indirect and cumulative) associated with Land Based-Run Off are understood by managers.	3	• There is considerable research depicting the impacts of land based run off on various attributes associated with reef and coastal ecosystem health as synthesised in the Scientific Consensus Statement on Great Barrier Reef water quality and ecosystem condition. Monitoring programs described in CO2 are also relevant for this indicator as information they provide is directly applicable to defining the current impacts affecting the reef as a consequence of land-based run-off. However there remain key knowledge gaps. These are identified in the Knowledge and model gap identification, prioritisation, and project development report (Listed previously in CO1) and prioritised in the Reef Research, Development, and Innovation Strategy. • The 2019 Great Barrier Reef Outlook Report is published by the Authority and includes an assessment of the impacts associated with land-based run-off. Here land-based run-off was found to have a high impact on the ecological, heritage and economic values of the Region, it also found land-based run-off had a low impact on social values.	• Reef 2050 Long-Term Sustainability Plan 2021–2025 • Position Statement Water Quality • Position statement: Marine debris (Document no. 100481) • 2017 Scientific Consensus Statement • Reef 2050 WQIP case studies • Queensland Reef Water Quality Program (QRWQP)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• New tools are being developed to help monitor impacts through the Paddock to Reef program, such as the Water Quality and Investigations Team with DES. They are developing online tools to provide access to calculated nutrient loads data and Pesticide Risk Metric data generated as part of the Great Barrier Reef Catchment Loads Monitoring Program and the Brigalow Catchment Study Data portal which provides real time data on issues like rainfall runoff. The Spatial Management Prioritisation (SMP) project is currently underway that will update the assessment of the risk from anthropogenic pollutants to Great Barrier Reef (GBR) coastal and marine ecosystems. Challenges: • Review of the Reef Research, Development, and Innovation Strategy hasn't seemingly been scheduled for review and specific metrics for how these knowledge gaps will be addressed is not clearly stated. Clarification of specific targets to do so therefore remains a management gap that could help further monitoring efforts for land-based run-off. • Knowledge gaps around inorganic particulates surrounding their delivery pathways and transformations within waterways make reporting on and understanding the current impacts around theses contaminates difficult (Reef Water Quality Report Card 2020 Catchment loads modelling methods, Reef 2050 Water Quality Research, Development and Innovation Strategy 2017 – 2022).	• The Reef Authority's Position Statement on Water Quality • 2019 Outlook Report (section 6.5) • Reef Water Quality Report Cards • Priority monitoring gaps prospectus for RIMReP (2021) • GBRF Critical Monitoring Gaps • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): Integrated Monitoring and Reporting -–Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Integrated Reef stewardship monitoring project (PROTECT):		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			Integrated Monitoring and Reporting --Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Monitoring collective capacity and implementation (Governance): Integrated Monitoring and Reporting --Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Monitoring collective capacity and implementation (Governance): Integrated Monitoring and Reporting --Great Barrier Reef Foundation		
CO4 The broader (national and international) level influences relevant to Land Based-Run Off are understood by managers.	4	• As a world heritage site managers of the GBR work closely with international agencies such as the IUCN in ensuring the values associated with the reef are being well maintained. The State Member Party Report to the World Heritage Committee on the state of conservation of Australia's Great Barrier Reef	• The Reef 2050 Plan -- DCCEEW. • Practice change, participation and policy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		mentions how land-based run-off is managed through Reef 2050 WQIP. In a subsequent Report of the Reactive Monitoring Mission to the Great Barrier Reef a series of recommendations was provided based on an assessment of Australian management arrangements that were in place in March 2022. Some of the high priority recommendations made included the following: – P1: Identify priority areas of grazing land for gully repairs and associated remediation activities, and significantly scale-up activities – P2: Require proposed and in-progress dam developments to show clear alignment with water quality improvement for the GBR – P3: Increase significantly the scale and pace of adoption, monitoring and enforcement of best management practice in sugarcane and banana farming – P4: Prioritise the protection of remnant native vegetation across the GBR – P7: Ensure that the carbon and water quality related credit schemes being deployed in the GBR catchments deliver overall net benefits to the OUV	settings: A review of social and institutional conditions influencing water quality outcomes in the Great Barrier Reef – ScienceDirect • State Party Report on the state of conservation of Australia's Great Barrier Reef -–2022 –DCCEEW • Great Barrier Reef World Heritage Area –DCCEEW • Report of the Reactive Monitoring Mission to the Great Barrier Reef (March 2022) • 2022 Scientific Consensus Statement – about, progress and updates • 2022 Scientific Consensus Statement questions		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• National Water Quality Default Guidelines • Pesticide reporting portal https://www.dcceew.gov.au/science-research/soe		
CO5 The stakeholders relevant to Land Based-Run Off are well known by managers.	4	• Management of the Great Barrier Reef catchments is done with reference to relevant stakeholders (See Figure 3 in Land based run off Overview Section) and there is consideration at each stage of the management process for facilitating these connections. To help depict the complexity and interconnectedness of these relationships the Great Barrier Reef Marine Park Authority Actor Network Mapping project was developed to map the working agreements between the Authority, partners, stakeholders, and community of practice was undertaken. • The GBR Intergovernmental Agreement provides a framework for the Australian and Queensland governments to work together to protect the Great Barrier Reef. – Achieving the goals and targets of the Reef 2050 Water Quality Improvement Plan (formerly the Reef Water Quality Protection Plan) relies on partnerships across all levels of government, industry, community groups, research organisations and land managers. – Key Programs such as the RIMReP which completed its design phase in 2019 seek to deliver a fit for purpose Data	• The Reef 2050 Plan -– DCCEEW. • Great Barrier Reef Marine Park Authority Actor Network Mapping project. Internal Document – Available on request. • RIMReP Web pages – GBRMPA Website • RIMReP Business Strategy 2020-25 • RIMReP – Reef Knowledge System Smartcane BMP • Hort360 GBR BMP • GRASS	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Management System, progressing the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement. – Industry lead Best Management Practice (BMP) programs are examples of strong partnerships that improve the productivity, profitability and sustainability of farm enterprises. • Queensland Department of Environment and Science and the Office of Great Barrier Reef have also been working directly with existing Industry environmental programs such as Freshcare Environmental. These partnerships allow for farmers to continue to work with existing partnerships while ensuring that they are meeting the specified application rates and record-keeping requirements in accordance with the Environmental Protection Act, and in alignment with the ENV3 compliance criteria. – On-ground agricultural practice change projects funded under the QRWQP (e.g. Nutrient management planning projects RP161 etc) have engaged a range of industry and private extension providers across the Reef regions, as well as industry research organisations (e.g. SRA), sugar mills, chemical/fertiliser resellers. – Gully and streambank remediation projects have been funded by Australian and Queensland Govts and the Great Barrier Reef Foundation. These have achieved significant sediment savings by undertaking on ground works at sites	• Banana BMP • Agricultural practice change project case studies • The Reef Trust – DCCEEW • Protecting the Great Barrier Reef | Environment, land and water | Queensland Government (www.qld.gov.au) • Great Barrier Reef Foundation --Great Barrier Reef Foundation • Regional Report Cards: • Wet Tropics – Dry Tropics – Mackay Whitsunday – Fitzroy – Gladstone		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		across all reef catchments. Examples of gully and streambank projects can be found on Reef Trust, OGBR and GBRF websites. – Local councils continue to engage with their peak body LGAQ, Reef managers and community regarding their influence on water heading to the Reef. – The Resilient Reefs Network under RIMREP brings together coral reef communities to respond to local and global threats including issues relating to water quality and reef health.	• 2022 Scientific Consensus Statement – about, progress and updates Local Government Association Queensland (LGAQ) • Local governments helping protect the Great Barrier Reef –DCCEEW • (fact sheet) Local governments helping protect the Great Barrier Reef • Reef Councils' Rescue Plan		
PLANNING					

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PL1 There is a planning system in place that effectively addresses Land Based-Run Off	4	• There exist robust planning systems meant to address land-based run-off in the GBR catchment. Here we will not be assessing effectiveness just robustness of these plans. • One primary document representing management efforts to the reef is the Reef 2050 Long-Term Sustainability Plan 2021 - 2025 which provides an overarching long-term strategy for adaptive management of the Great Barrier Reef. From this has spread a variety of specified plans aimed at tackling specific threats to the reef such as the Reef 2050 Water Quality Improvement Plan 2017-2022 which represents a joint commitment of the Australian and Queensland Governments to improve the quality of water flowing from the catchments adjacent to the Great Barrier Reef. These plans serve as a basis for smaller scale planning as well with programs such as the Reef Guardian Council Programs which supports 19 councils currently across the GBR catchment in pursuing conservation actions in line with the 2050 Plan. NRM management plans also often utilize Reef 2050 targets as benchmarks for their own more targeted management goals. These plans are also regularly revised to ensure they are up to date and delivering on targets. • There are a number of state pieces of legislation which provide additional protection for the Outstanding Universal Value of the GBR. This includes the Queensland Vegetation Management Act 1999 (with an associated Planning Act released in 2016) which regulates land clearing and development activities; the Queensland Fisheries Act (1994);	• Reef protection regulations • *Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019* -– Queensland Legislation • Broadening and enhancing Reef protection regulations: Decision Regulatory Impact Statement • regulations -– Consultation Regulatory Impact Statement, September 2017 • quality objectives | Environment | Department of Environment and Science, Queensland (www.des.qld.gov.au) • Reef 2050 Wetlands Strategy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the Sustainable Ports Development Act 2015 (which provides a legislative framework to balance the protection of the Reef with the development of major bulk commodity ports in the GBR region), the Reef Wetlands Strategy 2016-2021 from DES and successor Reef 2050 Wetlands Strategy, and more recently the Queensland government reef protection regulations. • These new Strengthened Reef protection regulations under the *Environmental Protection Act 1994* (Qld) are designed to address agricultural and industrial sources of water pollution flowing into the Great Barrier Reef to help meet the Reef 2050 Water Quality Improvement Plan targets. • The regulations: – Expand the regulated area to include all Reef catchments. – Regulate the establishment of new cropping ventures for all cropping and horticultural commodities. – Mandate minimum practice agricultural standards for sugarcane, grazing and bananas with standards due to commence in the future for other horticultural and grains commodities. – Require that new environmentally relevant activities in Reef catchments regulated under the EP Act, such as aquaculture development, must result in no additional sediment or nutrient discharges to Reef catchments. • These regulations had been rolled out for various industries on a rolling schedule as is depicted in Table 24 in the land-based run-off overview. A compliance program and permitting	• Reef protection regulations – minimum practice agricultural standards and the environmentally relevant activity (ERA) standard for new commercial cropping and horticulture • Reef protection regulations – Industrial and resource activities		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		system is also in place to implement the strengthened Reef protection regulations. • To support these regulations further Great Barrier Reef End-of-Basin Load Water Quality Objectives have been finalised for all Great Barrier Reef catchments. The Reef Water Quality Objectives (WQOs) are derived from the end-of-catchment anthropogenic water quality targets set out under the Reef 2050 Water Quality Improvement Plan and help to provide necessary clarity for new standards regarding particularly DIN and Sediment run-off. • RIMReP has also developed their Reef Knowledge System in this time with the aim of providing a one stop location for monitoring data with a preliminary site launching in 2020. Challenges: • Establishing greater review processes for smaller scale projects to ensure delivery of key land-based run off targets and goals and to define what has and has not been working. • Working across sectors to effectively address catchment-based planning issues. • Effectively addressing emerging threats such as climate change in a range of integrated plans. Integration of plans and processes across jurisdictions.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Ensuring regional reporting of key issues are adequate and clear particularly for less well observed issues such as social values of the reef.			
PL2 The planning system for Land Based-Run Off addresses the major factors influencing the Great Barrier Reef Region's values.	4	• Planning documents which cover land based run off (See PL1) account for major factors impacting the reef with the primary focus remaining on agricultural sources of runoff which was identified by the Scientific Impact Consensus Statement as the highest source of pollutants. See PL1 for what plans are in place. Specificity from the plans has improved with introduction of clear limits in the water quality objectives and within the new Queensland legislation. Issues of point source water quality impacts from wastewater have also been solidified through the implementation of the Point Source Water Quality Offsets Policy 2019. This replaced earlier 2014 and 2017 draft policies. • Contaminants of Emerging Concern (CoEC) such as PFAS have been identified as potential risks to the QLD	• Paddock to Reef Integrated Monitoring, Modelling and Reporting Program Reef Water Quality Report Cards • The Scientific Consensus Statement -–Land use impacts on Great Barrier Reef water quality and ecosystem condition • 2022 Scientific Consensus Statement –	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		environment. Queensland has been working with other states and the federal government to develop the PFAS NEMP 3.0. This along with the shift from PFAS foam in firefighting in 2019 and a state-wide ambient monitoring program being implemented indicate the growing concern for this pollutant. PFAS along with other emerging contaminates such as microplastics are generally associated with urban land use and known point sources and are found to be low in agricultural areas. Challenges: • Despite a plethora of legislation, policy, plans and strategies water quality remains a key issue for reef health and given current trajectories we are unlikely to meet current 2050 water quality targets indicating limitations in the ability of current plans to effectively address direct, indirect, and cumulative impacts from development.	about, progress and updates • Water quality guidelines | Environment | Department of Environment and Science, Queensland (des.qld.gov.au) • Environmental Protection (Water and Wetland Biodiversity) Policy 2019 | Environment | Department of Environment and Science, Queensland (www.des.qld.gov.au) • Guideline: Deciding aquatic ecosystem indicators and local water quality guidelines under the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (a March 2022 publication)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Fact sheet -– Environmental Protection (Water and Wetland Biodiversity) Policy 2019 • Point Source Water Quality Offsets Policy • Point Source Water Quality Offsets Policy • Draft Point Source Water Quality Offsets Guideline 2019 • Draft Point Source Water Quality Offsets Guideline 2019		
PL3 Actions for implementation regarding Land Based-Run Off are clearly identified within the plan	4	• The Reef 2050 plan as well as nested plans such as the Water Quality Improvement plan 2017-2022 set up clear goals for water quality. • The goals and subsequent actions described in the Reef 2050 Plan included: **The quality of water is improved through increased effective land management practices in catchments:** – Implement the Reef 2050 Water Quality Improvement Plan to meet its targets and undertake a 5-yearly review.	• Reef guardians | gbrmpa • Local governments helping protect the Great Barrier Reef -–DCCEEW	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Integrated catchment-to-Reef management reduces cumulative impacts: – Implement the Wetlands in the Great Barrier Reef Catchments Management Strategy and undertake a review. Lighting and recreational impacts on sensitive shoreline ecosystems and cultural sites are reduced: – Improve practices in sensitive shoreline ecosystems. Traditional Owners are supported to continue to manage sea Country: - Strengthen Traditional Owner management of sea Country through agreements and partnerships. Key habitats are being actively rehabilitated or restored: – Pilot and implement interventions that support the resilience of coral reefs, seagrass, other marine habitats and islands. – Enhance protection, rehabilitation and restoration of key coastal and catchment ecosystems. Historic and cultural heritage sites are being conserved: – Implement historic heritage site conservation. – Implement cultural heritage site conservation.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Adoption of best practice voluntary compliance and stewardship behaviours is maintained and increased: – Foster connection, education and stewardship of the Reef. Collaboration and effective partnerships between managers, partners and stakeholders are maintained and enhanced: – Foster partnerships for Reef protection. Traditional Owner Indigenous heritage, rights and responsibilities are incorporated into all facets of management: – Formally recognise Traditional Owner customary rights and interests. – Increase opportunities for Traditional Owner co-management and co-governance of the Reef. – Increase and strengthen capacity and involvement of Traditional Owners in protecting and managing the Reef. Science and knowledge are advanced, easily accessible and able to be used in decisions: – Focus research on priority management needs. – Strengthen engagement of policy makers, managers, Traditional Owners and stakeholders in science and research. – Synthesise and communicate scientific evidence to non-technical audiences.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Traditional knowledge is protected and retained: – Recognise and embed traditional knowledge in Reef science and research. Comprehensive monitoring, evaluation and reporting supports informed and agile management responses: – Strengthen coordination, integration and implementation of Reef monitoring and modelling activities. – Strengthen evaluation and adaptive management responses. Investment supports delivery of the Reef 2050 Plan: – Deliver existing commitments to maximise outcomes under the Plan. – Ensure future investment supports priority activities and successful implementation of the Plan. – Identify new opportunities for investment to address emerging issues. – Boost investment through partnerships, co-investment and innovative financing. • These goals and targets represent a clear direction on how to progress toward safeguarding the values described for the reef in CO1-2. Subsequent plans such as the Reef Water Quality Improvement Plan follow along with these and seek to trace back to these broad goals in ways that are more appropriate for the direct issues facing water quality management in each region.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Further to this the new Queensland regulations set clear benchmarks alongside the new reef water quality objectives for each of the GBR NRM regions and catchments. Actions to achieve these goals are set out clearly and allow for multiple options for how stakeholders (See CO5) can achieve the new regulatory minimum practice standards including through participation in existing BMP systems. Challenges: • Difficulty in correlating the management needs and associated targets of smaller councils into those set for the reef as a whole.			
PL4 Clear, measurable and appropriate objectives for management of Land Based-Run Off have been documented	3	• Objectives laid out in the various plans (See PL2 and PL3) are generally clear and measurable – the Reef 2050 Water Quality Improvement Plan outlines the Outcomes with supporting Objectives underpinned by Targets. • The Paddock to Reef Integrated Monitoring, Modelling and Reporting Program (Paddock to Reef program) assesses progress towards these Targets and Objectives as reported in the Reef Water Quality Report Cards. The Reef 2050 Objectives and Goals 2021-2025 explores the Reef 2050 Plan's objectives in more detail, explaining their meaning and relevant indicators. The reef 2025 plan lays out specific goals for the different regions as well (i.e. a 5 percent reduction in anthropogenic end-of catchment fine sediment loads for Cape York; 20 per cent reduction for Mackay Whitsunday and Burnett Mary; 25 percent reduction in the Fitzroy, and Wet	• RIMReP Web pages – GBRMPA Website • RIMReP – Reef Knowledge System • RIMReP Business Strategy 2020-25 • The Reef 2050 Plan • RRC06 Urban Water Management Practice and Stewardship Framework for Report Cards Managing urban	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Tropics catchment and 30 percent reduction for the Burdekin by 2025; a 70 percent reduction in anthropogenic end of-catchment dissolved inorganic nitrogen (DIN) for Mackay and Whitsunday; 60 percent for the Wet Tropics and the Burdekin; 55 percent for the Burnett Mary and Maintain current load for Cape York and Fitzroy by 2025). • Urban water management-specific targets are only now being developed as part of the Reef 2050 WQIP update. Current non-Ag targets in the Reef 2050 WQIP have not been benchmarked against, as the method for assessment (the UWSF) was only finalised in 2020 and only 1 assessment round has been carried out (i.e. it was not therefore possible to determine if management practice level has shown an improving trend). Challenges: • Difficult to determine specifically how effective smaller scale projects happening in local councils are helping to obtain larger scale goals. • Appropriateness of targets is difficult to determine given acknowledgement of key knowledge gaps such as defining the exact benefits of recovering land condition and the timescales associated before benefits are to be seen. If we cannot definitively say when we expect to see the benefits of actions the current timescales given are far less useful.	run-off to the Reef | Environment, land and water | Queensland Government • Water quality guidelines | Environment | Department of Environment and Science, Queensland (www.des.qld.gov.au) • Environmental Protection (Water and Wetland Biodiversity) Policy 2019 | Environment | Department of Environment and Science, Queensland (www.des.qld.gov.au) • Guideline: Deciding aquatic ecosystem indicators and local water quality guidelines under the Environmental Protection (Water and Wetland Biodiversity)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			Policy 2019 (a March 2022 publication) • Fact sheet – Environmental Protection (Water and Wetland Biodiversity) Policy 2019		
PL5 There are plans and systems in place to ensure appropriate and adequate monitoring information is gathered in relation to Land Based-Run Off	4	• New regulations under the Queensland legislation impose more in-depth monitoring requirements on both farmers and key farm suppliers such as fertilizer distributors. Some of the key new requirements include: – Regulated area to include all Reef catchments. – Expand the regulated agricultural commodities to include all cropping and horticultural activities and beef cattle grazing. – Mandate minimum practice agricultural standards for sugarcane, grazing and bananas. – Note -–Minimum practice agricultural standards for grains and horticulture are proposed to start from 1 December 2024. – Require development of nitrogen and phosphorous budgets for all sugarcane producers, to limit nutrient runoff. – Introduce new permit requirements for new or expanded cropping and horticulture activities to minimise increased pollution loads.	• Policy and Planning Roadmap • Marine Monitoring Program: Sampling re-design increases power to detect change in the Great Barrier Reef's inshore water quality. • Paddock to Reef Integrated Monitoring, Modelling and Reporting Program • Reef Water Quality Report Cards • RIMReP Web pages – GBRMPA Website	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Introduce new discharge requirements for new, expanded or intensified industrial activities in the Reef catchments mandating no net increase in nitrogen or sediment discharge. – Legislate water quality objectives for each river basin in the Great Barrier Reef World Heritage Area as catchment load limits, used for decision making in planning and environmental frameworks. – Requirements for advisers, such as fertiliser resellers and agronomists, providing advice on complying with the minimum practice agricultural standards, to ensure advice is not false or misleading and records are kept. – Include a time-bound statutory requirement to review the extent in which they have been effective in reducing the load of pollutants in Reef catchment waters, in addition to requirements to review the end-of-basin load water quality objectives and the minimum practice agricultural standards. • The recognition of industry certification programs such as Smart cane BMP and Freshcare Environmental Program – Reef assured for bananas that demonstrated that they at least meet regulatory requirements with the additional benefits of improving minimum practice compliance levels. • The implementation of the Reef protection regulations is backed by a comprehensive and resourced Reef Compliance Program that includes a strategy, enforcement guidelines, and monitoring and reporting of compliance results.	• RIMReP – Reef Knowledge System • RIMReP Business Strategy 2020-25 • The Reef 2050 Plan • RRC06 Urban Water Management Practice and Stewardship Framework for Report Cards Managing urban run-off to the Reef | Environment, land and water | Queensland Government • Water quality guidelines | Environment | Department of Environment and Science, Queensland (des.qld.gov.au) • Environmental Protection (Water and Wetland Biodiversity) Policy 2019 | Environment |		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• A new framework for benchmarking and reporting on level of practice applied to key facets of urban water management (the Urban Water Stewardship Framework) was finalised and implemented for the first time in late 2020. • A new human dimensions assessment linked to the Social and Economic Long Term Monitoring Program (SELTMP) was also developed to better assess and report on the values and uses of residents in report card partnership regions in relation to local waterways. • The Paddock to Reef program (P2R) continues to collect and integrate monitoring data and modelling across a range of scales including paddock, sub-catchment, catchment, regional and Great Barrier Reef wide in line with the Reef 2050 WQIP scope. This includes evaluation of management practice adoption, catchment condition (riparian, wetlands and ground cover), pollutant run-off and inshore marine condition. A new addition to the program is the inclusion of social monitoring with data now reported through the Reef Water Quality Report Cards. • A component of these Activities is the GBR catchment loads monitoring program. During 2020–21, the Great Barrier Reef Catchment Loads Monitoring Program and finer-scale monitoring project collected more than 11,000 samples across 97 sites in Reef catchments. During 2021–22 more than 15,700 samples were collected. It also provides data to stakeholders and community via three web based products:	Department of Environment and Science, Queensland (www.des.qld.gov.au) • Fact sheet – Environmental Protection (Water and Wetland Biodiversity) Policy 2019 • Reef Trust Gully and Stream Bank Toolbox 3rd Edition, March 2022 (www.dcceew.gov.au) • Reef Trust monitoring and evaluation plan • Urban Water Stewardship Framework 2020–2021 round summary findings (www.qld.gov.au) • Managing urban run-off to the Reef | Environment, land and water | Queensland		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• An interactive StoryMap for the GBR catchment loads monitoring program, available here. – The interactive Pesticide Reporting Portal, available here. – The Water Quality app, available via the 1622WQ website.	Government (www.qld.gov.au) • Great Barrier Reef Point Source Metadata Collection Project -- Dataset --Publications | Queensland Government • Water Tracking and Electronic Reporting System (WaTERS)		
PL6 The main stakeholders &/or the local community are effectively engaged in planning to address Land Based-Run Off	3	Stakeholders are engaged in several forums including: • Reef 2050 Advisory Committee. • Reef 2050 Independent Expert Panel. • Reef Water Quality Independent Science Panel. • Reef Regulations 'Agricultural Sector Advisory Group. • Reef Regulations Conservation Sector Group. • Reef WQIP partnership committee, WQ Reef Advisory Committee developing the Reef WQIP (Reef Plan) & regional WQIPs, which involved extensive public consultation. • The Reef 2050 WQIP involves partners from a wide range of organisations including industry, community groups, Traditional Owners and government (see committees above). • DES OGBR /DCCEEW/GBRF hold joint synthesis forums instigated as a recommendation from the Queensland	• Env Pol Gov - 2019 • Reef protection regulations | Environment, land and water | Queensland Government (www.qld.gov.au) • Broadening and enhancing reef protection regulations -- Consultation Regulatory Impact Statement, September 2017 (www.qld.gov.au)	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Government Water Quality Taskforce These bring together ~150 stakeholders to discuss the management of land-based impacts to the GBR as well as recognise the achievements of stakeholders through the Reef Champion Awards (in partnership with Queensland Farmers Federation and the Prince's Trust). • Reef Trust public consultation and stakeholder engagement. • Participation in the industry BMP programs continues to be strong (Smartcane, Grazing, Banana) and is effectively engaging increasing numbers of farmers in planning (and managing) to address land-based run-off. Challenges: • 2017 Scientific Consensus Statement found that intergovernmental coordination and policy alignment must be improved as they affect all aspects of program design and delivery. • Recent results from SELTMP indicate a lack of engagement is still felt amongst the general public indicating more work is still needed in this area. Specifically, some questions asked and their score out of ten from participants were: – Fair access to waterways: 5.49. – Management decisions made in fair way: 5.37. – Able to have input to management: 4.87. – Able to influence management: 4.19. – These SELTMP results indicated that overall satisfaction with waterway management was low.	• Broadening and Enhancing Protection Regulations – Decision Regulatory Impact Statement. • Reef partnerships review and synthesis • 2022 Scientific Consensus Statement engagement platform • Major Integrated Projects website • Wet Tropics Major Integrated Project Final Performance Report • Burdekin Major Integrated Project – Landholder Driving Change Final (Year 4) Performance Report • CORAL – QRWQP project database • Alluvium Reports		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The same reports indicated that for all various industry sectors' use of waterways is perceived to be not well managed (e.g., agriculture, fisheries, aquaculture, ports and shipping, and tourism). These generally low scores indicate that this relationship needs to be a focus for better engagement. • In Olvera-Gercia and Neil's 2019 reviews of the water management policies and governance structures in water quality management for the GBR it was noted that there exist a disconnect between NRM groups and a breakdown of communication between NRMs and other management agencies which may be limiting the benefits of works being done. This sentiment was echoed by interview participants who noted a decrease in the role of NRM groups which used to provide key on the ground relationships. • There was also a feeling of a top-down control which was noted both from interview participants and in Olvera-Gercia's work that limited the on the ground farmers and regional stakeholders perceived ability to influence reef policy.			
PL7 Sufficient policy currently exists to effectively address Land Based-Run Off	3	• There exists a great deal of policy to guide water quality on in the reef catchments including: – Reef Authority Position Statement – Water Quality – Reef Authority Position Statement – Marine debris – The Reef Authority's Planning and Policy Roadmap – Sewage treatment is regulated in Queensland under the Environmental Protection Regulation 2019 as an	• Env Pol Gov – 2019 • Reef protection regulations | Environment, land and water | Queensland Government (www.qld.gov.au)	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Environmentally Relevant Activity (ERA 63 -–Sewage treatment) – Reef water quality guidelines – Reef WQIP – Position Statement on Aquaculture within the Great Barrier Reef Marine Park (which includes water quality aspects) – Great Barrier Reef End-of-Basin Load Water Quality Objectives have been finalised for all Great Barrier Reef catchments. – Australia's Biodiversity Conservation Strategy 2010–2030 – Queensland Government River Guidelines – Strengthened Reef protection regulations under the Environmental Protection Act 1994 – Changes in vegetation clearing rights under the Vegetation Management Act 1999 – Planning and Policy Roadmap – will focus the Authority's efforts to deliver a proactive, contemporary and risk-based approach to Marine Park policy, planning and regulation that will protect key values and enable ecologically sustainable use for a changed and changing Reef. This includes assessment and rationalisation of Reef Authority policies. – The State Planning Policy: Clear guidance principles for protecting State Water Quality Interests. – The Point Source Water Quality Offset Policy: came into effect in 2017, but has not yet led to widespread uptake of	• Broadening and enhancing reef protection regulations -– Consultation Regulatory Impact Statement, September 2017 (www.qld.gov.au) • Broadening and Enhancing Protection Regulations – Decision Regulatory Impact Statement. • Reef partnerships review and synthesis • 2022 Scientific Consensus Statement engagement platform • Major Integrated Projects website • Wet Tropics Major Integrated Project Final Performance Report		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		policy options, due to a lack of case study exemplars in the Great Barrier Reef catchment and the need for better guidance material for offset development. This policy is up for review at the end of 2023. – Section 41AA of the Environmental Protection Regulations requires new ERAs to not result in additional nutrient or sediment releases in a Reef catchment, this came into force in 2021. This is to ensure new activities do not reverse the water quality improvements made to date. Challenges: • Developing policy that is adaptive enough to maintain relevancy in the face of large-scale issues such as climate change requires long scale integrative management plans. • Potential increases to agricultural use particularly in the northern reaches of the GBR catchment may intensify water quality issues. • The state planning policy has gaps in coverage regarding urban land development less than 2500m^2.	• Burdekin Major Integrated Project – Landholder Driving Change Final (Year 4) Performance Report • CORAL – QRWQP project database • Alluvium Reports • GBRMPA ELibrary: Position statement: Water quality (Document no. 100516) • Position statement: Marine debris (Document no. 100481) • Policy and Planning Roadma • Reef protection regulations – general • *Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation*		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			Amendment Bill 2019 -– Queensland Legislation • Broadening and enhancing Reef protection regulations: Decision Regulatory Impact Statement • Broadening and enhancing reef protection regulations -– Consultation Regulatory Impact Statement, September 2017 • Reef protection regulations | Environment, land and water | Queensland Government (www.qld.gov.au) • Reef protection regulations in the Great Barrier Reef regions factsheet		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Great Barrier Reef end-of-basin loads water quality objectives | Environment | Department of Environment and Science, Queensland (www.des.qld.gov.au) • Reef protection regulations – minimum practice agricultural standards and the environmentally relevant activity (ERA) standard for new commercial cropping and horticulture • Agricultural ERA standard for sugarcane cultivation -–version 2 • Agricultural ERA standard for banana cultivation -–version 2		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Agricultural ERA standard for beef cattle grazing -–version 2 • ERA standard for Commercial cropping and horticulture in the Great Barrier Reef catchment (prescribed ERA 13A) • Reef protection regulations – Industrial and resource activities • Reef discharge standards for industrial activities • Great Barrier Reef River Basins End-of-Basin Load Water Quality Objectives • Point Source Water Quality Offsets Policy 2019 • Reef protection regulations –compliance		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Compliance | Environment, land and water | Queensland Government (www.qld.gov.au) • Reef Trust Gully and Streambank Toolbox 3rd Edition • Reef Water Quality Report Card		
PL8 There is consistency across jurisdictions when planning for Land Based-Run Off	4	• There are numerous stakeholders and levels of planning which are required when considering management of land-based run-off for the Great Barrier Reef (See CO5 and PL6). – The Intergovernmental Agreement for the Reef is the overarching coordination document ensuring consistency across jurisdictions. Schedules attached to the IGA provide for consistent management for the joint field management program, fisheries and the Reef 2050 Plan. There are many examples of consistency (e.g. complementary zoning, joint permitting, plans of management, port management plans, defence environmental planning, shipping planning). – The Reef 2050 Plan also serves as an overarching document providing guidance with the nested Reef 2050 Water Quality Improvement Plan (Reef 2050 WQIP)	• *Environmental Protection Act 1994* • *Environmental Protection Regulation 2019* • Guideline: Reef discharge standards for industrial activities • Overview of the Reef Protection measures • Compliance | Environment, land and water | Queensland	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		providing the overarching guidance regarding reef water quality issues in the GBR. – New regulatory standards and water quality targets outlined in the Reef 2050 WQIP also provide clarity across jurisdictions about what water quality targets are to hit the Reef 2050 WQIP Objectives towards the key Reef 2050 outcomes. Comprehensive strategic assessment provides strong alignment for planning. – The Reef 2050 Integrated Monitoring and Reporting Program (RIMREP) vision is to develop a knowledge system that enables resilience-based management of the Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing, i.e. progress towards targets and objectives under the seven themes. It takes place across jurisdictions from Paddock to Reef, including monitoring and reporting for paddock, catchment and marine. – RIMReP's Reef Knowledge System and the Data Management System, will assist the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement and greater consistency across jurisdictions. – The RIMReP governance groups oversee the Program; setting strategy, direction and managing risk. Consistency across partners/jurisdictions. Partners signed a RIMReP Collaboration Statement.	Government (www.qld.gov.au) • Paddock to Reef Integrated Monitoring, Modelling and Reporting Program • Reef Trust Gully and Stream Bank Toolbox 3rd Edition, March 2022 (www.dcceew.gov.au) • Reef 2050 Plan -– DCCEEW		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Challenges: • However poor linkage between major programs (e.g. Queensland Wetland Program) and key management agencies (e.g. Department of Mining and Energy, Department of Tourism, Regional Development and Industry) may be limiting their efficacy as they cannot cross compare techniques and strategies as efficiently. • Conflicts have also arisen between planning frameworks affecting on ground delivery of actions that improve water quality outcomes. • Jurisdictional limitation across various territories also creates complexity and adds to potential uncertainty regarding the ability for programs to minimise impacts to the Reef. • The size and complexity of the system being managed along with the number of stakeholders may mean there is a level of siloing occurring which may make sharing of ideas and findings difficult.			
PL9 Plans relevant to Land Based-Run Off provide certainty regarding where uses may occur, the type of activities allowed, conditions under which activities may proceed and circumstances	3	• The *Planning Act 2016* (Qld) is the policy framework utilised in making land use decisions in Queensland. • Within the GBR the Zoning Plan provides some guidance on what activities can occur where – some of these activities have associated water quality aspects to them e.g. structures with an allowance for the discharge of waste with a permit.	• Alluvium costings report. • Reef Water Quality Program Investment Plans and reports • Reef Trust Partnership -– Great Barrier Reef	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
where impacts are likely to be acceptable.		This is allowed in all zones except Preservation Zones (which are a very small part of the Marine Park). • Situations where marine based cumulative impacts are likely to be unacceptable are not well managed. For example, individual outfalls may be required to report on their discharge quality, but cumulative water quality impacts are not measured. Any overall decrease in water quality (from a number of stressors) is not measured and therefore not incorporated into reactive management where systems and conditions are evaluated and adapted to achieve the best environmental outcomes. However, a Reef Cumulative Impact Management Policy has been drafted and is undergoing public consultation and revision.	Foundation --Great Barrier Reef Foundation • RTP_InvestmentStrategy _FINAL for web.pdf (www.barrierreef.org) • $1.2B investment --Joint media release: Record Budget boost to protect Great Barrier Reef | Ministers (www.dcceew.gov.au) • Our investments – DCCEEW • The Reef Trust -- DCCEEW Investment strategy • Improving water quality – DCCEEW • Reef protection through world-leading management | Reef Authority		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Alluvium Report available on request. • https://reefonomics.net.au/about/		
INPUTS					
IN1 Financial resources are adequate and prioritised to meet management objectives to address Land Based-Run Off	3	• Overall funding put forward for land based run-off was found to be largely insufficient in order to meet the 2025 reef targets in the 2016 Alluvium Report on the Costs of achieving the water quality targets for the Great Barrier Reef. In this report it was estimated that in order to provide sufficient tonnes per year reductions in sediment and DIN as set out in the 2025 reef targets (i.e. a 20 per cent reduction in anthropogenic end-of catchment fine sediment loads for Mackay Whitsunday and Burnett Mary with a 50 percent reduction in the Fitzroy, Burdekin and Wet Tropics catchment by 2025; a 50 percent reduction in anthropogenic end of-catchment dissolved inorganic nitrogen (DIN) for Mackay Whitsunday and Burnett Mary catchments and an 80 per cent reduction in the Burdekin and Wet Tropics catchments by 2025) an estimated cost of 8.21 billion would be required. This is primarily from the cost of remediating sediment in the Fitzroy region which on its own is estimated to cost 6.46 billion to meet 2025 targets. Current contributions amount to less than half of this indicating that financial resourcing isn't sufficient to meet current targets. • Current funding set aside by the Australian Government and Queensland government has been extensive during the	• Alluvium costings report. • Reef Water Quality Program Investment Plans and reports • Reef Trust Partnership -– Great Barrier Reef Foundation -–Great Barrier Reef Foundation • RTP_InvestmentStrategy_FINAL for web.pdf (www.barrierreef.org) • $1.2B investment -–Joint media release: Record Budget boost to protect Great Barrier Reef | Ministers (www.dcceew.gov.au)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		period of this review (2019-2023). The Australian Government has committed $1.2 B over 9 years to 2030. Contributions as a part of this between 2017 and 2022 are listed in detail in the Reef 2050 Water Quality Improvement Plan investments with some high value inputs being: • The Reef Trust – Great Barrier Reef Foundation Partnership (Partnership) is a $443.3 million six-year grant between the Department of Climate Change, Energy, Environment and Water, which manages the Reef Trust, and the Foundation. Some of the key financial inputs were: – $77,100,000 dedicated to 5 on the ground regional programs for DIN and pesticide reduction. – $63,800,000 Five on-ground regional programs to reduce fine sediment runoff in the Fitzroy ($19.6 million), Mary ($9.4 million), Bowen Broken Bogie ($27.3 million), Upper and East Burdekin ($4.1 million) and Upper Herbert ($3.5 million) catchments. – $30,401,766 dedicated to Implement cost effective restoration works and improve land management practices to address gully and streambank erosion. – $26,030,184 was dedicated to the reef alliance —Growing a Great Barrier Reef—to support landholders to change practices in cane, grazing, horticulture, bananas, grains and cropping. • Queensland Reef Water Quality Program has committed a substantial amount of funding toward 2050 Water Quality	• Our investments – DCCEEW • The Reef Trust -– DCCEEW Investment strategy • Improving water quality – DCCEEW • Reef protection through world-leading management | Reef Authority • Alluvium Report available on request. • https://reefonomics.net.au/about/		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Improvement plan investments dedicating $270,127,680 between 2017-2022. Some of those major investments were: – $35,305,890 toward Implementation of two Major Integrated Projects (MIPs) in the Wet Tropics and Burdekin regions to pilot a range of activities with producers and the community to reduce nutrient, pesticide and sediment loads into local waterways and ultimately the Great Barrier Reef. – $32,479,253 Support to voluntary industry-led BMP programs in cane, grazing, grains, and banana industries, including continual improvement of BMP modules, benchmarking of producer's operations and accreditation to industry standard. – $18,698,512 Targeted projects of direct action through sustainable landscape management and system repair including riparian revegetation, gully repair, streambank stabilisation and coastal wetlands rehabilitation. • These contributions are anticipated to continue with The Queensland Government has committing $270.1 million over five years to 2025-2026 to continue the Queensland Reef Water Quality Program (QRWQP). • Monitoring and evaluation of land-based impacts is provided through the Paddock to Reef program (continued same level of investment through to 2025-2026 – Qld funding is part of the QRWQP investment figure).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The marine side of the program is provided by GBRMPA's Marine Monitoring Program that received additional funding through the Australian Government's Reef Protection package in 2022 to be implemented in 2023 for 3 years. Continued funding for eReefs marine modelling has also been confirmed by the Australian Government. • Distribution decisions for the Queensland Reef Water Quality Program are also supported by Reefonomics a web-based tool to support investment planning across the Great Barrier Reef catchments. It generates portfolios of the most cost-effective sub-set of ~100 alternative actions, distributed spatially across the Great Barrier Reef catchments. As of now this platform is still in testing phase and not available to the general public however its agriculture specific counterpart P2R Projector is available on request to help on-ground projects estimate water quality benefits from proposed projects. • Overall funding contributions are significant however given the scale of the proposed projects more resources may be needed if 2025 targets are to be met. • An Alluvium report in 2022 found that current progress towards targets represents approximately $165 million combined investment in DIN abatement and approximately $197 million combined investment in fine sediment abatement since 2014. This presents a 46%:54% between			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		investment in reduction of DIN and fine sediment respectively. **Challenges:** • High economic cost of specific regions namely the Fitzroy (6.46B) and the Burdekin Dry Tropics (1.09B) sediment remediations make current targets potentially unrealistic given current funding allowances (Both locations are currently tracking poorly toward water quality targets scoring a Very Poor and Poor respectively for Sediment reduction in the 2020 reef report card).			
IN2 Human resources within the managing organisations are adequate to meet specific management objectives to address Land Based-Run Off	2	• There are numerous departments which provide personnel to aid in land-based run-off related issues: – The Office of the Great Barrier Reef and World Heritage (Queensland Department of Environment and Science, DES) – The Reef Authority (Two full time staff dedicated to the Marine Monitoring Program) – The Department of Climate Change, Energy, the Environment and Water – The Department of Resources – The Department of Agriculture and Fisheries – Technical partner consortium consisting of CSIRO, ANU, and Griffith University – A Queensland Department of Environment and Science, Reef Compliance and Regulation team of 40 staff has been established to implement the expanded Reef	• Workshops and Stakeholder Conversations • Agency Org Charts / Online Personnel Listings	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		protection regulations under the Environmental Protection Act 1994 and deliver assessment and compliance activities. While this represents a high number of personnel in upper regulatory roles there seemed to be some issues in staffing during the period of covid that progress throughout the current period which may be limiting staffing particularly with regard to lower level on the ground staff to facilitate individual projects such as coordinators for P2R. Social science teem teams such as those with the Authority are often spread quite thin with only two members and their actual time available to focus on Water quality issues may be limited. - Efforts to increase regional capacity and skills have increased e.g. through programs such as Queensland Government's Reef Assist and the Agricultural Extension Work Placement Program in partnership with QFF. Challenges: • Queensland Government has caps on full-time equivalent positions (FTEs) which limit the ability to expand staff numbers (even if funding is available). This may have implications for expanded/fast-tracking delivery of programs to address land-based impacts.			
IN3 The right skill sets and expertise are currently available to the managing	3	• Across the Reef WQIP program and Reef 2050 Plan there are high levels of in-house skills in land-based run-off. However, obtaining key new staff particularly in areas relating to data	• Workshops and Stakeholder Conversations	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
organisations to address Land Based-Run Off		management has proved more difficult in the post COVID 19 environment. • Relevant expertise and skills are then also outsourced through consultation with Industry and/or other Government and research agencies. • Advice on water quality management is also sought from advisory groups to government, including IEP, Reef WQ ISP, sediment working group, NUE working group, pesticide working group, human dimensions working group, Paddock to Reef Program Leaders Group and Regional Technical Working Group. • Reef regulations compliance program has been further strengthened, with increased staff and resources since 2021. • Efforts to increase regional delivery partner skills have increased e.g. through programs such as Queensland Government's Reef Assist and the Agricultural Extension Work Placement Program in partnership with Queensland Farmers Federation . Challenges: • Small size of some working groups or teams within organisations may make them more prone to skill loss when key employees leave.	• Enhanced Extension Coordination – training and capacity building • Paddock to Reef Integrated Monitoring, Modelling and Reporting Program • The Scientific Consensus Statement -–Land use impacts on Great Barrier Reef water quality and ecosystem condition		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN4 The necessary biophysical information is currently available to address Land Based-Run Off	3	• New information and monitoring systems have been emerging in relation to biophysical data for land-based run off such as the: – CSIRO's eReefs Pesticide Model in 2022 which was used to review and re-implement the Marine Monitoring Program's pesticide monitoring locations. – The Marine Monitoring Program developed a Dashboard to provide more immediately accessible online information to managers about the current trends and values of water quality conditions and the health indicators of two impacted ecosystems – inshore coral reefs and seagrass meadows. The scheduled release for this is 2023 though so cannot say as of yet its effectiveness. – RIMReP's interactive online Reef Knowledge System has continued to be modified and improved since its initial release in 2020. Includes: o New GBR habitat mapping layers – The Reef Authority published a Priority Monitoring Gaps prospectus in 2021 - which provides an overview of the 11 priority monitoring gaps identified. Research has already begin to help address these. – The Paddock to Reef program continues to deliver a program that spatially and temporally monitors, models and reports land-based runoff, as well as the condition of catchments, freshwater wetlands, and inshore marine condition. The program provides scientifically robust	• eReefs Research – a world-first delivering vital information about the entire Great Barrier Reef from catchment to ocean (www.csiro.au) • RIMReP Business Strategy 2020-25 • RIMReP – Reef Knowledge System • Priority monitoring gaps prospectus for RIMReP (2021). • GBRF Critical Monitoring Gaps webpage • Reef explorer | Reef Knowledge System (www.gbrmpa.gov.au) • Eye on the Reef | Reef Authority • Reef Knowledge System – Resilient Reefs Network (gbrmpa.gov.au)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		estimates of pollutant loads delivered to the Reef, informed by monitoring at a range of scales, and also estimates the reduction of pollutant loads from on-ground projects implemented to address runoff issues. Decision support tools using Paddock to Reef program data e.g. P2R Projector are now used by over 330 unique on-ground delivery agents across 60 organisations to inform selection of projects based on water quality outcomes derived from the modelling. Challenges: • Underlying knowledge gaps pertaining to how key remediation techniques improve reef health as well as efforts to identify the current condition and recovery capacity of the reef are required before a true assessment of effectiveness can occur.	• GBRMPA ELibrary: Science and Knowledge Needs for Management • Science and Knowledge Needs | Reef Knowledge System (gbrmpa.gov.au) • GBRMPA ELibrary: Priority monitoring gaps prospectus: Reef 2050 Integrated Monitoring and Reporting Program • Integrated Monitoring and Reporting - Great Barrier Reef Foundation • Paddock to Reef modelling - https://www.reefplan.qld.gov.au/tracking-progress/paddock-to-reef/modelling-and-monitoring • https://www.reefplan.qld.gov.au/__data/assets/pdf_file/0017/262007/report-card-2020-methods-catchment-loads-modelling.pdf		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Elvis (www.fsdf.org.au)		
IN5 The necessary socio-economic information is currently available to address Land Based-Run Off	3	• Improvements in the SELTMP to focus on catchment wide observations are promising. • Regional Report Cards also conduct social surveys. • The Paddock to Reef program has implemented a social monitoring program. • The Native Vegetation Scientific Expert Panel was created to identify incentives or other mechanisms that can be used to help avoid clearing and advise if additional measures are needed. It focuses on the use of improved science and analytical tools developed by the Department of Environment and Science (department) to enable greater confidence in identifying land clearing and understanding the economic and social drivers and motivations for clearing. Challenges: • Presentation of data on social metrics is variable across Regional Report cards with only two making direct reference to these issues in published report cards for 2021. • Newness of the SELTMP catchment wide observations for social governance values make comparisons of this value over time impossible at this time. • Restrictions to interview style and significant variation in participant location due to impacts of COVID 19 have meant	• Social and Economic Long-Term Monitoring Program (SELTMP) – SELTMP Core module pilot data dashboard – SELTMP Core Module Report – SELTMP Core Module 2021 Survey dataset: – Regional Report Cards social survey dashboard – Regional Report Cards Module Report – Regional Report Cards 2021-22 Social Survey dataset – Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the most recent findings cannot be compared to previously collected surveys. ▪ Previous years seemed to rely on in person surveys largely from locations immediately adjacent to the GBR shoreline transitioned to online surveys meant a wider array of participants from more varied locations in the catchment. This may actually be beneficial to understanding the real opinion of the whole population of the reef catchment.	dimensions Monitoring projects) • Great Barrier Reef Outlook Report 2019 • Science and Knowledge Needs for Management • P2R P2R Projector - https://p2rprojector.net.au/about/ • Paddock to Reef social monitoring • SELTMP methods and data • Building a policy instrument impact model for the Reef • Reef partnerships review and synthesis • Understanding the influence of media and community narratives on Great Barrier Reef water quality management		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Understanding the human dimensions to land management practice change to aid in improved future adoption • Supply chain and market incentives for agricultural best practice land management in Great Barrier Reef catchments • 2022 Scientific Consensus Statement questions • Influences on Stakeholder Attitudes towards Government's Great Barrier Reef Regulations | Journal of Resilient Economies (ISSN: 2653-1917) (www.jcu.edu.au)		
IN6 The necessary Indigenous heritage information is currently available to address Land Based-Run Off	3	• Indigenous Heritage is still considered to be an area in which numerous data and knowledge gaps persist. However there have been efforts since 2019 to help remedy this primarily through building a stronger stakeholder relationship with	• 2019 Outlook Report • Science and Knowledge Needs for Management	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		indigenous peoples and facilitating their voice to be better heard in policy making. This is seen in the numerous plans and strategies including: – The 'Strong Peoples-Strong Country Framework' : which aimed to build capacity for Traditional Owner leadership of monitoring and reporting in the Great Barrier Reef (GBR). – Examples of Sea Country Values Mapping are now also made publicly available: E.g. Mandubarra Sea Country Cultural Values Mapping Project. – RIMReP also focused on Indigenous integration via a publicity campaign to drive engagement with their projects in these groups. – The Department of Environment and Science, Reef Compliance and Regulation team, also includes First Nations staff to provide cultural input into land-based run-off management. – Future reviews of the Reef 2050 WQIP will be conducted in partnership with First Nations people. – The Reef 2050 Traditional Owner Implementation Plan released November 2022 built on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products including an animation and timeline were also	• Science and Knowledge Needs | Reef Knowledge System (www.gbrmpa.gov.au) • Monitoring the Indigenous heritage within the Reef 2050 Integrated Monitoring and Reporting Program: final report of the Indigenous Heritage Expert Group • Strong peoples - strong country: Indigenous heritage monitoring framework summary report • Mandubarra Sea Country Cultural Values: 2019-2020 mapping project • Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		produced to inform community, government and stakeholders of the long history and desired path forward.	• Traditional Owner and Marine Parks Management Portal - Overview (www.arcgis.com) • Reef 2050 Traditional Owner Implementation Plan		
IN7 The necessary historic heritage information is currently available to address Land Based-Run Off	N/A	N/A	• 2019 Outlook Report • Science and Knowledge Needs for Management • Science and Knowledge Needs | Reef Knowledge System (gbrmpa.gov.au) • https://digital.sandiego.edu/theses/22/.	N/A	N/A
IN8 There are additional sources of non-government input (e.g. volunteers) contributing to address Land Based-Run Off	4	• There are numerous chances for non-governmental input in land-based run off. Numerous programs such as the agency led BMP projects rely on farmer input to be successful. Some other key representations of these kinds of programs include: – The Reef Guardian program strives to engage the community in stewardship of the Reef – addressing land-based run-off is part of this.	• Paddock to Reef program catchment monitoring • Great Barrier Reef Catchment Loads Monitoring Program Storymaps	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Local Marine Advisory Groups sometimes provide input towards addressing land-based run-off. – The GBR Gully and streambank joint program includes Australian and Queensland governments, in partnership with the private sector, conservation groups, research institutions, regional natural resource management bodies and industry groups. – Reef tourism industry volunteer participation in sample collection for CSIROs eReefs Pesticide Model at the Marine Monitoring Program's pesticide monitoring locations. – P2R programs have extensive community dependence including over 230 regionally based and partner organisations including indigenous partners, agricultural industries, natural resource management bodies, land holders and regional councils. – $57 million has been leveraged in the form of in-kind contributions by landholders and other project partners for Reef Trust Contributions. • On the ground projects also often attract non-gov investments such as The Wet Tropics Major Integrated Project (WTMIP) which leveraged an additional $8.1 million in financial and in-kind contributions towards project delivery from industry, community, catchment groups, industry and Traditional Owners, with a considerable proportion of this representing contributions to the design, establishment and implementation of the Reef Credits. Non-for-profit groups	• Great Barrier Reef Foundation – Water Quality Outcomes • Major Integrated Projects in the Burdekin and Wet Tropics (2021–2025) | Environment, land and water | Queensland Government (www.qld.gov.au) • Grazing support programs | Environment, land and water | Queensland Government (www.qld.gov.au) • ReefClean – Tangaroa Blue Regional Report Card partnerships		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		such as the Tangaroa Blue run marine clean-up programs and the like which are also contributing the water quality.			
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of Land Based-Run Off	3	• Most planning documents include a requirement for engagement via stakeholder consultation and public review prior to publishing. Some key groups responsible for this engagement were: - Reef 2050 Plan Independent Expert Panel - Reef 2050 Advisory Committee – Direct consultation with Reef Traditional Owners – Marine experts. – Integration of industry partners including specialist consultants in agronomic, behavioural, economic, extension or supply-chain related knowledge services aligned to delivery goals continue to expand and improve (Taylor et al. 2021). – NRMs and industry organisations play major role in program delivery for both Governments. – NRMs, industry and NGO represented through Reef 2050 Partnership Committee. • Stakeholder engagement is fundamental to project scoping and development under Reef Trust and MIPs. • The Reef 2050 Water Quality Research, Development and Innovation Strategy 2017–2022 which defined the knowledge	• Chapter 4A of the *Environmental Protection Act 1994* • Guideline: Reef discharge standards for industrial activities • Overview of the Reef Protection measures • Resources | Environment, land and water | Queensland Government (www.qld.gov.au) • Compliance | Environment, land and water | Queensland Government (www.qld.gov.au) • Broadening and enhancing reef protection regulations -	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		needs for water quality management involved multiple rounds for stakeholder consultation including: – The Great Barrier Reef Synthesis Workshop – The Human Dimensions Workshop – The Particulate Nutrient Workshop – The Sediment, Nutrients, Pesticides and Human – Dimensions Working Groups – Marine experts' consultation. – Urban water management has also made strides during this period with the Urban Water Stewardship Framework (UWSF) workshops. Challenges: • Farmers have expressed confusion at where policy is being derived particularly coming from government sources along with a general idea that policy is derived via a top down structure for which they don't have control (Garcia, 2019). • Increasing complexity around partnerships that are often nested within one or more larger partnerships makes tracking effectiveness and impact difficult (Taylor et al. 2021).	Consultation Regulatory Impact Statement, September 2017 (www.qld.gov.au) • Broadening and Enhancing Protection Regulations – Decision Regulatory Impact Statement. • https://www.qld.gov.au/__data/assets/pdf_file/0024/341169/uswf-2020-21-round-summary-findings.pdf/_recache)		
PR2 The local community is effectively engaged in the ongoing management of Land Based-Run Off	3	• The 2022 Evaluation of Reef Trust water quality program investments identifies community engagement in enduring legacy assessment results signifying its significant role in reef health.	• Alluvium Reports • MMP presentation to LMACs: Internal document only, available upon request	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Local Marine Advisory Committees (LMAC) serve as a vital connection between management agencies and the community with ongoing efforts to share information including a presentation in 2021 introducing LMAC members to the Marine Monitoring Program. • Several programs including the Marine Monitoring Program rely on local community members to conduct pesticide sampling. The Marine Monitoring Program providers are engaged in promoting the implications of the monitoring results for management efforts and the local community. • Major Integrated Projects also serve as a connection to the community and industry as programs such as the Wet Tropics MIP engaged 325 growers across 39,503 hectares covering 86% of sugarcane and banana land in Tully and Johnstone and provided training to 13 Indigenous staff in water quality sampling. • Several regional WQIPs are also in place for which local NRM regions and/or Council (in the Townsville urban example) have ongoing programs reporting to community and holding various forums. • Reef Assist program : involves the engagement of a variety of community sectors in delivering on-ground rehabilitation works focussed on improving Reef water quality. Challenges:	• Major Integrated Projects website • https://www.qld.gov.au/environment/coasts-waterways/reef/reef-program/reef-assist • Regional Report Card partnerships: Wet Tropics, Dry Tropics, Mackay-Whitsunday-Isaacs, Fitzroy Basin, Gladstone Healthy Harbour.		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Recent results from SELTMP indicate a lack of engagement is still felt amongst the general public indicating more work is still needed in this area. Specifically, some questions asked and their score out of ten from participants were: – Fair access to waterways: 5.49. – Management decisions made in fair way: 5.37. – Able to have input to management: 4.87. – Able to influence management: 4.19.			
PR3 There is a sound governance system in place to address Land Based-Run Off	3	• Prior to 2019 governance around best practice land management largely structured itself around voluntary self-regulation for major industry polluters. However, as benchmarks for water quality were still not being hit more regulatory stipulations were put in place to help push for higher compliance. • New projects have been created since governance was identified as a priority monitoring gap particularly the IMR RTP Monitoring collective capacity and implementation (Governance) which will run from 2021- 2024 with the aim to deliver an ongoing and replicable framework to monitor collective capacity and implementation (governance) effectiveness that is suitable for inclusion in RIMReP and Reef 2050 Long Term Sustainability Plan reporting. • Reef WQIP provides an integrated approach to water quality improvement and has developed efficient institutional arrangements that will ensure actions are implemented in a	• Env Pol Gov - 2019 • RIMReP Business Strategy 2020-25 • Integrated Monitoring and Reporting - Great Barrier Reef Foundation	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		timely and coordinated manner across agencies and programs. • The Paddock to Reef Integrated Monitoring, Modelling and Reporting Program is a collaborative program involving approximately 20 organisations. Sound governance and coordination arrangements are critical to the success of such a complex and interdisciplinary program. • 2017 Scientific Consensus Statement finds that intergovernmental coordination and policy alignment must be improved as they affect all aspects of program design and delivery. • A number of committees have been established to help ensure a coordinated and cohesive approach to implementation, and appropriate commitment of resources to actions. Some primary ones being: – Reef 2050 Advisory Committee – Reef 2050 Plan Independent Expert Panel – Independent Science Panel – Executive Steering Committee Challenges: • The effectiveness of new regulations from 2019 and its impact on partnerships cannot yet be identified as the metered roll-out means the full implications of the regulations were not in effect until December 2022.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR4 There is effective performance monitoring, including regular assessment of appropriateness and effectiveness of tools, to gauge progress towards the objective(s) for Land Based-Run Off	4	• Performance review and continual monitoring of tools to gauge effectiveness is a well understood necessity and is therefore built into the production of many primary policies for reef management including: • 5 year revision of the Outlook Report to track management effectiveness and outcomes. • Reef 2050 Integrated Monitoring and Reporting Program (RIMREP) is being used to track the progress of outcomes outlined in the Reef 2050 Plan. • In 2022 CSIRO produced the first eReefs Pesticide Model which was used to review and re-implement the Marine Monitoring Program's pesticide monitoring locations. • The Marine Monitoring Program is due to undergo an external independent review in 2023 as part of its adaptive review cycle. • OGBR&WH team (DES) undertakes and requires regular program and project evaluations to assess performance towards strategic and project targets and objectives. • Progress towards the Reef 2050 WQIP's targets and objectives continues to be evaluated through the Paddock to Reef Integrated Monitoring, Modelling and Reporting Program (Paddock to Reef program) and reported through the Reef Water Quality Report Card.P2R Projector decision support tool using science from the Paddock to Reef program	• GBRMPA ELibrary: Great Barrier Reef Outlook Report 2019 (refer Chapter 7) • RIMReP Web pages – GBRMPA Website • RIMReP – Reef Knowledge System • RIMReP Business Strategy 2020-25 • RIMReP Annual Business Plan 2022-23 • Reef 2050 Plan objectives and goals 2021-2025 • Marine Monitoring Program Annual Report Inshore Water Quality Monitoring 2020-21 • Marine Monitoring Program: Sampling re-design increases power to detect change in the	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		to inform on-ground investment selection and evaluation (used by over 330 unique delivery agents across 60 organisations). • Structured and rigorous technical assurance process supports the delivery of the Reef Trust gully and streambank program that provides effective performance monitoring, including regular assessment of appropriateness and effectiveness of tools. • Urban Water Stewardship Framework assessed performance in the management of potential nutrient and sediment loads and assessment of key management activities undertaken by councils, developers and contractors. Challenges: • Timeframe between management action and visible impacts to reef water quality make tracking impacts difficult. • Key knowledge gaps such as: – What are the water quality benefits from recovered land condition as a result of improved grazing practices? – What is the effectiveness, in terms of water quality benefits, costs and timeframes, of remediating gully and riparian areas? How can this information be used to target and prioritise areas for remediation? – What is the risk of the finest sediment fractions to the reef?	Great Barrier Reef's inshore water quality. • Paddock to Reef Integrated Monitoring, Modelling and Reporting Program (Paddock to Reef program) that integrates GBRMPA's Marine Monitoring Program & eReefs marine modelling). • https://www.reefplan.qld.gov.au/tracking-progress/reef-report-card • https://p2rprojector.net.au/about/ • Reef Trust monitoring, reporting and evaluation – DCCEEW • Reef Trust Gully and Streambank Toolbox 3rd Edition • PRMT-1-2975 Annual Permissions Compliance Plan 2018 – 2019		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Better understanding of sediment sources and processes in priority catchments. • Without clearer understandings of these key issues defining the actual effectiveness of any program is difficult.	• PRMT-1-4267 Annual Permissions Compliance Plan 2019 – 2020 • PRMT-1-4637 Annual Permissions Compliance Plan 2020-2021 • PRMT-1-5274 Annual Permissions Compliance Plan 2021-2022		
PR5 Appropriate training is available to the managing agencies to address Land Based-Run Off	3	• Workshops, seminars, and conferences related to land-based run-off in the GBR are often run by the Authority to ensure clarity for staff on latest trends and research efforts. • Managing agencies coordinate field visits/checks for staff to visit projects and learn from delivery partners. • The Queensland Government also holds various workshops and seminars in addition to jointly running the Great Barrier Reef Synthesis forums with the Australian Government and GBRF involving ~150 partners to engage them in management efforts to address land-based impacts. • The Queensland Government Enhanced Extension Coordination program delivered a training needs analysis and provided training opportunities to extension providers in response to the identified priorities. Agency staff from DAF,	• Enhanced Extension Coordination – training and capacity building • Workshops and Stakeholder Conversations • Paddock to Reef program • GBR Synthesis Forums	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		NRMs, industry and private extension providers all participated. • Paddock to Reef program engages and supports staff in the use of the tools for monitoring, including P2R Projector and the land condition assessment tool (LCAT) to build capacity and understanding of application to address land-based run-off. The Paddock to Reef program also funds annual regional science forums through the Reef NRMs and has recently implemented a regular lunch-time seminar series (regularly attended by over 100 participants). • The Reef Trust gully and streambank toolboxes are currently being integrated into P2R Projector and will be included in the regular training forums P2R funds each of the NRMs to run annually in conjunction with the DAF P2R management practice adoption team. Challenges: • Training opportunities were limited to online platforms due to the COVID 19 Pandemic which occurred during this period. • Training ability may be at risk in smaller more specialised teams If upper level staff leave.			
PR6 Management of Land Based-Run Off is consistently implemented across the relevant jurisdictions	4	• The GBR intergovernmental agreement provides a framework for the Australian and Queensland governments to work together to protect the GBR.	• Paddock to Reef Integrated Monitoring, Modelling and Reporting Program	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef 2050 Plan was released by the Australian and Queensland governments in March 2015 and underwent a comprehensive review with the new Reef 2050 Long-Term Sustainability Plan 2021-25 since released. This document serves as the overarching framework for protecting and managing the Reef until 2050 along with the nested Reef 2050 Water Quality Improvement Plan. The Plan sets clear actions, targets, objectives and outcomes to drive and guide the short, medium and long-term management of the Reef. The Plan firmly responds to the pressures facing the Reef and will address cumulative impacts and increase the Reef's resilience to longer term threats such as climate change. • New Regulatory stipulations and water quality targets also help provide clarity on implementation of water quality initiatives across the catchment. Challenges: • Cross regional communication was described as "rare" particularly for regional NRM groups limiting effectiveness of management (Garcia, 2019).	• Reef Water Quality Report Cards • Reef 2050 Water Quality Improvement Plan • Reef 2050 Plan: • https://www.dcceew.gov.au/parks-heritage/great-barrier-reef/protecting/reef-2050-plan		
PR7 There are effective processes applied to resolve differing views/ conflicts regarding Land Based-Run Off	3	• Management of land-based run off is prone to conflict particularly when large shifts such as the new reef regulations are rolled out. • Agricultural organisations in particular (AgForce, QFF etc.) are often very resistant to regulatory change believing they	• Applications for joint permissions (Document No. 100440)	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		are taking an unfair level of responsibility for current reef declines. • However during production of key documents stakeholder consultation was a key concern with Industry consultation being represented via extensive consultation sessions (Over 60) held throughout the six Reef regions. • Response to these actions seems mixed and exact processes for how concerns raised were unclear after these consultations. Some farmers seemed to feel empowered afterwards recognising the new regulations as good farming practice while others stated they had not felt heard and that their input was ignored (Hamman et al. 2022). • After Introduction of the regulations conflict was managed through a few methods ranging from direct calls and meetings to relevant media response. • Programs to help farmers after the regulations were quickly enacted as a means to help mitigate dissent, for example over $14.5 million was devoted to one such program Grazing Resilience and Sustainable Solutions (GRASS) which supports graziers in the Burdekin, Fitzroy and Burnett Mary regions to identify opportunities to improve poor (C) or degraded (D) land. Challenges:	• Workshops and Stakeholder Conversations • Hamman et al. 2022		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Lack of consultation with industry representatives for this review limits ability to adequately represent their opinions regarding conflict management.			
PR8 Impacts (direct, indirect and cumulative) of activities associated with Land Based-Run Off are appropriately considered.	3	• Impacts seem to be well understood with some gaps see CO3. As for consideration of impacts into key programs the Paddock to Reef Program does well with integrating information on management practices, catchment indicators, catchment water quality and the ecological health of the GBR. • Condition and trend of values such as annual average sediment load, particulate nitrogen and phosphorus load, dissolved inorganic nitrogen and pesticides from land-based runoff are measured through the Paddock to Reef Monitoring, Integrated Modelling and Reporting program (Paddock to Reef program), which includes the Marine Monitoring Program and measuring the actions of land managers aimed at reducing land-based runoff. The design of this program is reviewed after each update of the Reef 2050 WQIP, and will be reviewed again with the upcoming review of the Reef 2050 WQIP. • The Marine Monitoring Program has also continued to report on water quality and the health of key marine ecosystems such as coral reefs and seagrass in the inshore Great Barrier Reef lagoon. This program has further expanded since 2019 with funds going to JCU to conduct flood event monitoring, including in situ water quality sampling and mapping the	• The Reef 2050 Plan – DCCEEW • Marine Monitoring Program | Reef Authority • Section 41AA of the *Environmental Protection Regulation 2019* • Guideline: Reef discharge standards for industrial activities • Overview of the Reef Protection measures • Compliance | Environment, land and water | Queensland Government (www.qld.gov.au) • 2022 Scientific Consensus Statement update	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		extent of flood plumes using remote sensing and satellite programs. This was set to better understand the real risk of water quality issues as a result of flood plumes. The Marine Monitoring Program has a Monitoring, Evaluation, Reporting and Improvement Plan that ensures activities are appropriate and adequate. Information from the Marine Monitoring Program is integrated into metrics that describe inshore marine water quality, seagrass and coral condition and trends in condition assessments are used to evaluate progress towards the Reef WQIP goal for the marine environment as part of the Reef Water Quality Report Card. This data is also used in most Regional Report Cards. • Overall spatial understanding and risk awareness has seemed to grow however a potential gap persists in cumulative impacts associated with the combined impact of run-off and larger issues such as climate change. These issues are set to be examined further in the 2022 Scientific Consensus Statement but for now it remains a knowledge gap. Challenges: • Timeframe between management action and visible impacts to reef water quality make tracking impacts difficult. • Key knowledge gaps such as: – What are the water quality benefits from recovered land condition as a result of improved grazing practices?	• Paddock to Reef program • Reef Water Quality Report Cards • LiDAR final report available on request • Elvis (www.fsdf.org.au)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– What is the effectiveness, in terms of water quality benefits, costs and timeframes, of remediating gully and riparian areas? How can this information be used to target and prioritise areas for remediation? – What is the risk of the finest sediment fractions to the reef? – Better understanding of sediment sources and processes in priority catchments. • Without clearer understandings of these key issues, defining the actual effectiveness of any program is difficult.			
PR9 The best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding Land Based-Run Off	4	• The Scientific Consensus Statement 2017 still serves as the primary synthesis of all available information on biophysical research and monitoring information and provided information for the review of Reef WQIP. An updated version is expected to be released in 2024 and will serve to update this and provide even more up-to-date information to ensure management programs can operate with relevant information. • Consistent workshops, seminars, and conferences related to land-based run-off in the GBR also serve to ensure up-to-date information is being spread. • Reef 2050 WQIP, Paddock to Reef Integrated Monitoring, Modelling and Reporting Program (Paddock to Reef) including the Marine Monitoring Program (MMP) are reviewed as part of the adaptive management cycle to ensure	• RIMReP Web pages – GBRMPA Website • RIMReP Business Strategy 2020-25 • RIMReP – Reef Knowledge System • Priority monitoring gaps prospectus for RIMReP (2021). • GBRF Critical Monitoring Gaps webpage • BOM water quality Dashboard	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the best available information is generated and applied appropriately to make management decisions. • Management scenario modelling under the Paddock to Reef program) • addock to Reef program includes eReefs modelling and decision support tools such as P2R Projector. • Outcomes from NESP research projects delivering information on cumulative and interactive effects are incorporated into policy and reports where appropriate RIMReP continues to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. This will inform decisions on where there may be duplication or gaps in current monitoring, as well as areas where data management, analysis, synthesis and reporting may be improved. • RIMReP developed a priority monitoring gaps prospectus (2021) which identified critical monitoring activities needed to support an integrated program. Phase 2 of the Reef Trust Program (RTP), funding was available (through GBRF) to make a significant contribution to address priority gaps as identified within the prospectus. A total of $13.1 million for 11 projects was funded in 2021, and a dugong project was added later. The projects cover the biophysical, cultural and socio-	• Reefonomics: https://reefonomics.net.au/ • P2R Projector: https://p2rprojector.net.au • Paddock to Reef Integrated Monitoring, Modelling and Reporting Program • Reef Water Quality Report Cards • The Scientific Consensus Statement - Land use impacts on Great Barrier Reef water quality and ecosystem condition • 2022 Scientific Consensus Statement – about, progress and updates		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		economic contexts of the Reef, including biophysical monitoring (e.g. island habitat, seabirds, dugong, sea cucumber, inshore dolphins, biosecurity) and human dimensions monitoring projects (e.g. SELTMP, Strong Peoples-Strong Country Framework, sustainable use and benefits, governance, Reef stewardship). Support through the RTP will continue to deliver project outcomes that fill critical monitoring gaps identified during the Program design phase.			
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding Land Based-Run Off	4	• Efforts to understand the Socio-economic aspects of the reef have continued to advance since 2019 particularly with updates to the Social and Economic Long-Term Monitoring Program (SELTMP) Time series. Broad objectives of this were reviewed and altered to better fit the knowledge gaps identified with the new objectives being: – Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. – Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system.	• Social and Economic Long-Term Monitoring Program (SELTMP) • SELTMP Core module pilot data dashboard • SELTMP Core Module Report • SELTMP Core Module 2021 Survey dataset: • Regional Report Cards social survey dashboard • Regional Report Cards Module Report	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The National Environmental Science program also put forward important work to further the socioeconomic backdrop for land based run off with Project 1.17: Research needs for a national approach to socio-economic values of the marine environment. • Paddock to Reef social monitoring projects also aided in knowledge gathering particularly regarding key factors that influence agricultural industries to adopt management practices. • Human Dimensions Research also launched numerous Development and Innovation projects. • Regional Report Cards also run social surveys. **Challenges:** • Programs Such as the SELTMP surveys which traditionally relied heavily on in person polling faced hurdles in 2021 due to COVID 19 pandemic which restricted polling options to online means. This change has altered the demographic surveyed substantially making comparison with past years impossible. • Notably the sample population taken in this year was more geographically diverse indicating that results may actually be more representative of the whole catchment social context than previous years which tended to skew toward responses from more coastal residents.	• Regional Report Cards 2021-22 Social Survey dataset • SELTMP methods and data • Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment: Project 1.17 | Marine and Coastal (www.nespmarinecoastal.edu.au) • Paddock to Reef social monitoring • Building a policy instrument impact model for the Reef		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Reef partnerships review and synthesis • Understanding the influence of media and community narratives on Great Barrier Reef water quality management • Understanding the human dimensions to land management practice change to aid in improved future adoption • Supply chain and market incentives for agricultural best practice land management in Great Barrier Reef catchments • 2022 Scientific Consensus Statement update • Paddock to Reef program		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Reef 2050 Water Quality Research Development and Innovation Strategy		
PR11 The best available Indigenous heritage information is applied appropriately to make relevant management decisions regarding Land Based-Run Off	3	• There are new initiatives and funding directed toward improving the indigenous heritage aspect (See IN6) however If these actions are representative is less clear. • In particular it is unclear who exactly will be participating in the review of the 2050 WQIP and if this representation will be sufficient to represent the diversity of voices in indigenous groups. There is also financial investment through The Reef Trust Partnership allocating $20 million under the Water Quality Component to direct investment in Traditional Owner Country-based planning and management for improved water quality outcomes. How exactly this will be used and if it is sufficient is still unclear.	• Workshops and Stakeholder Conversations • Great Barrier Reef – Water Quality Improvement Plan	Adequate	Improving
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding Land Based-Run Off	N/A	N/A		N/A	N/A
PR13 Relevant standards are identified and being met regarding Land Based-Run Off	3	• The new regulatory minimum standards and reef water quality objectives serve to set clear standards for best practice management required for various agricultural industries.	• Workshops and Stakeholder Conversations	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Compliance findings from 2016-2022 indicate a total of 1354 compliance activities completed in this time with the majority focusing on sugarcane (1300). This represents the department's best practice approach to regulation and compliance includes focusing on producers with a high risk of non-compliance. – Compliance improved from 54% non-compliant to 34% after follow-up contact. – Percent of farmland monitored is relatively high for wet tropics and the Burdekin (45%and 55% respectively) compared to the Whitsundays which sit at 21% inspected as of 2022. This may indicate a need for further efforts to expand efforts in the Whitsundays to assess compliance issues particularly around grazing efforts and in the Proserpine basin where non-compliance is still quite high. • Improvements seen after inspections indicates the significance of compliance related activities. Challenges: • Increases in BMP accreditation are very modest (1% increase) seen during compliance efforts as these programs often represent a step above the minimum compliance so more effort may be required to increase adoption rates. • Further resourcing may be required to help expand compliance activities in key basins and catchments	• Great Barrier Reef – Water Quality Improvement Plan • The Reef Trust Partnership • State Party Report Of The State Of Conservation for Australia's Great Barrier Reef		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		particularly the Mackay Whitsunday catchment where non-compliance rates still sit at approximately 57% across the catchment with most being derived from the Proserpine which sits at 74% non-compliance.			
PR14 Targets have been established to benchmark management performance for Land Based-Run Off	4	• Targets have been established specifically for land-based impacts under the Reef 2050 Water Quality Improvement Plan (formerly called the Reef Water Quality Protection Plans) with Great Barrier Reef-wide targets set since the 2009 version of the Plan that have been refined/updated with each periodic review of the Plan. • The science and modelling have advanced resulting in the first ecologically relevant water quality targets being set at a finer scale with basin-specific targets developed by James Cook University (JCU), published in the Reef 2050 WQIP. The targets are set based on ecological thresholds for seagrass and corals and linked back to the required catchment pollutant load reductions required to meet these thresholds. • Targets are currently undergoing a technical review by JCU (contracted by the Australian and Queensland Governments) and will be updated with new science and modelling as part of the update to the Reef 2050 WQIP. This ensures the targets remain based on the best available science. Challenges: • Setting targets primarily based on ecological relevancy may be problematic in some catchments (Particularly Fitzroy and	• The Reef 2050 Water Quality Improvement Plan 2017 – 2022 (WQIP) • RIMReP Web pages – GBRMPA Website • RIMReP Business Strategy 2020-25 • RIMReP Annual Business Plan 2022-23 • RIMReP – Reef Knowledge System • Reef Report Card 2020 • Reef Water Quality report cards • EPP (water) policy 2019 • P2R program • Pesticide reporting portal	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the Dry Tropics) where cost associated with meeting sediment targets set out in this way may be extreme causing targets to be unlikely to be met.			
OUTPUTS					
OP1 To date, the actual management program (or activities) have progressed in accordance with the planned work program for Land Based-Run Off	3	• Reef Report Cards which provide insights into whole of catchment progress toward reef water quality targets reporting exist through July 2020 and indicates all actions as on-track/ underway or completed. This reporting used to occur every 6 months however this seems to have ceased. • Queensland Reef Water Quality Program annual reports detail the investment and achievements. • Reef Trust Partnership Year in Reviews detail progress against the end-of-partnership outcomes. • Reef Report cards exist through 2020 for the whole of catchment and shows progress in some areas; however, faster uptake of improved land management practices is required to meet the water quality targets.	• Workshops and Stakeholder Conversations • Final Report Part A	Adequate	Stable
OP2 Implementation of management documents and/or programs relevant to Land Based-Run Off have progressed in accordance with timeframes specified in those documents	3	• There has been progress made towards implementing many of the Reef 2050 Water Quality Improvement Plan 2017–2022 actions within their specified timeframes. • Reef 2050 WQIP action reporting indicates all actions are either on track or underway as of the 2020 report.	• Workshops and Stakeholder Conversations • Report Card 2020	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Reef 2050 Plan Annual Report and Implementation Strategy • Reef 2050 Plan Progress Reports - DCCEEW		
OP3 The results (in OP1 above) have achieved their stated management objectives for Land Based-Run Off	2	• Results of Reef 2050 Water Quality Improvement Plan actions are documented in the Action reporting. The Queensland Government results are delivered through the Queensland Reef Water Quality Program – see annual Plans & Reports indicating continued progress. • Results from Australian Government major investment programs under the WQIP such as Reef Trust have recently been evaluated (see Alluvium report). Results from their investment delivered through GBRF are also available on the GBRF water quality dashboard. • 2019 and 2020 Report Card results show progress in some areas; however, faster uptake of improved land management practices is required to meet the water quality targets. Improvements are being made to the quality of water entering the Reef, however there remain significant time lags between land management practice change and seeing improved condition of the Reef.	• Workshops and Stakeholder Conversations • Report Card 2020 • Reef 2050 Plan Annual Report and Implementation Strategy • Reef 2050 Plan Progress Reports – DCCEEW • Queensland Reef Water Quality Program – annual plans & reports - https://www.qld.gov.au/environment/coasts-waterways/reef/reef-program • Reef Trust Evaluation Report (Alluvium)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The 2022 Alluvium report which considered how well we have progressed toward 2050 water quality targets found the following: – Current progress towards targets represents approximately $165 million combined investment in DIN abatement and approximately $197 million combined investment in fine sediment abatement since 2014. This presents a 46%:54% between investment in reduction of DIN and fine sediment respectively. – Based on the investment since 2014 in water quality improvement, progress is still required across the GBR catchment to meet the Reef 2050 WQIP water quality targets. – Significantly, substantial effort is still required to meet the targets in the high and very high priority catchments for DIN and fine sediment. – In terms of priority catchments, the most significant progress for fine sediment has been made in the Fitzroy River catchment with 156kt of fine sediment reduction (40% of target for the Fitzroy catchment). – The most significant progress for DIN reduction has been made in the Herbert River catchment, with 511t (82% of target) of DIN reduction. All other priority catchments have achieved less than 20% of their respective DIN targets.	Reef 2050 WQIP implementation https://www.reefplan.qld.gov.au/tracking-progress/action-reporting		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– This is supported by findings from the Reef Report cards from 2020 which indicted that given current trajectories we are unlikely to meet targets for 2025. Below is a description of what year 2025 targets will actually be met given current trajectories listed in the 2020 Reef report card. From this it can be seen that only particulate phosphorus is on track to meet 2025 targets. – Dissolved inorganic N: o Goal: 60% reduction o +2.2% reduction between 2019-2020 o Best Reduction 2018-2019: +4.4% reduction o Continuing at this level we will reach 2025 Targets in: o Latest year: 2035 o Best seen: 2027 – Sediment o Goal: 25% reduction o +0.6% reduction between 2019-2020 o Continuing at this level we will reach 2025 Targets in o Latest year: 2036 o Best seen: Same as latest year. – Particulate Nitrogen: o Goal: 20% reduction o +1% Nitrogen between 2019-2020			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		○ Continuing at this level we will reach 2025 Targets in ○ Latest year: 2026 ○ Best seen: Same as latest year. – Particulate Phosphorous: ○ Goal: 20% reduction ○ +0.8% Particulate phosphorus between 2019-2020 ○ Continuing at this level we will reach 2025 Targets in ○ Latest year: 2023 ○ Best seen: Same as latest year. – Pesticides: ○ Goal: 99% ○ 96.7% Aquatic Species Present between 2019-2020 ○ Continuing at this level we will reach 2025 Targets in ○ Latest year: Negative for this year target wouldn't be met on this trajectory. ○ Best seen: 97.2% Aquatic Species Present between 2018-2019: 2032			
OP4 To date, products or services have been produced in accordance with the stated	3	• The Reef 2050 Water Quality Improvement Plan sets out the things to be delivered. Their delivery is assessed via the Action reporting. Queensland Government delivery is via the	• Workshops and Stakeholder Conversations	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
management objectives for Land Based-Run Off		Queensland Reef Water Quality Program – see annual Plans & Reports indicating products/services have been delivered in accordance with the commitments. • Australian Government delivery via Reef Trust has also recently been evaluated indicating delivery of the services funded through the program have continued (see Alluvium report). • Reef Water Quality Report Cards evaluate Outcomes (see next section). The updated scientific consensus statement is scheduled to be releasedin 2024 and will serve as an important output. • Other key monitoring products have also been produced as have been referenced in multiple areas above.	• Reef Water Quality Report Cards • Reef 2050 Plan Annual Report and Implementation Strategy • Reef 2050 Plan Progress Reports – DCCEEW • Queensland Reef Water Quality Program – annual plans & reports - https://www.qld.gov.au/environment/coasts-waterways/reef/reef-program • Reef Trust Evaluation Report (Alluvium) • Reef 2050 WQIP implementation - https://www.reefplan.qld.gov.au/tracking-progress/action-reporting		
OP5 Effective knowledge management systems regarding Land Based-Run Off are in place within agencies	4	• The updated scientific consensus statement is set to be released in 2024 and serves as a culmination of current knowledge on land -based run-off.	• Workshops and Stakeholder Conversations	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Water Quality Report Cards released since the 2019 Outlook Report include 2017 and 2018, 2019, 2020. The 2021 and 2022 Report Card will be finalised in late 2023. • The Reef report cards are supported by a content management system. Key knowledge consolidation tools have also been developed namely: the P2R Projector tool and Reefonomics. • The GBR Catchment Loads monitoring program data has also now been made available through an online dashboard. A pesticide data portal is available for viewing pesticide catchment monitoring data. • Also, CORAL- the Collection of Reef and Land (CORAL) database provides information about projects funded through the Queensland Reef Water Quality Program.	• 2022 Scientific Consensus Statement – about, progress and updates • Reef Water Quality Report Cards • GBR Catchment Loads Monitoring Program Story Maps • Reefonomics: https://reefonomics.net.au/ • P2R Projector: https://p2rprojector.net.au • Pesticide reporting portal • CORAL		
OP6 Effective systems are in place to share knowledge on Land Based-Run Off with the community	4	• There are numerous online forums for distribution of land-based run off data including: – Scientific Consensus Statement – Paddock to Reef program annual regional science forums (Reef NRMs funded to deliver one in each region per year).	• Workshops and Stakeholder Conversations • RIMReP Business Strategy 2020-25	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Paddock to Reef program regional engagement and communication (Reef NRMs funded to disseminate information tailored to regional audiences each year). – Paddock to Reef program lunchtime seminar series – Reef Synthesis workshops – engage ~150 stakeholders relating to management of land-based impacts. – Reef 2050 Communications Network – involves the communication officers from Australian and Queensland Government, NRMs, Industry & Conservation to regularly discuss information sharing (manages websites, newsletters, social media etc.) – Regional report card annual community events to share knowledge.	• RIMReP Annual Business Plan 2022-23 • RIMReP – Reef Knowledge System • https://wq.1622.farm/# • GBR Catchment Loads Monitoring Program Story Maps • Pesticide reporting portal • 2022 Scientific Consensus Statement – about, progress and updates • Reef Water Quality Report Cards • Regional Report Cards • Paddock to Reef program – annual regional forums, regional comms & seminar series (new) • Reef Synthesis workshops (ongoing)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Reef 2050 Comms Network (ongoing)		
OUTCOMES					
OC1 The relevant managing agencies are to date effectively addressing Land Based-Run Off and moving towards the attainment of the desired outcomes.	3	• Desired outcomes such as the 2025 targets depicted in the Reef 2050 Water Quality Improvement Plan, reported via the Reef Water Quality Report cards are not expected to be met based on current available data (See OP3 Above). • Community based goals surrounding integration of stakeholders as well as integration of first nations people seem to be progressing more effectively however exact metrics for these are harder to directly classify.	• Workshops and Stakeholder Conversations • Great Barrier Reef Outlook Report 2019 Chapter 7 • Report Card 2020 • State Party Report of The State of Conservation for Australia's Great Barrier Reef	Adequate	Stable
OC2 The outputs relating to Land Based-Run Off are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	2	• Desired outcomes such as the 2025 goals targets depicted in the Reef 2050 Water Quality Improvement Plan, reported via the Reef Water Quality Report cards are not expected to be met based on current available data (See OP3 above). • Values associated with ecosystem health will continue to be impacted by land-based run-off and as long as the targets are not being met (which were chosen as necessary levels to ensure reef health).	• Workshops and Stakeholder Conversations • Great Barrier Reef Outlook Report 2019 Chapter 7 • Report Card 2020	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Community based goals surrounding integration of stakeholders as well as integration of first nations people seem to be progressing more effectively however exact metrics for these are harder to directly classify. Challenges: • Key knowledge gaps such as: – What are the water quality benefits from recovered land condition as a result of improved grazing practices? – What is the effectiveness, in terms of water quality benefits, costs and timeframes, of remediating gully and riparian areas? How can this information be used to target and prioritise areas for remediation? – What is the risk of the finest sediment fractions to the reef? – Better understanding of sediment sources and processes in priority catchments. • Without clearer understandings of these key issues defining the extent to which these actions will preserve values of the GBR is difficult.	• State Party Report of The State of Conservation for Australia's Great Barrier Reef • Great Barrier Reef Outlook Report 2019 (Chapter 6) • The Scientific Consensus Statement - Land use impacts on Great Barrier Reef water quality and ecosystem condition • Paddock to Reef Integrated Monitoring, Modelling and Reporting Program		
OC3 The outputs (refer OP1 and 3) for Land Based-Run Off are reducing the major risks and the threats to the Great Barrier Reef	3	• The Reef Water Quality Report Card from 2020 indicated that the overall marine condition in the inshore Reef has improved to moderate. This is an improvement from the 2017 consensus statement which considered the reef to still be in a poor condition.	• Workshops and Stakeholder Conversations	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Report Cards also indicated 'Moderate' progress towards DIN & Sediment targets, 'Very good' progress towards the Particulate nutrient targets, and 'Good' for Pesticides. These results indicate improvement in reducing risk from land based run off but given that targets for 2025 are still unlikely to be met (See OP3 above) more work is needed. • Reef Regulations have since been rolled out & significant on-ground programs as part of Reef 2050 WQIP (see Queensland Reef Water Quality Program & Australian Government programs including those with GBRF including Reef Trust). • Decision support tools have since been developed e.g. P2R Projector to better target, prioritise & evaluate on-ground investments. • New social monitoring e.g. through the Paddock to Reef program has also been implemented. Challenges: • Same as OC2 above.	• Great Barrier Reef Outlook Report 2019 Chapter 7 • Report Card 2020 • State Party Report of The State of Conservation for Australia's Great Barrier Reef • Great Barrier Reef Outlook Report 2019 (Chapter 6) • The Scientific Consensus Statement - Land use impacts on Great Barrier Reef water quality and ecosystem condition • Paddock to Reef Integrated Monitoring, Modelling and Reporting Program		
OC4 Use of the Great Barrier Reef relating to Land Based-Run Off is demonstrably environmentally sustainable	2	• Key Great Barrier Reef ecosystems continue to be negatively impacted by land based run off. However there have been notable improvements made namely:	• Workshops and Stakeholder Conversations	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Overall, marine condition in the inshore Reef improved to moderate. – 'Moderate' progress towards DIN & Sediment targets – 'Very good' progress towards the Particulate nutrient targets, – 'Good' progress for Pesticides. • Even with these improvements however current initiatives will not meet the water quality targets. This is largely due to the collective impact of land run-off associated with past and ongoing catchment development, coastal development activities, extreme weather events and climate change impacts. • Current trajectories as reported in the 2020 Reef Water Quality Report Card support the idea that targets will not be met and thus current practices are not sustainable (See OP3 above). • Issues regarding land clearing are also still present, though improving, after the updates to the Vegetation Management Act (Qld) in 2018. The Statewide Landcover and Trees Study (SLATS) reports on clearing activities and noted in 2019-2020 that overall clearing had fallen 38% over the previous year. This year was also impactful as it was the first where regrowth was also monitored indicating 42,575ha of new regrowth.	• Great Barrier Reef Outlook Report 2019 Chapter 7 • Report Card 2020 • State Party Report of The State of Conservation for Australia's Great Barrier Reef • Great Barrier Reef Outlook Report 2019 (Chapter 6) • The Scientific Consensus Statement - Land use impacts on Great Barrier Reef water quality and ecosystem condition • Paddock to Reef Integrated Monitoring, Modelling and Reporting Program • Brodie, Grech, McCook, 2017, The new Great Barrier Reef pollution		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			plan is better, but still not good enough, The Conversation • The Statewide Landcover and Trees Study (SLATS) 2019-20 report: • https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/slats/slats-reports/2019-20-slats-report/statewide-breakdown		
OC5 Use of the Great Barrier Reef relating to Land Based-Run Off is demonstrably economically sustainable	2	• The Reef contributes $6.4 billion to the Australian economy and supports significant regional employment through tourism, fishing and other industries. • Values are jeopardised by poor water quality. • Poor management practices threaten sustainability of grazing and cane industries in marginal lands. • Rising water tables threaten production in some areas (e.g. lower Burdekin). Challenges: • Sugar as an industry is also a highly profitable industry netting close to $2 billion annually making actions related to sustainable use difficult to do in a sustainable manner	• Workshops and Stakeholder Conversations • Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		without negatively impacting on an industry that makes up a good portion of Queensland farmers livelihoods.			
OC6 Use of the Great Barrier Reef relating to Land Based-Run Off is demonstrably socially sustainable understanding and/or enjoyment	2	• Indications from key social surveys Included for the Regional Report Cards indicate that the general public is "mildly satisfied" with how waterways are being managed. • The underlying SELTMP reports for the report cards go into more specific detail regarding public dependency and attachment to waterways with some questions asked and their score out of ten from participants being: – Visiting waterways in the region is important for my quality of life and wellbeing: 8.06. – If the health of waterways in my region declined, I would be personally affected: 8.03. – I am proud of the local waterways in my region: 7.55. – The waterways in my region are an important part of why I choose to live here: 7.49. – Waterways in my region are an important part of my culture: 6.14 • The generally high scores for these questions indicate the continued high social value the reef has and emphasises the potential negative impacts should water quality impacts continue to degrade the reef. • High level of volunteer activity and community understanding of monitoring and education activities through Reef Guardian programs and GBRMPA education and communication	• SELTMP Reports • Workshops and Stakeholder Conversations • Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef • Regional Report Cards – human dimensions surveys e.g. • Human Dimensions Dashboard - Wet Tropics Waterways	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		products also show the level of importance the community places on the reef and its continued health. • Community enjoyment may have decreased due to decline in water quality			
OC7 The relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address Land Based-Run Off	3	• See CO5 PR1 and PR3 for more information on stakeholder interactions and relative partnerships. • The Reef Authority, Australian and Queensland Government have strong relationships with stakeholders involved in managing land-based run off, developed through the Reef 2050 Plan. • These partnerships are generally effective and ensure that all are focused on the best possible outcomes for the reef. There has been significant progress in the past 20 years and this will continue to be built upon going forward. • The underlying SELTMP reports for the report cards go into more specific detail regarding governance and public engagement with reef management with some questions asked and their score out of ten from participants being: – Fair access to waterways: 5.49. – Management decisions made in fair way: 5.37. – Able to have input to management: 4.87. – Able to influence management: 4.19. • Low scores for this section of the surveys indicates more work needs to be done to build a better partnership between management authorities and the public.	• Workshops and Stakeholder Conversations • Great Barrier Reef Outlook Report 2019 Chapter 7 • Report Card 2020 • State Party Report of The State of Conservation for Australia's Great Barrier Reef • Great Barrier Reef Outlook Report 2019 (Chapter 6) • The Scientific Consensus Statement - Land use impacts on Great Barrier Reef water quality and ecosystem condition	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Paddock to Reef Integrated Monitoring, Modelling and Reporting Program • Brodie, Grech, McCook, 2017, The new Great Barrier Reef pollution plan is better, but still not good enough, The Conversation • See information on Reef 2050 WQIP partnerships/committees - https://www.reefplan.qld.gov.au/working-together • Regional Report Cards		

Ports

Table 46: Calculation of grades for Ports

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The values of the Great Barrier Reef relevant to ports are understood by managers	4	• There are 12 trading ports in the World Heritage Area, managed by four port authorities — all Queensland Government-owned corporations: – Port of Quintell Beach (Ports North) – Port of Cape Flattery (Ports North) – Port of Cooktown (Ports North) – Port of Cairns (Ports North) – Port of Mourilyan (Port North) – Port of Lucinda (Port of Townsville Ltd) – Port of Townsville (Port of Townsville Ltd) – Port of Abbot Point (North Queensland Bulk Ports) – Port of Mackay (North Queensland Bulk Ports) – Port of Hay Point (North Queensland Bulk Ports) – Port of Rockhampton (Gladstone Ports Corporation) – Port of Gladstone (Gladstone Ports Corporation) • Only the minor ports of Cooktown and Quintell Beach in Cape York are located within the Marine Park. These are both non-trading ports. • Queensland port limits are defined in the *Transport Infrastructure (Ports) Regulation 2016*.	• 2019 Outlook Report • Strategic Assessment of the GBRWHA (2014) • Strategic Assessment of the GBR Coastal Zone (2014) • Master Plan for the Priority Port of Townsville 2019 • Master Plan for the Priority Port of Gladstone 2018 • Priority Port of Townsville Evidence Base Documentation 2018 • Priority Port of Gladstone Evidence Base Documentation 2016 • Draft Master Plan for the Priority Port of Abbot Point 2022	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There are also a number of smaller non-commercial 'ports / marinas ' such as Port Douglas north of Cairns, Airlie Beach and Shute Harbour on the Whitsunday's coast, Nelly Bay on Magnetic Island and Rosslyn Bay near Yeppoon, which do not have declared Port Limits nor designated Port Authorities under the *Transport Infrastructure (Ports) Regulation 2016* (Qld). • The Queensland Ports Association has a Memorandum of Understanding (MoU) with Reef Authority concerning the management of Reef ports. • While not located within the Marine Park, the port limits for the Port of Bundaberg (Gladstone Ports Corporation) are <20km from the southern extent of the Marine Park. • Each of the port authorities (FNQPCL, POTL, NQBP, GPC) are government owned corporations with powers delegated under the *Transport Infrastructure (Ports) Regulation 2016* and overseen by DTMR. • Navigational safety functions within each port are shared between the port authorities and the relevant Regional Harbour Master, part of MSQ within DTMR. • DTMR, Port Authorities and QPA have been actively engaged in assessments associated with the values of the Reef, including the Outlook Reports and the Great Barrier Reef Coastal Zone Strategic Assessment. • Long-term monitoring programs are also undertaken by each of the port authorities at most of the major ports in the region (Cairns, Mourilyan, Townsville, Mackay, Hay	• Draft Master Plan for the Priority Port of Hay Point/Mackay 2022		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Point, Abbot Point, Gladstone, Bundaberg) which provides high resolution understanding of local values. • DTMR, in consultation with the port authorities, has been completing Master Plans for Priority Ports (Gladstone, Townsville, Hay Point / Mackay, Abbot Point) which have included assessments to understand the values of each port region.			
CO2 The current condition and trend of values relevant to ports are known by managers	3	• Condition and trend of values is available to DTMR and Port Authorities through involvement in Outlook Reports and monitoring programs noted in CO1. • Through historic collaboration of Port Authorities with local universities, especially Central Queensland University and James Cook University, there are long-term research activities from these universities regarding the values of the Reef at ports which is available through the scientific literature. • Port Authorities are key partners in several regional monitoring programs. • DTMR and Port Authorities also have access to reporting associated with catchments (e.g. WQIP, regional report cards) and GBR-scale monitoring and reporting programs undertaken by Reef Authority. • Under the Environment Protection (Sea Dumping) Act 1981 and DTMR's Maintenance Dredging Strategy, Port Authorities are required to prepare and implement Long-term Maintenance Dredging Management Plans associated	• 2019 Outlook Report • Q-SEAS reports • TropWATER/JCU seagrass and coral health monitoring program reports	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		with at-sea placement of dredged material. To date, LMDMPs have been prepared for every port. • Port authorities have also recently been involved with the DAF Queensland Seaports Environmental DNA Surveillance Program (Q-SEAS Program) which provides for early warning detection of invasive marine species. • Potential gap relates to the lack of long-term monitoring undertaken at Port of Cape Flattery, Port of Cooktown and Port of Lucinda.			
CO3 Impacts (direct, indirect and cumulative) associated with ports are understood by managers.	3	• The land and ocean-based activities associated with ports include: – Terminals, loading and unloading facilities – Land reclamation – Trestle structures – Dredging and sea dumping of dredged material – Storage and waste facilities, cargo holding facilities, stockpiles – Safety and navigational aids and lighting – Monitoring buoys – Port services vessels and ship berths – Ship departure channels and anchorages – Introduced marine species • Key impacts and threats associated with these activities are: – Water quality and habitat disturbance from dredging and placement	• 2019 Outlook Report • Strategic Assessment of the GBRWHA (2014)) • Strategic Assessment of the GBR Coastal Zone (2014) • Master Plan for the Priority Port of Townsville 2019 • Master Plan for the Priority Port of Gladstone 2018 • Priority Port of Townsville Evidence Base Documentation 2018 • Priority Port of Gladstone Evidence Base Documentation 2016	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Changes to coastal processes and hydrodynamics from dredging, reclamation and maritime development – Habitat loss through reclamation and maritime development – Underwater noise, propellor wash and strike risks from ship movements, especially where concentrated in berthing areas – Introduction of invasive marine species – Loss of cargo or other material during ship movements or loading/unloading – Spills and discharges associated with ship movements in port • Port Authorities and DTMR have a mature understanding of the impacts associated with these activities, especially where activities are subject to permit licensing arrangements (e.g. dredging and at sea placement, reclamation, maritime structures). In particular, Port Authorities typically have a very sophisticated understanding of sediment movements within the region, including the relationship between natural processes and port dredging and placement. • Guidelines for management of port dredging and other activities are published by QPA and Port Authorities regularly engage with bodies associated with best practice research on impacts and impact management.	• Draft Master Plan for the Priority Port of Abbot Point 2022 • Draft Master Plan for the Priority Port of Hay Point/Mackay 2022 • Q-SEAS reports • TropWATER/JCU seagrass and coral health monitoring program reports • National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna • Port's Australia - Dredging and Australian Ports: Subtropical and Tropical Ports 2019		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Cumulative impacts within port regions are also typically well understood, e.g. interactions between dredge plumes and land-based runoff. • Outside of each region, however, the cumulative impacts of port activities on the broader region are not well understood. In particular the cumulative effect impacts and threats that extend beyond port regions (e.g. water quality) or that relate to a matter that extends beyond a port region (e.g. population of a species) is not well studied. • There is an acknowledged data gaps regarding the following impacting areas: – coal dust – invasive marine species – inshore dolphins (impacts to populations) – underwater noise – lighting – vessel strikes on marine fauna			
CO4 The broader (national and international) level influences relevant to ports are understood by managers.	4	• Port Authorities are active members of various ports and waterborne transport for a and associates (e.g. QPA, PIANC) which provide the basis for understanding major national and international trends in ports that may have influence to the region. • Most of the key national and international level influences for ports are economically driven as changes in export/import behaviour and international shipping drives the need for development at ports. Port Authorities	• Master Plan for the Priority Port of Townsville 2019 • Master Plan for the Priority Port of Gladstone 2018 • Priority Port of Townsville Evidence Base Documentation 2018	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		regularly engage in assessment of economic forecasts and are also influenced by state and national government strategy associated with economic shifts and developments (e.g. National Ports Strategy, National Freight and Supply Chain Strategy). • Key trends noted include: – International trend towards longer, deeper draft ships which affects port access requirements and the need for dredging and port development activities. – Growth in Queensland exports of thermal coal, leading to increased activity at ports of Mackay, Hay Point, Abbot Point and Gladstone – Growth in LNG exports, becoming the second largest exporter in the world, leading to increased activity at Port of Gladstone – Development of hydrogen export hubs at ports of Gladstone and Townsville, leading to increased activity at these ports. • In development of Master Plans for Priority Ports, DTMR has undertaken evidence assessments associated with existing and future/projected demand and its implications for port infrastructure and export/import arrangements. • Ports are also affected by international changes associated with Law of the Sea and Marine Pollution conventions. As Australia is party to these instruments, changes at an international level are implemented through changes in national and state level legislation	• Priority Port of Gladstone Evidence Base Documentation 2016 • Draft Master Plan for the Priority Port of Abbot Point 2022 • Draft Master Plan for the Priority Port of Hay Point/Mackay 2022 • National Ports Strategy • National Freight and Supply Chain Strategy • TMR Port Trade Statistics Reports		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CO5 The stakeholders relevant to ports are well known by managers.	4	• Key stakeholders to port developments include the Reef Authority, DCCEEW and DES (as regulators of activities in port areas and surrounding areas and/or key agencies with environmental monitoring responsibilities), AMSA and MSQ (as broader maritime safety and ship-sourced pollution regulators) port users, other users (commercial and recreational) with port areas, Traditional Owners (especially for ports within areas subject to Native Title determination), local communities, and non-government or community-based groups. • As stakeholder engagement is embedded into a range of port planning activities, there is a high level of existing knowledge of stakeholders. These activities include development of Master Plans for priority ports, establishment and engagement with Technical Advisory Consultative Committees for dredging and placement activities, and project-specific engagement as part of EIS studies and CHMPs.	• Port of Gladstone Long-term Maintenance Dredging Management Plan • Port of Cairns Long-term Maintenance Dredging Management Plan • Port of Cape Flattery Long-term Maintenance Dredging Management Plan • Port of Cooktown Long-term Maintenance Dredging Management Plan • Port of Mourilyan Long-term Maintenance Dredging Management Plan • Port of Quintell Beach Long-term Maintenance Dredging Management Plan • Ports of Townsville and Lucinda Long-term Maintenance Dredging Management Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Port of Abbot Point Long-term Maintenance Dredging Management Plan • Port of Hay Point Long-term Maintenance Dredging Management Plan • Port of Mackay Long-term Maintenance Dredging Management Plan		
PLANNING					
PL1 There is a planning system in place that effectively addresses ports	3	• The planning system for ports consists primarily of the following elements: – GBRMP Act and regulations and Zoning Plan - this applies only to ports of Quintell Beach and Cooktown as all other ports are excluded from the Marine Park. However, many ports have offshore spoil grounds for dredged material placement which overlap into the Marine Park (e.g. Cairns, Gladstone) and therefore subject to these systems. However, under the Marine Parks Act 2004, Mourilyan and Cairns are within the Coastal Marine Park and therefore subject to an equivalent planning system (albeit managed directly by QPWSP rather than Reef Authority).	• Port of Cape Flattery Land Use Plan • Port of Cairns Land Use Plan • Port of Mourilyan Land Use Plan • Port of Lucinda Land Use Plan • Port of Abbot Point Land Use Plan • Port of Mackay Land Use Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– *Planning Act 2016* and *Transport Infrastructure Act 1994* - these Acts establish a framework for permissions associated with activities on port land and/or within port limits. Supporting this framework are Land Use Plans prepared for each port, and Master Plans prepared for Priority Ports under the Sustainable Ports Development Act 2015 (Townsville, Mackay/Hay Point, Abbot Point, Gladstone). – *Sustainable Ports Development Act 2015* and State Planning Policy 2017 - these establish the regime for future development of Reef ports and control of capital and maintenance dredging activities, and provide the basis for developing Master Plans to influence the Planning Act. This is further supported by the Maintenance Dredging Strategy and associated guidelines which embed further planning requirements into maintenance dredging and placement activities. – *Environmental Protection Act 1994* and regulations - these establish a framework for permissions associated with dredging and bulk material handling activities. – National Plan for Maritime Environmental Emergencies - this sets the national planning approach for preparing for and responding to maritime environmental incidents, including those in ports. • This planning system has been significantly strengthened through actions under the *Sustainable Ports Development Act 2015* which have established a clear framework for	• Port of Hay Point Land Use Plan • Port of Rockhampton Land Use Plan • Port of Gladstone Land Use Plan • Master Plan for the Priority Port of Townsville 2019 • Master Plan for the Priority Port of Gladstone 2018 • Priority Port of Townsville Evidence Base Documentation 2018 • Priority Port of Gladstone Evidence Base Documentation 2016 • Draft Master Plan for the Priority Port of Abbot Point 2022 • Draft Master Plan for the Priority Port of Hay Point/Mackay 2022 • See CO4 for long-term maintenance dredging management plans		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		ports in the Reef that supplements previous elements of the planning system which were typically applied on a case-by-case basis. This system is maturing but subject to ongoing works, such as completion of the Master Plans for Mackay/Hay Point and Abbot Point. • Note that the guidelines associated with Master Plans for ports have also been adopted on a voluntary basis by FNQPCL in relation to the ports of Cairns and Mourilyan. • While there is currently a Biosecurity Strategy 2018-2023, this does not have specific actions associated with marine pests. A State Marine Pest Biosecurity Action Plan has been proposed under a DAF Marine Pest Preparedness Project but it is understood this has not yet been developed.	• National Plan for Maritime Environmental Emergencies • Biosecurity Strategy 2018-2023		
PL2 The planning system for ports addresses the major factors influencing the Great Barrier Reef Region's values.	4	• The major factors influencing the region's values, as per the 2019 Outlook Report, are climate change, coastal development, land-based run-off and direct use. All four are relevant to ports, with the most relevant being coastal development (e.g. port development and reclamation) and direct use (e.g. shipping, loading/unloading, dredging). • The planning system currently encompasses these factors in the following ways: – Climate change - not formally captured except as part of EIS studies. Port Authorities are including climate change considerations into their corporate governance but this has yet to roll down into port-specific planning.	• See PL1 for land use plans, master plans and long-term maintenance dredging management plans • National Plan for Maritime Environmental Emergencies • Biosecurity Strategy 2018-2023	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Coastal development - this is the primary focus of the planning system with a key focus on consolidating port development in existing port areas and restricting the ability to develop new port activities elsewhere in the region. – Land-based run-off - this is captured primarily through development controls relevant to specific sites. As part of LMDMPs, some Port Authorities are investigating opportunities to rehabilitate the catchment to reduce sediment loading within the port area (and thereby reducing dredging requirements). However, in most instances the sediment loading in the port is driven primarily by coastal processes. – Direct use - this is managed strictly through port and navigational safety controls, primarily through the use of legislative powers of Port Authorities and MSQ.			
PL3 Actions for implementation regarding ports are clearly identified within the plan	4	• The plans under the planning system relevant to ports consist of: – Reef 2050 - this relates to coastal development and direct uses – National Plan for Maritime Environmental Emergencies - this relates to response to emergency events – The LMDMPs for ports of Quintell Beach, Cape Flattery, Cooktown, Cairns, Mourilyan, Lucinda/Townsville, Abbot Point, Mackay, Hay Point, Rockhampton/Alma and Gladstone - these relate to dredging and dredged material placement	• See PL1 for land use plans, master plans and long-term maintenance dredging management plans • National Plan for Maritime Environmental Emergencies • Biosecurity Strategy 2018-2023	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There are also zoning plans, master plans and land use plans but these set a planning framework rather than specific actions. • While these plans do not represent a comprehensive coverage of all matters relevant to the management of ports this is reflective in part of the mature regulatory system in place for ports and the significant reforms undertaken during previous review periods. • The listed plans provide clearly identifiable actions for implementation.			
PL4 Clear, measurable and appropriate objectives for management of ports have been documented	3	• Other than the Reef 2050 Plan, the plans in PL3 do not have clear and measurable objectives in all instances. Rather, the plans rely on higher level documentation within the planning system to set relevant objectives and outcomes which then form the 'backdrop' for the plan.		Adequate	Stable
PL5 There are plans and systems in place to ensure appropriate and adequate monitoring information is gathered in relation to ports	3	• LMDMPs and associated Sea Dumping Permits provide a formal structure for collection of monitoring data related to maintenance dredging and placement activities. • Similarly, monitoring activities are undertaken on a case-by-case basis for particular capital projects in accordance with the regulatory regimes established. There is increasing standardisation of licensing for dredging and placement activities, including the development of model conditions for ERA 16. • Port Authorities also undertake voluntary long-term monitoring programs across the major ports in the region	• See CO4 for long-term maintenance dredging management plans • National Plan for Maritime Environmental Emergencies • Biosecurity Strategy 2018-2023	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and contribute to regional monitoring program as well as the recent Q-SEAS program (see CO2). However, these are voluntary only and primarily focus on impacts associated with dredging and placement activities. • Some ports monitoring data are collected and available (e.g. no of ship visits, some aspects of water quality, etc.). Additional data which could be collected/monitored and made publicly available, but not necessarily by the port management authorities, include, inter alia: – vessel/marine fauna strikes (e.g. dolphins, dugongs, turtles); – cargo losses/spillages during loading/unloading; – water and sediment quality, including anchorages; – port run-off water quality. • Broader systematic monitoring across the region (outside of specific port areas) to look at cumulative impacts is not capture under current plans or systems. There is no agency currently collating and collectively analysing monitoring outputs from Port Authorities across a region			
PL6 The main stakeholders &/or the local community are effectively engaged in planning to address ports	4	• Port Authorities have a long track record of engagement with agency and community stakeholders regarding long-term monitoring and maintenance dredging activities. Most Port Authorities have established TACCs, Community Reference Groups, Community Liaison Groups, Management Reference Groups etc. which provide for formal, regular engagement with stakeholders. Bespoke		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		engagement is also undertaken as part of major projects through EIS and CHMP processes. • QPA facilitates engagement between industry and agencies on a recurring basis. • As part of the development of the Master Plans for Priority Ports of Townsville and Gladstone (complete) and Mackay/Hay Point and Abbot Point (ongoing), DTMR has undertaken stakeholder engagement to ensure input into the planning of these port areas. Similar processes have also been undertaken in the development of the (non-statutory) Master Plans for ports of Cairns and Mourilyan. There is no master planning process currently in place for the remaining ports, noting that none of these are expected to be subject to major development or change in future years.			
PL7 Sufficient policy currently exists to effectively address ports	3	• The most significant recent policy associated with ports has been the suite of policy and implementing instruments associated with changes to maintenance dredging and port development arrangements in the Reef. These instruments include: – DTMR Maintenance Dredging Strategy 2016 – The Reef Authority Dredging and Dredge Spoil Material Policy 2016 – SPP 2017 – *Sustainable Ports Development Act 2016*	• Maintenance Dredging Strategy 2016 • Dredging and Dredge Spoil Material Policy 2016 • State Planning Policy 2017 • Transhipping Policy 2018 • Dredging Coral Reef Habitat Policy	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The collective effect of this instruments has been to establish a policy that no material from capital dredging is placed in the GBRWHA; no expansion of ports occurs outside of the priority ports of Townsville, Mackay, Hay Point, Abbot Point and Gladstone, and that this is subject to long-term master planning; and, maintenance dredging activities with at sea placement are subject to a rigorous management framework that seeks to reduce the volume of material where possible and provide for continual improvement. • The Queensland Government Transhipping Policy 2018 and associated changes to the Environmental Protection Regulations sort to provide greater controls over transhipping activities, which primarily occur within port areas. • The Reef Authority Dredging Coral Reef Habitat Policy limits the capacity to undertake dredging activities that could directly or indirectly impact on coral reefs. • This policy context effectively manages the future of port development and dredging activities within the Reef. However, policy gaps remain primarily with regards to invasive marine species.			
PL8 There is consistency across jurisdictions when planning for ports	3	• Where ports occur within both the GBRMP and GBRCMP there is consistency of application of the zoning plan and permitting system due to administrative arrangements between the Reef Authority and QPWSP. Similarly,		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		administrative arrangements between DCCEEW and Reef Authority allow for integrated assessment of projects involving approval requirements under the EPBC Act, *Environment Protection (Sea Dumping) Act 1981* and/or the GBRMP Act. • There remains some inconsistency across jurisdictions due to duplication or overlap of functions at state and federal levels. These include: – Lack of recognition of planning schemes and outcomes by other jurisdictions (i.e. State level master plans not accredited by Commonwealth) – Separate assessment pathways – Duplicated/ non bilateral approvals with non-aligned conditions and approval timelines. There are no approval bilateral in place in Queensland between Commonwealth Government and Queensland Government – Differing environmental management standards – Differing data needs (e.g. modelling standards) – Different offset policies, calculators and delivery standards. • Some improvement in understanding of jurisdictional overlap has been generated through the process of developing the Master Plans for Priority Ports of Townsville and Gladstone (completed) and Mackay/Hay Point and Abbot Point (ongoing) and for the (non-statutory) Master Plans for ports of Cairns and Mourilyan.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PL9 Plans relevant to ports provide certainty regarding where uses may occur, the type of activities allowed, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.	4	• The zoning plans, master plans and land use plans described in PL1 provide a clear framework for permitting of different activities across port areas and include a range of development activities and direct uses. • Activities are also subject to a range of other permitting requirements which are based on assessment outcomes (e.g. Environmental Authorities for ERAs) and are usually accompanied by guidelines or assessment criteria to assist in understanding permissibility requirements. This includes detailed policy and guideline documentation within the Reef Authority permission system and State codes under the Qld State Development Assessment Provisions.	• See PL1 for land use plans, master plans and long-term maintenance dredging management plans	Adequate	Stable
INPUTS					
IN1 Financial resources are adequate and prioritised to meet management objectives to address ports	3	• Port Authorities appear to be well resourced to undertake implementation of their aspects of the planning system and associated plans. • New development activities attract fees associated with permit applications but typically do not involve an ongoing management charge or similar fee. As it is understood the fee charging is intended to cover assessment costs primarily, it is uncertain the extent to which this is providing adequate funding to resource management action by other agencies (e.g. compliance, monitoring). • However, resources of agencies overseeing ports is anecdotally reported to be adequate.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN2 Human resources within the managing organisations are adequate to meet specific management objectives to address ports	3	• Port Authorities typically have well-resourced teams with responsibility for implementation of the planning system. There are also dedicated personnel within DTMR/MSQ for port activities. • Reef Authority now has a dedicated FTE for assessment of port activities. However, while there are also new FTEs associated with maritime incidents, there are no FTEs associated with management of ports more generally. • DCCEEW does not have dedicated personnel for port assessments; however, there is a Sea Dumping Division within DCCEEW that has extensive experience in maintenance dredging and placement activities for ports.		Adequate	Improving
IN3 The right skill sets and expertise are currently available to the managing organisations to address ports	3	• Reporting on skillsets within managing agencies indicates that FTEs have appropriate skills and expertise.		Adequate	Improving
IN4 The necessary biophysical information is currently available to address ports	3	• See CO2 regarding extensive collection of biophysical data by ports and other agencies associated with port areas. • There is a wide database of publicly available biophysical data for port areas and surrounding environment. This has been enhanced through recent initiatives associated with the Reef Knowledge System	• TropWATER/JCU seagrass and coral health monitoring program reports	Adequate	Stable
IN5 The necessary socio-economic information is	4	• Some socio-economic data is available through the SELTMP, including specific studies relevant to community perceptions of threats associated with ports and shipping	• SELTMP Core module pilot data dashboard	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
currently available to address ports		conducted in 2014 and 2017. This data collection is continuing as part of long-term monitoring and is publicly available for Port Authorities. • Port Authorities have extensive economic data on port activities.	• SELTMP Core Module Report • SELTMP Core Module 2021 Survey dataset		
IN6 The necessary Indigenous heritage information is currently available to address ports	3	• There is increasing engagement by the Reef Authority with indigenous stakeholders, including the inclusion of indigenous personnel within permission systems and coordination with relevant liaison bodies. Note however that as most ports occur outside of the Marine Park this does not integrate with majority of port activities. • NQBP and GPC currently have Reconciliation Action Plans and POTL is developing a plan. These include commitments of Port Authorities for regular engagement with indigenous stakeholders which provides opportunity for improved recognition of and integration of indigenous heritage information. • For major capital projects, Port Authorities develop CHMPs and/or Cultural Heritage Agreements with local Native Title bodies. There is also an ILUA in place between GPC and local Native Title bodies associated with works on Curtis Island. These documents provide further integration of specific heritage information into the activities and locations.		Adequate	Improving
IN7 The necessary historic heritage information is	4	• Historic heritage values are typically well documented and publicly available. The exception is for shipwrecks but,		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
currently available to address ports		within port areas, these are typically well known by Port Authorities due to their potential to pose navigational hazards. • The development of Master Plans for the Priority Ports of Townsville, Gladstone, Mackay/Hay Point and Abbot Point and the (non-priority) ports of Cairns and Mourilyan have provided further basis for clearly documenting historic heritage values at these ports.			
IN8 There are additional sources of non-government input (e.g. volunteers) contributing to address ports	3	• Port Authorities are members of regional water quality partnerships which provides opportunities for inputs on broader water quality improvement initiatives and priorities within port catchments. These include Wet Tropics, Townsville Dry Tropics, Mackay-Whitsunday-Isaac, Fitzroy, Gladstone). • Port Authorities also regularly partner with non-government organisations as part of voluntary initiatives, such as Seagrass Watch, Mangrove Watch, Turtle Watch, Clean Up Australia etc. • Note that full input and involvement of non-government actors is restricted due to the industrial and/or secure nature of port facilities.		Adequate	Stable
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are	4	• The primary opportunity for stakeholder engagement in ongoing management of ports relates to TACCs associated with overseeing long-term maintenance dredging		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
effectively engaged in the ongoing management of ports		activities. Often TACCs, while specifically constituted around maintenance dredging, have a broader scope of discussion allowing for diverse input across a broader range of port activities. • Stakeholders have also been engaged in the development of Master Plans for ports of Cairns, Mourilyan, Townsville, Mackay/Hay Point, Abbot Point and Gladstone and the LMDMPs for each of the Reef ports. However as this engagement occurs on a 5-10 year basis (based on the life of the plans) it has limited input into day-to-day port management and operations. • QPA facilitates ongoing engagement between industry and regulators, allowing for two-way communication on management priorities for ports.			
PR2 The local community is effectively engaged in the ongoing management of ports	4	• Additional to engagement opportunities described in PR1 (e.g. TACCs), local communities are directly engagement through various engagement groups coordinated by Port Authorities (see PL5). • As described in IN6, GPC and NQBP currently have Reconciliation Action Plans which promotes ongoing engagement with indigenous stakeholders. This is also being proposed and developed by POTL. • There is limited engagement by other management agencies (e.g. Reef Authority, DTMR) with local communities on ports although this reflects the more		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		central role Port Authorities often play in their local community.			
PR3 There is a sound governance system in place to address ports	4	• The governance system for ports consists the following key element: – Four Port Authorities (FNQPCL, POTL, NQBP, GPC) with statutory authority to undertake port activities within declared port limits, including oversight of planning activities on strategic port land and control of direct uses. The functions of the Port Authorities includes functions that would otherwise be undertaken by DTMR. These Port Authorities are also subject to governance arrangements under the Government Owned Corporations Act 1993. – Limitations under the Sustainable Ports Development Act 2015 to any future port development in the region, effectively 'locking in' the current set of ports (although the management of individual ports may change between different Port Authorities). – Overlying jurisdiction of DTMR to control overarching development policy/strategy for ports (e.g. Maintenance Dredging Strategy, Priority Ports Master Plans). – Complementary jurisdiction of MSQ, including the RHM and vessel Traffic Services (VTS; both regional and Reef VTS), the Port Authorities and AMSA to control maritime safety and navigational arrangements within ports. MSQ has primary carriage of responsibility		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		associated with response to ship-sourced pollution in Queensland's coastal waters, including in ports and from ships, while safety, pilotage, navigation and other requirements in ports are multi-jurisdictional. The relevant RHMs have powers around potential navigation hazards, compulsory pilotage etc. while onboard safety requirements for commercial vessels is administered by AMSA and for recreational vessels by MSQ. – Approvals jurisdiction for the Reef Authority, DCCEEW, DES and other agencies where undertaking certain activities that trigger licensing requirements. This jurisdiction is subject to interconnected governance arrangements associated with administrative sharing of assessment and permitting responsibilities. See further PL8. • This governance system relies primarily on the delivery of day-to-day port management arrangements by Port Authorities. This is a common model adopted internationally and provides for a blended focus on commercial operations and community development.			
PR4 There is effective performance monitoring, including. regular assessment of appropriateness and effectiveness of tools, to	3	• The monitoring regime associated with LMDMPs and maintenance dredging more generally is providing adequate performance data to inform the continual improvement of these actions. This combines with additional water quality monitoring programs undertaken as part of regional water quality improvement partnerships	• See PL1 for land use plans, master plans and long-term maintenance dredging management plans	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
gauge progress towards the objective(s) for ports		and the voluntary long-term monitoring undertaken at most ports. • Monitoring of performance under Reef 2050 is tracked through the Reef 2050 Integrated Monitoring and Reporting Program. Port Authorities were heavily involved with the development of the RIMREP framework. The 5-yearly Outlook Reports also provide an opportunity for ongoing review of the sector in a more strategic way. • Systematic monitoring associated with maritime emergency preparedness/response is currently lacking as there is not a relevant framework established under the National Plan for Maritime Environmental Emergencies. • Similarly, while Port Authorities are assisting in the delivery of Q-SEAS, including collection of monitoring data to inform the threat of invasive marine species, this is not linked to a broader management framework so is not being used at present for performance assessment. • Individual major projects are subject to strict monitoring and performance management arrangements through relevant permitting systems.	• National Plan for Maritime Environmental Emergencies • Biosecurity Strategy 2018-2023		
PR5 Appropriate training is available to the managing agencies to address ports	3	• Port Authorities ensure regular training of appropriate staff. This includes engagement in for a provided by QPA and PIANC Australia. • Reef Authority personnel have on the job training associated with assessment and management of permitting arrangements. including provision of		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Environmental Site Supervisors as part of major projects. Staff are also invited to QPA Planning and Environment Committee meetings which provides further exposure. However, a previous need for specific port-related training for Environmental Assessment and Protection training has not been addressed at present. Additionally, due to the impacts of the novel coronavirus pandemic, opportunities for staff to inspect port operations and activities has been restricted in recent years, reducing the level of operational exposure.			
PR6 Management of ports is consistently implemented across the relevant jurisdictions	3	• See PL8 regarding the overall consistency between different jurisdictions associated with ports. As the management of ports flows directly from the planning system, the same jurisdictional findings apply.		Adequate	Stable
PR7 There are effective processes applied to resolve differing views/ conflicts regarding ports	3	• Conflicts are primarily resolved through the engagement between Port Authorities and regulators, including through the Memorandum of Understanding between the Reef Authority and QPA which provides a forum for broader industry representation. • The main areas of potential conflict primarily occur in approval processes (i.e. refusals or imposition of stringent conditions on Port Authorities by regulators). While these are primarily administrative processes and not based on subjective decision-making, there is recourse for resolution through standard administrative appeal and dispute resolution processes.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• As port areas are mostly excluded from the Reef Authority, there is little conflict between port planning and the Zoning Plan.			
PR8 Impacts (direct, indirect and cumulative) of activities associated with ports are appropriately considered.	3	• Majority of port development and direct use activities are subject to environmental assessment and permitting. The assessment guidelines and instruments associated with the Reef and with key port activities (e.g. dredging, at sea placement, reclamation) create a comprehensive framework that captures the broad direct, indirect and cumulative impact of port activities. • There are potential gaps however, for activities that fall outside the environmental permitting system, such as changes in number of vessel movements, loading/unloading procedures, arrival of vessels from new international jurisdictions. • The process of developing Master Plans for Priority Ports integrates additional strategic assessment requirements in considering port developments. These are in place for the ports of Townsville and Gladstone and are being finalised for Mackay/Hay Point and Abbot Point. Non-statutory plans have also been developed for Cairns and Mourilyan. The trading ports not currently covered through these assessment process are Cape Flattery, Lucinda and Rockhampton/Alma.	• See CO4 for long-term maintenance dredging management plans • Various project- and campaign-specific environmental impact assessments	Adequate	Improving
PR9 The best available biophysical research and/or	3	• The data availability for ports planning and management is noted in IN4.	• Various project- and campaign-specific	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
monitoring information is applied appropriately to make relevant management decisions regarding ports		• It is currently recognised that there are gaps associated with: – coal dust – inshore dolphins – invasive marine species (however, this is being addressed through the Q-SEAS program) – vessel strikes on marine fauna – underwater noise – lighting impacts • As much of this data is collected by Port Authorities directly, there is a direct engagement of this data into implementation of management arrangements. • There remains a gap at present in the application of biophysical data from individual ports across the broader region, especially in considering impacts that extend beyond port areas or that relate to matters that extend beyond port areas.	environmental impact assessments		
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding ports	3	• The data availability for ports planning and management is noted in IN5. • This data is primarily implemented through master planning processes. Day-to-day port operations and management is informed through engagement of stakeholders through TACCs and other representative groups.	• Various project- and campaign-specific environmental impact assessments • Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • Social value assessment	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Gooch et al., 2017 • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment		
PR11 The best available Indigenous heritage information is applied appropriately to make relevant management decisions regarding ports	3	• The data available for ports planning and management is noted in IN6. • Indigenous heritage matters are typically integrated into permitting arrangements and/or agreements between Port Authorities and relevant bodies (e.g. ILUAs, CHMPs). These provide the frameworks for day-to--day management of areas with indigenous heritage or related resource use.	• Various project- and campaign-specific environmental impact assessments	Adequate	Improving
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding ports	3	• The data available for ports planning and management is noted in IN7. • Historic heritage matters are typically integrated into permitting arrangements. These provide the frameworks for day-to-day management of areas with historic heritage value.	• Various project- and campaign-specific environmental impact assessments	Adequate	Stable
PR13 Relevant standards are identified and being met regarding ports	3	• There is no globally agreed suite of measures or standards for 'best practice' in the context of port development and operation, and to seek such from overseas and apply without appropriate adaptation to Reef ports may be to		Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		overlook the merit and opportunity to develop tailored and focused measures for the Reef. • However, it is recognised the standards adopted within Reef ports for sustainable sediment management are consistent with international best practice. • Scope exists for further development of a suite of meaningful policy objectives and performance indicators relevant to Reef ports and their interactions with, and potential influences upon, the Marine Park and World Heritage Area. This could possibly be achieved or augmented via intended priority ports master planning processes. • There are some aspects of accredited standards particularly in coastal engineering disciplines that are effectively implemented through impact assessment and approval processes.			
PR14 Targets have been established to benchmark management performance for ports	3	• While there are various policy statements and plans associated with ports (as described elsewhere) which set policy direction and actions to be achieved in the port sector, there is little development of specific targets associated with the management of ports directly. This primarily relies on Port Authorities to set internal targets based on their management systems (e.g. ISO14001 Environmental Management System). • Best practice guidelines have been produced by QPA on conducting management activities, especially for dredging, but do not set specific targets for benchmarking.		Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• However, as part of the recent transition in port planning and dredging management, there has been the introduction of a benchmarking process within the consideration of sustainable sediment management and means to reduce dredging needs for ports. This allows individual ports to set internal benchmarks of net reduction in dredging and at sea placement requirements			
OUTPUTS					
OP1 To date, the actual management program (or activities) have progressed in accordance with the planned work program for ports	3	• The actions related to Ports under the previous Reef 2050 (2015) have either been finalised or are underway. This includes actions related to the implementation of capital dredging ban, priority planning for master ports and development of improved management arrangements around maintenance dredging and placement. These actions overlap with relevant requirements under the SPP 2017, *Sustainable Ports Development Act 2015* and Maintenance Dredging Strategy. • The status of actions under the current Reef 2050 plan (2021-2025) are uncertain: – 2.3 Improve practices in sensitive shoreline ecosystems – 3.7 Investigate and implement measures that reduce noise and light impacts – 3.8 Enhance marine and island pest surveillance and prevention (including biosecurity) – 3.9 Implement domestic measures that reduce marine debris and manage waste disposal.	• Reef 2050 Plan	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• It is also uncertain the status of delivery of actions associated with vessel strike of marine fauna under the National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna.			
OP2 Implementation of management documents and/or programs relevant to ports have progressed in accordance with timeframes specified in those documents	3	• While most actions are underway, timeframes for some actions (e.g. Master Plans for Priority Ports have not been met). • See OP1 regarding status of actions under the National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna.		Limited	Stable
OP3 The results (in OP1 above) have achieved their stated management objectives for ports	3	• See PL4. As most of the plans related to ports do not have clearly stated objectives, it is uncertain if these have been achieved. • For actions related to the 2015 Reef 2050 Plan, many of the port-specific actions relate to objectives which integrate a range of actions, including those not relevant to ports. The extent to which these broader objectives have been met is therefore uncertain.		Limited	Stable
OP4 To date, products or services have been produced in accordance with the stated management objectives for ports	4	• The primary 'products' required to be developed have been the Master Plans for Priority Ports, together with guidance material, and the LMDMPs. Master Plans are still in progress for Mackay/Hay Point and Abbot Point but have been completed for Townsville and Gladstone. LMDMPs have been prepared for all ports.	• See PL1 for land use plans, master plans and long-term maintenance dredging management plans	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OP5 Effective knowledge management systems regarding ports are in place within agencies	2	• There is strong internal knowledge management within Port Authorities. • While most port data is not collected by the Reef Authority, there is access to broad sets of publicly available data and scientific literature, including that from ports, as well as knowledge from assessments through the permission system. However, it is understood that this may not be appropriately embedded within the Reef Authority internal knowledge management systems due to the lack of FTEs for port management.		Adequate	Stable
OP6 Effective systems are in place to share knowledge on ports with the community	3	• Port Authorities publish most of the long-term monitoring data and undertake engagement with local communities regarding this data. • Assessment information associated with major projects is typically available in the public arena (e.g. EISs published, Public Information Packages for Marine Park Permits). • DTMR has published data related to baseline assessments (Evidence Base Reports) for each of the Priority Ports (Townsville, Mackay/Hay Point, Abbot Point, Gladstone) and has undertaken engagement on this information. • Knowledge related to underwater noise, lighting, biosecurity and coal dust is not readily available.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OUTCOMES					
OC1 The relevant managing agencies are to date effectively addressing ports and moving towards the attainment of the desired outcomes.	3	• Port management is effective, especially as undertaken by Port Authorities and there have been significant improvements in relation to management of sediment mobilised and placed within the region. • However, as overall tracking of reef outcomes through Reef 2050 aggregates port activities with other actions, it is uncertain the extent to which the management of Port Authorities and other managers is contributing to the outcomes.	• Outlook Report 2019	Limited	Stable
OC2 The outputs relating to ports are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	3	• The outputs noted in OP1 to OP6 are on track to addressing the key risks identified for ports to the Reef, being port development and dredging activities. However, it is uncertain the extent to which this is protecting Reef values directly as there is no broader monitoring of Reef health related to sediment. • As there are not clear objectives for the ongoing operations of ports in other areas, especially biosecurity, there is opportunities to improve outputs with relation to Reef values.	• Outlook Report 2019	Limited	Stable
OC3 the outputs (refer OP1 and 3) for ports are reducing the major risks and the threats to the Great Barrier Reef	4	• The outputs noted in OP1 to OP6 are on track to addressing the key risks identified for ports to the Reef, being port development and dredging activities. • However, as there are not clear objectives for the ongoing operations of ports in other areas, especially biosecurity,	• Outlook Report 2019	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		there is opportunities to improve outputs with relation to Reef values.			
OC4 Use of the Great Barrier Reef relating to ports is demonstrably environmentally sustainable	4	• On the basis of available data and anecdotal evidence, it is reasonable to conclude that any effects are localised, and hence likely to be sustainable, at current levels of port activity, in the context of the region. • The need remains to improve baseline knowledge and data monitoring and analyses, and improve the coordination in the synthesis and dissemination of this information.		Limited	Stable
OC5 Use of the Great Barrier Reef relating to ports is demonstrably economically sustainable	4	• Significant data are available which indicate the regional and national economic value of Reef ports, indicating their economic sustainability in current and reasonably foreseeable market and trade conditions. • Benefits accrue from ports across the linked, broader transport networks, with enhanced outcomes for regional economies. • Additional benefits accrue to reef-dependent industries (e.g. marine tourism, cruise ships) from the ports (as a non-reef dependent industry) being able to accommodate their visits.		Adequate	Stable
OC6 Use of the Great Barrier Reef relating to ports is demonstrably socially	3	• The Reef ports sustain a large number of communities in the Queensland east coast area and interior. • There remain elements of community concern about port development, not necessarily valid. This has been		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
sustainable understanding and/or enjoyment		addressed in part through port master planning process and community engagement practices. • When the World Heritage Area was established at the mean low water mark in 1981 it was acknowledged that ports would be located within the World Heritage Area. This was seen as appropriate and manageable because the World Heritage Convention does not exclude human activities or industrial activities from operating within World Heritage properties. This remains the case. • Master planning for Priority Ports is required to identify measures to be implemented within each port to support consistency with the principles of ecologically sustainable development which includes environmental, economic and social aspects.			
OC7 The relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address ports	4	• Port Authorities are part of regional water quality partnerships, focused on improving water quality in the catchment. • TACCs for port maintenance dredging provides a form of ongoing partnership with agencies and other stakeholders to inform ongoing maintenance operations. • QPA, through a Memorandum of Understanding with the Reef Authority, facilitates opportunities for deeper engagement between Reef Authority and port industry, including Port Authorities.		Adequate	Stable

Recreation (Excluding Fishing)

Table 47: Calculation of grades for Recreation (excluding Fishing)

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The values of the Great Barrier Reef relevant to recreational use are understood by managers	3	• The Recreation Management Strategy outlines the values of the Great Barrier Reef that are to be considered. • SELTMP technical report on recreation presents a snapshot of socio-economic data and indicators in the GBR region. It details how people use and depend on the GBR, human and community wellbeing and drivers of change. • Recreational users are represented on LMACs and share their views about the values relevant to recreational use with managers. In June 2022 LMACs meet with Reef Authority Staff to discuss changes in use and values within the Marine Park. • In the John Brewer Reef Site Plan public consultation process advertising was targeted towards recreational users. • Shifting use with increased visitation coming from SEQ and southern states.	• Recreational Management Strategy (RMS) GBRMPA (2012) • A statement of Management Arrangements in the GBRMP for Super-yacht Operations. • Supporting information for the Whitsundays Plan of Management (WPOM) 2015-18 review – internal document only. • Deloitte Access Economics, At what price? The economic, social and icon value of the Great Barrier Reef (2017) • SELTMP Reports • Local Marine Advisory Committees | Reef Authority • LMAC Director summaries – Use of Marine Parks	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• CSR project data on recreational use (unable to determine what is rec fishing and what is not). • Tourism Visitation Data, GBRMPA • Vessel registrations via the Department of Transport and Main Roads • Migration statistics to Queensland via the Australian Bureau of Statistics		
CO2 The current condition and trend of values relevant recreational use are known by managers	3	• Recreational users on LMACs share anecdotal information about the condition and trend of values relevant to recreational use with managers. • The spatial planning team has identified key knowledge gaps in recreational use data within the GBRMP. – Key Social Science Related Projects will aim to help expand information in this area including ; – IMR RTP Sustainable use and benefits monitoring project (SEABORNE): This project (2021-2024) will design a monitoring program to help managing agencies make informed decisions about striking the right balance between sustainable use and long-term conservation.	• Recreational Management Strategy (RMS) GBRMPA (2012) • A statement of Management Arrangements in the GBRMP for Super-yacht Operations. • Supporting information for the Whitsundays Plan of Management (WPOM) 2015-18 review – internal document only. • SELTMP Reports • Local Marine Advisory Committees | Reef Authority	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Community members have an important role to play in contributing to the protection the Great Barrier Reef and maintaining its World Heritage Values. – IMR RTP Monitoring collective capacity and implementation (Governance): There are multiple programs, plans and policies underway for the protection and sustainable use of the Reef under the Reef 2050 Plan. • The Reef Authority Human Use Dashboard is being developed to provide a user-friendly interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs.	• LMAC Director summaries – Use of Marine Parks • Tobin, R., Bohensky, E., Curnock, M., Goldberg, J., Gooch, M., Marhsall, N., Nicotra, B., Pert, P., Scherl, L., Stone-Jovicich, S. (2014). The Social and Economic Long Term Monitoring Program (SELTMP) 2014, Recreation in the Great Barrier Reef. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns • Local Marine Advisory Committees | gbrmpa • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Monitoring collective capacity and implementation (Governance): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • Human Use Dashboard: GBRMPA internal only dashboard that will be made available on the Reef Knowledge System in 2023.		
CO3 Impacts (direct, indirect and cumulative) associated with recreational use are understood by managers.	4	• The impacts of recreation are articulated in the Recreation Management Strategy and are summarised in the Strategic Assessment; however, this has not been up-dated since the 2014 Outlook Report.	• Recreational Management Strategy (RMS) GBRMPA (2012) • Vessel Registrations • Great Barrier Reef camping • Going Spearfishing in the Whitsundays	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Extent of recreational use is not well understood. Through the CSR project this understand is being built through drawing on data from AIS, DAF, MSQ, satellites, Coastguards, radar etc. • MSQ and DAF are trialling cameras at boat ramps and AI technology. • MSQ have used cell phone data to track vessel movement inshore. • Data suggests a significant increase in vessels registered outside of the GBR catchment using the southern GBR. • The increasing number of people living close to the Great Barrier Reef means increasing recreational use of the marine area. Boat ownership is increasing steadily within the catchment. This has driven an increased demand for boating facilities such as marinas, moorings and boat ramps, often located within the Great Barrier Reef World Heritage Area or adjacent coastal habitats. • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs.	• RJFMP Annual Reports • Reef Health and Impact Surveys • LMAC Director summaries - Use of Marine Parks • Mapping patterns of activity in the Great Barrier Reef Marine Park Milestone report 6 • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Monitoring collective capacity and implementation (Governance): Integrated		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • Eye on the Reef | gbrmpa • Home (www.prd-eotr-as-uat.azurewebsites.net) (production website of the new database)		
CO4 The broader (national and international) level influences relevant to recreational use are understood by managers.	3	• National and international influences relevant to recreation include environmental issues (sea level rise, ocean acidification, sea level rise, more frequent extreme weather and warming sea temperatures), are well recognised (if not understood) as seen through the development of the Reef 2050 plan and the engagement with WHC concerning the threat of putting the GBR on the "in danger" list. • Regarding Direct use boat use has increased on the reef and traffic particularly in the south by boats not registered in Queensland have increased. • The project defining the aesthetic values of the GBR also considers the risks of recreational use on the OUV for the Region with respect to Criterion vii	• Workshops and Stakeholder Conversations • Recreational Management Strategy (RMS) GBRMPA (2012) • Great Barrier Reef Strategic Assessment Report, • Vessel Registrations	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CO5 The stakeholders relevant to recreational use are well known by managers.	4	• Recreation stakeholders are not as easily identifiable as industry stakeholders. Sectors, such as sailing and dive clubs, are known but not necessarily accessed. • The GBRMPA regularly interacts with key recreation stakeholders through its Regional Officers, Reef Advisory Committees and through its 11 Local Marine Advisory Committees (LMACs). • Key recreational stakeholders were encouraged to nominate for the 2021-24 LMAC term. • Great Barrier Reef Marine Park Authority Actor Network Mapping project: Mapping working agreements between the Authority, partners, stakeholders, and community of practice: This project maps the existing actors within a network that connects the Authority to the organisations and institutions they engage for research and management practice. This project has three overarching goals. Firstly, to provide information to the Authority's science for management sector that will help inform future work. Secondly, to identify gaps in existing Reef management partnerships. Thirdly, to help inform management decision-making process by identifying actors in the Reef management landscape solely from an Authority centric perspective. • SELTMP technical reports on social surveys and reports on changes to reef residents and use for recreation present a snapshot of socio-economic data and indicators in the GBR	• Hobman, E. V., Mankad, A., Pert, P. L., van Putten, I., Fleming-Muñoz, D. & Curnock, M. (2022). Monitoring social and economic indicators among residents of the Great Barrier Reef region in 2021: A report from the Social and Economic Long-term Monitoring Program (SELTMP) for the Great Barrier Reef. CSIRO Land and Water, Australia. ISBN 978-1-4863-1719-6 • Marshall, N.A. and Curnock, M.I. (2019). Changes among coastal residents of the Great Barrier Reef region from 2013 to 2017: a report from the Social and Economic Long-Term Monitoring Program (SELTMP). Report prepared for the Great Barrier Reef Marine Park Authority. CSIRO Land and Water, Townsville • Tobin, R., Bohensky, E., Curnock, M., Goldberg, J.,	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		region. It details how people use and depend on the GBR, human and community wellbeing and drivers of change.	Gooch, M., Marhsall, N., Nicotra, B., Pert, P., Scherl, L., Stone-Jovicich, S. (2014). The Social and Economic Long Term Monitoring Program (SELTMP) 2014, Recreation in the Great Barrier Reef. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns. http://www.nerptropical.edu.au/publication/project-101-technical-report-social-and-economic-long-term-monitoring-program-seltmp-2 • Local Marine Advisory Committees | gbrmpa Great Barrier Reef Marine Park Authority Actor Network Mapping project: Mapping working agreements between the Authority, partners, stakeholders, and community of practice		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PLANNING					
PL1 There is a planning system in place that effectively addresses recreational use	3	• Development of the Southern POM represents some clear efforts to update planning particularly as boat traffic and use continues to expand in the southern area of the GBR. • The outcomes of the review of the Whitsundays Plan of Management (WPoM) ,which came into effect in 2018, in which the description of the values within the Whitsunday Region important to commercial marine tourism (and other users) were reviewed and updated. The finalised WPoM reflects a balance of conservation of values and multiple use for this highly used area. Refer to Part 1 of the updated Whitsundays Plan of Management. • Whitsunday Superyacht Guide and GBR wide SY Sheet. • Reef Joint Field Management Program – undertakes a range of activities that support and manage recreational use (e.g. island infrastructure, moorings, no-anchoring areas). • Reef Joint Field Management Program – Compliance: Strategic and operational compliance planning, including monthly compliance operations meetings where current and forecasted compliance issues, risks and threat assessments, resource allocations, patrol taskings and other priorities are reviewed and where required compliance resources are directed to priority areas or activities including a range of non-fishing recreational activities.	• Reef Joint Field management program 5-year business strategy and annual reports • Reef Joint Field Management Program (Compliance) – the range of strategic and operational compliance planning documents, in which illegal recreational fishing is a very high risk and a key priority • Communication and education products and activities focused on recreational user compliance (e.g. Protect your patch and Eye on the Reef app zoning information campaigns) • Superyacht guide to the Whitsundays: prepared by the Great Barrier Reef Marine Park • Great Barrier Reef: Superyacht Cruising Guide • Dive into history around Magnetic Island	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• A communications program targeting recreational user compliance (island activities, anchoring, moorings etc) – funded by the RJFMP but managed by GBRMPA Comms section. • Recreational use was considered in the John Brewer Reef Site Plan, however no strategies which directly manage recreational use were implemented. The addition of a small structures area and a no structures area within the Site Plan ensures current recreational use at the site will not be impacted due to potential future structures in those key use areas. • There is limited quantitative data to inform planning arrangements for recreational use.	• Going Spearfishing in the Keppels • Going Spearfishing in the Whitsundays • Going Spearfishing offshore Cooktown • Going Spearfishing in the Cairns region • Visiting the Whitsundays in the Great Barrier Reef World Heritage Area: A guide for recreational visitors • John Brewer Reef Site Plan		
PL2 The planning system for recreational use addresses the major factors influencing the Great Barrier Reef Region's values.	3	• Two actions Identified in the Reef 2050 plan were: – Action CBA9 - Industry, community and governments work together to implement policies and programs that address tourism and recreational use of the Great Barrier Reef Marine Park. – Action CBA10 – Develop and implement plans of management in areas of the GBRMP that high growth for recreation and other uses. • Development of the Southern POM represents some clear efforts to update planning particularly as boat traffic and use continues to expand in the southern area of the GBR.	• Recreational Management Strategy (RMS) GBRMPA (2012) • Whitsundays Plan of Management • Updates to Whitsundays Plan of Management, GBRMPA website • Reef 2050 Long-Term Sustainability Plan • Responsible Reef Practices	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Recreation Management Strategy identifies and addresses the major pressures and drivers impacting on the GBR, however this has not been updated since 2012. • Mechanisms for addressing major factors influencing the Region's values are captured to some extent by the Zoning Plan, plans of management and the intergovernmental agreement with QPWS permitting and licencing on islands. • The Reef 2050 Plan includes several actions concerning recreation. • Legislation of no-anchoring areas has expanded since 2019 progressing from 1/3 toward having all legislated.	• Reef Joint Field management program 5 year business strategy and annual reports • RJFMP Annual Business Plans, e.g 2022-23 • Reef Joint Field Management Program: Business Strategy Summary 2021-2025		
PL3 Actions for implementation regarding recreational use are clearly identified within the plan	3	• Updates to the Southern Plan of Management should help to further identify and implement changes relevant to recreations such as identifying areas available for motorised water sports, providing coordinate-based boundaries allowing users to better follow the rules in the POM (e.g. settings, locations, and significant bird sites). • The Recreation Management Strategy identifies and addresses the major pressures and drivers impacting on the GBR, but an implementation plan has not been developed. • The Joint Field Management Program is continuing to work towards modernising the Compliance Management System (CMS) to improve the collection, storage and use of compliance data from initial reporting to the case decision. The detailed	• Reef 2050 Long-Term Sustainability Plan • Whitsundays Plan of Management • Recreational Management Strategy (RMS) GBRMPA (2012) • Reef Joint Field management program 5 year business strategy and annual reports	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		business requirements have been documented and the project team will approach the market for market-accurate cost estimates for cost benefit analysis. The new system is expected to be implemented by the end of 2023.			
PL4 Clear, measurable and appropriate objectives for management of recreational use have been documented	2	• The Recreation Management Strategy defines three objectives for the management of recreation: – A range of recreational opportunities is provided for. – The major potential threats associated with recreation are minimised. – Other managing agencies and the community are working with the Authority to manage recreational use and the factors that affect it. • However, the RMS does not include information about how these objectives are measured, and no assessment of their success has been undertaken. • Actions under the Reef 2050 include clear objectives.	• Recreational Management Strategy (RMS) GBRMPA (2012) – is due to be updated in 2017 • Reef 2050 Long-Term Sustainability Plan	Adequate	Declining
PL5 There are plans and systems in place to ensure appropriate and adequate monitoring information is gathered in relation to recreational use	3	• The SELTMP group are regularly monitoring recreational use. • AIS monitoring and automated alerting commenced in September 2021. Subscription to a commercial AIS service in 2022 to complement existing access to AIS data for monitoring compliance. There continues to be a significant gap in the knowledge of recreational use within the Marine Park and the	• Hobman, E. V., Mankad, A., Pert, P. L., van Putten, I., Fleming-Muñoz, D. & Curnock, M. (2022). Monitoring social and economic indicators among residents of the Great Barrier Reef region in 2021: A report from the Social and Economic	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		ability to access and apply existing information in a management context. • Anecdotal information from field staff within the RJFMP and locals continue to be the main source of information when it comes to recreational use in the GBRMP. • Key Social Science Related Projects will aim to help expand information in this area including: – IMR RTP Sustainable use and benefits monitoring project (SEABORNE): This project (2021-2024) will design a monitoring program to help managing agencies make informed decisions about striking the right balance between sustainable use and long-term conservation. – IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Community members have an important role to play in contributing to the protection the Great Barrier Reef and maintaining its World Heritage Values. – IMR RTP Monitoring collective capacity and implementation (Governance): There are multiple programs, plans and policies underway for the protection and sustainable use of the Reef under the Reef 2050 Plan. • The Reef Authority Human Use Dashboard is being developed to provide a user-friendly interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs.	Long-term Monitoring Program (SELTMP) for the Great Barrier Reef. CSIRO Land and Water, Australia. ISBN 978-1-4863-1719-6. • Marshall, N.A. and Curnock, M.I. (2019). Changes among coastal residents of the Great Barrier Reef region from 2013 to 2017: a report from the Social and Economic Long-Term Monitoring Program (SELTMP). • SELTMP 2013: Recreation in the Great Barrier Reef • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Integrated Monitoring and Reporting - Great Barrier Reef Foundation		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Extent of recreational use is not well understood. Through the CSR project we are building this understand through drawing on data from AIS, DAF, MSQ, satellites, Coastguards, radar etc. • MSQ and DAF are trialling cameras at boat ramps and AI technology. This may help with visibility issues Identified by experts as a result of more remote areas being accessed for boat launching. • MSQ have used cell phone data to track vessel movement inshore. • Data suggests a significant increase in vessels registered outside of the GBR catchment using the southern GBR.	(Human dimensions Monitoring projects) • IMR RTP Monitoring collective capacity and implementation (Governance): Integrated Monitoring and Reporting - Great Barrier Reef Foundation (Human dimensions Monitoring projects) • Human Use Dashboard: GBRMPA internal only dashboard that will be made available on the Reef Knowledge System in 2023.		
PL6 The main stakeholders &/or the local community are effectively engaged in planning to address recreational use	3	• High level of engagement for legislative changes (Regulations, Zoning Plans, Plans of Management) with formal submissions received. • Zoning maps and other material produced by the Reef Joint Field Management Program, such as Protect Your Patch collateral is distributed by Program staff and the Authority's regional engagement team to community access points and at community and major events. • In 2020–21 the Reef Joint Field Management Program staff attended four recreational user-focused events, including outdoor expos and fishing competitions in Townsville, Cairns,	• Reef Advisory Committee • LMACS http://www.gbrmpa.gov.au/about-us/local-marine-advisory-committees • RJFMP Annual Report 2020-21 Summary • SELTMP 2021	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Cooktown and Gladstone and engaged with 1271 recreational users of the World Heritage Area encouraging best practice and stewardship of the Great Barrier Reef • LMACS, regional based staff and community access points. Uncertain how the insights from these groups are being integrated into policy. • Legislative requirements for public advertisements for amendments to statutory plans. • Advertising targeted towards recreational users was used for the public consultation process for the John Brewer reef Site Plan. • SELTMP Surveys seem to indicate that the public doesn't feel connected to policy decisions.			
PL7 Sufficient policy currently exists to effectively address recreational use	3	• Two actions Identified in the Reef 2050 plan were: Action CBA9 - Industry, community and governments work together to implement policies and programs that address tourism and recreational use of the Great Barrier Reef Marine Park. o Action CBA10 – Develop and implement plans of management in areas of the GBRMP that high growth for recreation and other uses. • Policies contribute to addressing recreational use: – Position Statement on the Conservation of Dugongs (2007) – Policy on sewage discharge from marine outfalls (2005)	• Reef 20250 Plan • Whale and dolphin policy 2007 • Position Statement of No Structure Sub Zones (2006) • Position Statement on the Translocation of Species (2007) – policies refers to potential impacts from recreational vessels • Recreational Management Strategy (RMS) GBRMPA	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Structures Policy (2017) - policies briefly refers to potential impacts from recreational uses • A number of these policies have not been updated or reviewed in over 10 years.			
PL8 There is consistency across jurisdictions when planning for recreational use	3	• The Recreation Management Strategy identifies that "many agencies play a significant role in managing recreation in the Marine Park" (see Appendix 2, page 35). Collaborating with other agencies to ensure management of recreation in the Marine Park is coordinated and consistently applied is one of the key management components identified in the RMS • The Authority and the Queensland Government have a long history of collaboration to ensure consistency particularly to deliver their field management program, which ensures compliance with management tools that are highly relevant to recreation such as Plans of Management	• Recreational Management Strategy (RMS)	Adequate	Stable
PL9 Plans relevant to recreational use provide certainty regarding where uses may occur, the type of activities allowed or specifically disallowed,, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.	3	• Zoning plans, planning areas and site planning identify where use may occur. • Zoning maps and other material produced by the Reef Joint Field Management Program, such as Protect Your Patch collateral is distributed by Program staff and the Authority's regional engagement team to community access points and at community and major events.	• Great Barrier Reef Marine Park Zoning Plan 2003 • Whitsundays Plan of Management • Cairns Area Plan of Management 2008,GBRMPA http://www.gbrmpa.gov.au/__data/assets/pdf_file/0009/302	Adequate	Improvir g

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• In 2017, Whitsunday Plan of Management has been amended to more specifically identify where some recreational activities are allowed or disallowed. • Similar updates to the Cairns and Hinchinbrook Plans of Management have not occurred as yet. Updates to the Southern POM should also see these kind of benefits but has yet to be completed. • A flyer was created called 'Going spearfishing in the Whitsundays' and included a map that summarised the complex information relating to areas that recreational users can go spearfishing.	4/gbrmpa_Cairns_Area_POM_2008.pdfg • Hinchinbrook Plan of Management (2004) GBRMPA http://www.gbrmpa.gov.au/__data/assets/pdf_file/0013/3325/gbrmpa_Hinchinbrook_POM_2004.pdfCairns • http://elibrary.gbrmpa.gov.au/jspui/bitstream/11017/3252/1/Spearfishing-map.pdf • RJFMP Annual Report 2020-21 Summary		
INPUTS					
IN1 Financial resources are adequate and prioritised to meet management objectives to address recreational use	2	• Due to other priorities, limited resources were allocated to managing recreation beyond that which was devoted to expanding the patterns of vessel activities. – Science for Management/CSIRO collaboration (2021-2023). – Funding for Mapping patterns of vessel activity GBRMPA/CSIRO project in collaboration with RJFMP. • Through the Significant Regional Infrastructure Projects Program (SKIPP) the Queensland government invested $2.375 million to expand the public mooring and reef protection program across the GBR over 2016-19. To date, 13 new	• Recreational Management Strategy (RMS) • Workshops and Stakeholder Disscussions	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		moorings installed in Cairns, 7 new moorings and 20 reef protection markers installed near Keppel Island and 60 new moorings and 45 reef protection markers in the Whitsundays.			
IN2 Human resources within the managing organisations are adequate to meet specific management objectives to address recreational use	2	• RJFMP whole-of-program expansion has occurred. This included additional human resourcing (around 115 FTE to around 187). As this program does more than just strictly recreational based programming it is unclear exactly how much this increase improves on the existing deficits noted in the 2019 outlook report. Some key activities they have helped with are: – Zoning maps and other material produced by the Program, such as Protect Your Patch collateral is distributed by Program staff and the Authority's regional engagement team to community access points and at community and major events. – In 2020–21 Program staff attended four recreational user-focused events, including outdoor expos and fishing competitions in Townsville, Cairns, Cooktown and Gladstone and engaged with 1271 recreational users of the World Heritage Area encouraging best practice and stewardship of the Great Barrier Reef.	• RJFMP Annual Report 2020-21 Summary • Recreational Management Strategy (RMS) • Workshops and Stakeholder Discussions	Limited	Stable
IN3 The right skill sets and expertise are currently available to the managing organisations to address recreational use	3	• Comprehensive Training Package on Policy and Planning tools included in the induction for all new Reef Authority staff and made available to QPWS staff. • The GBRMPA employs two dedicated Social Scientists and engages regularly with social-ecological scientists at numerous	• Workshops and Stakeholder Discussions	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science Community for the Reef and Reef 2050 (Human Dimensions consortium). • There are also in-house skills and expertise, principally built from corporate knowledge, that can potentially be used to address recreation			
IN4 The necessary biophysical information is currently available to address recreational use	4	• The Reef Knowledge System provides key biophysical data including: – new GBR coral reef habitat mapping layers through the Reef Explorer interface: geomorphic, benthic, and bathymetry (to 20m depth) maps and a satellite image mosaic – an internal interactive dashboard, the Resilient Reefs Network Guidance Tool, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park • AusSeabed Marine Data Portal and Geoscience Australia host a very high-resolution bathymetry map of the Great Barrier Reef, including the continental shelf. • Reef Hub hosts inter Reefal and continental slope data for identifying plane/slope. • RJFMP island health check data is entered into the Field Reporting System that helps inform biosecurity incursion detection and management etc.	• Great Barrier Reef Strategic Assessment Report, • Great Barrier Reef Coastal Zone Strategic Assessment 2014 • Outlook 2019 • Informing the Outlook for Great Barrier Reef coastal ecosystems • Reef explorer | Reef Knowledge System (www.gbrmpa.gov.au) • Reef Knowledge System – Resilient Reefs Network (gbrmpa.gov.au) • AusSeabed Marine Data Portal (ga.gov.au) & Product catalogue – Geoscience Australia (ga.gov.au)	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• https://reefhub.gbrmpa.gov.au/portal/apps/sites/#/reefhub/pages/gbrmpa-habitat-map		
IN5 The necessary socio-economic information is currently available to address recreational use	3	• Many of the residents that live in the GBR region use the GBR for recreational activities such as visiting an island, snorkelling, diving, sailing, boating and fishing. The economic contribution of the GBR to recreation is captured by the expenditure on these types of recreational activities in the GBR region. • Recreational expenditure on the GBR region by types of expenditure is presented for 2015-16. • Recreational use, user values and perceptions were included in the SELTMP Reports.	• Deloitte Access Economics, At what price? The economic, social and icon value of the Great Barrier Reef (2017) • SELTMP Reports	Adequate	Improving
IN6 The necessary Indigenous heritage information is currently available to address recreational use	3	• RIMReP is a partnership involving Australian and Queensland government entities, together with Traditional Owners. Four Traditional Owner Members sit on the RIMReP Governance groups to provide guidance and advice on cultural, social, economic, and other matters, engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision. – Toolkit for safeguarding Indigenous heritage and knowledge was released in 2020, used as a guidance tool for RIMReP. – The National Environmental Science Program has several indigenous engagement principles and governance methods.	• Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park • Traditional Owner and Marine Parks Management Portal - Overview (www.arcgis.com) • Permission system cultural referrals | Reef Authority • Mandubarra Sea Country Cultural Values: 2019-2020 mapping project	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– This includes a '3 Category' approach through which indigenous engagement is assessed and enacted. Additionally, there is an 'indigenous knowledge network' and a set of indigenous knowledge brokers working on the NESP. • These tools can help in implementing a stronger connection with traditional owners for recreation however as new policy is slow it remains to be seen if it will be integrated.	• Land and Sea Country | Reef Knowledge System (www.gbrmpa.gov.au) • Indigenous partnerships | AIMS • AIMS Indigenous Partnerships Plan • AIMS Indigenous Partnership Policy • RIMReP Web pages – GBRMPA Website • RIMReP Business Strategy 2020-25 • Toolkit for safeguarding Indigenous heritage and knowledge		
IN7 The necessary historic heritage information is currently available to address recreational use	2	• Of the ~800 shipwrecks in Queensland less that 9% have been located and less have been positively identified • Little information has been gathered on the historic heritage of islands. Quality information would assist in the interpretation of heritage to recreational users and managers. • The heritage value, Other Values, is poorly recorded and so not easily available to recreational users or managers.	• GBRMPA discussions and workshops	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Some recreational vessels continue to use destructive methods of accessing maritime heritage sites; such as tying the vessel off to sites.			
IN8 There are additional sources of non-government input (e.g. volunteers) contributing to address recreational use	4	• There are numerous community groups who have come together to aide in activities such as coral surveys, monitoring seagrass, clean-up of marine debris and conduct surveys. Their contribution to addressing recreation is through assisting with protecting the natural environment and providing community awareness of the values the reef, and impacts of activities. • The number of these groups seems to be increasing. • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs. • Not-for-profit groups such as Tangaroa Blue run marine debris source reduction and clean-up activities. They sometimes work with Reef managers. As an example, Australian Government's Reef Trust funding for Tangaroa Blue ReefClean project– "aims to remove and prevent marine debris along the Great Barrier Reef region through to 2023".	• Order of Underwater Coral Heroes - (OUCH) e.g. monitoring corals, foreshore mangroves, maintenance of moorings • Reef Guardian Schools • Seagrass-Watch - monitoring program collecting data about near-shore seagrasses • ReefCheck - coral monitoring group • Coral Watch • TRRAC and LMACs, community associations, Reef Advisory Committee http://www.gbrmpa.gov.au/about-us/local-marine-advisory-committees • Marine Debris Project • Eye on the Reef | gbrmpa	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Home (www.prd-eotr-as-uat.azurewebsites.net) (production website of the new database) • ReefClean – Tangaroa Blue		
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of recreational use	3	• Development of the Southern POM is underway and is set to engage with a wide range of people including Traditional Owners and stakeholders. Uncertain on the extent of this or diversity involved in specific contacts for consultation. • The Tourism Reef Advisory Committee (TRAC) is regularly consulted as part of the recreation planning for the Reef and includes representatives of Marine Park recreation • Reef 2050 Reef Advisory Committee also have some consideration of their use. • Recreation representatives are also included in the 12 LMACs and participate in the ongoing management of Recreation • Recreational users are also reached through communications campaigns and social media (i.e. Love the Reef # logo) • Stakeholders can also provide input during public consultation processes relevant to them (e.g. RMS development, site management arrangements, Plans of Management amendments)	• http://www.gbrmpa.gov.au/about-us/reef-advisory-committee/tourism-and-recreation-reef-advisory-committee Update -- at some point the name changed from TRRAC to TRAC (recreation no longer in name) Tourism Reef Advisory Committee | Reef Authority • Local Marine Advisory Committees | Reef Authority	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR2 The local community is effectively engaged in the ongoing management of recreational use	3	• GBRMPA staff in Regional offices (Cairns, Mackay, Rockhampton interact with recreations users particularly through Community Access Points (CAPs) • In June 2022, the LMACs were asked for their advice on changes of use in the marine park, including recreational use. • The following documents targeted at a recreational audience have been developed since the last Management Effectiveness Report for Outlook: – Recreational Users Guide for the Whitsundays, – Spearfishing Guides for Offshore Cairns, – Cooktown, Whitsundays and the Keppels, – Dive into History around Magnetic Island, – the Superyacht Guide to the Whitsundays and – a series of interpretive maps developed for the Cairns Planning Area • The Reef Authority undertook an extensive update of the "Access and Use" pages on the external website to assist in the understanding of these rules by recreational users.	• Raw data collected from LMACs on the use of the Marine Park (Internal link; can be provided if required) • Themes identified by each LMAC on changes of use in the marine park (internal link; can be provided if required): • Superyacht guide to the Whitsundays: prepared by the Great Barrier Reef Marine Park • Great Barrier Reef: Superyacht Cruising Guide • Dive into history around Magnetic Island • Going Spearfishing in the Keppels • Going Spearfishing in the Whitsundays • Going Spearfishing offshore Cooktown • Going Spearfishing in the Cairns region	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Visiting the Whitsundays in the Great Barrier Reef World Heritage Area: A guide for recreational visitors		
PR3 There is a sound governance system in place to address recreational use	3	• Recreational Management Strategy (RMS) GBRMPA (2012) - has not been reviewed or updated since adoption • Queensland Assessment Bilateral Agreement – Amended in December 2014, the Assessment Bilateral Agreement between the Commonwealth and Queensland governments aims to reduce duplication of effort between the two governments • Legislative requirements to publicly advertise amendments to POMs and MPA policy to have public consultation on all Great Barrier Reef policies.	• Reef 2050 Long-Term Sustainability Plan • Recreational Management Strategy (RMS) GBRMPA (2012) • Queensland Assessment Bilateral Agreement – http://www.environment.gov.au/protection/environment-assessments/bilateral-agreements/qld	Adequate	Declining
PR4 There is effective performance monitoring, including. regular assessment of appropriateness and effectiveness of tools, to gauge progress towards the objective(s) for recreational use	2	• A MERI framework will be incorporated into all new and amended Plans of Management. Should help mitigate this issue of monitoring in future plans however as progression of these plans is slow, we don't have any specific data on its effectiveness in recreation management. • There is currently no mechanism for evaluating the effectiveness of existing management tools. • Reviews of Recreational Management Strategy due every five years however this has not been a resource priority.	• Recreational Management Strategy (RMS) GBRMPA (2012) • RJFMP Annual Business Plan 2022-23 • RJFMP 5-Year Business Strategy 2022-26 • Reef Joint Field management program 5 year business strategy (updated frequently) and annual reports	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Strategic Roadmap makes no specific reference to Recreation so it is unclear if this will be a priority within risk analysis for The Authority. • An internal summary and analysis of tools used to manage the Marine Park was undertaken in 2019/20.	• RJFMP Annual Business Plans, e.g 2022-23 • Reef Joint Field Management Program: Business Strategy Summary 2021-2025 • Policy-Planning-Tools-Summary • Planning-tools-focus-workshop-summary		
PR5 Appropriate training is available to the managing agencies to address recreational use	3	• Regular RJFMP training of Marine Parks Rangers includes training in a range of skills relevant to the field management of recreational use (diving, marine qualifications, chainsaw use, etc). • Lack of higher level training still to ensure management agency leaders are aware of relevant concerns relating to recreation.	• RJFMP Training (refer RJFMP Training Coordinator)	Adequate	Improving
PR6 Management of recreational use is consistently implemented across the relevant jurisdictions	4	• The Joint Field Management Program provides management and compliance relevant to recreation, including recreation on islands in the Region. • Coordination between relevant agencies (GBRMPA, MSQ, Australian Water Police) to enforce Marine Park Acts, Regulations, Zoning Plans and Plans of Management is high although compliance of recreational use has an overall low priority	• Field Management Program	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Some products and services jointly prepared/presented (e.g. maps, brochures) • Some data sharing across jurisdictions (e.g. vessel registration)			
PR7 There are effective processes applied to resolve differing views/ conflicts regarding recreational use	3	• Regular interaction with recreational stakeholders through TRAC, LMACs and regional offices staff, as well as public consultation processes and communication campaigns, help minimise conflicts and misunderstandings • However, as some recreation stakeholders groups are only broadly known (e.g. cruising yachts and grey nomads) the range of conflicts is not fully identified	• TRAC and LMACs, community associations, Reef Advisory Committee http://www.gbrmpa.gov.au/about-us/local-marine-advisory-committees	Adequate	Stable
PR8 Impacts (direct, indirect and cumulative) of activities associated with recreational use are appropriately considered.	3	• Plans of Management consider all impacts, including those for recreation • A statement of Management Arrangements in the GBRMP for Super-yacht Operations. It summarises the current management arrangements and explains where super-yachts can go. • Recreational impacts will be considered in the development of the Southern Plan of Management. • Recreational impacts were considered in the development of the John Brewer Reef Site Plan. • Impacts area clearly articulated in Recreation Management Strategy, but little evidence of implementation as is stated to occur in new plans.	• A statement of Management Arrangements in the GBRMP for Super-yacht Operations • Recreational Management Strategy (RMS) GBRMPA (2012) • RJFMP compliance risk assessment and planning documents (sensitive – can be provided if required) • Going Spearfishing in the Whitsundays (2020)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR9 The best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding recreational use	4	• The Recreation Management Strategy was based on latest biophysical research and monitoring information relevant to recreation, however this has not been up-dated since 2012 • RJFMP considers available information during its planning processes such as development of annual Annual Business Plan, risks assessments, and operational workplans. • Contemporary Biophysical data on Maritime Cultural Heritage sites is non-existent.	• Recreational Management Strategy (RMS) GBRMPA (2012) • RJFMP Annual Business Plan 2022-23 • RJFMP 5-Year Business Strategy 2022-26 • Reef Joint Field management program 5-year business strategy (updated frequently) and annual reports • RJFMP Annual Business Plans, e.g 2022-23 • Reef Joint Field Management Program: Business Strategy Summary 2021-2025	Adequate	Improvin g
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding recreational use	2	• There exist ample socio-economic data (SELTMP Reports, NESP Projects etc.) but as the management plan and other key documents for recreation haven't been updated this information doesn't appear to be bei• There exist ample socio-economic data (SELTMP Reports, NESP Projects etc.) but as the management plan and other key documents for recreation haven't been updated this information is not being utilized systematically within management but rather on an ad-hoc	• Recreational Management Strategy (RMS) GBRMPA (2012) • Social and Economic Long-Term Monitoring Program (SELTMP) • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment: Project 1.17	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		basis. With significant increases to population and changes in use integration of socio-economic data needs to be prioritized. • RJFMP considers available information during its planning processes such as development of Annual Business Plan, risks assessments, and operational workplans.	| Marine and Coastal (www.nespmarinecoastal.edu.au)		
PR11 The best available Indigenous heritage information is applied appropriately to make relevant management decisions regarding recreational use	3	• The Recreation Management Strategy clearly identified the need to improve Traditional Owners engagement and knowledge, but it does not indicate if this has occurred. • Development of the RJFMP Traditional Owner Partnerships Strategy 2022-2027 includes a range of actions to strengthen consultation with First Nations people in management decisions – including those relating to managing recreational use.	• Recreational Management Strategy (RMS) GBRMPA (2012) • Traditional Owner Partnerships Strategy 2022-2027	Adequate	Stable
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding recreational use	3	• Managers uses existing knowledge especially of Commonwealth heritage listed properties.	• Workshops and Stakeholder Conversations	Adequate	Stable
PR13 Relevant standards are identified and being met regarding recreational use	3	• Responsible Reef Practices provide best practice guidelines for a range of recreational activities on the Reef including anchoring and mooring, bird watching, motorised water sports, visiting islands and cays and boating and yachting. In 2017, key aspects of Responsible Reef Practices have been converted into visual icons that are being promoted by the agency. • Whale watching guidelines (national). These are compulsory	• Whale and Dolphin Watching Safety • Qld MSQ Vessel regulation (safety, operation and pollution) • GBRMPA Responsible Reef Practice	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• OH&S standards • MSQ Recreational Vessel Requirements – *Transport Operations (Marine Safety) Act 1994* – *Transport Operations (Marine Pollution) Regulation 2008*	http://www.gbrmpa.gov.au/visit-the-reef/responsible-reef-practices		
PR14 Targets have been established to benchmark management performance for recreational use	1	• No targets have been established	• Workshops and Stakeholder Conversations	Adequate	Stable
OUTPUTS					
OP1 To date, the actual management program (or activities) have progressed in accordance with the planned work program for recreational use	3	• Recreational Management Strategy (RMS) GBRMPA (2012) - was due to be updated in 2017. This has not occurred. • The Field Management Program continues to ensure that public moorings are in good order and operational. The fine-tuning of reef protection marker locations continues to raise awareness of and protect coral communities under threat from coral damage. • Since November 2017, 116 new moorings installed. Since the Reef Protection Program started (August 2016), total 196 new moorings installed.	• Reef Joint Field management program 5 year business strategy and annual reports • Recreational Management Strategy (RMS) GBRMPA (2012)	Adequate	Stable
OP2 Implementation of management documents and/or programs relevant to recreational use have progressed in accordance with	2	• The Recreation Management Strategy does not include specific timeframes for implementation of the key management components listed, and has not been reviewed	• Recreational Management Strategy (RMS) GBRMPA (2012) • Whitsunday Plan of Management	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
timeframes specified in those documents		• The Whitsunday Plan of Management has been reviewed, but Plans of Management for the Cairns area and Hinchinbrook have not been reviewed			
OP3 The results (in OP1 above) have achieved their stated management objectives for recreational use	3	• Since November 2017, 116 new moorings installed. Since the Reef Protection Program started (August 2016), total 196 new moorings installed. • It is not possible to determine if the management objective of the RMS have been achieved as there has been no review.	• Reef Joint Field management program 5-year business strategy and annual reports	Adequate	Improvir g
OP4 To date, products or services have been produced in accordance with the stated management objectives for recreational use	2	• Field Management Program maintain asset register and monitoring program. The Field Management Program maintains a visitor facilities asset base for public moorings, reef protection markers, island campgrounds. • Maintenance of visitor facilities is carried out but the capital funding requirements for new or replacement visitor facilities and cultural heritage protection have not been accommodated within the current five year Business Strategy. • Since November 2017, 116 new moorings installed. Since the Reef Protection Program started (August 2016), total 196 new moorings installe• Field Management Program maintain asset register and monitoring program. The Field Management Program maintains a visitor facilities asset base for public moorings, reef protection markers, island campgrounds. • Maintenance of visitor facilities is carried out but the capital funding requirements for new or replacement visitor facilities	• Recreational Management Strategy (RMS) GBRMPA (2012) • GBRMPA Annual Reports Reef Joint Field management program 5-year business strategy and annual reports	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and cultural heritage protection have not been accommodated within the current five year Business Strategy. • Since November 2017, 116 new moorings installed. Since the Reef Protection Program started (August 2016), total 196 new moorings installed			
OP5 Effective knowledge management systems regarding recreational use are in place within agencies	3	• • There continues to be a knowledge gap in quantitative recreational use and impact data. • There is ongoing work to improve the ability to access and use data for management purposes. • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs • SELTMP (csiro.au) website provides interactive results dashboards • Where recreation-related data are available, the aim is to facilitate managers' access to that through systems such as the Reef Knowledge System. • Human Use Dashboard: This Reef Authority project (2021-2023) aims to produce a prototype dashboard that will provide access to human use data to Reef managers.	• Eye on the Reef | gbrmpa • Home (www.prd-eotr-as-uat.azurewebsites.net) (production website of the new database) • SELTMP (www.csiro.au) • Reef Knowledge System • Human Use Dashboard: GBRMPA internal only dashboard that will be made available on the Reef Knowledge System in 2023.	Adequate	Stable
OP6 Effective systems are in place to share knowledge on	3	• The following documents targeted at a recreational audience have been developed since the last Management Effectiveness Report for Outlook:	• Tourism and Events Queensland webpage • Great Barrier Reef camping	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
recreational use with the community		– Recreational Users Guide for the Whitsundays, – Spearfishing Guides for Offshore Cairns, – Cooktown, Whitsundays and the Keppels, – Dive into History around Magnetic Island, – the Superyacht Guide to the Whitsundays and – a series of interpretive maps developed for the Cairns Planning Area. • More information for recreational users developed and available through various mediums (e.g. TV community announcements, billboards, boat shows, publications, websites, hashtags, social media). • LMACs informed about recreational issues for their region. • Regional based staff have provided stakeholders and local communities with easier access to management issues. • The GBRMPA web site includes details about how to manage bilge, greywater, litter and chemicals. • Spearfishing in the Whitsundays web site details where spearfishing in the Whitsunday planning area is permitted. • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs.	• Waste (including sewage), chemicals and litter • Going Spearfishing in the Whitsundays • Webpages providing detailed guidance to recreational users visiting the Cairns and Whitsundays Planning Areas • Eye on the Reef • Order of Underwater Coral Heroes • Superyacht guide to the Whitsundays: prepared by the Great Barrier Reef Marine Park • Great Barrier Reef: Superyacht Cruising Guide • Dive into history around Magnetic Island • Going Spearfishing in the Keppels • Going Spearfishing in the Whitsundays		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Going Spearfishing offshore Cooktown • Going Spearfishing in the Cairns region • Visiting the Whitsundays in the Great Barrier Reef World Heritage Area: A guide for recreational visitors • Eye on the Reef | gbrmpa • Home (www.prd-eotr-as-uat.azurewebsites.net) (production website of the new database)		
OUTCOMES					
OC1 The relevant managing agencies are to date effectively addressing recreational use and moving towards the attainment of the desired outcomes.	2	• The implementation of the Recreation Management Strategy was expected to ensure progress towards attainment of outcomes identified in the document. However, without regular review it is unclear if the goals set out here have been attained and or if they are still relevant for the reef. • Actions in the Updated Reef 2050 Plan include ensuring recreational activities are ecologically sustainable. • RJFMP Annual Reports provide insight into how key programs are progressing toward stated goals.	• Recreational Management Strategy (RMS) GBRMPA (2012) • Reef 2050 Long-Term Sustainability Plan • RJFMP Annual Repot Summaries	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC2 The outputs relating to recreational use are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	2	• The implementation of the Recreation Management Strategy was expected to ensure progress towards attainment of outcomes identified in the document. However, without regular review it is unclear if the goals set out here have been attained and or if they are still relevant for the reef. • Actions in the Updated Reef 2050 Plan include ensuring recreational activities are ecologically sustainable. • RJFMP Annual Reports provide insight into how key programs are progressing toward stated goals.	• Recreational Management Strategy (RMS) GBRMPA (2012) • Reef 2050 Long-Term Sustainability Plan • RJFMP Annual Repot Summaries	Adequate	Declining
OC3 the outputs (refer OP1 and 3) for recreational use are reducing the major risks and the threats to the Great Barrier Reef	3	• Most of the identified impacts are likely to only have minor effects; and be concentrated close to the coast, in popular areas. However, with changes in use areas to more remote areas and with higher population densities this may need to be reassessed. • For activities such as snorkelling and diving, the impacts are most likely to be minor localised damage to corals and disturbance to wildlife. These issues are addressed in Responsible Reef Practices. • The continued investment in new moorings and reef protection markers have contributed to reducing threats to the reef from recreational users. 116 new moorings installed. Since the Reef Protection Program started (August 2016), total 196 new moorings installed.	• Recreational Management Strategy (RMS) GBRMPA (2012) • Great Barrier Reef Strategic Assessment Report • Great Barrier Reef Coastal Zone Strategic Assessment 2014 • Outlook Report 2019 • Reef Joint Field management program 5 year business strategy and annual reports	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Anecdotal information from RJFMP staff indicates the new public moorings are being used very regularly. • Actions in the Reef 2050 Plan include ensuring recreational activities are ecologically sustainable.			
OC4 Use of the Great Barrier Reef relating to recreational use is demonstrably environmentally sustainable	3	• Recreational users contribute to protection and management of the Region's values through programs such as Clean Up Australia Day, Order of Underwater Coral Heroes Volunteers (OUCH), Tangaroa Blue, Eco-Barge, the Strandings Hotline and the Sightings Network. • There has been limited monitoring and published papers on the sustainability of recreational use.	• Workshops and Stakeholder Conversations	Adequate	Stable
OC5 Use of the Great Barrier Reef relating to recreational use is demonstrably economically sustainable	3	• Deloitte Access Economics recently estimated the economic contribution of Reef-related recreation to the national economy. This indicated the continual value of the reef therfore identifying what may be lost if it is not manged well.	• Deloitte Access Economics, At what price? The economic, social and icon value of the Great Barrier Reef (2017)	Adequate	Stable
OC6 Use of the Great Barrier Reef relating to recreational use is demonstrably socially sustainable, in terms of understanding and/or enjoyment	4	• SELTMP technical report on recreation presents a snapshot of socio-economic data and indicators in the GBR region. Alongside more up to data socio-economic surveys done in 2021 this program provides a good basis for social metrics of recreational use in the GBR and indicates that the public places a high importance on the recreational values of the GBR.	• Hobman, E. V., Mankad, A., Pert, P. L., van Putten, I., Fleming-Muñoz, D. & Curnock, M. (2022). Monitoring social and economic indicators among residents of the Great Barrier Reef region in 2021: A report from the Social and Economic Long-term Monitoring Program	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			(SELTMP) for the Great Barrier Reef. CSIRO Land and Water, Australia. ISBN 978-1-4863-1719-6 • Tobin, R., Bohensky, E., Curnock, M., Goldberg, J., Gooch, M., Marhsall, N., Nicotra, B., Pert, P., Scherl, L., Stone-Jovicich, S. (2014). The Social and Economic Long Term Monitoring Program (SELTMP) 2014, Recreation in the Great Barrier Reef. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns. http://www.nerptropical.edu.au/publication/project-101-technical-report-social-and-economic-long-term-monitoring-program-seltmp-2		
OC7 The relevant managing agencies have developed effective partnerships with local communities and/or	3	• Partnerships are maintained in various ways including through TRAC and LMACs but also via specific partnership programs.	• http://www.gbrmpa.gov.au/about-us/reef-advisory-committee/tourism-and-	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
stakeholders to address recreational use		• Effective partnerships need to be maintained and further developed with recreational stakeholders groups that are not well known (e.g. grey nomads) • Reef Guardians Program often involves people who are also recreational users of the Reef	recreation-reef-advisory-committee • http://www.gbrmpa.gov.au/about-us/local-marine-advisory-committees		

Research

Table 48: Calculation of grades for Research

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The values of the Great Barrier Reef relevant to research activities are understood by managers	4	• Scientific research has made a substantial contribution to the way the Reef is understood, managed, and used. Monitoring by AIMS and other researchers also plays a key role in tracking trends in the Region's values and effects on those values managers are well connected to this work • The importance of research to better understand the values of the GBR and inform management to protect these values is well understood by managers • Most research has focused on coral reefs and high profile species (e.g. protected, threatened, commercially important). • Modelling efforts in areas such as water quality research have continually updated through investments in satellite and remote sensing. This research is sought and used by management agencies to begin to systematically understand the effects of cumulative impacts at a range of spatial scales in the GBR Region	• Social & Economic Long-Term Monitoring Program (SELTMP) • 2017 Scientific Consensus Statement • Science and Knowledge Needs for Management • Policy on Great Barrier Reef Interventions • 2022 Scientific Consensus Statement – about, progress and updates • Report on the Great Barrier Reef Marine Park Zoning Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There continues to be an increase in focus on research relating to social/economic drivers of various activities associated with the GBR • A review of reef knowledge will be completed in 2024 to update the scientific consensus statement to ensure knowledge informing policy is up to date. • Joint GBRMPA-DES Policy on Great Barrier Reef Interventions was approved in 2020 and is supported by guidelines for restoration/adaptation activities. • The contribution of scientific research to the management and understanding of the Marine Park is also acknowledged in the Zoning Plan, which provides for the management of research in the Marine Park. • Scientific Research Zones were placed around scientific research facilities and other areas of high research activity. This is partially to maintain access and continuity for valuable long term monitoring projects. • Some locations are protected for their scientific values (e.g. the Low Isles)			
CO2 The current condition and trend of values relevant to research activities are known by managers	4	• There has been a significant increase in the type of research investigating intervention and adaptation measures. This is a distinct shift away from predominantly mitigation-based efforts that were prevalent in the past. This is indicative of the deep understanding researchers have over the significance	• Priority monitoring gaps prospectus for RIMReP • Social & Economic Long-Term Monitoring Program (SELTMP)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		of impacts large scale threats such as climate change will have and the necessitation of larger and more coordinated efforts to mitigate it. • The 2017 Reef Blueprint established an approach to aid in adopting additional measures to not only protect and mitigate but to support reef recovery, including the establishment of restoration demonstration site(s) to test, improve and, where appropriate, scale-up restoration methods. • Under the new Interventions policy and in line with the 1975 Marine Park act the Authority acknowledged that these new actions to build resilience as a purpose for ecologically sustainable use. • A new research endeavour the Reef Restoration and Adaptation Program (RRAP) has emerged as a collaborative long-term research and development program to develop, test and risk-assess novel interventions to help build resilience of the Great Barrier Reef under a changing climate. • Although most research focuses on studying the biophysical environment, there is also an increasing push to understand the social and economic attributes that play a role in reef health. This recognises that effective natural resource management requires an understanding of social and economic systems as well as natural systems.	• 2017 Scientific Consensus Statement • Science and Knowledge Needs for Management • Policy on Great Barrier Reef interventions • 2022 Scientific Consensus Statement – about, progress and updates		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• eReefs continues to expand and in is very well regarded by users • The Science Strategy and Information Needs 2014-2019 sets out future scientific information needs. It aims to ensure scientific activities are relevant, targeted to address critical management issues, and that scientific outputs are easily accessible. • A Reef Integrated Monitoring and Reporting Program (RIMReP) as currently completed its phase one period of analysing critical monitoring activities to identify gaps culminating in there Priority monitoring gaps prospectus for RIMReP. This program has now progressed to phase two where it will aim to create clearer reporting platforms such as the design of an online Reef 2050 reporting platform through the Reef Knowledge System (RKS). To be an online progress report that provides an indication of whether the Reef 2050 Plan is tracking towards its objective and targets is needed. Scoping is progressing for this framework under the RIMReP Annual Business Plan priority project work.			
CO3 Impacts (direct, indirect and cumulative) associated with research activities are understood by managers.	3	• The majority of research occurs at the four major research stations located at: Lizard Island, Orpheus Island, One Tree Island and Heron Island. There is diffuse research conducted at other locations throughout the GBRMP however this is much lower than the four research stations.	• The Authorities Guidelines: Management of research in the Great Barrier Reef Marine • Great Barrier Reef Outlook Report 2019	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Spatial understanding of exactly where permits are being issued and where research efforts are taking place has progressed with a Cunning & Dobbs 2019 paper indicating a progressive increase in number of permits that wasn't expected to stop as well as a general uptick in the number of permits being issued for southern reef areas. While this does not necessarily indicate an increase in the actual amount of research it does indicate a higher demand on permitting officials which will need to be accounted for in staffing and funding inputs. • The concentration of research activities, such as sampling, around research stations, has the potential to contribute to local depletion of some species and some minor, localised impacts on habitats but this is managed in conjunction with research station staff. • Little is known about the cumulative impacts of research activities at any location, While it is still thought that these impacts would be small and localized the continued increased to permits issued coupled with the addition of more large scale and complex projects in response to climate change makes understanding this impact more significant. • The Authorities Guidelines: Management of research in the Great Barrier Reef Marine Park incorporate recognition of impacts associated with research activities. As this document is set to be updated in 2023 the role of research impacts to the reef should be better understood.	• Great Barrier Reef Region Strategic Assessment Report • Great Barrier Reef Coastal Zone Strategic Assessment Report • Cummings & Dobbs (2019) Understanding regulatory frameworks for large marine protected areas: Permits of the Great Barrier Reef Marine Park - ScienceDirect • 2017 Scientific Consensus Statement • Permission System – Risk Assessment Procedure • Policy on Great Barrier Reef Interventions Priority Monitoring Gaps prospectus in 2021		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CO4 The broader (national and international) level influences relevant to research activities are understood by managers.	4	• As a world heritage site, the GBR receives a great deal of international attention and as such efforts to help manage this system must abide by relevant international conventions. The Great Barrier Reef Intergovernmental Agreement 2015 Great Barrier Reef Intergovernmental Agreement requires the Australian and QLD governments to coordinate efforts to manage the joint marine parks. • The report of the Reactive Monitoring Mission will be one input that informs the development of advice on the conservation status of the Great Barrier Reef, which will be provided to the 45th session of the World Heritage Committee for consideration. • Decline in overall condition of the GBR is directing research towards possible approaches to restoration and more interventionist approaches (i.e. Blueprint for Reef Resilience). International and national concern for the GBR is, in part, driving this change in research direction. • The State Member Party Report to the World Heritage Committee on the state of conservation of Australia's Great Barrier Reef mentions research activities. • The Report of the Reactive Monitoring Mission to the Great Barrier Reef provides a series of recommendations based on an assessment of Australian management arrangements that were in place in March 2022. This includes: o Recommendation P8: Continue support for scientific	• Great Barrier Reef Marine Park Authority Actor Network Mapping project. • Partners - Reef Restoration and Adaptation Program Great Barrier Reef - Publications and resources - DCCEEW • National Environmental Science Program outcomes – DCCEEW • State Party Report on the state of conservation of Australia's Great Barrier Reef - 2022 - DCCEEW • Great Barrier Reef World Heritage Area - DCCEEW • Report of the Reactive Monitoring Mission to the Great Barrier Reef (March 2022) • Guidelines: Management of research in the Great Barrier Reef Marine Park • Research | Reef 2050 Water Quality Improvement Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		research and increase financial resources to enable deployment of climate adaptation mechanisms.			
CO5 The stakeholders relevant to research activities are well known by managers.	4	Research providers include: • Educational or research institutions accredited by managing agencies: – University of Queensland – Australian Museum – Queensland Museum – Central Queensland University – University of Sydney – University of Technology, – Sydney Department of Agriculture and Fisheries – James Cook University • Reef-based industries where monitoring may be conducted by individuals with varying levels of training. • Key research efforts of note such as the new RRAP program. • members of the community, typically on a voluntary basis. • Traditional Owners. • Large Museum such as the Australian museum which supports the Lizard Island research station. • Collaboration between government programs such as the Australian Government National Environmental Science	• Partners - Reef Restoration and Adaptation Program • RIMReP 2017 stakeholder survey/analysis report • Waterhouse et al., 2017 • GBRMPA ELibrary: Research Permissions Fact Sheet	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Program (NESP), Reef Trust, the Reef Water Quality RD&I Strategy and contributing research programs and Paddock to Reef program. • The Queensland Department of Environment and Science • Formal engagement with research providers is undertaken through contracts for providing services e.g. Marine Monitoring Program, managed by the GBRMPA • Officer-to-officer engagement is widespread between GBRMPA and AIMS and JCU in Townsville on research activities and outcomes, and is facilitated through conference attendances, workshops, forums and seminars. • There is a reasonably good understanding among managers of other (non-GBRMPA/QPWS) permitting requirements for researchers accessing the GBR, e.g. requirements by DCCEEW, DES and DAF. There is considerable consultation that takes place among stakeholders to understand who they are and what they need including: • RIMReP 2017 stakeholder survey/analysis report • Extensive consultation processes conducted for development of new Whitsundays Plan of Management and major suite of permissions system changes (both released 2017)			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Maritime Cultural Heritage Protection Special Management Areas (SMAs) protect two World War II Catalina plane wrecks; one near Bowen and one south of Cairns – GBRMP Regulations for this type of SMA allows for research under certain conditions. • New features implemented in the design of the 2022 Scientific Consensus Statement include: extensive consultation to identify and prioritise a series of specific questions (rather than broad chapters), which has included stakeholder input in the development of the questions; greater transparency about how the process is being run, including the development of a web-based engagement platform to keep stakeholders and partners up to date on progress; inclusive, genuine, and timely engagement with end-users, stakeholders, and audiences, and; supporting communication products that are accessible and relevant for stakeholders and the broader community. Stakeholder input has already been sought for the development of science communication products from the 2022 Scientific Consensus Statement to ensure greater accessibility, trust and understanding of the scientific evidence that underpins the Reef 2050 WQIP and policy and management decision-making. • Great Barrier Reef Marine Park Authority Actor Network Mapping project: Mapping working agreements between the Authority, partners, stakeholders, and community of practice			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Social Science Community for the Reef was created by the GBRMPA social science team late 2020.			
PLANNING					
PL1 There is a planning system in place that effectively addresses research activities	3	• Since 2019 planning structures around Research have continued to emerge however with the increased size and complexity of projects put forward by groups like RRAP, issues remain on if the adjustments are occurring quickly enough and if there is enough support to allow research to progress. Some key efforts have been: – The Reef Authority updated its 'Science and Knowledge Needs for Management' in 2021. It is informed by the Great Barrier Reef Outlook Report 2019, the Reef 2050 Plan and emerging needs identified by Authority staff. It aims to ensure scientific activities are relevant, targeted to address critical management issues, and that scientific outputs are easily accessible. Research priorities are used to determine whether research can be permitted in zones with a higher level of protection (Marine National Park, Commonwealth Island and Preservation Zones), in accordance with the Zoning Plan. – As part of the Reef Authority's Policy and Planning Strategic Roadmap, the Policy team has been implementing a rationalisation of all external facing policies relating to management and protection of Marine Park values.	• GBRMPA ELibrary: Research Permissions Fact Sheet • Priority monitoring gaps prospectus: Reef 2050 Integrated Monitoring and Reporting Program • Integrated Monitoring and Reporting - Great Barrier Reef Foundation • Link to Condition Review Dashboard on the Dock • Internal-Procedure-Periodic-Review-of-Standard-Permit-Conditions • Guidelines for managing research in the GBRMP	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– A recent analysis of the Reef Authority's existing policies identified a high priority need to review and update policies related to research and interventions, including the Reef Authority's relevant statutory instruments. This points to the need for revitalization in these areas as a result of new climate change related research demands. – The 2022 Scientific Consensus Statement will identify knowledge gaps and limitations in the peer-reviewed scientific evidence. • Due to COVID-19 and closure of international tourism. Marine Tourism Operators were able shift markets in providing educational experiences to schools and domestic market. In 2021, the Reef Authority produced a package of educational resources to assist teachers, marine tourism operators and reef guides in facilitating high-quality experiential learning excursions for students visiting the Great Barrier Reef. • Management in place through permissions system struggles to keep up with new intervention based research. The Reef Authority is exploring the options of a Marine Park pass. If introduced, the marine park pass will hopefully drive some efficiencies but the Reef Authority needs to consider how it strategically wants to manage research going forward (i.e. more umbrella permits, role of research station EMPs, what is covered under limited impact regs, charging for permissions etc.). – Points to the potential need for			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		wholesale change though unclear on what would be a better option. • Resources in the science space over the years have been directed away from the knowledge brokerage role (intended to make sure research undertaken on the Reef could be applied to Reef management) and redirected into development of RIMReP. • The ARC CoE has now closed, but it is unclear how much of that research had direct application to the GBR and its management. • The Reef Authority published a Priority Monitoring Gaps prospectus in 2021 - which provides an overview of the priority monitoring gaps identified to support the implementation of the Reef 2050 Integrated Monitoring and Reporting Program. • Between 2019-2022, a review of over 1,100 standard conditions within our permit templates has been undertaken to ensure conditions are consistent, contemporary, enforceable, relevant and easy to understand for permit holders (planned completion date of June 2023). Of these 1,100 conditions, 270 conditions related to education and research have been reviewed. A jointly approved internal procedure with QPWS has been approved in 2022 to ensure the periodic review of conditions continues following completion of this work.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Permits Online | GBRMPA – enhancements allowing for greater consistency and efficiency for assessment of permit applications including development of six Routine (standardised) permits for low-risk activities. This includes routine permits for education programs and commercial research. • Additional permit application checklists have been developed to support applicants in providing the right information when applying for permits. • Series of easy to read fact sheets for the permission system. • Policy on Great Barrier Reef Interventions was approved in 2020 and draft guidelines for interventions have been developed and should be published in • Section 7 of the Great Barrier Reef Marine Park Act 1975 outlines the functions of the Reef Authority. In 2022, the Reef Authority MPA approved new Section 7(4) 'policy' and 'plan' definitions to provide systematic access, storage, auditing and drafting of management tools. (See MPA Paper and attachments. • Updates to the Research guidelines planned to occur in 2023. • Revising research accreditations and updating associated MOUs planned for 2023.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PL2 The planning system for research activities addresses the major factors influencing the Great Barrier Reef Region's values.	4	• As is stated in PL1 there is some concern that management efforts are not sufficient to keep up with the novelty of interventions/adaptations to support resilience in the face of climate change. • A recent analysis of the Reef Authority's existing policies identified a high priority need to review and update policies related to research and interventions, including the Reef Authority's relevant statutory instruments. The review will consider the emerging interconnectedness of research, reef interventions, aquaculture and translocation in the Marine Park. The review commenced in mid-2022. Two key tools that will be analysed as part of a policy review include: – In February 2019 both joint managers (GBRMPA and QPWS) adopted the Guidelines: Applications for restoration/adaptation projects to improve resilience of habitats in the Great Barrier Reef Marine Park (Document No. 100472); and – In 2020, the joint managers adopted the Policy on Great Barrier Reef interventions. • The National Environmental Science Program engages with local government and non-government partners to assess planning inputs and outcomes as they pertain to management of the Great Barrier Reef.	• Applications for restoration/adaptation projects to improve resilience of habitats in the Great Barrier Reef Marine Park -2019 • Policy on Great Barrier Reef interventions -2020 • GBRMP Zoning Plan & Maps of Scientific Research Zones • Reef 2050 Water Quality Improvement Plan • Marine Monitoring program (MMP) • Guidelines: Managing research in the Great Barrier Reef Marine Park • 2017 Scientific Consensus Statement (the previous edition was 2013) • Reef 2050 Water Quality Improvement Plan • Reef 2050 Water Quality Research, Development and Innovation Strategy 2017-2022	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The 2022 Scientific Consensus Statement will also identify knowledge gaps and limitations in the peer-reviewed scientific evidence.			
PL3 Actions for implementation regarding research activities are clearly identified within the plan	4	• Since 2019 there have been a few key plans put into place that all seem to do a good job of identifying key actions that would be required to manage research efforts. Particularly of note have been efforts to make the application process for permits easier. • In February 2019 joint managers (GBRMPA and QPWS) adopted the Guidelines: Applications for restoration/adaptation projects to improve resilience of habitats in the Great Barrier Reef Marine Park (Document No. 100472); and • In 2020, the joint managers adopted the Policy on Great Barrier Reef interventions. • Between 2019-2022, a review of over 1,100 standard conditions within our permit templates has been undertaken to ensure conditions are consistent, contemporary, enforceable, relevant and easy to understand for permit holders (planned completion date of June 2023). Of these 1,100 conditions, 270 conditions related to education and research have been reviewed. A jointly approved internal procedure with QPWS has been approved in 2022 to ensure the periodic review of conditions continues following completion of this work	• GBRMPA webpage on research permissions and accreditations • Guidelines: Managing research in the Great Barrier Reef Marine Park • 2019 — Applications for restoration/adaptation projects to improve resilience of habitats in the Great Barrier Reef Marine Park • 2020 – Policy on Great Barrier Reef interventions • Routine permit examples • Checklist: research • Types of Permissions Fact Sheet • Research Permissions Fact Sheet • Link to Condition Review Dashboard on the Dock • Internal-Procedure-Periodic-Review-of-Standard-Permit-Conditions	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Enhancements allowing for greater consistency and efficiency for permit applications including development of six Routine (standardised) permits for low risk activities. • Additional permit application checklists have been developed • Series of easy to read fact sheets for the permission system: – Types of Permissions Fact Sheet – Research Permissions Fact Sheet • Policy on Great Barrier Reef Interventions was approved in 2020 and draft guidelines for interventions have been developed and should be published in 2023. • The establishment of the RRAP program and funding for intervention and adaptation for coral reefs has increased the number and complexity of research applications within the Marine Parks. There is also an increasing request for access to Marine National Park Zones. • Updates to the Research guidelines to occur in 2023 • Review of research accreditations and associated MOUs scheduled for 2023 • The National Environmental Science Program conducts research underpinning the implementation and review of best practice management of the Great Barrier Reef.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PL4 Clear, measurable and appropriate objectives for management of research activities have been documented	3	• Objectives such as those set out in the Policy on Great Barrier Reef Interventions are clear however they do not seem to be specific in how we would measure them in order to judge effectiveness. • Policy on Great Barrier Reef Interventions was approved in 2020. This policy is supported by guidelines which are scheduled for review in 2023. – The intervention policy sets clear objectives for the management of this type of research (clause 3, 13, 18 and 19) – these as objectives are clear but measurability is less clear as direct methods to obtain said goals are not laid out. • The establishment of the RRAP program and funding for intervention and adaptation for coral reefs has increased the number and complexity of research applications within the Marine Parks. There is also an increasing request for access to Marine National Park Zones. • Updates to the Research guidelines to occur in 2023, • Review and updated of accreditation and MOUs scheduled for 2023 • The Reef Authority updated its 'Science and Knowledge Needs for Management' in 2021. It aims to ensure scientific activities are relevant, targeted to address critical management issues, and that scientific outputs are easily accessible. The priority information needs form the focus of	• 2019 — Applications for restoration/adaptation projects to improve resilience of habitats in the Great Barrier Reef Marine Park • 2020 – Policy on Great Barrier Reef interventions • Managing research in the Great Barrier Reef Marine Park • Science and Knowledge Needs for Management • Science and Knowledge Needs | Reef Knowledge System	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		specific collaboration opportunities with science and knowledge providers. The document is supported by an interactive web-tool located on the Reef Knowledge System which identifies the specific collaboration opportunities and can be updated as needs are addressed, or new needs identified. • The National Environmental Science Program has conducted research informing objectives and measurement KPIs regarding reef management.			
PL5 There are plans and systems in place to ensure appropriate and adequate monitoring information is gathered in relation to research activities	3	• Planning systems around monitoring efforts for research are robust in many ways however there seem to be gaps surrounding spatial analysis and cumulative impacts particularly with regard to high take areas directly surrounding research stations. • AIS monitoring and automated alerting commenced in September 2021. The Reef Authority's Field Management Compliance Program is automatically notified via email when AIS equipped vessels enter no-access areas (e.g Preservations Zones, Restricted Access SMAs). This includes monitoring research vessels. This should aide in getting more information regarding the spatial usage of the GBR. • Subscription to a commercial AIS service in 2022 was taken on to complement existing access to AIS data for monitoring compliance.	• Great Barrier Reef Outlook Report 2019 • Reef Water Quality Protection Plan: Research, Development and innovation Strategy 2013-2018 • Managing research in the Great Barrier Reef Marine Park (Document No. 100431) • Reef 2050 Water Quality Research, Development and Innovation Strategy 2017-2022 • Policy on Great Barrier Reef interventions	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Updates to the Reef Management System and Permits Online system now allow researchers and education programs to submit their permit activity reports (e.g. take of specimens, equipment installation) online and the database is searchable by the Reef Authority. This will allow for considerations of cumulative use on a location and or species bases • The charging Structure Review team has begun a project to review research permit reports to understand impacts of research. Uncertain what the current findings and trends have been from this. • EAP & QPWS jointly conducted compliance audits of the Lizard Island Research Station, Orpheus Island Research Station, and Heron Island Research station between 2019-2022. The final One Tree Island Research Station Audit is planned for execution in May 2023. The audits sought to assess compliance against relevant permits held by each station (including permit conditions relating to facilities, vessels, insurance, EMP's etc.) and approved Memorandums of Understanding (MOU) associated with accredited institution operations. The audits occurring at all speaks to a commitment to understanding impacts through I require data from these to fully understand what trends were derived from these audits. • The Joint Field Management Program is continuing to work towards modernising the Compliance Management System	• RIMReP Business Strategy 2020-25 • RIMReP Annual Business Plan 2022-23 • Marine and Coastal | (www.nespmarinecoastal.edu.au)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		(CMS) to improve the collection, storage and use of compliance data from initial reporting to the case decision. The detailed business requirements have been documented and the project team will approach the market for market-accurate cost estimates for cost benefit analysis. The new system is expected to be implemented by the end of 2023. • The Intervention Policy outlines the Reef Authority's reporting/monitoring expectations of researchers conducting intervention/adaptation research – which is broader than reporting required for conventional research. This is recognition of the possible unintended and adverse impacts of interventions and the fact that not all interventions will be successful. These are enforced through permit conditions. • The Reef Management System platform for permission compliance now facilitates automated reminders to researchers/educator who have not submitted their permit activity reports. • The design phase of RIMReP was completed in 2019. It delivered the structure, program and monitoring design, an implementation roadmap, and an initial release of the Reef Knowledge System. RIMReP has progressed and has put forward numerous key projects to help expand understanding particularly around social use of the reef.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• RIMReP will determine the business requirements for the design of an online Reef 2050 reporting platform through the Reef Knowledge System (RKS). To be an online progress report that provides an indication of whether the Reef 2050 Plan is tracking towards its objective and targets is needed. Scoping is progressing for this framework under the RIMReP Annual Business Plan priority project work. • IMR RTP Sustainable use and benefits monitoring project (SEABORNE): This project (2021-2024) will design a monitoring program to help managing agencies make informed decisions about striking the right balance between sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values. • IMR RTP Integrated Reef stewardship monitoring project (PROTECT): Community members have an important role to play in contributing to the protection the Great Barrier Reef and maintaining its World Heritage Values. This project (2021-2024) will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes. No results yet. • IMR RTP Monitoring collective capacity and implementation (Governance): There are multiple programs, plans and policies underway for the protection and sustainable use of			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the Reef under the Reef 2050 Plan. This project (2021-2024) will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. No results yet. • Human Use Dashboard: This Reef Authority project (2021-2023) aims to produce a prototype dashboard that will provide access to human use data to Reef managers. The user-friendly interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs. It uses the IT Cloud environment to allow for data flow The National Environmental Science Program has also been vital in putting forward key research efforts to expand on monitoring efforts for research in the GBR. • National Environmental Science Program Marine and Coastal Hub Project This project will inform the use of behavioral change interventions to support compliance sought from recreational boaters and fishers with marine park regulations. The project will provide a pathway for advancing novel behavioural change interventions tailored to case studies. This knowledge will provide new insights to marine park managers and their recreational fishing and boating stakeholders about improving design interventions and how to implement and evaluate them as part of a considered, longer-term approach to voluntary compliance with marine reserve regulations.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Some other key projects are: – National Environmental Science Program Marine and Coastal Hub Project 3.18 – National Environmental Science Program Marine and Coastal Hub Project 1.7 – National Environmental Science Program Marine Biodiversity Hub Project D3 – National Environmental Science Program Marine Biodiversity Hub Project D6 – National Environmental Science Program Marine Biodiversity Hub Project D7			
PL6 The main stakeholders &/or the local community are effectively engaged in planning to address research activities	3	• Key Stakeholders seem to be integrated into most management procedures either by allowing public consultation on proposed policy and or including key stakeholders such as indigenous representatives on key management groups. • The Reef Authority updated its 'Science and Knowledge Needs for Management' in 2021. This is publicly available and supported by an interactive web-tool located on the Reef Knowledge System which identifies the specific collaboration opportunities and can be updated as needs are addressed or new needs identified. This document intends to facilitate collaboration with the research community to fil priority gaps.	• Science and Knowledge Needs for Management • Policy on Great Barrier Reef interventions • Reef 2050 Integrated Monitoring and Reporting Program	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Communication strategies are commonly required by the Marine Parks permit for higher risk/novel intervention and adaptation activities. • The Intervention Policy outlines the Reef Authority's expectations on researchers that are conducting intervention activities in relation to engagement with Traditional Owners, fostering partnerships, transparency and engagement. A combination of targeted consultation and public consultation was used to develop this new Policy. • The National Environmental Science Program engages with a variety of local government and non-government stakeholders in its process of conducting research. • There are two Traditional Owner members (one male, one female) of each of RIMReP's governance groups – the Executive Group and the Operations Group.			
PL7 Sufficient policy currently exists to effectively address research activities	3	• As permit request continue to expand and requirements for research get more complex the management strategies associated with these need to keep up. However, as the more recent ones such as the Policy on Great Barrier Reef interventions doesn't seem to provide specific metrics to monitor to determine success It can't be said if the current policy is sufficient. Also, the policy and planning roadmap indicates very few (3 out of 28) of the required steps have been completed to move forward management policy since 2019.	• GBRMPA Elibrary: Policy on Great Barrier Reef interventions (Document no. 100513) • Policy and Planning Roadmap | Reef Authority • Applications for restoration/adaptation projects to improve resilience of habitats in the Great Barrier Reef Marine Park -2019	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Policy on Great Barrier Reef Interventions was approved in 2020. This is supported by restoration guidelines which are scheduled for review in 2023. • The Reef Authority's Planning and Policy Roadmap has been developed to focus the Authority's efforts to deliver a proactive, contemporary and risk-based approach to Marine Park policy, planning and regulation that will protect key values and enable ecologically sustainable use for a changed and changing Reef. This roadmap includes assessment and rationalisation of Reef Authority policies. • A recent analysis of the Reef Authority's existing policies identified a high priority need to review and update policies related to research and interventions, including the Reef Authority's relevant statutory instruments. The review will consider the emerging interconnectedness of research, reef interventions, aquaculture and translocation in the Marine Park. The review commenced in mid-2022. Two key tools that will be analysed as part of a policy review include: o In February 2019 both joint managers (GBRMPA and QPWS)adopted the Guidelines: Applications for restoration/adaptation projects to improve resilience of habitats in the Great Barrier Reef Marine Park (Document No. 100472); and o In 2020, the joint managers adopted the Policy on Great Barrier Reef interventions.	• Policy on Great Barrier Reef interventions -2020 • Types of Permissions Fact Sheet • Research Permissions Fact Sheet		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• This has been driven (at least in part) by the establishment of the RRAP program and funding for intervention and adaptation for coral reefs. This has led to increased number and complexity of research applications within the Marine Parks. There is also an increasing request for access to Marine National Park Zones. • The research guidelines are scheduled for review in 2023 • A review of research accreditations and association MOUs is also schedule for review in 2023 • The permission system has implemented a system of cultural referrals for location specific research activities to support the implementation of the Traditional Owner Heritage Strategy. These are conducted as part of the permit application assessment process and seeks to understand impacts of permitted activities on cultural values. • The National Environmental Science Program provides the research and knowledge necessary to inform policy, including forums and mediums through which to communicate and disseminate this information.			
PL8 There is consistency across jurisdictions when planning for research activities	4	• Research activities that require a permit in the Marine Park may also require a similar permit under Queensland Marine Parks Legislation. The GBRMPA and the relevant Queensland agency, the Queensland Parks and Wildlife	• GBRMPA Elibrary: Policy on Great Barrier Reef interventions (Document no. 100513) • Policy and Planning Roadmap | Reef Authority	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Service (QPWS), cooperate to assess and issue joint permits, where necessary. • Researchers also generally need Queensland Fisheries permits for collections. • Note that Queensland legislation may require a permit where the GBRMPA does not. Permits required under the Queensland Biodiscovery Act 2004 are issued by the Department of Environment and Heritage Protection (EHP). • Researchers that intend to use marine products collected within the GBRMP for biodiscovery purposes are also required to contact both the State and Commonwealth departments as a 'benefits sharing agreement' may be required. http://www.gbrmpa.gov.au/zoning-permits-and-plans/permits/research-permissions • In 2005 Queensland co-accredited the 8 research institutions that are currently accredited by the GBRMPA. This removes the need for researchers to get an additional Qld permit when they are conducting limited research' as per the GBRMP Regulations (see Gazette notice in evidence). • Educational or research institutions accredited by managing agencies: – University of Queensland – Australian Museum	• Applications for restoration/adaptation projects to improve resilience of habitats in the Great Barrier Reef Marine Park -2019 • Policy on Great Barrier Reef interventions -2020 • Types of Permissions Fact Sheet Research Permissions Fact Sheet		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Queensland Museum – Central Queensland University – University of Sydney – University of Technology, – Sydney Department of Agriculture and Fisheries – James Cook University • If researchers plan to export/take out of the country certain specimens then they may also require an export permit from the Department of Environment and Energy.			
PL9 Plans relevant to research activities provide certainty regarding where uses may occur, the type of activities allowed, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.	4	• Research sites are clearly defined and zoning controls permissible activities • Understanding of cumulative impacts of research is limited and while its limited scale makes it likely to have only localised effects the increased number and scale of new permits means this should be a focus in future monitoring efforts for research. • Between 2019-2021, a new routine permit was jointly approved for low-risk commercial research activities.	• Types of Permissions Fact Sheet • Policy on Great Barrier Reef interventions • Routine permit examples	Adequate	Stable
INPUTS					
IN1 Financial resources are adequate and prioritised to meet management objectives to address research activities	4	• There is an abundance of financial support dedicated to research efforts in GBR and particularly toward efforts to move toward resilience efforts via RRAP. Where financial resources are available to do so, the Reef	• Habitat ecological risk assessment for eco-regions with high trawl footprints, in southern Queensland and northern NSW	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Authority may (at their discretion) fund or co-fund research projects that align with the priority information needs identified on the science and knowledge needs website. For example, GBRMPA contributed $300,000 to fund an FRDC project that seeks to inform habitat ecological risk assessments for eco-regions with high trawl footprints. GBRF and RRAP have significant investment in research and implementation of intervention/adaptation within the GBRMP. • In 2018, the Australian Government provided $6M for the Reef Restoration and Adaptation Program (RRAP) study into the feasibility of intervening at scale on the Great Barrier Reef to help it recover from, and adapt to, the effects of climate change. (See RRAP Investment Case and Concept Feasiblity Study) • The Reef Trust – Great Barrier Reef Foundation Partnership (Partnership) is a $443.3 million six-year grant between the Department of Climate Change, Energy, Environment and Water, which manages the Reef Trust, and the Foundation. It has been established to build on and support delivery of the joint Australian and Queensland Government Reef 2050 Long-term Sustainability Plan (Reef 2050 Plan). This includes investment in Reef Restoration and Adaptation Science ($100 million) and Integrated Monitoring and Reporting (IMR) ($40 million). See Reef Trust Partnership Investment Strategy.	• Reports - Reef Restoration and Adaptation Program • Reef Trust Partnership - Great Barrier Reef Foundation - Great Barrier Reef Foundation • RTP_InvestmentStrategy • Dugong Funding Proposal • Reef 2050 Plan: Investment framework		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Through Phase 2 of the Reef Trust Program (RTP), funding was available (through GBRF) to make a signification contribution to address priority gaps as identified within the Priority monitoring gaps prospectus for RIMReP (2021). A total of $13.1 million from the Integrated Monitoring and Reporting Components funded 11 projects in 2021. An additional project (dugong surveys) was funded in 2022. Note: These IMR projects are listed at other indicators in the management effectiveness tables. • A continuation for a further two data points for the SELTMP program (for 2021 and 2023) have been funded under the Reef Trust Partnership IMR critical monitoring priorities. This funding also includes two supplementary modules – tourism and regional report cards. • New Australian Government investment through the Reef Trust to protect, manage and restore the Reef, including $15.3M to set up Coastal Marine Ecosystems Research Centre. • In 2022, a further $1.2 billion in funding through to 2029-30 has been committed by the Australian Government for the protection and restoration of the Reef. This is intended to accelerate actions to support the Reef's long-term resilience and protect its future and includes some funding to support continued research activities. Our investments will help us meet our actions and objectives under the Reef 2050 Long-Term Sustainability Plan (Reef 2050 Plan). The investments			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		focus on priority areas: Improving water quality, restoration and adaptation, partnerships and stewardship and world-leading management. • The National Environmental Science Program (NESP) is a long-term commitment by the Australian Government (lead by DCCEEW). The program funds environment and climate research intended to support decision makers. – The first phase invested $145 million (2014-15 to 2020-21) into 6 research hubs. – The second phase is investing $149 million (2020-21 to 2026-27) into 4 new research hubs. – Work is delivered through 4 research hubs: climate systems, marine and coastal, resilient landscapes and sustainable communities and waste – The National Environmental Science Program has provided $47 million for a Marine and Coastal Hub to conduct research informing marine and coastal policy across Australia, including in regard to the Great Barrier Reef			
IN2 Human resources within the managing organisations are adequate to meet specific management objectives to address research activities	3	• Since 2019 staffing has been a recurring issue as finding appropriate staff remains difficult and many roles remain empty. Current staffing efforts of note include: • Within GBRMPA staff in a range of sections contribute (to varying degrees) to activities related to managing research and education activities and using the outputs of research.	• Reef Authority Org Chart • GBRMPA Annual Reports • Addison et al. 2017 Towards quantitative condition assessment of biodiversity outcomes: Insights	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Commonly contributing areas (and the FTE in them from which contributions can come) include: – Chief Scientist (1 FTE) Information Services Centre (2 FTE) – Permits (6 FTE), – Reef Guardian Schools (1 FTE) – Reef Joint Field Management Program – Turtle, Seabird and Conservation Actions Research, Technology Advancements – Staff conducting activities including reef health surveys and the coordinating Eye on the Reef program. • The Authority also has a dedicated Science for Management section (15 ongoing FTE and 5 temporary FTE). This section covers a diverse range of functions, focusing on increasing the Agency's access to knowledge (socio-ecological) about the Reef through monitoring, interactive knowledge systems and evidence-based science communications. This includes: – two dedicated Natural Scientists and engages regularly with natural scientists at numerous institutions (e.g. AIMS, JCU, CSIRO, UQ). – two dedicated Social Scientists and engages regularly with social-ecological scientists at numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science Community for the Reef and Reef 2050 (Human Dimensions consortium)	from Australian marine protected areas • Reef HQ Aquarium - ReefHQ		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Within the GBRMPA Environmental Assessment and Protection section there is 1 x EL1, 2 x APS6, 1 x APS5 and 2 x APS4 FTE allocated to assess research and education permits, including any infrastructure within the Marine Parks needed for operation of the research stations. However, this team also is responsible for assessment of Ports activities and other non-commercial activities (Defence, Education and Government infrastructure). so the FTE dedicated to research/education for each role would be approximately 0.5. This likely is insufficient and represents a gap in staffing. • Further to the allocation of resources within EAP to assess research and education applications, the Joint Field Management Program has funding two P03 QPWS assessment officers that are embedded within the assessments team and one (1) APS 6 – primarily to assess complex research applications. • In 2023, the Permission Compliance team has 3 FTE managing permission compliance matters, that includes research permissions • NESP hosts key figures and experts on the Marine and Coastal Hub Steering Committee. This helps direct and audit the research to assist marine and coastal policy work, including that which pertains to the Great Barrier Reef			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN3 The right skill sets and expertise are currently available to the managing organisations to address research activities	3	• As stated in IN2 above staffing remains a key issue for reef management since COVID thereby leading to a subsequent lack of key skillsets such as data management that are necessary for adequate reef management. Some key positions and expertise areas are: – The GBRPMA has a Science for Management section which covers a diverse range of functions, focusing on increasing the Agency's access to knowledge (socio-ecological) about the Reef through monitoring, interactive knowledge systems and evidence-based science communications. – Within the GBRMPA Environmental Assessment and Protection section there is 1 x EL1, 2 x APS6, 1 x APS5 and 2 x APS4 FTE allocated to assess research and education permits, including any infrastructure within the Marine Parks needed for operation of the research stations. However, this team also is responsible for assessment of Ports activities and other non-commercial activities (Defence, Education and Government infrastructure). – Further to the allocation of resources within EAP to assess research and education applications, the Joint Field Management Program has funding two P03 QPWS assessment officers that are embedded within the	• Reef Authority Org Chart • GBRMPA Annual Reports • Addison et al. 2017 Towards quantitative condition assessment of biodiversity outcomes: Insights from Australian marine protected areas • Reef HQ Aquarium - ReefHQ	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		assessments team and one (1) APS 6 – primarily to assess complex research applications. • The GBRPMA also has a dedicated Science for Management section (15 ongoing FTE and 5 temporary FTE). This section covers a diverse range of functions, focusing on increasing the Agency's access to knowledge (socio-ecological) about the Reef through monitoring, interactive knowledge systems and evidence-based science communications. This includes: – two dedicated Natural Scientists and engages regularly with natural scientists at numerous institutions (e.g. AIMS, JCU, CSIRO, UQ). – two dedicated Social Scientists and engages regularly with social-ecological scientists at numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science Community for the Reef and Reef 2050 (Human Dimensions consortium) • The National Environmental Science Program Marine and Coastal Hub contracts excellent and well accomplished researchers from the University of Tasmania and James Cook University. – These include Damien Burrows, in the Northern Node, and Alan Jordan, in the Southern Node, based at James Cook University and the University of Tasmania respectively.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Additionally, the Steering Committee has notable expertise present on it. These include people such as Professor Tim Moltmann, the Steering Committee chairperson.			
IN4 The necessary biophysical information is currently available to address research activities	3	• Science and Knowledge Needs for Management and Priority Monitoring Gaps prospectus in 2021 identify critical information gaps. • Collaborative research program design with major research institutions ensures that the best available biophysical knowledge is used in research planning and design • At times there are gaps in knowledge about local abundance/density levels of particular species and hence knowledge about how a proposed research activity might impact upon the local area. A precautionary approach is generally applied in line with the limits in the GBRMP Regulations for limited impact research. • Improvements in reef mapping have been furthered by efforts associated with The Reef Knowledge System which now hosts: – new GBR coral reef habitat mapping layers through the Reef Explorer interface: geomorphic, benthic, and bathymetry (to 20m depth) maps and a satellite image mosaic – an internal interactive dashboard, the Resilient Reefs Network Guidance Tool, which allows users to view and	• Social & Economic Long-Term Monitoring Program (SELTMP) • 2017 Scientific Consensus Statement • Science and Knowledge Needs for Management • Policy on Great Barrier Reef interventions • 2022 Scientific Consensus Statement – about, progress and updates • Priority monitoring gaps prospectus: Reef 2050 Integrated Monitoring and Reporting Program • The Program – Reef Restoration and Adaptation Program (gbrrestoration.org) • EcoRRAP (ecological intelligence for reef restoration) – Reef	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park • AusSeabed Marine Data Portal and Geoscience Australia also aide in this through hosting a very high resolution bathymetry map of the Great Barrier Reef, including the continental shelf • Reef Hub hosts inter Reefal and continental slope data for identifying plane/slope.	Restoration and Adaptation Program (www.gbrrestoration.org) • AusSeabed Marine Data Portal (www.ga.gov.au) & Product catalogue – Geoscience Australia (ga.gov.au) • Reef explorer | Reef Knowledge System (www.gbrmpa.gov.au)		
IN5 The necessary socio-economic information is currently available to address research activities	4	• In general Improvements to the goals and questions being addressed by the SELTMP seem to be improving upon the socio-economic data available for use in Research. Production of the Human Use Dashboard also seems to be an important tool that is in development to help expand the knowledge base available for the GBR. NESP Projects also contribute greatly to define socioeconomic benchmarks and better understand the socio-economic values of the marine park. More information on these projects: – Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the	• Social and Economic Long-Term Monitoring Program (SELTMP) • Human Use Dashboard • The Program - Reef Restoration and Adaptation Program (www.gbrrestoration.org) • Stakeholder and Traditional Owner Engagement - Reef Restoration and Adaptation Program (www.gbrrestoration.org) • Reports - Reef Restoration and Adaptation Program (www.gbrrestoration.org) • Marine and Coastal | (www.nespmarinecoastal.edu.au)	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: ○ Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. ○ Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. ○ Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. ○ Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in Reef condition & the wider system. – Human Use Dashboard: This Reef Authority project (2021-2023) aims to produce a prototype dashboard that will provide access to human use data to Reef managers. The user-friendly interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs. It uses the IT Cloud environment to allow for data flow. • Relevant NESP Projects include: – Marine Biodiversity Hub Project D6: Socioeconomic benchmarks - This project was designed to establish a	• Project 1.17 | Marine and Coastal (www.nespmarinecoastal.edu.au)		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		clear pathway forward for establishing social and economic metrics for measuring the costs and benefits of Australian Marine Parks. The pathway forward includes prioritised metrics for reporting and establishes the first benchmark survey and report for Parks Australia. Researchers have also completed a review and efficiency analysis to identify opportunities to increase effectiveness and reduce costs of future surveys. – Marine and Coastal Hub Project 1.17: Scoping study: Research needs for a national approach to socio-economic values of the marine environment - Effective management of the marine estate requires recognition of the fact that we live in a connected human-natural system. Human uses of the marine environment often create pressures that drive overall condition, but it is also these uses that create 'benefits' or 'values' in the marine environment. Thus understanding the coupled relationships between humans and nature is essential to managing the marine environment that delivers environmental, social and economic outcomes. This project will work with stakeholders (particularly DAWE) through co-design to identify: (a) social and economic research priorities, and (b) existing social and economic data sets to address these priorities.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN6 The necessary Indigenous heritage information is currently available to address research activities	2	• The Reef 2050 Plan set forward working with Traditional Owners to build capacity to record and manage traditional ecological knowledge and prioritise research to address key Indigenous knowledge gaps as a primary action. In this vein there have been notable improvements in expanding cooperation and knowledge around Traditional Owners since 2019 Such as: – Implementation of cultural referrals for location specific research activities to support the implementation of the Traditional Owner Heritage Strategy. Four TUMRA groups are now included in the Marine Parks permit application process. – As an action under the Reef Authority's Aboriginal and Torres Strait Islander Heritage Strategy for the GBR (Action A3.1.1), some examples of Sea Country Values Mapping are now available: E.g. Mandubarra Sea Country Cultural Values Mapping Project – The Reef Knowledge System currently hosts several Land and Sea Country webpages, which provide key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community. – The Land and Sea Country pages provide links to strategic planning documents and spatial information relevant to Traditional use of marine resources.	• Science and Knowledge Needs for Management • Science and Knowledge Needs | Reef Knowledge System (www.gbrmpa.gov.au) • Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park • Traditional Owner and Marine Parks Management Portal - Overview (www.arcgis.com) • Permission system cultural referrals | Reef Authority • Mandubarra Sea Country Cultural Values: 2019-2020 mapping project • Land and Sea Country | Reef Knowledge System (gbrmpa.gov.au) • Indigenous partnerships | AIMS • AIMS Indigenous Partnerships Plan • AIMS Indigenous Partnership Policy	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The Australian Institute of Marine Science works with Traditional Owners to create new shared research that weaves Indigenous Knowledge of sea country with other sciences. Through the AIMS Strategy 2025 and AIMS Indigenous Partnerships Plan, and backed by an Indigenous Partnerships Policy, AIMS works with Traditional Owners to create new shared research that weaves Indigenous Knowledge of sea country with other sciences. It identifies 4 tiers of engagement with Free, Prior and Informed Consent at a minimum for all research about / within sea country. – RIMReP is a partnership involving Australian and Queensland government entities, together with Traditional Owners. Four Traditional Owner Members sit on the RIMReP Governance groups to provide guidance and advice on cultural, social, economic, and other matters, engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision. – Toolkit for safeguarding Indigenous heritage and knowledge was released in 2020, used as a guidance tool for RIMReP. – The National Environmental Science Program has several indigenous engagement principles and governance methods.	• RIMReP Web pages – GBRMPA Website • RIMReP Business Strategy 2020-25 • Toolkit for safeguarding Indigenous heritage and knowledge		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– This includes a '3 Category' approach through which indigenous engagement is assessed and enacted. Additionally, there is an 'indigenous knowledge network' and a set of indigenous knowledge brokers working on the NESP. • Overall this represents a clear effort toward furthering Indigenous connections however a closer analysis may be needed to derive the actual effectiveness of these partnerships.			
IN7 The necessary historic heritage information is currently available to address research activities	3	• A Key Action of the Reef 20150 plan was to further identify and map key Reef heritage values and sites, including comprehensive maritime surveys in priority sections of the Reef. Since 2019 their hasn't been a great deal of action with regard to historic heritage however it is considered in key planning documents. Direct staffing for the Authority regarding managing Historic Heritage has also disappeared meaning there is no longer as significant a voice for this value in a key management actor. Older guidelines and protections however maintain and protections for historic heritage sites remains. Places where Historic heritage is directly referenced in recent planning: – The Reef Authority 'Science and Knowledge Needs for Management' (2021) – refer IN4. There are several current research needs that relate to historic heritage.	• Maritime heritage – diving into history | Reef Authority • Guidelines: Management of research in the Great Barrier Reef Marine Park • Guidelines Historic heritage assessment: light stations and aids to navigation • Guidelines Historic heritage assessment: Maritime cultural heritage protection special management area • Guidelines Historic heritage assessment: WWII features, sites, and voyages and shipwrecks	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– 2019 Outlook Report is publicly available and has some relevant historic heritage information. However, data and knowledge gaps remain about how research and education programs have/will impact historic heritage.	• Guidelines: Historic heritage assessment: other places of historic and social significance Science and Knowledge Needs for Management • Science and Knowledge Needs | Reef Knowledge System		
IN8 There are additional sources of non-government input (e.g. volunteers) contributing to address research activities	4	• There are numerous connections of non-governmental organizations to Research efforts on the GBR including: – Accredited research/educational institutions contribute to the management of research as part of their MOU requirements. – Research stations also manage local use of the Scientific Research Zones – Volunteers and community members are involved in a range of monitoring activities (e.g. reef health surveys, seagrass monitoring, water quality monitoring). – The Master Reef Guide Program is delivered by the Great Barrier Reef Marine Park Authority, Association of Marine Park Tourism Operators and Tourism and Events Queensland. Guides are nominated by their employers and are a trained to be reef ambassadors with up-to-date scientific and management information about the Reef.	• Science and Knowledge Needs for Management • Master Reef Guides | Reef Authority • Boats 4 Corals | AIMS • Coral Nurture Program | University of Technology Sydney • Community Reef Protection - Great Barrier Reef Foundation • Queensland citizen science strategy | Office of the Queensland Chief Scientist	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– A strategy for Engaging Queenslanders in science was developed by the Office of the Queensland Chief Scientist in 2016 to fulfil the vision of creating a Queensland population that engages in and recognises, supports and advocates for science. NESP works closely with university and industry collaborators to develop research to inform departmental policy. – Partnerships between research institutions and non-government stakeholders (tourism operators and citizens) in the restoration/adaptation space are increasing. For example: o One sub-program of RRAP is investigating ways in which community can be involved to help up-scale restoration/intervention activities. This program is the research and development phase only but has engaged tourism operators in the Whitsundays. o Similarly, the Coral Nurture Program is a partnership between tourism operators in Queensland and University of Technology Sydney that aims to provide a means to enhance site recovery through site-scale restoration activities. This program is still in the research and development phase but has			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		engaged operators in Port Douglas and Whitsundays.			
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of research activities	4	• Researchers/ universities/ research stations are regularly consulted with respect to research, particularly the management of the Accreditation Program. • Accreditation of research institutions is managed through the Regulations. • Protocols such as the NESP Tropical Water Quality Hub Governance and NESP Marine and Coastal Hub Governance method demonstrate effective industry and stakeholder engagement. Tropical Water Quality Hub Governance protocols communicate that the hub will involve a "more stakeholder engaged framework" and connections to the "Indigenous Advancement Strategy". • Likewise, NESP projects such as Marine and Coastal Hub Project 3.18: Robust citizen science for reef habitat assessment in support of management demonstrate research projects strongly aligned with comprehensive stakeholder engagement in the development of science. • NESP works closely with university and industry collaborators to develop research to inform departmental policy.	• NESP Tropical Water Quality Hub governance • The NESP Marine and Coastal Hub Steering Committee • Great Barrier Reef Foundation governance • McLeod-et-al-PlosOne-coral-restoration-and-adaptation-Australia-first-five years	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Great Barrier Reef Foundation governance committees have representation from GBR management, research, and industry. • Collaborative arrangements in place with major research institutions and programs such as NERP • The RJFMP is actively engaging and partnering with entities involved in the research and development of new marine park management tools (Universities, environmental consultants, and private companies).			
PR2 The local community is effectively engaged in the ongoing management of research activities	3	• Local communities are engaged through public awareness and education programs as well as through consultative processes of LMACs etc. There are also a number of 'Citizen Science' programs operating in the GBR mostly monitoring aspects of coral reefs, seagrass beds, mangroves, birds and turtles. Stakeholder contributions are generally sought out including opening up for public review of research management guidelines or policy. However data from the SELTMP surveys did indicate a general lack of connection between the general public and reef management indicating there is likely still work to be done in this area. • A limited number of research permits applications were assessed using a 'public information package' assessment approach (providing opportunity for local community to formally comment), including:	• Monitoring human dimensions of the Great Barrier Reef: SELTMP • Community Reef Protection - Great Barrier Reef Foundation	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Coral Nurture Program Whitsundays (Permit G22/46543.1) – MARRS restoration activities at Moore Reef. [Permit G20/42902.1] • NESP Marine and Coastal Hub project 3.18 facilitates the uptake of citizen science approaches to supporting the management of the Great Barrier Reef. The project description is: – the environmental value of this project lies in improved reef health that can be attributed to more informed decision-making in space and time. This is because the use of citizens provides a cost-effective means of surveying many reefs. It will estimate these benefits by simulating CoTS control with and without updated maps of reef vulnerability and source reefs. It will also attempt to quantify some of the social (awareness and public engagement) and cultural benefits of the project (changes in perceptions of Sea Country by Traditional Owners as they partner in surveys). • Reef Trust Partnership with the Great Barrier Reef Foundation – Citizen science			
PR3 There is a sound governance system in place to address research activities	3	• Accreditation of research institutions is managed through the Regulations. • The GBRMP Zoning Plan provides for permitted research and limited impact research (without a permit) provided the	• Integrated Monitoring and Reporting - Great Barrier Reef Foundation • NESP TWQ	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		research institution is accredited and the researchers carry a letter of authorisation from their institution (for compliance purposes). A MOU and code of conduct agreed with the GBRMPA underpins this accreditation program. • Accreditation of research institutions is managed through the Regulations. • The GBRMP Zoning Plan provides for permitted research and limited impact research (without a permit) provided the research institution is accredited and the researchers carry a letter of authorisation from their institution (for compliance purposes). A MOU and code of conduct agreed with the GBRMPA underpins this accreditation program. • Staff and Senior Management are represented on a number of steering committees (e.g. NERP NESP projects, Australian Government Reef Programme – Intergovernmental Operational Committee and Partnership Committee etc)GBRMPA representatives participate at multiples levels in the RRAP including the RRAP Regulators Forum. GBRMPA is an observer on the RRAP board and the RRAP steering committee. • IMR RTP Monitoring collective capacity and implementation (Governance) was identified as one of the Priority Monitoring Gaps in the Reef Authority's prospectus in 2021 - which provides an overview of the priority monitoring gaps identified to support the implementation of the Reef 2050 Integrated Monitoring and Reporting Program. The project	• Hub Leadership & Governance – NESP TWQ • Monitoring human dimensions of the Great Barrier Reef : SELTMP		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		(2021-2024) will aim to deliver an ongoing and replicable framework to monitor collective capacity and implementation (governance) effectiveness that is suitable for inclusion in RIMReP and Reef 2050 Long Term Sustainability Plan reporting. Such a system would enable more accurate and detailed reporting of governance priorities and improved understanding of how the Reef 2050 plan is being implemented, reflected, and adapted in subordinate plans, policies, and projects. No results yet. • Protocols such as the NESP Tropical Water Quality Hub Governance and NESP Marine and Coastal Hub Governance method demonstrate effective industry and stakeholder engagement. • The NESP Tropical Water Quality Hub governance framework also demonstrates this. In particular, this framework states its mandate to "Ensuring the alignment of research activity to the policy needs and interest of the Department and other key stakeholders". • Connecting the Hub's research questions, activities and outputs to relevant research activity and policy initiatives outside the Department. Who has a seat at discussion is relating to research efforts is still unclear in relation to whether indigenous and public voices can be heard. This will prove particularly important as more intense research initiatives are progressed on the reef			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		to hopefully combat climate change are there effective governance structures to allow people to feel involved in those decisions so as to limit backlash in the even of poor outcomes.			
PR4 There is effective performance monitoring, including. regular assessment of appropriateness and effectiveness of tools, to gauge progress towards the objective(s) for research activities	2	• There are two primary actions relating to monitoring efforts for research on the GBR as stated in the Reef 2050 plan those are: – Action GA15 - Develop, implement, and operate an Integrated Monitoring and Reporting program to facilitate adaptive management for the Reef. – Action GA15 - Develop and implement a standard framework to conduct evidence-based risk assessment. • Since 2019 efforts to pursue these actions have progressed via: – Between 2019-2022, a review of over 1,100 standard conditions within our permit templates has been undertaken to ensure conditions are consistent, contemporary, enforceable, relevant and easy to understand for permit holders (planned completion date of June 2023). Of these 1,100 conditions, 270 conditions related to education and research have been reviewed. A jointly approved internal procedure with QPWS has been approved in 2022 to ensure the periodic review of conditions continues following completion of this work	• Great Barrier Reef Outlook Report 2019 Chapter 7 • Link to Condition Review Dashboard on the Dock • Internal-Procedure-Periodic-Review-of-Standard-Permit-Conditions • RIMReP Web pages – GBRMPA Website • RIMReP Business Strategy 2020-25 • RIMReP Annual Business Plan 2022-23 • Reef 2050 Plan objectives and goals 2021-2025 • Marine and Coastal | (www.nespmarinecoastal.edu.au) • Home | MARINE BIODIVERSITY HUB (www.nespmarine.edu.au)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Although there is not currently a systematic way to review cumulative impacts of permitted research/education program, the Charging Structure Review team at GBRMPA are looking at permitted take vs actual take data – based on inputs to Permits Online reporting tool. – Reef 2050 Integrated Monitoring and Reporting Program (RIMREP) is being used to track the progress of outcomes outlined in the Reef 2050 Plan. – Indicators to monitor progress towards the objectives of the Reef2050 Plan are identified within 'Reef 2050 objectives and goals' document. – The development of the evaluation framework to monitor the progress towards objectives and goals is underway and, when complete, will be presented on the Reef Knowledge System. – The Great Barrier Reef Marine Park Authority's Annual Report 2020-21 highlights the agency's work and achievements for the year, reported against the purposes and performance criteria in the Authority's Corporate Plan 2020-21 and Portfolio Budget Statements 2020–21. – An Annual Progress Report (APR) is developed each year to measure the ongoing activities and effectiveness of each NESP hub.	• Marine Biodiversity Hub Project D3 – "Implementing monitoring of AMPS and the status of marine biodiversity assets on the continental shelf" • Marine Biodiversity Hub Project D7 – "Support for Parks Australia MERI Implementation" • Marine and Coastal Hub Project 1.7 – "Towards a consolidated and open-science framework for restoration monitoring", • Marine and Coastal Hub Project 2.05 – "Evaluation of recreational fishing, behaviour, use, values and motivations that relate to compliance"		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Marine and Coastal Hub Projects: o Project D3 – "Implementing monitoring of AMPS and the status of marine biodiversity assets on the continental shelf" o Project D7 – "Support for Parks Australia MERI Implementation" o Project 1.7 – "Towards a consolidated and open-science framework for restoration monitoring" o Project 2.05 – "Evaluation of recreational fishing, behaviour, use, values and motivations that relate to compliance"			
PR5 Appropriate training is available to the managing agencies to address research activities	3	• There seem to remain no training programs for those who are directly managing research and particularly nothing for permit assessors. Rather, Authority permit assessors are trained in understanding the requirements of the Zoning Plan and associated regulations. They seek additional assistance from other internal and external experts as required. As research being done on the GBR continues to expand in complexity however this lack of specific training will become more of a direct issue for proper management. • Permit work has predominantly revolved around making the actual act of submitting a permit easier via:	• A Guide for Current Permit Holders	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Joint Guide for Current Permit Holders developed with QPWS in 2021 to help current permit holders and new assessors in the Authority navigate the sometimes-confusing waters of permits, understand how to be a responsible permit holder and know the general requirements when operating in the Marine Parks. – The environmental assessment and protection section at the Reef Authority has developed a series of training modules and fact sheets to train new permit assessment officers. These are available to the staff of Reef Authority more broadly through a new (internal) Learning Management System.			
PR6 Management of research activities is consistently implemented across the relevant jurisdictions	4	• Research activities that require a permit in the Marine Park may also require a similar permit under Queensland Marine Parks Legislation. The GBRMPA and the relevant Queensland agency, the Queensland Parks and Wildlife Service (QPWS), cooperate to assess and issue joint permits, where necessary, whereby the research assessor at the GBRMPA undertakes one assessment process in consultation with the QPWS. • Note that Queensland legislation may require a permit where the GBRMPA does not. Also there may be other Queensland Government approvals (e.g. from Fisheries Qld) required before researchers can conduct their activities in the GBRMP.	• Stakeholder Inputs • Protected area scientific and educational research | Environment, land and water | Queensland Government • Access to biological resources in Commonwealth areas - DCCEEW	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• QPWS is involved in the assessment of applications through joint permitting process with the GBRMPA. • The GBRMPA and DoEE have an agreement that research involving access to biological resources will only require a permit from the GBRMPA, whilst benefit sharing agreements required under the EPBC Act will be dealt with by DoEE. • Updated Great Barrier Reef Intergovernmental agreement 2015 supports joint-permit management			
PR7 There are effective processes applied to resolve differing views/ conflicts regarding research activities	4	• Reef Management System includes a post-permit section that allows due dates to be entered for requirements that are due after the permit is granted, including annual research reports. This is then used by Permits Compliance team to prompt follow up requests for overdue deliverables. • New Joint Streamlining Permissions Steering Committee initiated in 2019 to oversee work on streamlining Marine Parks permissions. • All permit decisions are subject to review rights. An applicant has the right to request a reconsideration of any decision made about a permit application. Third parties can also seek a reconsideration.	• Permits: review procedures and rights • Terms of Reference on the Dock	Adequate	Stable
PR8 Impacts (direct, indirect and cumulative) of activities associated with research	3	• Cumulative Impacts Policy published in 2018 but there still seem to be issues in actively using this to produce data around the impacts of research efforts. Environmental Management Plans for high use Scientific Research Zones	• Cumulative impact management policy 2018 • Applications for joint permissions	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
activities are appropriately considered.		can assist in cumulative impact assessments in certain locations. Direct and indirect impacts however seem to be well considered at the permit application assessment stage, but there is limited follow up on performance reporting.	• Science and Knowledge Needs for Management • Annual Report 2021-22		
PR9 The best available biophysical research and/or monitoring information is applied appropriately to make relevant management decisions regarding research activities	4	• Generally, there is enough known about the biophysical requirements associated with species proposed to be studied and this information is applied in permit assessment decisions. However, these are key limitations to biophysical information regarding the expected ramifications of more complex programs such as those being proposed by RRAP that are less well understood. Given the necessity of action to help mitigate the continual degradation of reef quality in the face of large-scale risk such as climate change though some level of uncertainty may have to be accepted. RRAP sub-programs are at least in part aiming to address this uncertainty as well to minimize it. This has led to challenges in assessing permit applications for the activities. In these cases, a precautionary approach is generally applied in line with the limits in the Policy on Great Barrier Reef Interventions. • Updates to the Research guidelines to occur in 2023 and revising research accreditations. NESP Projects are also continuing to aid in filling knowledge gaps.	• Marine and Coastal | (www.nespmarinecoastal.edu.au) • Home | MARINE BIODIVERSITY HUB (www.nespmarine.edu.au) • Marine Biodiversity Hub Project D3 – "Implementing monitoring of AMPS and the status of marine biodiversity assets on the continental shelf" • Marine Biodiversity Hub Project D7 – "Support for Parks Australia MERI Implementation" • Marine and Coastal Hub Project 1.7 – "Towards a consolidated and open-science framework for restoration monitoring", • Marine and Coastal Hub Project 2.05 – "Evaluation of recreational fishing, behaviour, use, values and motivations that relate to compliance"	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
			• Policy on Great Barrier Reef Interventions		
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding research activities	3	• SELTMP updated goals have adapted to better fill knowledge gaps pertaining to public perceptions and usage in the GBR. • Social and Economic Long-Term Monitoring Program (SELTMP)Time series: 2013, 2017, 2021, 2023 (planned). Led by CSIRO. 2021 survey (3rd data point): the updated version of SELTMP addressed new objectives and indicators in the Reef 2050 Plan, and provided information required for adaptive management of the changing Great Barrier Reef social-ecological system. The updated broad objectives of SELTMP are to: – Monitor changes in community attitudes towards the GBR, its values and management, and the perceived threats to those values. – Predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health. – Monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the GBR. – Assess and monitor social and economic vulnerability, and adaptive capacity of GBR communities to changes in	• NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment: Project 1.17 | Marine and Coastal • Marine Biodiversity Hub (www.nespmarine.edu.au) • Social and Economic Long-Term Monitoring Program (SELTMP)	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Reef condition & the wider system. NESP is also aiding in filling these knowledge gaps: • NESP Project 1.17: Research needs for a national approach to socio-economic values of the marine environment: This project reviewed common frameworks that conceptualise the relationship between people and nature to identify which parts of the system influence environmental outcomes, and factors relevant to designing policy or influencing behaviours. • NESP Marine Biodiversity Hub Project D6 - This project was designed to establish a clear pathway forward for establishing social and economic metrics for measuring the costs and benefits of Australian Marine Parks. The pathway forward includes prioritised metrics for reporting and establishes the first benchmark survey and report for Parks Australia. Researchers have also completed a review and efficiency analysis to identify opportunities to increase effectiveness and reduce costs of future surveys. These projects and reports serve as a general baseline for socio-economic data however how well this information has been utilized remains to be seen. With information on issues such as trust in citizen science programs being a relatively new addition in the 2021 surveys.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR11 The best available Indigenous heritage information is applied appropriately to make relevant management decisions regarding research activities	3	• Overall, there has been significant progress toward indigenous ideas being integrated into research however there remains some key knowledge gaps. • Greater consideration of the potential impacts to Indigenous cultural heritage values is required in line with the Reef Authority's position on, and progress towards, Traditional Owner co-management of the Marine Parks. • Commencing in 2017 there are now four TUMRA groups (Woppaburra, Mandubarra Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. • RIMReP is a partnership involving Australian and Queensland government entities, together with Traditional Owners. Four Traditional Owner Members sit on the RIMReP Governance groups to provide guidance and advice on cultural, social, economic, and other matters, engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision. • Toolkit (developed from the RIMReP DMS4 project) for safeguarding Indigenous heritage and knowledge was released in 2020, used as a guidance tool for RIMReP. • The indigenous engagement principles of NESP facilitates the use of indigenous heritage and knowledge in managing	• Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park • RIMReP Web pages • RIMReP Business Strategy 2020-25 Toolkit – internal document available on request. • NESP Indigenous Partnerships strategy Template	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the Great Barrier Reef. This is communicated in the Marine and Coastal Hub Indigenous Partnerships Strategy. • Furthermore, several NESP projects use indigenous knowledge and science to guide their research focus and methodologies.			
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding research activities	3	• The GBRMPA's 2017 Guidelines on historic heritage value assessment provides some suggestions on sources of relevant information and considerations for activities conducted in the Marine Park.	• 2017 Guidelines on historic heritage value assessment	Adequate	Stable
PR13 Relevant standards are identified and being met regarding research activities	4	• The Australian Government adheres to Convention on Biological Diversity requirements in relation to access to biological resources. • Ethical approval requirements are considered in permit applications. Two key documents which provide standards for research are: • RIMReP will determine the business requirements for the design of an online Reef 2050 reporting platform through the Reef Knowledge System (RKS). To be an online progress report that provides an indication of whether the Reef 2050 Plan is tracking towards its objective and targets is needed. Scoping is progressing for this framework under the RIMReP Annual Business Plan priority project work.	• GBRMPA Service Charter for the permissions system (see also performance framework) • Guidelines: Managing research in the Great Barrier Reef Marine Park • RIMReP Business Strategy 2020-25 • RIMReP Annual Business Plan 2022-23 • 2022 Scientific Consensus Statement – about, progress and updates	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The 2022 Scientific Consensus Statement is currently in development and due to be finalised in 2024. New features implemented in the design of the 2022 Scientific Consensus Statement include: additional steps to ensure higher levels of independence; extensive consultation to identify and prioritise a series of specific questions (rather than broad chapters); greater transparency about how the process will be run during different stages; the use of evidence-based synthesis methods that focus on promoting transparency, minimising bias and demonstrating levels of confidence in the evidence; increased rigour around the peer review process including the establishment of an Editorial Board; engagement with the Australian and Queensland Chief Scientists to provide an additional layer of assurance that the processes for synthesising and reviewing evidence to inform the 2022 SCS are transparent, robust and credible; adoption of formal consensus methods with a high degree of independent expert input to decide on the key points of consensus; inclusive, genuine, and timely engagement with end-users, stakeholders, and audiences; supporting communication products that are accessible and relevant for stakeholders and the broader community.			
PR14 Targets have been established to benchmark management performance for research activities	3	• The Policy and Planning Strategic Roadmap provided clear targets though progression toward obtaining them has been slow with 3 out of 28 marked as complete at this time.	• Policy and Planning Strategic Roadmap • Net Benefit Policy	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Net Benefits Policy adopted in 2018 Net benefit is an overall improvement in the condition and/or trend of a Great Barrier Reef value, or those actions which result in the net improvement. The purpose of this document is to provide guidance on designing or implementing programs, plans and actions to improve the condition and trend of values and achieve an overall net benefit to the Great Barrier Reef. • The NESP Marine and Coastal Hub conduct Annual Progress Reports (APRs) to sense and measure how the hub is performing against its KPIs and objectives	• The National Environmental Science Program Marine and Coastal Hub Annual Progress Reports (APRs)		
OUTPUTS					
OP1 To date, the actual management program (or activities) have progressed in accordance with the planned work program for research activities	4	• Key management programs do seem to be progressing in line with the planned work programs as emphasized in The Great Barrier Reef Marine Park Authority's Annual Report 2020-21. Issues relating to timeframes for permit processing are being addressed. • Joint Guide for Current Permit Holders developed with QPWS in 2021 to help current permit holders navigate the sometimes confusing waters of permits, understand how to be a responsible permit holder and know the general requirements when operating in the Marine Parks. • New outputs relevant to research/education since 2019 assessment include:	• March 2018 Seagrass value assessment (Document No. 100446) • July 2018 Good practice management for the Great Barrier Reef • July 2018 Net benefit policy • July 2018 Cumulative impact management policy • October 2018 – GRBMPA /February 2019 - QPWS Applications for restoration/adaptation projects to	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– March 2018 Seagrass value assessment (Document No. 100446) – July 2018 Good practice management for the Great Barrier Reef – July 2018 Net benefit policy – July 2018 Cumulative impact management policy – October 2018 – GRBMPA /February 2019 - QPWS Applications for restoration/adaptation projects to improve resilience of habitats in the Great Barrier Reef Marine Park (Document No. 100472) – 2020 Policy on Great Barrier Reef interventions (Document no. 100513) – 2020 — Fish Aggregation Devices and Artificial Reef Interim policy – 2020 Lady Elliot Island ecosystem resilience plan – 2020 Crown-of-thorns starfish Strategic Management Framework – 2021 Science and Knowledge Needs for Management – 2021 A Guide for Current Permit Holders • The Great Barrier Reef Marine Park Authority's Annual Report 2020-21 highlights the agency's work and achievements for the year, reported against the purposes and performance criteria in the Authority's Corporate Plan 2020-21 and Portfolio Budget Statements 2020–21.	improve resilience of habitats in the Great Barrier Reef Marine Park (Document No. 100472) • 2020 Policy on Great Barrier Reef interventions (Document no. 100513) • 2020 — Fish Aggregation Devices and Artificial Reef Interim policy • 2020 Lady Elliot Island ecosystem resilience plan • 2020 Crown-of-thorns starfish Strategic Management Framework • 2021 Science and Knowledge Needs for Management • A Guide for Current Permit Holders • Reef Authority Annual Reports • Reef Authority Corporate Plans • Permission System Service Charter (www.gbrmpa.gov.au) • Reef Management System: Assessment Timeframes		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority permission system has a service level charter that defines expected timeframes for permit processes. In 2022 (calendar year), 85.37% of routine permit and 50.5% of tailored permit timeframes were met. Note – there was a hold on routine permit decisions in July 2022 while legal clarification was sought relating to the payment of invoices received under the Native Title Act 1993 from entities located outside of the Marine Parks, this affected the ability to meet the service charter. This has since been addressed and timeframes for both routine and tailored are increasing. • NESP undertakes Annual Progress Reports (APRs) and has steering committees to ensure the governance and direction of the hub is consistent and coherent as per the hubs' agreement with the department.NESP undertakes Annual Progress Reports (APRs) and has steering committees to ensure the governance and direction of the hub is consistent and coherent as per the hubs' agreement with the department.			
OP2 Implementation of management documents and/or programs relevant to research activities have progressed in accordance with timeframes specified in those documents	3	• Permitting approvals and renewals are seemingly still taking longer than expected even if they are said to be speeding up there is still room to improve. • The Policy and Planning Strategic Roadmap provided clear targets though progression toward obtaining them has been slow with 3 out of 28 marked as complete at this time.	• Guidelines: Managing research in the Great Barrier Reef Marine Park • Policy and Planning Strategic Roadmap • Applications for restoration/adaptation projects to	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Updates to the Research guidelines to occur in 2023, and revising research accreditations. • Restoration/Adaptation Guidelines are also planned for review in 2023. • NESP uses the Marine and Coastal Hub Communication Strategy to ensure the research findings of NESP projects are communicated. • The NESP Marine and Coastal Hub Data Management Strategy also assists the long-term usability of data for educational purposes.	improve resilience of habitats in the Great Barrier Reef Marine Park (Document No. 100472) • About the National Environmental Science Program - DCCEEW • NESP Marine and Coastal Hub Communication Strategy • NESP Marine and Coastal Hub Data Management Strategy		
OP3 The results (in OP1 above) have achieved their stated management objectives for research activities	3	• Research and monitoring of the Great Barrier Reef environment continues to contribute to global knowledge about individual species, coral reef systems and tropical marine ecology. An improved understanding of the Region's environment and how its components interact and respond to changing conditions has contributed substantially to its protection and management. In addition, the results of targeted and applied research are providing managers with information to better measure the outcomes of management initiatives. • Research to guide responses to climate change and current challenges facing the GBR are being tackled actively by programs such as RRAP.	• Workshops and stakeholder interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There is an improved GBRMPA online system for researchers to submit applications for research permits and manage their existing permits and contact details – Permits Online			
OP4 To date, products or services have been produced in accordance with the stated management objectives for research activities	4	• Research efforts continue to sever a key role in providing up-to-date research to inform management of the Agency. • The design phase of RIMReP was completed in 2019. It delivered the structure, program and monitoring design, an implementation roadmap, and an initial release of the Reef Knowledge System. Implementation phase of RIMReP is progressing with the greatest effort directed toward continuing the scoping and implementation of a fit for purpose Data Management System, progressing the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement. • SELTMP is continuing to provide relevant social information for management and continual reviews to update the questions ensures the data provided is relevant. • The NESP Communication, Data Management and Knowledge Brokering strategies enable a consistent and effective way to manage the research outputs from the Marine and Coastal Hub	• RIMReP Business Strategy 2020-25 • RIMReP Annual Business Plan 2022-23 • NESP communication strategy template (www.nespmarinecoastal.edu.au) • Data Management Strategy Template for Hubs - Version 2 (www.nespmarinecoastal.edu.au) • NESP Knowledge brokering template (www.nespmarinecoastal.edu.au) • Social and Economic Long-Term Monitoring Program (SELTMP)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Marine and Coastal Hub have developed over 40 research projects relating to maine and coastal research in Australia.			
OP5 Effective knowledge management systems regarding research activities are in place within agencies	3	• While there are numerous new programs in play to help facilitate data management there was still a distinct idea among experts that more needed to be done to consolidate information both for easier distribution and so that those conducting research can easily note what is already being done or has been done. Also significant was a call for more data management regarding standardizing data systems across formal and informal science programs to allow data from everywhere to be effective. • Updates to the Research guidelines to occur in 2023, and revising research accreditations. • Small project has commenced to try to improve spatial information regarding research permits within RMS. • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs • RIMReP's vision is to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing.	• Expert Consultation and Workshops • Eye on the Reef | Reef Authority • RIMReP Web pages – GBRMPA Website • RIMReP – Reef Knowledge System • RIMReP Business Strategy 2020-25 • RIMReP Annual Business Plan 2022-23 • RIMReP Annual Business Plan 2021-22 • RIMReP Annual Business Plan 2020-21	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• A centrepiece of RIMReP is the interactive online Reef Knowledge System — the 'first stop shop' for up-to-date information about the Reef to guide effective management decisions in a rapidly changing world. • A fit for purpose Data Management System (DMS) is the critical infrastructure to underpin the successful delivery of RIMReP and related reporting activities, management systems and decision support tools. • The NESP project proposal templates now explicitly request information on 'Pathways to Impact' as a requirement for funding. This includes describing how the project will inform decision making and on-ground action, and the detailing the outputs that will be delivered to research -users throughout the life of the project (including how it will assist uptake of research and informed action).			
OP6 Effective systems are in place to share knowledge on research activities with the community	3	• Much of the same concerns as those listed in OP5 above maintain here as data management issues make easy display of data from various sources difficult. • Reef HQ Aquarium reopened its doors following the temporary closure and remained operational until 1 February 2021. The Aquarium then closed and will be rebuilt to ensure compliance with building code, WHS and accessibility. This site provides a key area for research distribution to the public.	• Expert Consultation and Workshops • A Guide for Current Permit Holders • Eye on the Reef | Reef Authority • National Environmental Science Program Marine and Coastal Hub Communication Strategy	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Education team continue to deliver educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its sustainable future and to encourage participation by taking action to address threats to the Reef. • Improvements to GBRMPAs permission system in effect from 4 October 2017 provide greater clarity and guidance for permissions applicants, accredited institutions and assessors and implement recommendations from the Australian National Audit Office and the Australian Parliament's Joint Committee of Public Accounts and Audit • Ongoing enhancements to RMS and Permits Online. • The Eye on the Reef database, which holds Reef health information, is being upgraded to meet current and future needs • The NESP Marine and Coastal Hub Communication and Knowledge Brokering Strategies enable the dissemination and knowledge uptake of NESP research outputs • The Reef Trust Partnership website provides information on current projects underway as well as project stories of impact about previously funded citizen science projects.	• National Environmental Science Program Marine and Coastal Hub Knowledge Brokering Strategy • Reef Trust Partnership – Citizen science		
OUTCOMES					

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC1 The relevant managing agencies are to date effectively addressing research activities and moving towards the attainment of the desired outcomes.	4	• Researchers can gain access to the GBRMP through a structured permit process. This process aims to manage the impact of the research via permit conditions. • Currently there is emphasis on understanding cumulative impacts and integrated monitoring to support and inform management. • Much of the research conducted in the GBRMP provides information that is important to the management of the GBRMP. • The Reef Education team continue to deliver educational programs through the virtual outreach program to educate people about the Reef and its value, the threats to its stainable future and to encourage participation by taking action to address threats to the Reef. • Policy on Great Barrier Reef Interventions was approved in 2020 and draft guidelines for interventions have been developed and should be published in 2023. • The establishment of the RRAP program and funding for intervention and adaptation for coral reefs has increased the number and complexity of research applications within the Marine Parks. There is also an increasing request for access to Marine National Park Zones. • Updates to the Research guidelines to occur in 2023 and revising research accreditations.	• Workshops and stakeholder discussions • Guidelines: Managing research in the Great Barrier Reef Marine Park Policy on Great Barrier Reef interventions • National Environmental Science Program outcomes - DCCEEW (2020) • NESP Outcomes 2020 • NESP State and Territory Showcase • The NESP Marine and Coastal Hub Annual Progress Reports	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• NESP Phase 2 is building on NESP Phase 1 and past achievements. • The NESP Marine and Coastal Hub Annual Progress Reports enable the management of research objectives and outcomes as per the Funding Agreement between the hub and the department.			
OC2 The outputs relating to research activities are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	4	• Research is increasingly targeted on addressing issues of key management concern such as Climate change through programs such as RRAP. • More research is being undertaken through partnerships between management agencies and researchers and research institutions although some concerns have been raised about the need to ensure the extent/speed of translation of this research into management. • Marine Monitoring Program reports continue to provide valuable information for management agencies and others. • Policy on Great Barrier Reef Interventions was approved in 2020 and draft guidelines for interventions have been developed and should be published in 2023. • The establishment of the RRAP program and funding for intervention and adaptation for coral reefs has increased the number and complexity of research applications within the Marine Parks. There is also an increasing request for access to Marine National Park Zones.	• Workshop discussions and stakeholder interviews • Marine Monitoring Program reports • Policy on Great Barrier Reef interventions.	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Updates to the Research guidelines to occur in 2023, alongside revised research accreditations. • Additional mass bleaching events 2020 and 2022 and this continues as a focus among researchers and management agencies on exploring reef restoration and resilience techniques even if the response wasn't as intense as in 2016-17.			
OC3 the outputs (refer OP1 and 3) for research activities are reducing the major risks and the threats to the Great Barrier Reef	4	• In general, research is not seen to have a large and detrimental impact on the reef ecosystem. However around research stations – cumulative use should be understood – even if it is potentially a low risk. • Much of the research that occur in the Region makes a positive contribution to managers' understanding of ecosystems, process and impacts. • Research on its own has limited impact on major risks and threats however it does provide key information to support initiatives that limit threats such as land based run-off and Biodiversity.	• Workshops and stakeholder interviews	Adequate	Stable
OC4 Use of the Great Barrier Reef relating to research activities is demonstrably environmentally sustainable	4	• In general, research is not seen to have a large and detrimental impact on the reef ecosystem. • Collaboration between management agencies and researcher organisations means that there is greater awareness of potential research impacts.	• Letter to coral researchers to limit collecting. • Workshops and stakeholder interviews.	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Following the 2020 and 2022 bleaching events, the Permits section at the authority didn't write to every researchers which had a permit to collect coral – asking them to minimise coral collection as they had done for the 2016-1017 bleaching. However, a small number of joint Marine Parks research permits (particularly those with higher take limits) include conditions authorising the Reef Authority to stop or suspend activities in response to a major incident. • The 2019 Outlook Report identified research and education activities as having a very good economic and social benefits. Knowledge derived from research related to the Region continues to support management. Contributions to the economy have increased significantly in the period between 2011/12 and 2015/16. Research into intervention and restoration activities is increasing. • For the NESP Marine and Coastal Hub, the principles and practices are underpinned by economically sustainable practices.			
OC5 Use of the Great Barrier Reef relating to research activities is demonstrably economically sustainable	4	• Given that research efforts are necessary to safeguarding the reef in the face of large-scale issues such as climate change efforts will generally always be economically sustainable as the cost of programs is significantly lower than the revenue the reef generates. • The 2019 Outlook Report identified research and education activities as having a very good economic and social	• Workshops and stakeholder interviews • Deloitte Access Economics Report 2017 – At what price? The economic, social and icon value of the Great Barrier Reef	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		benefits. Knowledge derived from research related to the Region continues to support management. Contributions to the economy have increased significantly in the period between 2011/12 and 2015/16. Research into intervention and restoration activities is increasing. • For the NESP Marine and Coastal Hub, the principles and practices are underpinned by economically sustainable practices.	• Great Barrier Reef Outlook Report 2019		
OC6 Use of the Great Barrier Reef relating to research activities is demonstrably socially sustainable understanding and/or enjoyment	3	• The SELTMP project seems to indicate that the general public has a high trust in scientist for information the reef and in citizen science. Social information such as how to motivate people to take part more in ref management efforts is less well documented. As RRAP projects expand in scope and risk social integration will be significant to hopefully mitigate backlash should projects prove ineffective or have detrimental impacts to reef areas. • The 2019 Outlook Report identified research and education activities as having a very low impact to the Region and very good economic and social benefits. • For the NESP Marine and Coastal Hub, the principles and practices are underpinned by socially sustainable practices.	• Social and Economic Long-Term Monitoring Program (SELTMP) • Workshops and stakeholder interviews	Adequate	Declining
OC7 The relevant managing agencies have developed effective partnerships with local communities and/or	3	• GBRMPA, DoEE and others (such as the Great Barrier Reef Foundation) help facilitate the delivery of the science needed to protect and manage the World Heritage Area	• Workshops and stakeholder interviews • Eye on the Reef	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
stakeholders to address research activities		through strategic funding programs and close working relationships with researchers from organisations such as AIMS, CSIRO, JCU, UQ etc. (e.g. NESP and Science for Management Awards). • Eye on the Reef program has established effective research and monitoring partnership with stakeholders and the reef users. • GBRMPA has a close relationship with the key research/educational institutions in relation to how scientific research is managed in the GBR. • Greater consideration of the potential impacts to Indigenous cultural heritage values is required in line with the Reef Authority's position on, and progress towards, Traditional Owner co-management of the Marine Parks. • Commencing in 2017 there are now four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi), with areas totalling 17,470 square kilometres of Sea Country that have committed to receiving information on applications for permissions for location specific activities within their Sea Country through a system of 'cultural referrals'. • The Marine and Coastal Hub engage with a variety of local communities and stakeholders, including through community consultation workshops, engagement with indigenous community and their research methodologies.	• Traditional Owner Implementation Plan		

Shipping

Table 49: Calculation of grades for Shipping

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The values of the Great Barrier Reef relevant to shipping are understood by managers	3	• The managers for shipping consist of: – The Reef Authority - controls direct use through permission system as well as providing broader regional monitoring and management action – AMSA - provides national-level vessel management, qualification/training, maritime safety, marine pollution and incident response planning and delivery under the National Plan for Maritime Environmental Emergencies, including coordination with MSQ and the Reef Authority – MSQ - provides state-based maritime safety (recreational vessels), marine pollution (all vessels in coastal waters) and incident response planning and delivery under the Queensland Coastal Contingency Action Plan (QCCAP). Supports the National Plan with AMSA. MSQ includes the RHMs who are responsible for day-to-day management of vessel navigation within designated regions. The RHM regions in the GBR Region are Cairns (covering all of Far North Queensland, Townsville, Mackay and Gladstone. MSQ also manages the Reef Vessel Traffic Services (Reef VTS).	• 2019 Outlook Report • Strategic Assessment of the GBRWHA (2014) • Strategic Assessment of the GBR Coastal Zone (2014) • North East Shipping Management Plan • Queensland Coastal Contingency Action Plan • AMSA Strategy 2030 • AMSA Corporate Plans	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Port Authorities also have management responsibility regarding shipping activities within port areas. • Each of these agencies are engaged through the periodic Outlook Reports and were also involved in the Strategic Assessments of the World Heritage Area and Great Barrier Reef Coastal Zone. This provides the main exposure to the Reef values for these managers. • All these agencies are also involved in the development and implementation of the North East Shipping Management Plan which is the main management document overseeing shipping activities in the region. This includes evaluation of the values of the Reef. • However, there are acknowledge gaps in mapping of values at a scale spatially relevant to shipping risks (e.g. grounding, spill impacts) and responses.			
CO2 The current condition and trend of values relevant to shipping are known by managers	4	• As per CO1, the involvement of managing agencies in the Outlook Reports provides the key opportunity for recurring assessment of condition and trend of GBR values. • Annual updates to the NESMP are also undertaken, which includes evaluation of the context relevant to GBR values • Previous reviews acknowledged a data gap in understanding the status and condition of aesthetic values of the GBR related to shipping, especially for isolated areas of the GBR where there is high volume of shipping traffic. While a study was completed in 2017 on aesthetic	• 2019 Outlook Report • Strategic Assessment of the GBRWHA (2014) • Strategic Assessment of the GBR Coastal Zone (2014) • North East Shipping Management Plan • AMSA Year in Review • Foreign flag vessel arrivals	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		values for the GBR, this does not include any specific analysis relevant to shipping areas. This gap remains. • Summary of shipping activity in Australian waters is provided in the 'Year in Review' project and includes number of arrivals, port visits and detention rates.			
CO3 Impacts (direct, indirect and cumulative) associated with shipping are understood by managers.	3	• The NESMP is developed based on the extensive scientific literature related to the environmental risks and impacts of shipping, including specific to the GBR Region. This includes: – Great Barrier Reef Shipping: Review of Environmental Implications – Outlook Reports – GBRWHA Anchorage Study – East Marine Region marine bioregional profile – GBR Strategic Assessments • The main impacts and risks of shipping are: – grounding and collision incidents, including cargo or oil spills and disturbance of seabed and associated biodiversity and associated values from hull strike – operational impacts, including propellor wash, emissions, marine pest introduction (ballast water exchange and hull biofouling), faunal injury or death from vessel strike, behavioural disturbance from noise and light, alteration of aesthetic value, and release of pollutants and wastes. • These impacts and risks are included in the NESMP.	• 2019 Outlook Report • Strategic Assessment of the GBRWHA (2014) • Strategic Assessment of the GBR Coastal Zone (2014) • North East Shipping Management Plan • East Marine Region Marine Bioregional Profile • GBRHWA Anchorage Study • IMO MEPC74/INF.24 Report on the environmental impact assessment of discharge water from exhaust gas cleaning systems • CSIRO Explaining the impacts on coastal waters of washwater discharges from exhaust gas cleaning systems on ships	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The NESMP acknowledges a gap in understanding of cumulative and consequential impacts of shipping, especially in the context of cumulative impact of legacy and current activities as well as land-based run-off combined with shipping-sourced discharges. • Other acknowledged gaps in impact consideration include: – impacts of non-oil pollutants – underwater noise - while the potential impacts of underwater noise on marine fauna are generally well known, the specific and cumulative effects of shipping noise within the Reef are not known; specific policy-development has been noted by DCCEEW for underwater noise, recognising the gap to date in national and regional-scale understanding of underwater noise and associated impacts – vessel strike - in 2017 the National strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna was released, which included specific actions associated with better understanding the incidence and cumulative effects of vessel strike; many of these actions remain outstanding or ongoing and there remain significant gaps in the availability of vessel strike data and associated species-specific assessments • New sulphur exhaust gas cleaning systems have been introduced since 2020 and subject to assessment to determine their impact to the marine environment (CSIRO	• National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		study, commissioned by AMSA). This noted the low level of risk associated with these discharges; however, it is uncertain if the potential risk of discharges from these systems have been considered for the Reef due to higher sensitivity.			
CO4 The broader (national and international) level influences relevant to shipping are understood by managers.	4	• It is clearly recognised that the environmental risk profile of shipping within the GBR Region, and its overall management, is fundamentally controlled by an international regime, encompassing ship safety and marine environment protection, coordinated through the IMO, of which Australia is a Member. Consequently, incremental improvements in shipping risk profiles are realised via IMO mechanisms. By extension the Reef Authority needs to continue to leverage its effective links with AMSA, as the primary Australian representative body in the IMO (although other Commonwealth agencies also have representative roles on certain issues). • Australian agencies have a good understanding of the relevance of international agreements and guidance relevant to shipping. Australia is an active participant in IMO processes, particular in terms of marine environment protection. • Recent changes at national and international levels which have been implemented or in the process of implementation include:	• 2019 Outlook Report • Strategic Assessment of the GBRWHA (2014) • Strategic Assessment of the GBR Coastal Zone (2014) • North East Shipping Management Plan • Marine Orders 97 and 98 • AMSA Annual Reports • AMSA Compliance Strategy 2018-2022 • National Plan for Environmental Emergencies • IMO and its role in protecting the world's oceans • New short-term measures to reduce greenhouse gas emissions from existing ships • See CO3	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– development of the National Underwater Noise Guidelines project, reflecting recent focus of the IMO into underwater noise – application of a new measure will apply to ships engaged on international voyages to deliver a reduction in their carbon intensity by an average of at least 40% by 2030 (compared to 2008 levels), in line with the target set by the IMO (implemented from January 2023) – amendments to the International Anti-fouling Systems Convention (AFS Convention) to ban cybutyrne (implemented through Marine Order 98 and amendments to the *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006* • AMSA is investigating the use of Vessel Arrival Systems (VASs) in the region under the NESMP, which aligns with the Reef 2050 plan. The latest version of the Reef 2050 plan was released on 20 December 2021 and has been updated to include exploring the VAS concept under Strategic Action 3.1.			
CO5 The stakeholders relevant to shipping are well known by managers.	4	• AMSA, the Reef Authority and MSQ work closely together to protect the marine environment from adverse consequences of shipping operations and providing for the safety of life of ships' crew, passengers and other users of the Reef. • Other shipping stakeholders include the Australian Quarantine and Inspection Service, Maritime Border	• 2019 Outlook Report • Strategic Assessment of the GBRWHA (2014) • Strategic Assessment of the GBR Coastal Zone (2014) • North East Shipping Management Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Command (Australian Border Force) and DAFF in relation to introduced marine pests and ballast water issues; Maritime Border Command (Australian Border Force) in relation to compliance (general management arrangements); the DCCEEW in relation to Reef values and impacts; the Queensland DES in relation to marine pollution in GBRCMP Park waters and wildlife response; and port industry representatives. • AMSA, Reef Authority, MSQ, DITRDC, DCCEEW, DISR and DAFF also form the North East Shipping Management Group. The NESMG generally meets annually to discuss current measures to enhance maritime safety and protection of the Great Barrier Reef. The group also assesses the risk posed by future traffic growth and recommends mitigation measures to deal with those risks. • The North East Water Space Management Working Group is an advisement body under the North East Shipping Management Group. This working group provides a forum for members to discuss and resolve complex or difficult issues of common interest and concern in relation to the use of water space in the GBR, Torres Strait and the Coral Sea. The group meets bi-annually to consider and implement activities under the plan. • There are annual Reef Authority/Defence meetings under the joint MoU providing opportunity to discuss with Defence any shipping and vessel issues in the GBR region.	• Looking Ahead 2017-2027 • • AMSA Strategy 2030		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Environmental NGOs have a keen interest in shipping and its impacts • As part of the development of the Looking Ahead 2017-2027 strategy, AMSA has undertaken stakeholder engagement which has included a process of identifying and consulting with key stakeholders. • Reef Authority is further strengthening the identification of stakeholders through the Actor Network Mapping Project.			
PLANNING					
PL1 There is a planning system in place that effectively addresses shipping	3	• The planning system for shipping consist of the following key elements: – Zoning Plans for Marine Park and Coast Marine Park and associated guidelines - these establish designated shipping areas together with a permitting system for shipping activities that occur outside these areas. – Marine Orders and Notices issued by AMSA - these create additional rules associated with shipping activities in accordance with particular management outcomes and concerns and deal with a wide range of matters (e.g. antifouls, navigational safety) – Australian Ballast Water Management Rules - these create a framework for ballast water exchanges to prevent introduction and spread of invasive marine species – North East Shipping Management Plan - this creates a strategic management regime for the management of	• Outlook Report 2019 • Great Barrier Reef Marine Park Zoning Plan • Marine Park (Great Barrier Reef Coast) Zoning Plan • North East Shipping Management Plan • Marine Orders and Notices • Australian Ballast Water Management Rules • National Plan for Environmental Emergencies • Queensland Coastal Contingency Action • AMSA Compliance Strategy 2018-2022	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		shipping activities within the GBR and surrounding areas – National Plan for Marine Environmental Emergencies - this creates a framework to improve preparedness/response for maritime emergencies – Various state and federal regulations implementing MARPOL, SOLAS and UNCLOS arrangements – Further inherent powers within AMSA and MSQ (under legislation) to declare shipping rules (e.g. anchorage areas, VTS, channel navigation requirements) – QCCAP and associated Response Plans - these set actions associated with local arrangements for response to maritime emergencies. • While there are also national arrangements associated with invasive marine species and biosecurity, these do not form part of a cohesive planning system	• *Transport Operations (Marine Pollution Act 1995* and Regulation		
PL2 The planning system for shipping addresses the major factors influencing the Great Barrier Reef Region's values.	4	• The major factors influencing the GBR Region's values, as per the 2019 Outlook Report, are climate change, coastal development, land-based run-off and direct use. Of these, climate change and direct use are relevant to shipping. • The planning system currently encompasses these factors in the following ways: – Climate change - not formally captured in the planning system but it is currently being considered whether to implement carbon efficiency requirements for international shipping in accordance with IMO. This	• Outlook Report 2019 • Great Barrier Reef Marine Park Zoning Plan • Marine Park (Great Barrier Reef Coast) Zoning Plan • North East Shipping Management Plan • Marine Orders and Notices	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		has been implemented through the planning system (e.g. Marine Orders 97) and through the 2023 IMP Strategy on Reduction of GHG Emissions from Ships (for vessels over 400 gross tonne). – Direct use - the main focus of the planning system is on the regulation of shipping activities which is the relevant form of direct use. This regulation is fairly comprehensive.	• Australian Ballast Water Management Rules\ • National Plan for Environmental Emergencies • Queensland Coastal Contingency Action • AMSA Compliance Strategy 2018-2022 • *Transport Operations (Marine Pollution Act 1995* • AMSA Annual Reports • 2023 IMO Strategy on Reduction of GHG Emissions from Ships		
PL3 Actions for implementation regarding shipping are clearly identified within the plan	3	• The key plans within the planning system are: – Reef 2050 - this has actions relevant to shipping as part of Work Area 3 (reduce impacts from water-based activities) – North East Shipping Management Plan – National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna – Marine Pests Plan 2018-2023 • There is a currently acknowledged gap regarding underwater noise which is forming the basis of a new national strategy for underwater noise, in development.	• Reef 2050 Long-term Sustainability Management Plan • North East Shipping Management Plan • National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna • Marine Pests Plan 2018-2023	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Most other risks associated with shipping relate to contingency events (e.g. grounding, spills) and are managed through preparedness/response arrangements.	• Great Barrier Reef Underwater Noise Guidelines Discussion and Options Paper		
PL4 Clear, measurable and appropriate objectives for management of shipping have been documented	4	• The plans listed in PL3 have clear, measurable and appropriate objectives • An overarching objective of 0 grounding incidents is in place for the reef.	• Reef 2050 Long-term Sustainability Management Plan • North East Shipping Management Plan • National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna • Marine Pests Plan 2018-2023	Adequate	Stable
PL5 There are plans and systems in place to ensure appropriate and adequate monitoring information is gathered in relation to shipping	3	• Systematic monitoring of all environmental impacts associated with shipping activities is lacking, especially with regards to underwater noise, vessel strike and turbidity associated with propellor wash. • Mandatory reporting of maritime incidents and vessel strike (where known) is required but data is not systematically analysed as part of planning and management frameworks. • Monitoring of biosecurity and invasive marine species is concentrated primarily at ports, rather than more broadly across shipping and shipping lanes.	• Reef 2050 Long-term Sustainability Management Plan • North East Shipping Management Plan • National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna • Marine Pests Plan 2018-2023	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Ship movements are tracked and comprehensive data sets available on volumes and concentration of shipping. This is being further analysed through the Mapping of Patterns of Activity in the Great Barrier Reef Marine Park project by the Reef Authority and CSIRO. • A more comprehensive monitoring approach is being undertaken for the Douglas Shoal Remediation Project comparative to previous remediation and contingency response projects. However, this is a bespoke monitoring program specific to this project rather than the output of a broader strategy for monitoring activities.			
PL6 The main stakeholders &/or the local community are effectively engaged in planning to address shipping	4	• See CO5 regarding arrangements to embed agency stakeholders into decision-making regarding shipping. • Changes to shipping or anchorage areas or major works within shipping areas (e.g. dredging) require permits under the Reef Authority permission system. This involves public consultation arrangements, including the development and publication of Public Information Packages to invite public comments and submissions. • The Reef Authority maintains community engagement groups which provide a forum for other agencies (e.g. AMSA, MSQ) to seek feedback on changes associated with shipping.	• North East Shipping Management Plan • National Plan for Environmental Emergencies • Queensland Coastal Contingency Action	Adequate	Stable
PL7 Sufficient policy currently exists to effectively address shipping	3	• There is no overarching policy for shipping prepared or implemented by the key management agencies. However, the development of designated shipping areas and	• Marine Orders and Notices	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		anchorages, associated with prohibition on shipping and anchorage elsewhere (without permission) represents an implicit policy stance that has been embedded into the Zoning Plan. This is subject to 'policy changes' from time to time, including the inclusion of the two-way route within the Reef, enhancing the designated shipping area. • The development of particular Marine Orders also represents policy development by AMSA, especially where flowing from discretionary imposition of international best practice. Marine Orders operate to give effect to legislative regimes, with a key focus on marine pollution controls for vessels, arrangements for anti-fouling systems etc. • The only explicit policy on shipping by the Reef Authority is the Policy for Cruise Ship Operations in the Great Barrier Reef 2018 which establishes a policy position that accepts cruise shipping subject to specific arrangements. There is currently no explicit policy for other shipping sub-sectors, such as superyachts.	• Policy for Cruise Ship Operations in the Great Barrier Reef 2018		
PL8 There is consistency across jurisdictions when planning for shipping	4	• The multi-agency nature of the NESMP and NESMG encourages communication and cooperative strategic planning. • A few practical jurisdictional complications remain regarding implementation of the National Plan for Maritime Environmental Emergencies; Queensland Coastal Contingency Action Plan and other cross jurisdictional arrangements:	• North East Shipping Management Plan • Queensland Coastal Contingency Action	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Complications around responsibility for leading coordination and action when ships that ground come to rest partly in the GBR Marine Park and partly in state waters or land (e.g. on the edge of state islands). The jurisdictions and powers that each agency have are complicated – sometimes overlapping, sometimes with slight gaps that were not contemplated at the time of drafting. In practice every agency strives to protect the Reef with the powers they have; however it is sometimes difficult to get an answer that actually addresses the question. • The Reef Authority and QPWS had issued joint removal orders for vessels but it has become unclear whether this is appropriate and the practice ceased in late 2017. • Pollution response arrangement and preparedness (training) is managed effectively across jurisdictions. • Relationship between AMSA and MSQ is set out through intergovernmental agreements which clarify the roles of the different agencies and support that will be provided. • Defence shipping activities are primarily managed separately to the extent they occur within defence areas only but are subject to overarching planning system when in common shipping areas.			
PL9 Plans relevant to shipping provide certainty regarding where uses may occur, the	4	• The Zoning Plans and associated designated shipping and anchorage areas clearly set out where activities can occur and the needs for permits for other activities.	• Great Barrier Reef Marine Park Zoning Plan • Marine Park (Great Barrier Reef Coast) Zoning Plan	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
type of activities allowed, conditions under which activities may proceed and circumstances where impacts are likely to be acceptable.			• North East Shipping Management Plan • Marine Orders and Notices		
INPUTS					
IN1 Financial resources are adequate and prioritised to meet management objectives to address shipping	1	• AMSA is primarily self-funded through charges on shipping. Evidence indicates the level of funding through these arrangements is sufficient to meet AMSA responsibilities. • MSQ is funded to state budgetary processes and evidence also indicates sufficient funding is available for delivery of current functions. • However, concerns have been raised regarding the potential to undertake emergency towage and similar activities in the southern GBR where the concentration of shipping is expected to increase. This may indicate funding arrangements are not keeping pace with projected growth. • The Reef Authority has the primary responsibility for undertaking remediation activities after major contingency events (e.g. ship groundings). Historical insurance requirements for vessels have been insufficient to cover remediation costs and Reef Authority is not adequately resource to undertake these activities directly as there is no separate charge on shipping to provide resourcing.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority has been successful in obtaining finances from offending ship owners/operators through the court system (e.g. *Shen Neng 1* grounding on Douglas Shoal); however, this is extremely inefficient in terms of both cost and timing and limits the ability of the Reef Authority to rapidly and adequately respond to events. This also relies significantly on consistent insurance arrangements being in place across all commercial vessels. • Outside of grounding events, AMSA and/or MSQ have cost recovery powers associated with providing for clean up of pollution events. • Costs for detection and monitoring for introduced marine pests are expensive. Effective implementation may require more coordination/agreement between affected and involved parties.			
IN2 Human resources within the managing organisations are adequate to meet specific management objectives to address shipping	2	• FTEs within MSQ and AMSA appear to be adequate to deliver the management requirements of these agencies. MSQ also partners with Port Authorities and other agencies and industry for the delivery of contingency response under the QCCAP and other arrangements. This includes agreements for Port Authorities to provide first strike pollution response within their port area. • There are no FTEs within the Reef Authority with responsibility for shipping activities. There is also inadequate human resources in each agency for strategic planning for shipping management.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Restructures within the Reef Authority have created FTEs with responsibility for maritime incident response but not for shipping management or planning more generally. However, due to the lack of dedicated funding for actual incident responses, the human resources available within the Reef Authority may not be adequate at current levels for timely response to actual events.			
IN3 The right skill sets and expertise are currently available to the managing organisations to address shipping	3	• See IN2. FTEs within relevant agencies are reported to have the appropriate skill sets and expertise.		Adequate	Stable
IN4 The necessary biophysical information is currently available to address shipping	4	• High resolution bathymetry data is available as well as regional information on habitats and other marine environmental values, including coral reefs and seagrass. However, there are acknowledged gaps related to: – spatially appropriate biophysical data for isolated shipping areas, especially in the context of shipping risk assessments – shoal and other seabed habitats, natural and anthropogenic underwater soundscapes, acoustic communication of Reef species, underwater noise impacts, ship-related turbidity and turbulence impacts on species and habitats – effect of climate change on biophysical parameters, e.g. effect on a species' numbers, distribution,		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		breeding, foraging and survivorship and what additional, complementary or offsetting effect of a maritime emergency might be on the changing biophysical parameters.			
IN5 The necessary socio-economic information is currently available to address shipping	4	• Data on the economic significance of shipping in the GBR region is generally available from a variety of sources. • Data on the social significance of shipping in the GBR are less readily available, although studies have been conducted within the realms of aesthetics and community perceptions. • Some socio-economic data available through SELTMP but not always directly relevant to shipping activities. • Reef Authority's 2017 Guidelines on social value assessment provides some suggestions on sources of relevant information and considerations for activities conducted in the Marine Park.	• SELTMP	Adequate	Stable
IN6 The necessary Indigenous heritage information is currently available to address shipping	3	• An understanding of traditional knowledge and cultural heritage is poor in relation to how shipping is perceived and affects those values. • Little information on underwater maritime Indigenous cultural heritage or susceptibility of fish traps and other sites to wash and turbulence from shipping. • AMSA regularly engage with Aboriginal and Torres Strait Islander stakeholders; including working with Torres Strait Islander vessel operators to promote a culture of safety and provide educational tools to help them assess and	• AMSA heritage strategy 2022-2025 • AMSA Reconciliation Action Plan	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		manage risks. Additionally, effective cultural heritage management agreements with Aboriginal and Torres Strait Islander landowners are vital for our Aid to Navigation objectives. AMSA recently implemented our Indigenous Engagement Guidelines to effectively engage, communicate, and work with Aboriginal and/or Torres Strait Islander community • The Strong Peoples-Strong Country Framework aims to build capacity for Traditional Owner leadership of monitoring and reporting in the GBR. Phase 2 of the Strong People Strong Country framework builds on the work undertaken in Phase 1 and involves the development of a set of objective indicators, which aim to provide information and insights about the condition and trends in Indigenous heritage values in the Reef and its catchments.			
IN7 The necessary historic heritage information is currently available to address shipping	4	• There is existing mapping of underwater cultural heritage available through the Commonwealth Government although location of shipwrecks is not always accurate. Additional wrecks may be present that have not been included in registers but have heritage value based on their age. However, while not specifically mapped, as shipping primarily occurs within designated areas which are well surveyed, there is limited risk of unknown shipwrecks within these areas. • Historic lighthouses and associated aids to navigation and maritime structures are well known and mapped through state and national registers.	• Heritage registers • Special Management Areas	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN8 There are additional sources of non-government input (e.g. volunteers) contributing to address shipping	4	• Minimal non-government input available due to the nature of shipping activities.		Adequate	Stable
PROCESSES					
PR1 The main stakeholders &/or industry(ies) are effectively engaged in the ongoing management of shipping	4	• See PL6 regarding engagement of stakeholders in the planning system. As management actions represent the implementation of the planning system, the engagement of stakeholders at this point provides the opportunity to influence shipping management. • There is also extensive engagement of Port Authorities in management of shipping and emergency response, including agreements with MSQ for Port Authorities to provide first strike emergency response.	• North East Shipping Management Plan	Adequate	Stable
PR2 The local community is effectively engaged in the ongoing management of shipping	4	• Local communities are engaged in relation to anchorages and ports, less so specifically for shipping, noting limited practicable role for community in relation to the management of shipping. • Reef Authority's Reef Advisory Committees and LMACs are available for community to raise shipping issues and for Reef Authority to provide community with updates on relevant information. See PL6 also.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR3 There is a sound governance system in place to address shipping	4	• The governance system for shipping consists of the following key elements: – AMSA and MSQ, exercising complementary functions for shipping and vessel management, maritime safety, navigation and marine pollution and incident response. The relationship between these organisations is set out in a series of intergovernmental agreements, with overarching authority resting with AMSA (to ensure consistent national approach across all regions) and day-to-day operational response with MSQ. Both organisations have powers under respective legislation. – Governance framework established under the NESMP which provides the umbrella principles for shipping in the GBR under which AMSA, MSQ and Reef Authority cooperate and undertake their particular functions. This framework includes the NESMG which provides agency interaction into the development and implementation of the NESMP. – The Reef Authority, with a role on whole-of-reef management and management of zoning and permissions and remediation of environmental impacts. The Reef Authority is empowered through its enabling legislation and creates regulatory and policy instruments subject to this. Reef Authority also has enabling agreements with QPWS to allow for shared	• North East Shipping Management Plan • National Plan for Maritime Environmental Emergencies • Great Barrier Reef Marine Park Zoning Plan • Marine Park (Great Barrier Reef Coast) Zoning Plan • *Transport Operations (Marine Pollution) Act 1995* and Regulation • *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		decision-making in association with areas part of both the Marine Park and Coast Marine Park. – Parallel permission systems through DCCEEW under the EPBC Act and the Environment Protection (Sea Dumping) Act 1981. These permission systems form part of a broader governance framework associated with environmental assessments for actions in Commonwealth areas and World Heritage Areas as well as in accordance with requirements under MARPOL and London Convention. – MSQ and Port Authorities, in relation to emergency preparedness and response for oil spill and similar contingency events. This function rests with MSQ but is delegated in part to Port Authorities through agreements for first strike emergency response. This is articulated further within the framework established through the Queensland Coastal Contingency Action Plan. – DAFF, with responsibility for biosecurity management. The framework for biosecurity comparative to other elements of the governance system are currently unclear. This includes the formality of relationship between DAFF and Port Authorities and other agencies responsible for shipping management. • This framework operates as part of broader governance framework international which sets standards and requirements for shipping and related matters. This			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		consists primarily of UNCLOS, MARPOL, the London Convention and SOLAS (and associated instruments under these) and directives of the IMO. As Australia is party to these agreements and as much of Australia's shipping traffic comes from international jurisdictions, changes at the international level typically flow quickly through to domestic arrangements through AMSA.			
PR4 There is effective performance monitoring, including regular assessment of appropriateness and effectiveness of tools, to gauge progress towards the objective(s) for shipping	3	• See PL3 and PL4 regarding the plans within the planning system that set objectives for shipping. • Of these instruments, there is effective recurring performance monitoring and review cycles associated with Reef 2050 and the NESMP. There is also de facto performance monitoring of shipping through the recurring Outlook Reports due to the focus on shipping as a thematic sector. These instruments cover majority of the risks and management arrangements associated with shipping. • The Marine Pests Plan does not have clear monitoring and review arrangements so the extent to which this is able to measure against objectives is unclear. • The National Strategy for Reducing Vessel Strike is not a formal action plan (although it does have set objectives and actions) and does not include a performance monitoring component. This strategy represents the first major instruments associated with understanding this risk and therefore is subject to ongoing maturing.	• Reef 2050 Long-term Sustainability Management Plan • North East Shipping Management Plan • National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna • Marine Pests Plan 2018-2023	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR5 Appropriate training is available to the managing agencies to address shipping	3	• Generally training within managing agencies is understood to be appropriate, especially in relation to incident response. • There is an acknowledged gap regarding management of invasive marine species.		Adequate	Stable
PR6 Management of shipping is consistently implemented across the relevant jurisdictions	4	• See PL8. As management actions are an implementation of the planning system, the effective jurisdictional arrangements in the planning system lead to general consistency in management and decision-making. • There is an acknowledged gap regarding the consistency of application of invasive marine species and biosecurity approaches.	• Reef 2050 Long-term Sustainability Management Plan • North East Shipping Management Plan • National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna • Marine Pests Plan 2018-2023	Adequate	Stable
PR7 There are effective processes applied to resolve differing views/ conflicts regarding shipping	4	• As there is close collaboration between stakeholders as part of the NESMG, there is effective internal dispute resolution. Formal arrangements are also in place to resolve conflicts between AMSA and MSQ through the intergovernmental agreements, and between MSQ and Port Authorities through agreements related to first strike emergency response.	• North East Shipping Management Plan	Adequate	Stable
PR8 Impacts (direct, indirect and cumulative) of activities	3	• Potential impacts on the Great Barrier Reef are typically considered as a component of environmental impact	• 2019 Outlook Report	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
associated with shipping are appropriately considered.		assessment processes. In the past this has been somewhat piecemeal, with assessments occurring via individual port development proposals. A more over-arching view of shipping in the GBR has been achieved. • To remain effective, it is considered necessary to undertake continuing, umbrella reviews of shipping risks and management in the GBR Region, in concert with shipping capacity constraints analyses, and to keep these up-to-date by periodic review. These reviews should be linked to individual port development and capacity assessments. • Coordination for introduced marine pest response is in place but will require further refinement. Limited coordination exists with regard to routine monitoring and surveillance, although this is expected to improve as a result of both Commonwealth and Queensland State actions. • Some cumulative and/or synergistic impacts (e.g. water quality, turbidity from wake) not well addressed, although this situation has improved since 2013, and plans are in place to further evaluate and improve management as may be warranted. For example, a Reef Cumulative Impact Management Policy has been drafted by the Reef Authority in collaboration with other agencies.	• Strategic Assessment of the GBRWHA (2014) • Strategic Assessment of the GBR Coastal Zone (2014) • North East Shipping Management Plan • AMSA strategy 2030 • See CO2.		
PR9 The best available biophysical research and/or monitoring information is	3	• There are a number of information gaps identified in knowledge of shipping practices. For example, only limited information is available/collated on ship/fauna strikes,		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
applied appropriately to make relevant management decisions regarding shipping		noise effects and wake/turbulence. Limited information available at present concerning vessel strikes of fauna may indicate that little is reported, but may also indicate that incidence is uncommon. • Rapid access to GIS information (visualisation and layering of info) is an area of weakness for agencies where incident response staff must rely on other agencies to provide assistance. For example, some spatial data are not available quickly enough for small incidents. AMSA and MSQ have sophisticated GIS and Spatial mapping resources. The Reef Authority's Spatial Data Centre has only limited capacity to service the Authority's spatial mapping and analysis needs across all activities.			
PR10 The best available socio-economic research and/or monitoring information is applied appropriately to make relevant management decisions regarding shipping	4	• Studies conducted regularly by Commonwealth and Queensland Government agencies, and by ports. These consider economic factors, with some focused upon social factors. • The Reef Authority has supported studies intended to quantify risks and identify management measures to reduce risks to the environment from shipping. This includes socio-economic studies. • SELTMP examined community understanding and level of concern for GBR indicated exaggerated concerns for shipping. However there is less concern about shipping than previous studies indicated. More effective articulation actual risks form shipping in GBR would be helpful, so that the allocation of finite management resources is not		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		skewed by unfounded public concerns or misapprehensions. For example, Reef Authority incident reports typically refer to generic 'vessel' incidents, such as groundings and sinkings, when in reality these incidents are small pleasure and commercial fishing vessels, and not 'ships' as per the accepted definitions.			
PR11 The best available Indigenous heritage information is applied appropriately to make relevant management decisions regarding shipping	3	• This is considered to be most relevant in relation to shipping movements in some specific nearshore and/or remote locations where items of significance may be vulnerable to damage from shipping. • Uncertain as to how much information of potential relevance to shipping is available. • The Reef Authority's Permission System is progressing towards a cultural referral system to allow Indigenous heritage information to be integrated in the a permit assessment process. As of early 2023, there are 4 Indigenous groups who are able to receive and respond to cultural referrals. • AMSA regularly engage with Aboriginal and Torres Strait Islander stakeholders; including working with Torres Strait Islander vessel operators to promote a culture of safety and provide educational tools to help them assess and manage risks. AMSA also enters into Cultural Heritage Management Agreements associated with Aids to Navigation. These provide a form of input regarding indigenous heritage for this program	• AMSA heritage strategy 2022-2025 • AMSA Reconciliation Action Plan	Limited	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR12 The best available historic heritage information is applied appropriately to make relevant management decisions regarding shipping	3	• Historic heritage values are well known and documented. Specific consideration of heritage is integrated through AMSA decision-making under its Heritage Strategy and the Reef Authority Permission System.		Adequate	Stable
PR13 Relevant standards are identified and being met regarding shipping	4	• As part of Australia's obligations under UNCLOS, MARPOL, SOLAS, the London Convention and other international maritime conventions and instruments, Australia is regulating implementing best practice standards relevant to shipping. These are primarily implemented through Marine Orders and associated regulations. Thus there is no specific set of standards insomuch as a commitment to integrating these standards as they are developed internationally.	• North East Shipping Management Plan • Marine Orders and Notices	Adequate	Stable
PR14 Targets have been established to benchmark management performance for shipping	3	• Although the overall objectives of managing to achieve safe shipping within the GBR Region are self-evident, it is difficult to discern where these may have been distinctly articulated as concise targets, including key indicators. Suggest that this may need to be rectified if this finding is indeed valid. • MSQ does have clearly articulated objectives, with some measurement criteria, for the implementation of REEFVTS. • Performance targets associated with environmental performance, vessel strike, underwater noise and biosecurity have not been set		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Additionally, broader overarching targets associated with shipping generally (e.g. reduction in incidents) have not been set			
OUTPUTS					
OP1 To date, the actual management program (or activities) have progressed in accordance with the planned work program for shipping	4	• Substantial progress has been made to the implementation of actions under the NESMP, with ongoing reviews to ensure reprioritisation and/or introduction of new actions as relevant. • Uncertain on status of actions under Reef 2050, including: – 3.7 Investigate and implement measures that reduce noise and light impacts – 3.8 Enhance marine and island pest surveillance and prevention (including biosecurity) – 3.9 Implement domestic measures that reduce marine debris and manage waste disposal. • Progress of actions under the Marine Pests Plan and National Strategy for Reducing Vessel Strike is unknown	• Review of the North East Shipping Management Plan	Limited	Stable
OP2 Implementation of management documents and/or programs relevant to shipping have progressed in accordance with timeframes specified in those documents	4	• It is understood that implementation under the NESMP and Reef 2050 Plan is occurring within preferred timeframes, noting that reprioritisation occurs under the NESMP as part of regular reviews. • Status of actions under the Marine Pests Plan and National Strategy for Reducing Vessel Strike is unknown although it is acknowledged that action on marine pests is slower than expected.		Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OP3 The results (in OP1 above) have achieved their stated management objectives for shipping	3	• As implementation of actions is ongoing it is difficult to determine if management objectives have been met. • Success is generally characterised by the absence of incidents. Nevertheless, shipping within the GBR in general terms continues to be conducted safely and with minimal long-term deleterious environmental outcomes.	• Review of the North East Shipping Management Plan • AMSA Annual Reports	Limited	Stable
OP4 To date, products or services have been produced in accordance with the stated management objectives for shipping	4	• Implementation appears to be sufficient, with a number of actions of both the NESMP and Reef 2050 implemented effectively.	• Review of the North East Shipping Management Plan • AMSA Annual Reports	Adequate	Stable
OP5 Effective knowledge management systems regarding shipping are in place within agencies	3	• Effective knowledge management system understood to be available within shipping regulatory agencies, • MSQ's and AMSA's AIS monitoring systems allow real-time monitoring and intervention in relation to vessel traffic in the GBR. • AMSA, MSQ and Reef Authority have their own database of shipping incidents. Lack of central or shared databases, and no shared situational awareness type database across AMSA / Reef Authority / MSQ may be counter-productive to the interests of management effectiveness. • Rapid access to GIS information (visualisation and layering of info) is an area of weakness for agencies where incident response staff must rely upon other agencies to provide assistance.		Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• National ship strike database for cetaceans possibly not being actively used by management and industry in the GBR.			
OP6 Effective systems are in place to share knowledge on shipping with the community	2	• While community disquiet regarding shipping remains (although at a lower level), it is often misplaced, and it may be considered that current systems are inadequate in this regards. • AMSA and MSQ have useful public webpages in relation to shipping, • The Reef Authority's LMACs are available as a two-way information conduit.		Adequate	Stable
OUTCOMES					
OC1 The relevant managing agencies are to date effectively addressing shipping and moving towards the attainment of the desired outcomes.	4	• In the past decades, there has been significant reduction in grounding by ships and vessels (following introduction of REEFVTS in 2004 and ongoing improvements in shipping controls).		Adequate	Stable
OC2 The outputs relating to shipping are on track to ensure the values of the Great Barrier Reef are protected (refer CO1)	3	• See OC1. Overall habitat and water values are generally well managed through effective controls on navigation, safety, pollution and incident response. • As controls remain weaker or less certain regarding fauna strike, underwater noise and biosecurity, there is further work to protect reef values associated with these risks.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC3 The outputs (refer OP1 and 3) for shipping are reducing the major risks and the threats to the Great Barrier Reef	3	• The outputs noted in OP1 to OP6 are on track to addressing the key risks identified for shipping to the GBR, being maritime incidents and pollution. • However, as there are not clear objectives for the biosecurity, vessel strike and underwater noise, there is opportunities to improve outputs with relation to GBR values.	• See OP1 and OP3	Limited	Stable
OC4 Use of the Great Barrier Reef relating to shipping is demonstrably environmentally sustainable	4	• This is agreed, at current and short to mid-term forecast levels of shipping, noting there remains uncertainty regarding the use of key channels and passages with emerging effects of climate change. • Turbidity and wake effects in shallow/narrow passages and channels may also be a limiting factor, for which more research and evaluation is required. Turbidity effects may be exacerbated in locations where UKCM employed.		Limited	Stable
OC5 Use of the Great Barrier Reef relating to shipping is demonstrably economically sustainable	4	• The value of shipping to regional and national economies is well documented. Earnings would seem to exceed costs, hence suggesting economic sustainability		Adequate	Stable
OC6 Use of the Great Barrier Reef relating to shipping is demonstrably socially sustainable understanding and/or enjoyment	4	• The Zoning Plan provides for a multi-use Marine Park that allows for a range of both commercial and recreational activities for the benefit and enjoyment of the community, intended to be consistent with conservation objectives. • Risks associated with potential user-conflict may arise as a result of increases in shipping activity and/or recreational		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and other activity, although should be manageable if preceded by effective planning. • Coastal communities and those in the hinterland are reliant to varying extents on ports and shipping for the import/export of goods and services and local/regional economic activity.			
OC7 The relevant managing agencies have developed effective partnerships with local communities and/or stakeholders to address shipping	4	• There are effective partnerships among AMSA, MSQ and the Reef Authority -- the key shipping management stakeholders. • North East Shipping Management Group and its working groups provide for project/issue level consultation and engagement between key stakeholders. • MoU exists between Queensland Ports Corporation and Reef Authority. • The need for community engagement re shipping, cf. management of other aspects of GBR Region, is considered to be modest. Nevertheless, effective partnerships are valuable and would appear to be being nurtured by North East Shipping Management Group and the Reef Authority.		Adequate	Stable

Traditional Use of Marine Resources

Table 50: Calculation of grades for Traditional Use of Marine Resources

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
CONTEXT					
CO1 The **values** of the Great Barrier Reef relevant to traditional use of marine resources are understood by **managers**	3	• Aboriginal and Torres Strait Islander peoples are managers of their Sea Country and partners in wider Reef planning and management in relation to the traditional use of marine resources (Traditional Use) • Other managers include the Reef Authority, and a range of government agencies, non-government organisations and Reef users (e.g. shipping, fishing, tourism etc), research organisations and others that are involved in Reef management, all of whom have a good knowledge of Reef values. These values are described in a range of legislation, documents, plans and strategies that are in place to manage the Reef (refer PL1, PL2 and Table 29). • **The values of the Reef relevant to Traditional Use are understood by managers to the following extent**: – Aboriginal and Torres Strait Islander peoples are the Traditional Owners of the Reef Region. – There are over 70 Reef Traditional Owner clan groups that have a deep knowledge of the Reef's values, this knowledge extending back for over 60,000 years. Most of these groups maintain heritage values for their land and sea country.	Traditional use of the Marine Park Outlook 2019 (chapters 4 and 5.9) As part of the permitting process (through Environmental Assessment and Management section), assessment criteria which considers cultural values are addressed – specified in the Reef Authority Regulations 2019 Land and Sea Country | Reef Knowledge System Maps | Reef Knowledge System Planning | Reef Knowledge System	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– These **values may be cultural, spiritual, economic, social or physical**, and demonstrate continuing connections with the Reef and its natural resources. – Traditional Use is the undertaking of activities as part of Aboriginal and Torres Strait Islander people's cultures, customs or traditions, for the purpose of satisfying personal, domestic or communal needs. These activities may include: fishing; collecting (for example shellfish); hunting (or harvesting); and looking after cultural and heritage places. – Many Traditional Owners undertake Traditional Use to practice 'living maritime culture', provide food for families and pass on knowledge about traditional use rules, practices, protocols and language to younger generations. – The Reef's World Heritage status incorporates '**Outstanding universal value**' (the Reef meets all four World Heritage natural criteria and has strong ongoing links between Traditional Owners and their sea country) – The Reef's national heritage incorporates '**Outstanding value**' – Commonwealth heritage includes '**Significant heritage value**'. • 'The Reef is Country. The Reef is our Heart and the water is the lifeblood that connects us all. She is our Family. The Reef is an extension of Us and we are an extension of Her. The Reef looks after us, feeds and protects us, and keeps us	Strategy | Reef Knowledge System Reef Annual Report 2019-2020 Annual Report 2020-2021 Performance: Reef 2050 Plan - p50 Reef Annual Report 2021-2022 Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		healthy. She's the keeper of our stories, our Lore. Without her we will suffer irreversible effects to our identity' (Heart of the Reef – A Call for Healing). • While many Traditional Owner groups have good knowledge of values, this is **not uniform across the Reef**. '*Every group is different. Some groups are well-established and express their culture and others are learning their way*' (Workshop participant 2023). Information on Indigenous Heritage values is '*location specific – where the Reef Authority is engaging, we have a reasonable understanding*' (Workshop participant 2023). • Many Traditional Owners undertake Traditional Use activities to: – Educate younger generations about traditional and cultural rules, protocols, practices and activities on sea country – Practice their living maritime culture – Provide traditional food for families – Protect language relating to words for fish, coral, dugong etc and associated practices. • For thousands of years the Reef Region has been an **important resource and valued Sea Country** for Traditional Owners. However, Traditional Owner connections with the Region stem back even further, ~60,000 years, to when much of the Region was above sea level. **Traditional Owner connection to Sea Country within the Region continues to be practiced and maintained according to traditional**			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		customs and spiritual lore, reflecting the ongoing stewardship and custodianship. The continuing sea country management and custodianship of the Reef by Aboriginal and Torres Strait Islander Traditional Owners provides immeasurable benefit. • The Reef Authority's partnership with Traditional Owners under the TUMRA (Traditional Use of Marine Resources Agreements) program incorporates a shared science, knowledge and environmental management for the ongoing protection of the Reef and the management of its cultural and natural resources as matters of Outstanding Universal Value are provided as ecosystem services through the TUMRA Program. • Traditions are of high cultural importance, while social sharing during special events that require traditional resources is also critical to maintaining culture. Traditional Owners hold many cultural, economic and spiritual connections to the Region; establishing effective partnerships with them helps protect cultural and heritage values, conserve biodiversity and enhance the resilience of the Reef. • Many Aboriginal and Torres Strait Islanders undertake Traditional Use to practice a sustainable 'living maritime culture'; provide traditional food for families and educate younger generations about traditional and cultural rules, protocols and activities in sea country.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• A foundational concept of Traditional Use is that it is a sustainable practice and is handed down through generations. The custom and lore that support this use are there to provide for longevity. • The TUMRA program includes 10 accredited agreements, which support 18 Traditional Owner clan groups, covering approximately 43 per cent of the coastline (refer PL2). An Indigenous Land Use Agreement (ILUA) (Kuuku Ya'u) brings the total approximate coverage of agreements to 46 per cent. Each agreement has a committee to manage the agreement and traditional use of marine resources in their Sea Country, including traditional take, if any of important species such as dugongs and turtles (Annual Report 2021-2). – TUMRAs recognise and support Traditional Owner lores and customs with a robust legislative framework under the Marine Park Act 1975, Great Barrier Reef Marine Park Regulations 2019 and Great Barrier Reef Marine Park Zoning Plan 2003. – They are a unique partnership agreement that recognises and supports the Native Title rights and interests of Traditional Owners who hold an inherent spiritual connection to the Reef. The management of traditional use is based on cultural lore and contemporary science. – The TUMRA incorporates specific management strategies for the conservation and sustainable use of key species and habitats; restoring and maintaining waterways and coastal ecosystems, maintenance and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		protection of significant heritage values including important places, traditional ecological knowledge, culture and language; research and monitoring of sea country including partnerships with the Reef Authority and other leading scientific institutes and individuals; leadership and governance including knowledge management; education and information exchange; and compliance. They can describe how Traditional Owner groups wish to manage their traditional use of marine resources; their role in compliance, research and monitoring of plants and animals; the protection of cultural heritage values and the management of human activities in the Marine Park. – TUMRA groups have utilised their TUMRAs in many different ways to support their Sea Country management aspirations. These activities included employing TUMRA coordinators, ranger training, protecting heritage including lore and customs, research and monitoring, junior ranger programs, communications and education, and on-ground activities. • Sea Country values mapping has been conducted in many TUMRA regions to assist in understanding the cultural values of specific Traditional Owner Sea Country. The first publicly available product is from Mandubarra Traditional Owners (2019-20) (Manduburra Sea Country Cultural Values).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Indigenous Land Use Agreements** (ILUAs) are between one or more native title groups and other people or parties about the use and management of land and waters. • Woppaburra Traditional Owner Heritage Assessment Guidelines (2017) developed with Woppaburra Traditional Owners map the cultural heritage values in the Keppel Islands region to help inform permit assessments by the Reef Authority. The Guidelines provide detailed information on values related to sacred sites, structures, technology, tools, archaeology, stories, songlines, totems, languages etc. • **Traditional Owner heritage assessment guidelines** (2017) provide an overview of Traditional Owner heritage values in the Marine Park, along with potential impacts to their values if exposed to hazards (potentially from proposed activities). • **Raine Island Recovery project** is a partnership with Traditional Owners and park managers to monitor the values and restore the Island where the values are being impacted. • Indigenous Reef Advisory Committee (IRAC) advises the Reef Authority Board on its management, programs and policies. Advice from the Committee should help to ensure its management, programs and policies consider and include Traditional Owner aspirations and recommendations. • Policy and Planning Strategic Roadmap aims to better protect key Reef values, enable ecologically sustainable use and work with Traditional Owners and partners, including the tourism industry.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The TUMRA Traditional Owner groups have utilised their TUMRAs in many different ways to support their Sea Country management aspirations, including employing TUMRA coordinators and support officers, mapping cultural sites to improve their protection, providing input and advice on permit referrals (e.g. through the implementation of the Woppaburra Heritage Assessment Guidelines, and for the temporary extension to the tropical rock lobster fishing ground), researching and monitoring activities, a wide and diverse range of on-country activities, attending local events to raise awareness of their TUMRA and Sea Country management activities, and developing TUMRA-specific communication and education products. The TUMRA Program also supported renegotiation discussions within the existing TUMRA groups, with a number of TUMRAs expected to be submitted for accreditation in 2020–21. • Traditional Owners of the Reef have long expressed their **expectation and desire to partner in the decision-making and management of the Marine Park**. The Reef Authority is developing options to increase **co-management** through its management tools and programs. • Management is enhanced through partnership arrangements with Traditional Owners; local, state and federal government agencies; scientists; industries; businesses and the community. Traditional owners, industry and community advisory groups provide input into the management process.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Please refer to PL2 where a range of relevant plans, strategies and projects are described, many of which contain statements relating to Traditional Use and related values. – Reef 2050 Traditional Owner Implementation Plan (2022) – Aboriginal and Torres Strait Islander Heritage Strategy (2019) reflects Indigenous heritage values. – The Joint Field Management Program provides opportunities for managers to work with Indigenous rangers and Traditional Owners to better understand values. – Proposed new Plan of Management in the Southern Region will identify values including Traditional Use. – Reef Guardian Councils (19) include actions relevant to the protection of Indigenous Heritage values in their 2020-24 Reef Guardian Council Action Plans. – Reef Knowledge System provides key links and information relevant to Indigenous heritage and values. – Traditional Owners of the Great Barrier Reef: The Next Generation of Reef 2050 Actions (2019) - identifies core values, aspirations and plans regarding the governance and management of Sea Country. – Strong Peoples-Strong Country Indigenous Heritage Monitoring Framework (RIMReP) (2019) showed how the health and condition of the Reef is connected to the quality of life of Traditional Owners.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **Reef 2050 LTS Plan** (2021) acknowledging Traditional Owners values and aspirations for protecting the Reef. – **Traditional Use of Marine Resource Agreements** – focus on values – TUMRA program and Sea Country Values (SCV) Mapping projects – **RIMReP** -social and economic monitoring under SELTMP identify values. • Several guidelines and policies improve protection of Indigenous heritage values, e.g. Woppaburra Traditional Owner Heritage Assessment Guidelines, **Historic heritage assessment- other places of historic and social significance, Traditional Owner Heritage assessment Guideline** (refer PL2). **Challenge:** • Recognising and addressing the impacts of increased development, including infrastructure, in remote areas and the potential for impact on Traditional Use along the coast.			
CO2 The current **condition and trend of values** relevant to traditional use of marine resources are **known by managers**	3	• The condition and trend of values relevant to Traditional Use are closely linked to the condition of the Reef's natural values and natural heritage values. • Condition and trend of the values relevant to biodiversity (refer Biodiversity Topic, Table 32) are independently assessed every five years as part of Outlook Reporting for the Reef 2050 LTSP. (Note indicators PR 9,10,11,12 address monitoring, which is the basis for determining condition and trend).	Outlook 2019 Land and Sea Country | Reef Knowledge System Research and monitoring | Reef Knowledge System Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• However, State agencies such as the Threatened Species Unit (DES) have limited capacity to assess Traditional Use of Marine Resources within TUMRAs (Workshop participant 2023). • '*There has been so much damage to our Country and she is struggling to recover from threats on a scale never faced before. Country is stressed, Country is crying*' (Heart of the Reef – A Call for Healing). • Some natural values which are relevant to traditional use of marine resources, such as coral reefs, seagrass beds and some species (e.g. turtles, dugong) are well studied and Traditional Owners, in general are aware of their condition and trends. However, the ongoing impacts of climate change, combined with other stressors such as sediment input, COTS and others can result in rapid change in the condition of diverse components of the Reef. • There is a paucity of **information recorded or known about the location, condition and trend of some Indigenous heritage values.** • The Toolkit for safeguarding Indigenous heritage and knowledge (Markwell & Associates 2020) (RIMReP) - Provides a framework for making formalised agreements through the Protocol, Guidelines and Indigenous Knowledge Sharing Agreement Template - Protocol articulates best practice principles and objectives for parties engaging with Reef Traditional Owners - Guidelines provide advice on establishing and implementing best practice standards and principles to			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		follow when engaging and negotiating with Reef Traditional Owners to safeguard their heritage and Indigenous Knowledge. • Several monitoring programs are in place to track condition and trends and Traditional Owners and other managers are aware of these programs and their results: - IMR RTP Sustainable use and benefits monitoring project (SEABORNE) (2021-2024) will design a monitoring program to help managing agencies make informed decisions sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values. - IMR RTP Integrated Reef stewardship monitoring project (PROTECT) (2021-2024) - will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes. This will provide information on condition and trend in relation to Traditional Use. No results yet - IMR RTP Monitoring collective capacity and implementation (Governance) (2021-2024) - will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. This will provide information on condition and trend in relation to Traditional Use. No results yet.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		- **Reef Knowledge System** provides links to research and monitoring relevant to Indigenous heritage. The Land and Sea Country Research and Monitoring page provides links to research and monitoring relevant to Traditional Use. - **Sea Country Values mapping project** is built upon Traditional Lore, Customs and Cultural Authority governance systems led by saltwater Traditional Owner groups. - **Integrated Monitoring and Reporting Traditional Owner Technical Working Group** was formed in 2020. Selected Reef Traditional Owner groups will be funded to hold pilot projects to **test ways to monitor and report on the condition of their community and Country**, and to keep track of any changes over time. Indigenous heritage indicators are being developed to measure condition and trend. The framework will guide monitoring of the health and condition of Reef, People and Country in the pilot projects, according to Traditional Owner values, priorities and aspirations. - Many community groups undertake monitoring of culturally significant species and their habitats (e.g. dugong, seagrass). - **Specialised Indigenous Rangers Program** – rangers are on-ground observing condition and trend of a range of values and guiding management.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		- Monitoring of culturally significant (cultural keystone) species and their habitats are undertaken by numerous Traditional Owner Groups along the Reef (refer Yirrganydji TUMRA).. • **Human Use Dashboard** project (2021-2023) aims to produce a prototype dashboard that will provide access to human use data to Reef managers. The user-friendly interactive dashboard is dynamic and responsive and has functionalities including maps, filters and graphs. It uses the IT Cloud environment to allow for data flow. This tool will provide contextual data for geographic areas about human use, types of non-compliance offences etc. • **TUMRA newsletters** showcase monitoring programs and results. Challenge: • **Monitoring is restricted in spatial extent** and hence understanding of condition and trend are limited to these areas and specific species/ecosystems. Existing monitoring represents about 40% of the environmental regimes of the Reef (Bozec et al. 2022).			
CO3 **Impacts** (direct, indirect and cumulative) associated with traditional use of marine resources are	3	• CO2 addressed the range of monitoring programs that are in place to track the condition and trends of various components of the Reef. • Plans, strategies and actions to address impacts associated with Traditional Use are discussed in PL2.	Commonwealth Threatened Species Action Plan Workshops	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
understood by managers.		• Aboriginal people and Torres Strait Islander people have a **right to continue their cultural practices** within their own Sea Country in the Marine Park. This includes Traditional Use through activities such as **collecting, hunting and fishing**. While Traditional Owners have Native Title rights to conduct Traditional Use activities, many Traditional Owners also recognise **conservation concerns** in relation to several species including **green turtle and dugong populations**. • **Traditional Owner Heritage Assessment Guidelines** provide an overview of Traditional Owner heritage values in the Marine Park, along with **potential impacts to their values** if exposed to hazards (potentially from proposed activities). • Impacts such as **coastal development, habitat degradation, boat strikes, pollution, netting and sedimentation** as well as legacy impacts have affected Traditional Owners' use of the marine environment. Traditional Owners are now working in partnership with the Reef Authority to conserve and protect species and ecosystems critical to the health of people, culture and country, including through development and implementation of Traditional Use of Marine Resources Agreements (TUMRAs). • Any impacts attributable to traditional use of marine resources undertaken according to customs and traditions are considered to have only **minor or localised effects**. This is distinct from any illegal poaching of species of conservation concern undertaken without the customary approval of the relevant Traditional Owners.	Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Some **direct impacts (such as conflicting use, disturbance to cultural sites)** are known to the Reef Authority and are addressed, to some extent, through existing planning tools and permits. - '*More people are coming to Sea Country (e.g. due to advances in boat technology, tourism operations), with potential for increasing impacts on marine resources. The impacts of these activities are not often understood or appreciated in terms of the loss of knowledge about Sea Country and impacts on culture. We need to consider a cap on tourism and tracking devices on vessels and manage to reduce the impact of users'* (Interviewee 1, 2023). • The Reef Authority's more limited spatial understanding **of cultural heritage values of the Reef** (refer CO2) may result in **some direct and indirect impacts occurring** without the knowledge of the Reef Authority. • Climate change impacts (refer Biodiversity Topic Table 32) resulting from warming seas, ocean acidification and cyclones are predicted to continue and will impact the Reef's ecosystems and species and subsequently Traditional Use. • **Cumulative impacts of Traditional Use** in combination with multiple other stressors are less well understood due to the difficulty of characterising biological responses across ecological scales, as responses to a stressor can be complex, variable in space and time and compounded with other stressors or ecological processes… multiple stressors that			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		affect different demographic processes are difficult to combine and may result in complex responses (Bozec et al. 2022). - Queensland Marine Turtle Conservation Strategy 2021-2031 addresses Traditional harvest of marine turtles and states that this take 'is not the primary cause of the dramatic decline in the populations of many species of marine turtles' (p.13). • **Woppaburra guidelines** provide location specific information about threats and impacts in this area (Kepple Islands). • **The accreditation process for TUMRAs includes assessment of impacts**. Since 2019 the following accreditations were granted: - GT19/38451.1 Girrigun TUMRA commenced 6/11/2019 (renewal of GT10/33326.1) - GT19/39153.1 Port Curtis Coral Coast TUMRA commenced 2/04/2019 (renewal of GT11/34434.1) - GT21/46061.1 Darumbal TUMRA commenced 29/11/2021 (new TUMRA) **Challenge:** • Improving modelling to help understand the cumulative impacts of multiple stressors across the life cycles of various species, including corals (Bozec et al. 2022).			
CO4 The **broader** (national and international) level influences relevant to traditional	4	• Managers, in particular the Traditional Owners have a good understanding of international and national influences that relate to Traditional Use.	Convention on Biological Diversity - Article 8 (J):	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
use of marine resources are **understood by managers**.		• **International** level influences relevant to Traditional Use include: – Management is guided by Australia's obligations under relevant international conventions, including Convention concerning the **Protection of the World Cultural and Natural Heritage, 1972** – **Convention on Biological Diversity, 1992** (the Australian Government has committed to respect, preserve and maintain the knowledge, innovations and practices of Indigenous communities (Article 8j) and to protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements (Article 10c). – **Declaration on the Rights of Indigenous Peoples** affirms that Indigenous people have the right to: **be consulted in good faith** in order for governments to obtain their **free, prior and informed consent** before adopting and implementing legislative or administrative measures that may affect them (Article 19); **determine and develop priorities and strategies** for exercising their right to development (Article 23); determine and develop **priorities and strategies** for the development and use of their lands or territories and other resources (Article 32). – The United Nations Guiding Principles on Business and Human Rights 2011	Traditional knowledge, innovations and practices		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– The Indigenous and Tribal Peoples Convention 1989 – The Convention for the Safeguarding of the Intangible Cultural Heritage 2003 – Increased awareness of **biosecurity measures** and the need to prioritise national action and strategies. – Knowledge of **climate change** and the need to mitigate and adapt to the impacts of climate change, including threats to reef species, including corals, increased erosion, cyclone frequency and intensity, and flooding etc. • National – Commonwealth *Great Barrier Reef Marine Park Act* and its supporting Great Barrier Reef Marine Park Regulations 1983 (refer PL2) – *Environment Protection and Biodiversity Conservation Act 1999* - regulates actions that have, will have or are likely to have, a significant impact on matters of national environmental significance. – the Independent Review of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) found that the **Act fails to respect and harness the knowledge of Indigenous Australians to better inform how the environment is managed** and that the Act **overtly prioritises the views of Western science** at the expense of the knowledge and values held by Indigenous communities. Despite their involvement in land/sea			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		protection the EPBC Act **does not incorporate the rights of Indigenous Australians in decision making** and stated, '[r]eform is needed to ensure that Indigenous Australians are listened to and decision-makers respectfully harness the enormous value of Indigenous knowledge of managing Country'. There was a call for 'the inclusion of Indigenous knowledge in all decision making.' – *Native Title Act 1993* – the Reef Authority recognises the continued existence of native title rights and interests and provides for management of traditional use of marine resources in accordance with Traditional Owner customs and traditions; and protects native title and includes a mechanism for determining claims to native title. – Aboriginal and Torres Strait Islander Heritage Strategy (2019) (refer CO1) identifies a range of influences on Indigenous heritage and aims to improve the condition of Indigenous heritage values in the Marine Park. It includes Guiding Principles reflecting national and international best practice and actions which operationalise these principles across the Marine Park. – A range of agreements, plans (e.g. Plan of Management) and strategies relating to the conservation of threatened species and relevant international obligations. The Reef Authority recognises that for many species, e.g. Hawksbill turtle, the impacts on their take outside of Australia are unsustainable and may impact Reef species including migratory species.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Increased awareness of **biosecurity measures** and the potential impacts of invasive island and marine pests on traditional resources particularly facilitated by the *Biosecurity Act 2014* (Qld) and the 2017 QPWS Be Pest Free campaign.			
CO5 The **stakeholders** relevant to traditional use of marine resources are well **known by managers**.	4	• Aboriginal and Torres Strait Islander peoples are managers of their Sea Country and partners in wider Reef planning and management in relation to the traditional use of marine resources (Traditional Use) (refer CO1). The Traditional Owners from the Reef Region have agreements covering about 45% of the Region's coastline (i.e. TUMRA, ILUA etc) and have been practicing their traditions and culture for over 60,000 years. • Other stakeholders include the Reef Authority, and a range of government agencies, non-government organisations and Reef users (e.g. shipping, fishing, tourism etc), research organisations and others that are involved in Reef management, all of whom have a good knowledge of Reef values. • **Great Barrier Reef Marine Park Authority Actor Network Mapping project: Mapping working agreements between the Marine Park Authority, partners, stakeholders, and community of practice:** This project maps the existing actors within a network that connects the Reef Authority to the organisations and institutions they engage for research and management practice. This project has three overarching goals. Firstly, to provide information to the Reef Authority's	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		science for management sector that will help inform future work. Secondly, to identify gaps in existing Reef management partnerships. Thirdly, to help inform management decision-making process by identifying actors in the Reef management landscape solely from a Reef Authority centric perspective. • The **Reef Authority** fosters Indigenous community engagement through: - Reef Authority **Marine Park Board** has had a Traditional Owner from the Reef Region as a member since about 1996, contributing to the setting of policy and management direction for the Marine Park (4 x pa) - **Indigenous Reef Advisory Committee** (IRAC) - advises on ways to facilitate partnerships, enhance engagement and build capacity with Traditional Owners in the management of marine resources (meets twice each year). The IRAC meets regularly (face to face and online) and members feel that they are able to make suggestions and have 'more sway' (Interviewee 1, 2023). - **Tourism Reef Advisory Committee** has three Traditional Owners (meets about twice each year). - **Reef 2050 Reef Advisory Committee** membership was expanded to include a male and a female Reef Traditional Owner, along with a proxy member for each. - **LMACs** - key members from local Indigenous communities were encouraged to nominate for the 2021-24 LMAC term. LMACs meet four times a year and currently have eight			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Traditional Owner members, and five people that represent the Indigenous community (5x pa). - **TUMRA**s (a formal management tool used by Traditional Owners to develop unique partnerships with the Reef Authority and the DES) - they are made in accordance with Part 2B of the Regulations. - Science and Management Workshops for Traditional Owners - Compliance training - **Engagement and Participation Framework** (refer PR3) - the **Reef Joint Field Management Program** – which has a specific work strategy on Indigenous engagement - Traditional ecological knowledge projects - Woppaburra project - **Reef Knowledge System** currently hosts several Land and Sea Country webpages, which provide key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community. - Sea Country values mapping project (refer CO2, CO3).			
PLANNING					
PL1 There is a **planning system** in place that effectively addresses	3	• Planning is an important activity and structure of governance, that shapes the organisation of space and helps to fulfill relationships with place (Porter 2017).	Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
traditional use of marine resources		- Traditional Owners have always had their **own planning systems** (i.e. often community based, applying to Indigenous places, applying Indigenous knowledge and world views and making decisions using accepted processes, institutions and management). • The planning system for the Reef as a whole is beginning to 'connect' state-based planning with Indigenous planning including TUMRAs through facilitated partnerships, collaboration and co-governance but '*we have a fair way to go in terms of meeting Traditional Owners' expectations of how the Reef Authority needs to support planning and management of Sea Country in the Marine Park*' (Workshop participant 2023). - '*Planning is flatlining. All we are doing is the basics. It is not innovative or addressing Traditional Owner perspectives*' (Interviewee 1, 2023). • Traditional Owners have **maintained strong links with their country** and are trying to secure a future that acknowledges their complex and continuing relationships between them and their environment. Planning has an important role to play. However, in terms of planning Traditional Owners '**treat land and sea country as a whole -land, sky, water, substrate and spiritual connections are well embedded and guide cultural heritage**' (Workshop participant 2023). • **Reef planning operates at several scales (international to local) and incorporates both marine and terrestrial** components. The system comprises complex layers of			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		legislation, plans, strategies, agreements, conventions etc (refer PL2 for a comprehensive list of relevant documents) that are developed and overseen by various jurisdictions (e.g. government, non-government institutions and organisation). • Land/sea use planning in general has been **slow to effectively involve Traditional Owners** or consider their rights. • An **effective Reef planning system should be socially inclusive, engaging with Traditional Owners on their own terms in in their own way**. Indigenous peoples have planning traditions and practices that have existed and transitioned over time. The overall Reef planning system accepts, to some extent, the legitimacy of Indigenous planning and is trying to understand its knowledges, processes and institutions. Refer Indigenous heritage topic, Table 41 and CO4 and PL1 where various international and national level legislation, declarations, plans and policy statements are discussed relating to Indigenous planning and the related planning system. • The **planning system has struggled to facilitate Traditional Owners in building their capacity** through organisations that reconnect people to land/sea country and enable Indigenous law and practice and ensuring that Traditional Owners meet their needs, achieve their goals and practicing tradition and culture. However, there are signs that the structural and procedural framework that enables Traditional Owners to meaningfully participate in planning is changing with some planning undertaken by Traditional Owners, others by non-			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Indigenous communities, and some bridging the two within a more balanced set of power relations. • Indigenous Land use Agreements – provide a framework for reclaiming and using planning to realise local visions for land and sea country. • TUMURAs - acknowledge that Traditional Owner planning, carried out by Traditional Owner communities exists beyond 'mainstream state-based planning, as an important form of planning in its own right (refer PL2). • The Reef Authority has agreed to move to implementing **Co-management including Plans of Management**, S39za coupled with formal partnerships. Scoping options to improve co-management are being progressed. A best practice literature review and analysis of Traditional Owner aspirations was completed. • Values Based Management Framework which guides the management of island protected areas. Consultation and joint planning are promoted and encouraged through this process and traditional owners have had extensive input into management planning for a growing number of protected areas. Planning for CYPAL parks occurs through a joint management process. • **Traditional Owner representation**: - **LMACs** - share their views and values with managers. - **Indigenous Reef Advisory Committee (IRAC)** - advises the Reef Authority Board on its management, programs and policies. Advice from the Committee ensures its planning			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and management, programs and policies consider and include Traditional Owner values, aspirations and recommendations. • Planning scholarship has limited engagement with Indigenous perspectives and practicing planners within this system may often fail to understand and effectively address Traditional Owner visions. Challenges: • There is no one planning system that reflects all Traditional Owner groups – '*there are lots of clan groups with different ways of organising themselves….and this takes place over a very large area*' (Workshop participant 2023). • Moving at a faster pace to develop co-management arrangements with Traditional Owners –'*we are behind where we should have been*' (Workshop participant 2023). • 'A *lot of players are striving to get attention and this requires streamlined permissions and Sea Country values mapping*' (Workshop participant 2023). • In relation to underwater heritage '*a lot of now submerged land used to be on the land. Traditional Owners have rights to underwater space, although there are limitations in relation to shipwrecks and aircraft….*' (Workshop participant 2023). • Several planning instruments lack flexibility, including the ability to address Traditional Owners' aspirations (Workshop participant 2023).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The *Planning Act 2016* (Qld) does not consider Traditional Owners effectively (only s5 mentions Traditional Owners) and consideration should be given to improving this legislation (Workshop participant 2023).			
PL2 **The planning system** for traditional use of marine resources addresses the major factors influencing the Great Barrier Reef Region's **values**.	3	• There is a complex planning system in place for Traditional Use (refer PL1) and this is supported by a range of legislation, plans, policy, strategies, guidelines that together aim to address the major factors influencing the Reef Region's values. (Refer C04 for international and national level influences). • There have been significant outcomes in relation to TUMRAs. • The **Commonwealth and the State government have agreed to fund the establishment** of an **Indigenous Coordination Taskforce** that includes a **Board and a Coordination Unit** staffed with secondee roles from both the commonwealth and state to initially establish the Board and Coordination Unit. **Key components of the planning system** relating to Traditional Use of Marine Resources include: **Legislative and regulatory provisions:** • Zoning Plans - provide spatial control of use and, to a lesser extent, access within the Marine Park. It establishes the framework for extractive use and the need for permits for some uses. Zoning plans are developed under Part 5 Division 2 of the Great Barrier Reef Marine Park Act 1975. Complementary	Corporate Plan Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		arrangements are in place in adjacent areas under Queensland jurisdiction. - recognise that under the Native Title Act, common law rights and interests can be expressed by Aboriginal or Torres Strait Islanders in relation to their land and waters and certain rights and interests are preserved unless extinguished; or, if the activity does not meet the definition of rights and interests (e.g. commercial sale of turtle meat) (GBRMP Act (Cwlth) and Great Barrier Reef Coast Marine Park Act (Qld). - acknowledge the rights and interests of Aboriginal and Torres Strait Islanders in the Marine Parks by providing for the management of the Traditional Use, including traditional hunting, in accordance with Aboriginal and Torres Strait Islander custom and tradition. • Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (C'wlth) • *Great Barrier Reef Marine Park Act 1975* (s2A) • An accredited Traditional use of marine resources agreement (TUMRA) (part 2B of the Great Barrier Reef Regulations 1983) is a voluntary statutory agreement between Traditional Owners as to how they want to undertake activities (within the Marine Parks) as part of Aboriginal and Torres Strait Islander people's customs or traditions, for the purposes of satisfying personal, domestic or communal needs. Once accredited, these agreements only bind the Traditional Owners who are party to the agreement.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		- The TUMRA is based on Traditional Owner-designed and led Sea Country management agreements in the Marine Park. - **10 accredited** TUMRAs, which support 18 Traditional Owner clan groups, covering approximately 43% of the coastline. An Indigenous Land Use Agreement (Kuuku Ya'u People) brings the total approximate coverage of agreements to 46%. - TUMRAs include Wuthathi; Lama Lama; Yuku Baja-Muliku; Yirrganydji; Gunggandji; Mandubarra; Girringun; Darumbal; Woppaburra; Port Curtis Coral Coast. - TUMRAs recognise and support Traditional Owner lores and customs within the legislative framework of the Marine Park Act 1975, Great Barrier Reef Marine Park Regulations 2019 and Great Barrier Reef Marine Park Zoning Plan 2003. The partnership agreement recognises and supports the Native Title rights and interests of Traditional Owners who hold an inherent spiritual connection to the Reef. - Through the agreement process, Traditional Owners agree on a range of complex matters, including maritime estates (where lore governs boundaries). TUMRAs can describe how Traditional Owner groups wish to manage their traditional use of marine resources, including sea country planning and harvest areas, community permits and compliance plans, their role in sea country compliance (including unauthorized practices – poaching), research and monitoring of plants and animals; the protection of cultural			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		heritage values and the management of human activities in the Marine Park. - The Reef Authority has commenced new partnerships in developing two new marine resource agreements. - TUMRA group activities include, employing marine resource agreement coordinators, junior ranger programs and, recording/promoting/protecting heritage values such as burial sites, song/ storylines, women's/men's places and fish traps. Marine resource agreement groups also conduct mangrove/coral/water quality and seagrass research and monitoring projects. These projects include ongoing monitoring of iconic species such as turtle, dugong, crocodile, stingrays and swordfish on Country. - The Reef Authority has established a general policy and planning section that includes staff with TUMRA expertise working to strengthen and expand TUMRAs. • In 2023 - jointly managed island national parks (Cape York Peninsula Aboriginal land) have been dedicated under four separate Indigenous Management Agreements. These agreements have a strong cultural values protection and management focus. • Persons who are not Traditional Owners for the area must obtain permission from the Traditional Owners (or the Managing Agencies if applicable) to hunt in a particular area. This permission may be in the form of an authorisation/permit under an accredited TUMRA or a permit from the Managing Agencies under the Zoning Plan.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		- It is the preference of the Managing Agencies that traditional use is undertaken by Traditional Owners and authorised Aboriginal and Torres Strait Islanders (who have the permission of the Traditional Owners) under accredited TUMRAs i.e. the managing agencies are unlikely to grant permission to someone for Traditional Use, if that person is not a Traditional Owner for the particular area, unless the Traditional Owners for that area have approved such activity. - The Managing Agencies are unlikely to grant permission to someone for an activity that is likely to significantly impact on Indigenous Heritage – unless it can be avoided or minimised. Reef Regulations require all permit applications to undergo an assessment to ensure Indigenous Heritage values are not significantly impacted. • Reef 2050 Plan - incorporates 23 actions relating to Traditional Owners. The updated Reef 2050 Plan (2021-25) has a greater focus on acknowledging Traditional Owners' aspirations for protecting the Reef and includes Traditional Owner specific objectives and goals to achieve the overarching outcome of Healthy Reef, Healthy People. The Plan has a strong emphasis on actions that recognise Traditional Owner rights and interests; and work towards increased participation, voice and capacity in governance processes for Reef protection and management. The Plan's long-term vision includes: Strengthening Traditional Owner involvement in marine park policy and management; greater			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		understanding of the location of, and protection of Indigenous heritage values; and increased capacity of Traditional Owners to manage their sea country. • Reef 2050 Traditional Owner Implementation Plan (2022) – identifies pathways for implementing Reef Plan actions. Culturally appropriate communication products including an animation and timeline were produced to inform community and government of the long history and desired path forward. - provides an **operational platform to coordinate and drive the delivery of actions.** - **covers four work areas: climate, land, sea, partnerships and capacity building, and two enablers: knowledge and investment**. They incorporate existing (funded) programs, existing programs with additional action required (partially funded), and a **suite of new actions (currently unfunded)** required to achieve Traditional Owners and Reef 2050 partners shared outcome for a 'Healthy Reef and Healthy People.' - through the implementation of the Plan managers will participate in Traditional Owner led initiatives to further understand and agree on concepts such as, cultural authority, formal partnerships, co-management, co-governance, co-design, joint management and what is meant by Traditional Owner rights and interests. - Signifies a departure from Traditional Owners reliance on government to include them in government led initiatives to			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		one where **Traditional Owners are leading on programs and projects that are significant to them**. • Animal cruelty, which could include unreasonable methods to kill turtle and dugong are managed under the *Animal Care and Protection Act 2001* by Biosecurity Queensland. • The Gurra Gurra Framework 2020–2026 supports DES to reframe relationships with First Nations peoples by holding Country and people at the centre, including policy, programs, and service delivery and to work in partnership to build a strong and shared future. This Framework aims to assist DES to meet existing and emerging legislative obligations under the United Nations Declaration on the Rights of Indigenous Peoples; the *Native Title Act 1993* (Cwth); the *Torres Strait Islander Cultural Heritage Act 2003* (Qld); the *Aboriginal Cultural Heritage Act 2003* (Qld); the *Human Rights Act 2019* (Qld); the *Nature Conservation Act 1992 (Qld);* other legislation; and obligations and commitments outlined in our agreements and contracts. Implementation of the Framework aligns with whole-of-government strategic initiatives such as Tracks to Treaty and Local Thriving Communities. Plans of management • Complement the Zoning Plan and impose controls on the granting of permissions. Can apply to various sections of the Reef, usually high use areas and can incorporate Indigenous			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		values and statements about their protection and employ co-governance and co-management arrangements: - Identify arrangements for activities, areas, species or ecological communities, including with community groups with a special interest in an area, including some form of Native Title; and complement zoning and permitting arrangements. Some components are legally binding. POMS are developed under Part VB of the Great Barrier Reef Marine Park Act 1975. • Whitsundays POM (2020) includes consideration and acknowledgement of Traditional Use(refer Div 3) • Cairns Area POM 2008 (revised version currently being considered by the State)(refer Div 3) - recognises Traditional Use as part of indigenous values but does not expressly manage it. • Hinchinbrook POM 2004; Shoalwater Bay (Dugong (refer Div 2). • A new POM in the Southern region of the Marine Park will ensure impacts on cultural values are considered and appropriately managed. The use of a 39ZA is being explored. New POMs will include MERI framework to assess effectiveness of POM strategies. Special Interest Plan of Management • Currently there are no s39ZA agreements established in the Marine Park.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• A 39ZA agreement is a Special Interest Plan of Management (Under part VB of the GBRMP Act) that can be put in place with a community group (i.e. 'a group of people who are representative of a community group that has a special interest in an area of the marine park' e.g. a Traditional Owner group). • This type of Plan of Management could be for a species or ecological community within the area concerned (i.e. Traditional Use). • The Act further provides that 'if the Reef Authority considers it appropriate….the community group is to manage the area or the species or ecological community within the area jointly with the Reef Authority in accordance with the plan'. • CBA1 action in the Reef 2050 Plan states 'Review current mechanisms and processes to improve benefits to Traditional Owners engaged in sea country management' – one interpretation of the intent of this action is to examine potential application of 39ZA to Traditional Use. Special Management Areas (SMA) • Ten SMAs are specified under s45 of the Marine Park Regulations, the most recent being for maritime cultural heritage protection (2016). SMAs can be used to protect isolated/known tangible indigenous heritage e.g. fish traps, middens, underwater burial grounds from all or certain types of activities e.g. anchoring.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• There are no SMAs in place specifically for the purpose of protecting Traditional Use activities or Indigenous heritage. Policies (include strategies, policies, site management arrangements, position statements and guidelines) • Policies – Co-management Principles (2022). This policy outlines eight principles that are to be applied in the Reef to 'create a foundation for co-management' including in decision-making, policy and plan development and management actions. – Environmental Impact Management Permission System policy (2017). • Strategies – Aboriginal and Torres Strait Islander Heritage Strategy (2019) - to provide a long-term strategy to the coordinated protection and management of Indigenous Heritage (including Traditional use). It aims to support Traditional Owners to keep their Indigenous heritage strong, safe and healthy. Heritage encompasses 'everything in Sea Country', which is both tangible and intangible. It identifies actions that contribute to all four program areas of the Reef Authority's Corporate Plan and make a significant contribution to nine outcomes of the Reef 2050 Plan. Implementation of the Strategy is progressing well, although COVID-19 operational restrictions delayed some actions over the reporting period.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		- Traditional Owner Partnerships Strategy (2021-22) – launched by the Reef Joint Field Management Program to strengthen and enrich cooperation with Traditional Owners and First Nations people of the World Heritage Area. o The strategy will build on the strong relationships that the Reef Authority and QPWS have with many Traditional Owners and First Nations communities. The Program is committed to increasing Traditional Owner involvement in field management activities and expanding collective management of the World Heritage Area. o This strategy will guide future investment in Traditional Owner partnerships (particularly Program funded initiatives). The strategy complements the Aboriginal and Torres Strait Islander Heritage Strategy for the Marine Park and provides a culturally safe environment for meaningful partnerships. - Lama Lama Hunting Strategy – developed under the TUMRA to set in place rules for how authorised Traditional Owners should sustainably hunt within the TUMRA area. - Queensland Marine Turtle Conservation Strategy 2021-2031 addresses Traditional harvest of marine turtles and indicates that this take 'is not the primary cause of the dramatic decline in the populations of many species of marine turtles' (p.13).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		- A Reef-wide framework for managing traditional use of marine resources in the Great Barrier Reef Marine Park (2007). - National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna (2017) • Position statements - Position Statement on conservation of dugongs in the Reef includes a national partnership approach to assist Indigenous communities to achieve sustainable harvests of turtles and dugongs. - Dugong Position Statement (see background section) • Guidelines - Traditional Owner heritage assessment guidelines (2017)– recommended applicants of Marine Parks permissions discuss proposed activity prior to submitting their MPs application (in line with the Australian Heritage Committee's Ask First best practice guidelines). - Woppaburra Traditional Owner Heritage Assessment Guidelines (2017) developed with Woppaburra Traditional Owners map the cultural heritage values in the Keppel Islands region to help inform permit assessments by the Reef Authority (refer CO1.) - Pilot in the Reef: Woppaburra Traditional Owner estate assessment guidelines (2022) (a case study) - Indigenous participation in tourism and its management (2005) – to facilitate Indigenous people owning, operating and being involved in tourism operations (replaces The			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Position Statement on Indigenous Participation in Tourism and its management). Other plans and frameworks • **Policy and Planning Strategic Roadmap** (2019) - aims to better protect key Reef values, enable ecologically sustainable use and work with Traditional Owners and partners, including the tourism industry. It is a significant undertaking that will deliver cohesive forward-planning that is more risk based, strategic, efficient and adaptive. The implementation of the Roadmap will take a number of years to fully implement. It is supported by the RIMReP and the permissions, engagement, communications and RJFMP areas. The Roadmap covers significant areas of the Reef Authority's regulatory approach, including Marine Park policy (e.g. future-focused intervention and permit guidance, tourism and other Marine Park use and protection policies), the TUMRA Program, implementation of the Aboriginal and Torres Strait Islander Heritage Strategy, development of further co-management opportunities and Marine Park planning (including zoning, plans of management and site planning). The Roadmap comprises five key themes of work: knowledge, risk, Traditional Owners, tools and resilience. Work on the knowledge stream has been slower than the other streams. To date, work to collate Marine Park value and use information for planning purposes has been limited to targeted issues and locations. Broader understanding of Marine Park use changes has not progressed due to other priorities. The Reef Authority is actively pursuing			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		projects with the Science for Management section to address some of these limitations. • The Reef Authority has delivered on its Reflect Reconciliation Action Plan and has developed an Innovate **Reconciliation Action Plan** (2022). • **Reef 2050 Plan Investment Framework** – identifies Traditional Owner actions as a priority area for future investment, including improving involvement of Traditional Owners. • **Traditional Owners of the Great Barrier Reef: The Next Generation of Reef 2050 Actions** (2019) - supports Traditional Owners to celebrate and document their achievements in securing a more 'joined-up' approach to **governance and management** across the Reef. It identifies their **core values**, aspirations and plans regarding the governance and management of Sea Country and reviews Reef 2050 Plan commitments. • **Values Based Planning Framework** (QPWS) provides a planning and resourcing platform that clearly recognises Indigenous cultural values as a significant focus of protected area planning. For example, the 2017 Hinchinbrook Island National Park Management Plan identifies Traditional Owner connection to country as a 'key value' and, accordingly, provides desired outcomes and strategic management directions to enhance the island's Indigenous heritage values. Consultation and joint planning are promoted and encouraged through this process and traditional owners have had			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		extensive input into management planning for a growing number of protected areas. Planning for CYPAL parks occurs through a joint management process. • Sea Country values mapping has been a focus of the marine resource agreement groups with some significant cultural values recorded and shared. The first publicly available product is from Mandubarra Traditional Owners. Activities may include: planning or product development including identification of saltwater heritage values and sites, threats to cultural heritage values, cultural landscapes, and cultural species; and development of Sea Country Management Plans, SCV maps or associated products or resources to capture cultural heritage values of sea country for TO groups along the Reef. • Reef Knowledge System hosts several Land and Sea Country webpages, which provide up to-date information about the Reef to guide effective management decisions and enhance monitoring of Reef 2050 Plan progress. Sharing of Indigenous heritage information will be captured through the System and negotiated through Data Sharing Agreements with the knowledge holders. Strategy pages provide links to strategic planning documents and spatial information relevant to Traditional use of marine resources and values. • Commonwealth Threatened Species Action Plan 2022-2032			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Threatened Species Action Plan** (has actions relevant to marine turtles and to Raine Island, which is a critical breeding ground. Permits and permissions • Improvements to the permission system also required public consultation, including targeted Traditional Owner consultation for proposed higher risk activities (i.e. assessment approaches Public Information Package, Environmental Impact Statement and Public Environmental Report). Consultation requirements to be stipulated in the terms of reference for each relevant application. • Entry into protected zones under the Australian *Underwater Cultural Heritage Act 2018* is controlled by a permitting system, which is managed in Queensland by DES. • EAP administers the Permission System on behalf of the Reef Authority and QPWS. To support this, EAP is developing internal documents such as templates, guidelines and procedures which are used only to administer the Permission System. • Permissions System cultural referral program expanded from Woppaburra to also include Mandubarra, Girringun and Wuthathi. Challenges:			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Addressing impacts on several species (e.g. turtle) that are caused by hunting outside Australia. • Addressing impacts of climate change that may impact on dugong and turtle populations e.g. sea level rise, increased temperatures, sedimentation, flood and cyclone damage. • Funding to expand TUMRAs to other parts of the Queensland coast. • Policy gaps in relation to Traditional Owner payments and benefit sharing arrangements.			
PL3 **Actions** for implementation regarding traditional use of marine resources are **clearly identified within the plan**	4	• Actions in relation to Traditional Use are identified in diverse documents (refer CO1 and PL2). • The **Reef 2050 Plan has a strong emphasis on actions** that recognise Traditional Owner rights and interests (23 actions); and work towards increased participation, voice and capacity in governance processes for Reef protection and management in relation to Traditional Use. • The Reef 2050 Traditional Owner Implementation Plan (2022) (refer CO1) brings Traditional Owner and supporting actions from across the Reef 2050 Long-Term Sustainability Plan (2021-2025) together into one place, providing a cohesive framework and operational platform for delivery. • The Reef Authority **Corporate Plan** 2022-23 includes working with Traditional Owner groups to develop new TUMRAs. • Aboriginal and Torres Strait Islander Heritage Strategy (2018-2023) sets 5-year actions to be implemented.		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• TUMRAs include actions or deliverables that are set out in an implementation plan that usually involves a partnership arrangement with Traditional Owners to implement their management activities. • Actions relating to Traditional Use are included in a range of documents (refer CO1, PL2). • The *Aboriginal and Torres Strait Islander Heritage Strategy* for the Marine Park has been in place for two years. It sets five-year actions (2018-2023) – There are 30 short- to long-term actions to keep the Indigenous heritage (including Traditional Use) of the Reef strong, safe and healthy. • **Plans of Management** in high use areas clearly articulate and manage conflicting uses and actions which may affect cultural heritage in Cairns, Whitsundays and Hinchinbrook. - The **Joint Field Management Program** (Reef Authority/NPSR) has a specific strategy on Indigenous Engagement which includes actions for management of Traditional Use. The **Field Management Annual Business Plans** recognize Indigenous engagement and indicate targets, performance indicators and activities that promote Indigenous partnerships including management of Traditional Use. **Reef Joint Field Management Program Business Strategy** sets high level strategic direction and actions for Indigenous Engagement, which includes planning for and co-managing Traditional Use. Each year and every			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		five years the RJFMP reviews its annual business plan and 5-year business strategy. This plan and strategy contain clear, measurable and appropriate objectives for the management of Traditional Use. • The **implementation of strategy actions** has progressed throughout 2020–21, with more than 90 per cent of actions underway, of which, 60 per cent are on track and 30 per cent are on track with limitations. Substantial progress on major foundational activities and additional resourcing led to significant achievements in implementing the strategy. The activities are a shared responsibility across the Reef Authority and will be reported in more detail in relevant section areas of responsibility throughout the annual report. • In 2017 the Department commissioned a consortium of Indigenous and research organisations with the purpose of supporting effective coordination and partnership with Reef Traditional Owners on the implementation of the Reef 2050 Plan. *Traditional Owners of the Great Barrier Reef: The Next Generation of Reef 2050 Actions* was published in 2018 and included 10 key recommendations. In November 2022, Minister Plibersek, Commonwealth Minister for the Environment and Water, committed to an official response to the recommendations in the Report. Challenge:			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• '*Traditional Owners know what they want, how they want to do it. Now it is about implementation, which is a bit ad hoc*' (Workshop participant 2023).			
PL4 **Clear, measurable and appropriate objectives** for management of traditional use of marine resources have been documented	4	• Most plans (refer CO1, PL1, PL2, PL3), including the Reef 2050 Plan include Traditional Owner specific objectives and goals to achieve the overarching outcome of Healthy Reef, Healthy People. These objectives and goals are linked with the Strong Peoples Strong Country framework and the Reef Traditional Owners aspirations. • There are a range of documents related to Traditional Use that contain objectives. In general these are clearly stated, including sustainable use and protection of environmental values. However, some objectives may be difficult to measure. • The Reef Authority is currently reviewing the Aboriginal and Torres Strait Islander Heritage Strategy (Strategy) to ensure the document aligns to the Reef 2050Traditional Owner Implementation Plan (2022). The Strategy is also being updated to include Key Performance Indicators (KPIs) to monitor and evaluate the effectiveness of its implementation. Challenge: • assessing the appropriateness of the objectives in the face of increasing stressors to the Reef, such as climate change.	Field Management Program 5-year Business Strategy and Annual Business Plan (e.g. Strategy on Indigenous Engagement)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PL5 There are plans and systems in place to ensure **appropriate and adequate monitoring information** is gathered in relation to traditional use of marine resources	2	• Monitoring effort has expanded significantly across the Reef, with several new monitoring projects being developed, most of which will provide information relevant to Traditional Use. • IMR RTP Sustainable use and benefits monitoring project (SEABORNE) (2021-2024) will design a monitoring program to help managing agencies make informed decisions sustainable use and long-term conservation. It will look at who uses the Reef, for what purpose and benefit, and how human use impacts the Reef's ecological, social and economic values. • IMR RTP Integrated Reef stewardship monitoring project (PROTECT) (2021-2024) - will monitor how individuals and community organisations engage in Reef stewardship and explore the causal links between stewardship activities and desired Reef outcomes. This will provide information on condition and trend in relation to Traditional Use. No results yet • IMR RTP Monitoring collective capacity and implementation (Governance) (2021-2024) - will develop a monitoring framework to assess how these different components are working together to achieve improved Reef health. This will provide information on condition and trend in relation to Traditional Use. No results yet. • IMR RTP Monitoring collective capacity and implementation (Governance): There are multiple programs,	Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• IMR RTP Strong People Strong Country Framework project - This project aims to build capacity for Traditional Owner leadership of monitoring and reporting in the Reef and to incorporate traditional knowledge and practice into decision making. Phase 2 involves the development of a set of objective indicators, which aim to provide information and insights about the condition and trends in Indigenous heritage values in the Reef and its catchments. • Reef Integrated Monitoring and Reporting Program (RIMReP) aims is to develop a knowledge system that enables resilience-based management of the Great Barrier Reef and provides managers with a comprehensive understanding of how the Reef 2050 Plan is progressing. – The design phase of RIMReP was completed in 2019. It delivered the structure, program and monitoring design, an implementation roadmap, and an initial release of the Reef Knowledge System. – In the implementation phase effort has been directed toward continuing the scoping and implementation of a fit for purpose Data Management System, progressing the Reef 2050 Plan reporting framework, enhancing decision support capability, upgrading the Reef Knowledge System and Traditional Owner engagement. – The Reef Knowledge System is the centrepiece of RIMReP - it provides interactive up to-date information about the Reef to guide effective management decisions. It will show			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		monitoring and modelling data from a wide range of sources in useful and interactive ways. Demonstration site was released in 2020, with further enhancements being undertaken. • A fit for purpose **Data Management System** (DMS) is the critical infrastructure to underpin the successful delivery of RIMReP and related reporting activities, management systems and decision support tools. The scoping phase of the DMS in 2020-21 identified the size, scale and maturity of data sets critical for initial inclusion in RIMReP. It also defined the infrastructure requirements and environments and the best estimate of ongoing operational requirements. 153 unique data sets from 73 organisations or programs were identified. The architecture of the DMS is conceived as a FAIR (findable, accessible, interoperable and reusable) compliant, data-agnostic, scalable 'future-proof' and service-oriented system that will collect data and metadata from data providers, store/cache data collections, apply transformations and provide a delivery mechanism through a rich API interface. It will include an interoperable metadata sub-system: an open and easily accessible catalogue, based on standards, of all datasets relevant to RIMReP. The design and build will occur from 2022-24. • **Human Use Dashboard:** This project (2021-2023) aims to produce a prototype dashboard that will provide access to human use data to Reef managers. The user-friendly			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs. It uses the IT Cloud environment to allow for data flow. • Toolkit for safeguarding Indigenous heritage and knowledge: Funded by Reef 2050 Long-Term Sustainability Plan partners for the Reef 2050 Integrated Monitoring and Reporting Program (RIMReP), this report recognises the rights of Indigenous people to protect/ safeguard/ manage their heritage and respects their rights in traditional knowledge and traditional cultural expression. It provides a framework for making formalised arrangements through the Protocol, Guidelines, and 'Indigenous Knowledge Sharing Agreement Template', and articulates best practice principles and objectives for parties engaging with Great Barrier Reef Traditional Owners. • The **Joint Field Management Program** is continuing to work towards modernising the Compliance Management System (CMS) to improve the collection, storage and use of compliance data from initial reporting to the case decision. The detailed business requirements have been documented and the project team will approach the market for market-accurate cost estimates for cost benefit analysis. The new system is expected to be implemented by the end of 2023. • Working with Traditional Owners to develop and implement Ecological Monitoring Frameworks:			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority monitors and reports on **the Land and Sea Country Partnerships Program** – which include the TUMRA program and Cultural Knowledge Management System. Six monthly progress and annual reports are provided to DCCEEW. • There are mechanisms in place to require TUMRA groups to report on their take under a TUMRA, however this is not monitored through a formal process with follow-ups (Workshop participant 2023). **Challenges:** • Monitoring gaps in relation to Traditional Use and the limited spatial extent of monitoring across the Reef • Identifying priority monitoring sites that address gaps in current knowledge e.g. in relation to how climate change and cumulative impacts			
PL6 The main **stakeholders** &/or the local community are **effectively engaged in planning** to address traditional use of marine resources	3	• Traditional Owners of the Reef assert their **inherent rights and interests from their continuing connection to Land and Sea Country**. As custodians of land and sea, Traditional Owners assert that their special rights and interests extend beyond the definition of 'stakeholders' (refer CO5 and PL1 which describes the planning system). • Stakeholder engagement is '*moving in the right direction but we are not there yet*. It needs to be simpler and more streamlined' (Workshop participant 2023)	Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Mainstream planning has often poorly conceptualised its relationship with Indigenous communities, often viewing them as stakeholders rather than individuals and groups with Indigenous sovereignty, political authority and land/sea claims within the spaces in which planning occurs. • The UN Declaration on the Rights of Indigenous Peoples calls on states to **obtain free, prior and informed consent of Indigenous people** through their representative institutions before adopting legislative or administrative measures that would affect them and provides an international framework for best practice engagement. Indigenous engagement in Australia is not based on a comprehensive legal framework or treaty that enshrines certain rights for Indigenous peoples (refer EPBC Act review). • The Reef 2050 Plan has a strong emphasis on actions that recognise Traditional Owner rights and interests; and work towards increased participation, voice and capacity in governance processes for Reef protection and management. Actions in the plan also identify where stakeholders and partners need to improve their cultural capability and are needed to help achieve Traditional Owner aspirations. • **Effective engagement** in the planning system in relation to Traditional Use incorporates: – the **opportunities** for engagement (especially incorporating long-term relationships, accessibility and appropriate time frames);			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– **effective governance and capacity** (within Indigenous community and other organisations – to enable Indigenous community to negotiate their aspirations and for government/others to respond in a flexible and timely way; to have agreed clear outcomes, clarity about roles and responsibilities and how to discharge them) – **inclusive, equitable and adequate representation** (understanding the Indigenous community, its membership, governance and who can represent its views); – effective **communication** (built on **trust and respect and is sustained**) and information- requires understanding of and cultural competency to respond to Indigenous history, cultures and contemporary social dynamics and diversity and valuing the cultural skills and knowledge of community organisations; – openness and **transparency** (including clarity about desired outcomes, process, clearly defined roles and responsibilities in agreements and partnerships and mutual accountabilities); – effective facilitation; – **communication** of outcomes; and – measurement of **satisfaction** (including joint planning of monitoring and evaluation to meet the rights and needs of each party). • Effective engagement is essential for developing strong, effective and sustainable policies and programs that meet			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		stakeholder and community needs and better deliver outcomes. It builds trust, avoids duplication of consultation with the same audience and creates efficiencies for managing organisations. **Engagement in planning in relation to Traditional Use can involve a spectrum of activities** that require different levels of engagement, timeframes, resources and concern about the decisions that are made (IAPP 2018, based on Arnstein 1969). For example Traditional Owner engagement: 1. often consists of '**informing'** i.e. providing balanced, objective information to assist in understanding a problem, alternatives, opportunities and/or solutions: - Reef Knowledge System – available to all stakeholders to raise awareness of relevant Indigenous heritage issues) - **Targeted education and stewardship programs** assist the Reef Authority to establish mutually beneficial relationships with Traditional Owners, the community and others at all stages of learning. 2. often consists of '**consulting'** (to obtain feedback on analysis, alternatives, decisions) - The Australian Government has an Indigenous Advisory Committee (different to the IRAC) to advise the Minister for the Environment and Water on the operation of the Environment Protection and Biodiversity Act 1999 (EPBC Act), taking into account the significance of Indigenous peoples' knowledge of the management of land and the conservation and sustainable use of biodiversity (meets			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		biannually). It advises on ways to facilitate partnerships, enhance engagement and build capacity with Traditional Owners in the management of marine resources. - The Reef Authority has an established Indigenous Reef Advisory Committee IRAC) to provide strategic-level advice on matters in order to build a greater understanding of Traditional Owner issues within Marine Park management. The IRAC meets three times a year. All plans are provided to the IRAC for comment and advice, which is delivered to the Reef Authority Board (and considered when making decisions on plans). The IRAC is the key body that advises the Reef Authority Board on its management, programs and policies. o '*The IRAC needs to give advice but they have no way to engage directly themselves* (with Traditional Owner groups). *The process is flawed*' (Interviewee 13, 2023). - **Information/data collection** - through various programs and a range of sources e.g. a diverse range of knowledge from Traditional Owners, scientists, stakeholders and Reef Authority staff, which informs management decisions and provides evidence-based advice to the government, the public and stakeholders. Information is shared with various stakeholders, through publications such as the Reef summer snapshot and Marine Monitoring Program reports, along with briefings and engagement opportunities. - All plans and policies developed by Reef Authority are required to undergo some level of engagement with			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		stakeholders and Traditional Owners depending on their regulatory impact. 3. may incorporate '**involving**' (work directly throughout the process to ensure relevant concerns/aspirations are understood and considered) - The **Values Based Management approach** (QPWS) identifies relevant Traditional Owners and seeks ways and means of involving them in the planning processes from the initial identification of values and threats through the implementation of management actions. - **RIMReP partners**, including Traditional Owner members, will deliver the Annual Business Plan together and maintain momentum to achieve the Program's vision and Guide program delivery by providing a forum for cross-agency advice, coordination and input, including stakeholder advice. - Four Traditional Owner Members sit on the **RIMReP Governance groups** to provide guidance and advice on cultural, social, economic, and other matters, engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision. - LMAC supported projects – Deadly Science. 4. less frequently involves **'collaborating'** (partnering with Indigenous communities in each aspect of the decision – developing alternatives, identify preferred solution) - the Reef Authority has agreed to move to implementing **co-management** through various management tools			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		including Plans of Management, S39za coupled with formal partnerships (as outlined above) also (See information on Plans of Management) this is likely to occur in 2023. Principles were developed with the Indigenous Reef Advisory Committee to guide ongoing co-management efforts. - A best practice literature review and analysis of Traditional Owner aspirations was completed, which led to a framework against which existing tools and programs are being assessed. o '*Lots of Traditional Owner groups are better equipped to engage and more support has been provided to the TUMRA program*' (Workshop participant) o Existing groups also lend support to newer Traditional Owner groups to facilitate engagement. o Greater presence on Indigenous rangers on country also facilitates improved engagement. 5. is beginning to show evidence of **'empowering'** (to place final decision-making in the hands of the Traditional Owners. For example: - The Gurra Gurra Framework (2020-26) supports DES to reframe relationships with First Nations peoples by holding Country and people at the centre, including policy, programs, and service delivery and to work in partnership to build a strong and shared future. The Framework seeks to 'understand and respect the diversity of First Nations cultures…., the collectivist nature of decision-making, the			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		importance of Elders and other knowledge keepers, and the primacy of relationships and connection to Country above all things' (p.6). The process considers structures and the people who work within those structures; the functions, and the processes that deliver on those functions; and governance and leadership. This involves working in partnership from the earliest stages of development through to implementation and evaluation; working together to define outcomes and benefits; empowering First Nations leadership; structurally **enabling co-governance** and co-stewardship; respecting community-led decision-making processes and timeframes; and exploring new ways of working through co-design and co-delivery. - **Partnerships** - **TUMRAs** represent a **co-management approach**, where engagement is based on Indigenous aspirations and priorities within an Indigenous framework, process, context and time frame, one that is Indigenous-driven. **TUMRAs are developed with effective engagement with Traditional Owners** (and neighbouring Traditional Owner groups – in order to decide boundaries for the TUMRA area). A new TUMRA takes over about two years to develop before it can be submitted for accreditation. The bulk of this period is spent on effectively engaging with communities. o There are currently 10 accredited agreements, covering approximately 43 per cent of the Reef coastline, and one Indigenous Land Use Agreement (Kuuku Ya'u),			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		which brings the total to 46 per cent (Annual Plan 2021-2). o The Reef Authority commenced new partnerships with Traditional Owner groups to develop **four new Traditional Owner-led agreements**. o *'TUMRAS have been a good mechanism to establish relationships between the Authority and Traditional Owner groups but they need to have teeth… Traditional Owners need relevant tools for management. They currently do not have the authority to address hunting* (of turtle and dugong mainly). *They need to be empowered to manage hunting* (by outsiders) *and undertake enforcement'* (Interviewee 13, 2023). - **Reef 2050** Traditional Owner Implementation Plan (2022) (refer PL2) - Traditional Owner led and builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products help to inform community, government and stakeholders of the long history and desired path forward. - The development of the John Brewer Reef Site Plan included working with Manbarra Traditional Owners to understand the cultural values of the area. The Mandubarra Sea Country Cultural Values: 2019-2020 mapping project, involved two workshops with Mandubarra Traditional			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Owners to develop a plan to protect the cultural values identified in this document. - Queensland First Nations World Heritage Strategy was co-designed and developed with First Nations people and seeks to centre Country and people across all aspects of World Heritage to better identify, protect, conserve, present and transmit to future generations the irreplaceable values of World Heritage areas. - The Australian and Queensland governments have committed to scope and establish a Traditional Owner Sea Country Alliance as part of the Reef 2050 Governance structure. The Alliance 'will make it easier to engage and reduce fatigue' (Workshop participant 2023). Challenges: • the ways in which Traditional Owners are engaged, e.g. there is overwhelming evidence of a rush 'to engage' with Traditional Owners as stakeholders in relation to Reef matters, such that many representatives and organisations may be fatigued. Often the '*engaging' is done on the terms of non-Indigenous institutions, with Traditional Owners being thought of as one more stakeholder at the table in a planning system that does not itself change*' (Porter 2017). • Traditional Owners are often recruited as 'voices' to attend consultations and may be considered to be 'speaking for' Indigenous peoples in general.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Fragmented and 'siloed' government arrangements in relation to engagement, with each agency trying to engage with the same Indigenous organisations, not responding holistically and thus placing burdens on Indigenous peoples (Workshop participant 2023). A suggested approach is to have more 'round tables and to meet on a more regular basis' (Workshop participant 2023). • Reviewing engagement strategies that are applied in communities where there may be fractured governance, limited capacity and leadership. • **Capacity building** to help ensure Traditional Owners can engage meaningfully; and non-Indigenous decision makers understand the importance of other ways of knowing and engaging in genuine partnerships. • **More effective engagement requires adequate resourcing** (as effective consultation is time consuming and resource intensive) (Workshop participant 2023). This includes resourcing of all relevant Reef Advisory Committees (Interviewee 13, 2023)			
PL7 Sufficient **policy** currently exists to effectively **address traditional use** of marine resources	3	• Refer PL 2 where a range of policies relevant to Traditional Use were discussed. (Note: Policies are taken to mean the **principles or the protocols to guide decisions** -they are not strategies or plans) • The **Policy and Planning Strategic Roadmap** incudes a specific theme addressing Traditional Owners.	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• A range of policies are also in place in other management agencies, especially in relation to Indigenous employment, engagement, cultural data access and storage and use of Traditional marine resources. • The **Aboriginal and Torres Strait Islander Heritage Strategy** addresses the broad framework of Indigenous policy issues for the Reef Authority, in conjunction with other policies (i.e. relating to permissions). • **Position Statement on conservation of dugongs** in the Reef - dugongs have high cultural, social and spiritual significance for Indigenous Australians and feature in Indigenous stories and art. Challenges: • customary use of biological resources, access and benefit sharing agreements including policy links to the Convention on Biological Diversity and its Plan of Action on Customary Sustainable Use of Biological Diversity and the Nagoya Protocol on Access and Benefit-sharing (Traditional Owner Implementation Plan) • strengthening existing tools such as TUMRAs, IPAs, ILUAs, Indigenous Compliance Programs, fisheries allocation and harvest strategies through the application of policies to better support customary use and management of resources and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		access and benefits to communities (Traditional Owner Implementation Plan).			
PL8 There is **consistency across jurisdictions** when planning for traditional use of marine resources	4	• One of the strengths of Reef management is the recognition of the need to provide consistency due to the diverse jurisdictional complexities in Reef management (refer PL1 for a discussion of the planning system; PL2 for a discussion on relevant documents; and RP3 for a discussion of the governance system and jurisdictional complexities). • The Great Barrier Reef **Intergovernmental Agreement** commits to 'ensure that Indigenous traditional cultural practices continue to be recognised in the conservation and management of the Great Barrier Reef and provides a framework for the Australian and Queensland governments to work together to protect the Reef. The Agreement reflects the shared vision for the future outlined in the Reef 2050 Plan and renews the Australian and Queensland governments' commitment to protecting the World Heritage Area including its Outstanding Universal Value'. • The Queensland Great Barrier Reef Coast Zoning Plan and the Commonwealth Marine Park Zoning Plan has **complimentary zoning.** • Reef 2050 Traditional Owner Implementation Plan (2022) provides consistency across three key partners (DCCEEW, OGBR and Reef Authority) regarding Indigenous heritage	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		values, including Traditional Use. It builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations under the Reef 2050 Plan. • **Reef 2050 Plan** is the overarching framework for protecting and managing the Reef and is a joint product (Australian and Queensland Government and the Reef Authority). • There is strong alignment between the Reef Authority and QPWS under the Joint **Field Management Program,** which includes a strategy for Indigenous engagement. An interdepartmental informal working group aims to increase alignment and consistency between Indigenous Ranger programs, the JFMP and the TUMRA program. • **TUMRAs** are jointly accredited by the Reef Authority and Queensland Government. • The **Aboriginal and Torres Strait Islander Heritage Strategy** aligns to the Reef 2050 Traditional Owner Implementation Plan (2022). • At a more local scale, the Reef Authority is working collaboratively with the State to assist **Mandubarra Traditional Owners** in protecting cultural heritage values identified in the Mandubarra Sea Country Cultural Values: 2019-2020 mapping project. This will ensure values within the Marine Park and adjacent intertidal areas and islands are protected, including Traditional Use.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority is developing a **Traditional Owner Payments Policy** to effectively and meaningfully engage First Nations peoples to provide cultural advice and participate in Reef Authority processes (due for completion in 2023). • Fee-for-service arrangements are in place for four different First Nations groups: Girringun for delivery of a range of services through a works contract; Dawul Wuru for delivery of bird surveys by Yirrganydji rangers; Gidarjil for delivery of a range of services through a works contract (Reef Trust Offset funding); and Wulgurukaba for delivery of a range of services through a works contract (part Department of Environment and Science Reef Package funding). **Challenge:** • **overlaps** in planning, and the separation of islands from the adjacent sea country in agency plans, which can be confusing for Indigenous people and for the general public.			
PL9 **Plans** relevant to traditional use of marine resources provide **certainty regarding where uses may occur, the type of activities** allowed or disallowed, conditions under which activities	4	• Most plans regarding access to resources and extractive activities (e.g. Traditional use) are clear and provide certainty. This includes: Zoning Plan(s); permits, Plans of Management; site planning arrangements; and TUMRA's (a diverse array of plans were discussed in PL2 and information on TUMRAs is available in Traditional Use Topic). • **Sea Country Values Mapping** projects establish more integrated SCV mapping/ product developments and	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
may proceed and circumstances where impacts are likely to be acceptable.		management partnerships. This will help to provide certainty in relation to uses in the Reef. • The Reef Authority and DES have matching criteria for assessing accreditation of TUMRAs. • Plans regarding access to resources and extractive activities are clear and provide certainty. • Zoning Plan provides certainty for activities that may compete with Traditional Use. • Permits, POMs, Site Planning arrangements and Policy align and provide certainty. • Each TUMRA has a publicly available map showing the boundary of the TUMRA. Rules within each TUMRA differ, depending on what was negotiated and accredited. These rules are not publicly available - only the Managing Agencies and the Traditional Owners who are party to the agreement know the rules. Public education about the rules is the joint responsibility of the TUMRA coordinator, with assistance from Reef Authority (TUMRA staff and compliance) and the NPSR. More visible access to particular rules within a TUMRA may increase certainty in future however there are likely to be sensitivities around releasing information on what sustainable limits have been set for turtle and dugong take if they exist as part of a TUMRA. • The Gunggandji TUMRA includes three spatially explicit no hunting areas around Green Island, Fitzroy Island and Michaelmas Cay. This is illustrated in a publicly available			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		georeferenced map on the Reef Authority website. Public signage is also being developed. • Woppaburra Guidelines (refer PL2) map the important cultural values in the Keppel Islands region to help inform permit assessments by the Reef Authority and indicate where uses occur. • Traditional Owner Heritage Assessment guidelines provide information for consideration when assessing the potential impacts from hazards derived from proposed activities. In consultation with Traditional Owners (particularly through targeted consultation with assessment approaches PIP, PER and EIS), appropriate avoidance and mitigation measures should be identified. • Low risk activities are generally well addressed in existing plans (e.g. tourism activities and research). • Island booking protocols have been developed as part of the CYPTRP to limit visitation in accordance with the caps placed by Traditional Owner groups e.g. Yamarrinh Wachangan Islands NP (CYPAL) to protect impacts on islands. Challenges: • Apart from the Woppaburra Guidelines and other spatial management tools listed above, there is uncertainty for other Traditional Owner Groups, e.g. the areas outside TUMRAs generally do not explicitly specify important areas in the Reef Region for Indigenous heritage protection and locations where particular activities should be precluded.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The permission system provides avenues for protecting Indigenous heritage values permitted activities only when the activity is location specific and when the activity is of higher risk that trigger assessment approaches that involve public comment and targeted Traditional Owner consultation. The Native Title Notification process which applies to all permission applications, does not currently assist in protecting Indigenous heritage values. • Adequate planning arrangements are needed to protect Traditional Use from activities that do not require a permission (such as public access and use).			
INPUTS					
IN1 **Financial resources are adequate and prioritised** to meet management objectives to address traditional use of marine resources	2	• Resourcing is variable – '*The Authority is well resourced but others, including Traditional Owners are not well resourced to engage and participate in a range of programs*' (Workshop participant 2023). • The **Reef Protection package** (to 2030) provides the Reef Authority with an additional $17.4 million for Traditional Owner programs, to support implementation of the Aboriginal and Torres Strait Islander Strategy (including additional actions emerging from the Traditional Owner Implementation Plan (2022) and will boost the Reef Authority's funding for the TUMRA program (e.g. inputs for maintenance of agreements and creation of new TUMRAs).	Annual report 2021-2022 Sustainable Use of the Reef; Diver Training in Partnership with the Tourism Industry – p19	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority and the Commonwealth Government committed to the implementation of the Plan (2022). The Commonwealth government is investing: - $1.1 million per year over three years financial support for the establishment of a **Traditional Owner Taskforce and Board**. This funding will support the establishment of an Indigenous Coordination Unit that will engage with Traditional Owners to develop a preferred model for a Sea Country Alliance and strategically coordinate the delivery of Reef 2050 Traditional Owner actions. - $4.7 million per year over three years for the **Taskforce** to implement elements of the TOIP in addition to other existing program funding. - Investing $10 million to the **Traditional Owner Future Fund** in addition to the existing $10 million with the GBRF funding. Money to be invested in 25/26 financial year (Qld government funding support) – to underpin long term and sustainable support for achieving Traditional owner aspirations and support partnership arrangements to enable program delivery and investment leverage. • The TUMRA program prioritised supporting 16 Indigenous Land and Sea rangers from 10 different groups to complete Open Water and Advanced Open Water Diver training in Cairns, on Gunggandji and Yirrganydji Sea Country. The dive instructors included a Dauareb man from the Murray Islands who worked with the rangers from groups between Bowen			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and Cape York. The training supports increasing partnerships with Traditional Owners and provides a pathway for Indigenous rangers to deliver in-water activities such reef monitoring and rehabilitation. Further mentoring is planned with these rangers in 2022–23 through participation in marine parks patrols, to further strengthen their skills and confidence in protecting the Reef. • Toolkit for safeguarding Indigenous heritage and knowledge (2020) is available as a guidance tool for parties engaging with Reef Traditional Owners. • Sharing of Indigenous heritage information will be captured through the RIMReP Reef Knowledge System (as related to Reef 2050) and negotiated through Data Sharing Agreements with the knowledge holders. $218,250 (GST inclusive) is allocated under the RIMReP Annual Business Plan 2022-23 to support communication and engagement activities with Traditional Owners regarding the development of RIMReP. • **Queensland Indigenous Land and Sea Ranger Program** (DES): The 2020 State Budget provided a funding boost for Indigenous Land and Sea Rangers, to bring them to a total **of 200 positions across Queensland by 2024**. Currently this program funds 90 Indigenous Rangers in the Great Barrier Reef Catchment area. • **Embedded indigenous rangers** are in place, e.g. Gidarjil rangers have been embedded with program staff at the Gladstone work base since 2020 which was part Reef Trust Offset funding. Wulgurukaba rangers have been embedded at			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		the Magnetic Island work base since 2020–21 which was part funded by the QPWS capital works funding (Annual Report 2021-2). • The **Land and Sea Country Partnerships Program** - is a large contributor to most Reef 2050 actions involving Traditional Owners, including expansion of the TUMRA program, IRAC and Indigenous engagement. • **Reef Joint Field Management Program** has a $1M per annum program for funding Traditional Owner projects aligned with RJFMP objectives and guided by the RJFMP Traditional Owner Partnership Strategy. The Program is funded and run by the Australian and Queensland governments. It undertakes activities to support the operational and day-to-day management of the Marine Park, the Queensland Government's adjacent Reef Coast Marine Park and national park islands. • Management is enhanced through partnership arrangements with Traditional Owners, the community, businesses, industries, scientists and governments, which provide additional financial resources to Reef management. Challenges: • Many Traditional Owner groups may not be adequately resourced to participate in TUMRAs or management of Traditional Use. This includes smaller Traditional Owner groups with recently established Native Title and those who do not yet have Native Title (Workshop participant 2023).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Long-term funding to expand the TUMRA program and resource these areas effectively. • Further resources to support resolution of Sea Country native title claims across the Reef and undertake co-management opportunities on island protected areas; obtaining consistent and long-term funding to enhance Traditional Owner engagement in managing Sea Country.			
IN2 **Human resources** within the managing organisations are **adequate** to meet specific management objectives to address traditional use of marine resources	3	• The Reef Authority **has established a discrete TUMRA section** (splitting the TUMRA team out from within the Policy and Planning section). Increasing demand for an expansion of the TUMRA program places pressure on existing staff to deliver these outcomes in a timely manner. The Reef Authority has only nine staff to address TUMRAs and other agreements. • The Reef Joint Field Management Program employs four staff who have a specific focus on management objectives relevant to Traditional Use. The Program overall employs about 115 staff. Aboriginal and Torres Strait Islander people comprise more than five per cent of the workforce and contribute to improving cultural awareness, including Traditional Use and strengthening collaboration with the Aboriginal and Torres Strait Islander community and Land and Sea Rangers. • **Indigenous rangers** are integrated into mainstream QPWS activities on the Reef. Work scheduling, at times, can result in a focus on undertaking 'mainstream' on-ground work leaving less time to undertake work on country, related to Traditional	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Use. Difficulties can also surround accessing country to undertake work (Workshop participant 2023). • An APS6 officer dedicated to Traditional Owner engagement will be placed in the Marine Spatial Planning team for the development of the new POM in the Southern region of the Marine Park. • In 2021 an EL1 position was put in place and filled to provide the Reef Authority advice relating to strategic direction and partnerships. In 2022 an APS6 role was developed to assist the EL1 role in providing advice relating to strategic direction and partnerships – in particular co-management. • The Reef and Marine Parks Region has a new AO6 Indigenous Partnership Coordinator and an AO4 Indigenous identified project officer who deliver the RJFMP Traditional Owner Partnerships Strategy. • Gurra Gurra Framework (2020-26) emphasises the need for: **'cultural capability'** i.e. in terms of skilling the DES workforce to build and sustain permanent relationships with First Nations peoples; and a workforce that considers attraction, recruitment, retention, career pathways and cultural safety. Key initiatives are: 'Improving cultural capability and agility', focused on increasing cultural understanding and ability to apply this knowledge and increasing learning opportunities to build cultural proficiency; and 'attract and develop First Nations people to our workforce' by strengthening employment pathways for First Nations staff to progress			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		through the agency, reducing barriers, building retention and progression initiatives. • Refer to Indigenous Heritage topic (Table 44) where detailed information on human resourcing is provided. • **Traditional Owners are the primary people involved in on-ground management** of Sea Country, especially within TUMRA areas. **Challenges:** • While positions may be available, the Reef Authority and other agencies indicated that there were challenges in attracting staff and also retaining staff. '*There are constant revolving doors of people in this space and this affects relationship building*' (Workshop participant 2023) • Loss of knowledge and capability were significant concerns and personnel indicated the need for strategies to retain knowledge within relevant agencies.			
IN3 The **right skill sets and expertise** are currently available to the managing organisations to address traditional use of marine resources	3	• The Reef Authority's TUMRA team is completely/mostly **staffed by Indigenous personnel** who have cultural knowledge and experience when working with Traditional Owners. • **Indigenous rangers** are engaged with Traditional Owners on Sea Country. • All Reef Authority staff undergo **cultural competency training** as part of the 22-23FY mandatory training.	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority employs **two dedicated social scientists** and engages regularly with social-ecological scientists at numerous institutions (e.g. JCU, CSIRO, UQ, Griffith) through NESP projects and RIMReP, Social Science Community for the Reef and Reef 2050 (Human Dimensions consortium) • The TUMRA program supported Aboriginal and Torres Strait Islander peoples to **return to country and deliver field management activities**, spending 345 person days on program vessels in the northern Great Barrier Reef and 149 person days in the southern Great Barrier Reef. A total of 3.9 per cent (41 days) of the program's dedicated compliance days were delivered with Indigenous Land and Sea Rangers (Reef Authority Annual Report 2019-20). • The TUMRA program prioritised supporting 16 Indigenous Land and Sea rangers from 10 different groups to complete Open Water and Advanced Open Water Diver training in Cairns, on Gunggandji and Yirrganydji Sea Country (refer IN2). • Skill levels related to Traditional Use are generally higher in TUMRA areas, with support needed to enhance skills in other communities (Workshop participant 2023). • **Expert advice** is also available through the Indigenous Reef Advisory Committee (IRAC). • Specific indigenous employment targets are set as performance indicators in FMP annual business plans. • Refer Indigenous Heritage topic (Table 44) for more detailed information on expertise			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Challenges: • Ensuring sufficient funding and resourcing to build Traditional Owners' capacity to undertake work in relation to Traditional Use (Interviewee 1, 2023). • Consideration of training, employment and career development to keep Traditional Owners on country and potentially bring in Traditional Owners from other areas as on-going mentors. • 'Trust is a big issue as government does not always have great relationships with Traditional Owners…We now have a new language of co-design and new language around engagement….Engagement is a way of the past - partnering is the way we are going and should have been going for a long time….There are multiple ways, interlinkages and decision making does not fall centrally. In the past (centralised decision making) has caused trust deficits…(In response) government needs internal capacity in terms of cultural competency …and related training' (Workshop participant 2023). • Better understanding the skill sets that need support within TUMRA communities who are managing land/sea country.			
IN4 The necessary **biophysical information** is currently available to address traditional	3	• Traditional Use may include fishing, collecting (for example shellfish) and hunting, as specified in the Woppaburra TUMRA. Therefore any biophysical information relevant to species or habitats that support Traditional Use activities is	Aerial dugong survey results 2022 survey – report expected April 2023	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
use of marine resources		important (refer Biodiversity Topic Table 32). The primary focus of Traditional Use is on dugongs, turtles and the habitats and conditions that support those species. In general biophysical information is improving due to an increased focus on monitoring across the Reef but remains limited and 'patchy' across the Reef. • Traditional Owner groups are learning from each and **sharing traditional ecological knowledge** about the environment/species and passing this on (Interviewee 1 2023). – The Indigenous Reef Advisory Committee is bringing TUMRA coordinators together to share learnings (Interviewee 1, 2023). • The Reef Authority updated its 'Science and Knowledge Needs for Management' in 2021. It is informed by the Great Barrier Reef Outlook Report 2019, the Reef 2050 Plan and emerging needs identified by Reef Authority staff. It aims to ensure scientific activities are relevant, targeted to address critical management issues, and that scientific outputs are easily accessible. The priority information needs form the focus of specific collaboration opportunities with science and knowledge providers. The document is supported by an interactive web-tool located on the Reef Knowledge System which identifies the specific collaboration opportunities and can be updated as needs are addressed or new needs identified.	Dugong Census JCU Science and Knowledge Needs for Management Science and Knowledge Needs | Reef Knowledge System (Authority.gov.au) Integrated Monitoring and Reporting – Great Barrier Reef Foundation Reef explorer | Reef Knowledge System Reef Knowledge System – Resilient Reefs Network QLD Marine Turtle Conservation Strategy 2021-2031 Marine turtle biology, research and conservation Recovery Plan for Marine Turtles – 2017		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority published a Priority monitoring gaps prospectus (RIMReP) in 2021 - which provides an overview of the priority monitoring gaps identified to support the implementation of the Reef 2050 Integrated Monitoring and Reporting Program. The gaps have been prioritised based on their utility to assess progress against the Reef 2050 Plan and to inform management of the Reef. The prospectus identified 11 priority monitoring gaps for further investment including some related to TUMRA. This includes: – **Dugong Monitoring program** which will deliver critical knowledge on dugong population, distribution and abundance trends across the Reef. – **Integrated Reef Fish Monitoring** which will design and implement a large-scale integrated fish monitoring program to address priority knowledge needs on fish species of recreational, commercial, cultural and ecological significance in in-shore reefs, deep water and nursery habitats. • The **Reef Knowledge System** currently hosts: - several Land and Sea Country webpages, which provide key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community. The Land and Sea Country Maps page provides spatial information relevant to Traditional use of marine resources. - new Reef coral reef habitat mapping layers through the Reef Explorer interface: geomorphic, benthic, and	Raine Island program Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		bathymetry (to 20m depth) maps and a satellite image mosaic (refer Maps | Reef Knowledge System) - an internal interactive dashboard, the Resilient Reefs Network Guidance Tool, which allows users to view and map the disturbance history and the potential for recovery and resilience of individual reefs within the Marine Park • AusSeabed Marine Data Portal and Product catalogue – Geoscience Australia host a very high-resolution bathymetry map of the Reef, including the continental shelf. • Geospatial Hub hosts inter-Reefal and continental slope data for identifying plane/slope. • The **Reef Joint Field Management Program** is assisting the Marine Monitoring Program to improve the assessment of seagrass condition across the Reef by trialling monitoring techniques. The data captured through this trail is being considered by Seagrass Watch. • **TUMRA Program and Sea Country Values Mapping** activities led by saltwater Traditional Owner groups generate opportunities to identify saltwater heritage values and sites, threats to cultural heritage values, cultural landscapes, and cultural species and often facilities Traditional Ecological Knowledge sharing.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Toolkit for safeguarding Indigenous heritage and knowledge (2020) is available as a guidance tool for parties engaging with Reef Traditional Owners. • The Australian and Queensland governments' policy on cumulative impact management will provide a comprehensive and systematic framework to assess impacts on species and their supporting habitats. • The Australian and Queensland governments' policy on cumulative impact management provides a comprehensive and systematic framework to assess impacts on species and their supporting habitats. • Turtle nesting habitat monitoring (Reef 2050 Plan BA20): The nesting beaches of Reef are mostly known and key sites monitored for nesting success. DES monitors annually marine turtle nesting at key index nesting beaches for marine turtles in eastern Queensland. Through the Nest to Ocean program monitoring and a range of predator (pig, fox, dog and goanna) control activities are undertaken. Additionally specific interventions, such as translocation of nests at risk of inundation, occurs on loggerhead nesting beaches. The Raine Island program address specific nesting success issues at various scales and involves Traditional Owners. • Commonwealth Threatened Species Action Plan (has actions relevant to Marine turtles and to Raine Island as a critical breeding ground)			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Challenge: • Ensuring sufficient data is available on Traditional Use.			
IN5 The necessary **socio-economic information** is currently available to address traditional use of marine resources	3	• Socio-economic information in relation to Traditional Use is beginning to be addressed through several recently developed monitoring programs especially SELTMP (see below). • Traditional Owner groups are learning from each and **sharing traditional knowledge** about the environment/species and passing this on (Interviewee 1 2023). • The Reef Authority published a **Priority Monitoring Gaps prospectus** in 2021 - which provides an overview of the priority monitoring gaps identified to support the implementation of the Reef 2050 Integrated Monitoring and Reporting Program. The gaps have been prioritised based on their utility to assess progress against the Reef 2050 Plan and to inform management of the Reef. The prospectus identified 11 priority monitoring gaps for further investment including some related to Traditional Use (e.g. **Implementing the Strong People Strong Country framework** ($1400K) including indicator selection, data capture and sharing protocols, co-interpretation of data). • These gaps have since been funded by the Reef Trust Partnership and RIMReP Partners are progressing the projects (RTP-IMR Projects).	SELTMP Core module pilot data dashboard SELTMP Core Module Report SELTMP Core Module 2021 Survey dataset: Regional Report Cards social survey dashboard Regional Report Cards Module Report Regional Report Cards 2021-22 Social Survey dataset Integrated Monitoring and Reporting - Great Barrier Reef Foundation Land and Sea Country | Reef Knowledge System	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Social and Economic Long-Term Monitoring Program (SELTMP) (refer PL5) addresses new objectives and indicators in the Reef 2050 Plan, and provides information required for adaptive management of the Reef social-ecological system. It aims to create a greater understanding of how people use and benefit from the Reef, including Traditional Owners. The updated broad objectives of SELTMP are to: monitor changes in community attitudes towards the Reef, its values and management, and the perceived threats to those values; predict attitudinal and behavioural responses to future management interventions in the Reef, and changes in Reef health; monitor changes in social and economic well-being of Reef-dependent communities, and the benefits they derive from the Reef; and assess and monitor social and economic vulnerability, and adaptive capacity of Reef communities to changes in Reef condition and the wider system. • Sharing of Indigenous heritage information, including Traditional Use will be captured through the RIMReP Reef Knowledge System (as related to Reef 2050) and negotiated through Data Sharing Agreements with the knowledge holders. The system provides key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community. • Toolkit for safeguarding Indigenous heritage and knowledge (2020) is available as a guidance tool for peoples engaging with the Reef Traditional Owners.	Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **Human Use Dashboard** (2021-2023) - aims to produce a prototype dashboard that will provide access to human use data to Reef managers. The user-friendly interactive dashboard is dynamic and responsive and has functionalities like maps, filters and graphs. It uses the IT Cloud environment to allow for data flow. • 'Science and Knowledge Needs for Management' (2021) – refer IN4. • National Vessel (Ship) Strike Strategy (Reef 2050 Plan). Its implementation will aim to reduce vessel strike on marine fauna, which include those valued for traditional use.			
IN6 The necessary **Indigenous heritage** information is currently available to address traditional use of marine resources	3	• Traditional Owner Implementation Plan acknowledges the value of Traditional Knowledge as Indigenous science and when aligned with western science provides for greater management and protection of the Reef. However, 'For many of us, separation from Country has meant a loss in intricate connections and knowledge' (Heart of the Reef - A Call for Healing). • Science and Knowledge Needs for Management (2021) – refer IN4. • Much Indigenous heritage information is retained and shared by Traditional Owners with their groups and is used to implement effective and sustainable Traditional Use. This information is passed on to younger generations. • Due to custom or sensitivities some of the Traditional knowledge may not be shared or disclosed to the Reef		Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Authority. However, close relationships with Traditional Owners and Reef Authority staff facilitate effective engagement to discuss heritage matters, including Traditional Use. • Implementing the 'Strong Peoples-Strong Country Framework' was identified as one of the Priority Monitoring Gaps in the Reef Authority's prospectus in 2021 - which provides an overview of the priority monitoring gaps identified to support the implementation of the Reef 2050 Integrated Monitoring and Reporting Program. The Framework aims to build capacity for Traditional Owner leadership of monitoring and reporting in the Reef. Phase 2 involves the development of a set of objective indicators, which aim to provide information and insights about the condition and trends in Indigenous heritage values in the Reef and its catchments. • The Toolkit for safeguarding Indigenous heritage and knowledge (2020) is accessible by Traditional Owner groups. • Woppaburra Guidelines - increases Traditional Owner input into permitting decisions, and to prevent impacts to traditional use and heritage values (Before applications are accepted and assessed). • Information on the physical location and values of cultural heritage sites are poorly documented.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN7 The necessary **historic heritage** information is currently available to address traditional use of marine resources	3	• Commonwealth historic heritage sites in the Marine Park owned or managed by the Reef Authority include: Dent Island Lightstation, Lady Elliot Island Lightstation, Low Islets Lightstation and Low Island. Low Island meets Commonwealth Heritage List criteria for Indigenous Tradition i.e. the place has significant heritage value because of the place's importance as part of Indigenous tradition, the Kumu Yalanji and Yiriganji Traditional Owner groups visited the site regularly. Little information is available on these Indigenous traditions. Low Islets Lightstation and Low Island is a popular tourist destination and the pressures placed on this fragile site are managed through the Cairns Area Plan of Management. • The Reef Authority has guidelines for permission decisions, including the Traditional Owner heritage assessment and Woppaburra Traditional Owner heritage assessment. • The Reef Authority considers Indigenous heritage and Traditional Use within specific management plans for Commonwealth heritage sites, e.g. for Low Isles this includes the *Bama Ngulkurrku Wawu Wawurrku Bundangka Bubungu Jalunbu, Healthy Mob, Healthy Land and Sea, Eastern Kuku Yalanji Indigenous Protected Area Management Plan*, • Traditional Use activities are undertaken in recognition of the Reef's Historic heritage values.	Guidelines – Historic heritage assessment: maritime cultural heritage protection special management area Guidelines – Historic heritage assessment: WWII features and sites, and voyages and shipwrecks Guidelines – Historic heritage assessment – other places of historic and social significance Annual Report 2020-2021: Performance information analysis: Outcome 1, Portfolio Budget Statement – The Reef is protected – Policy and Planning Strategic Roadmap, Knowledge Stream, p17 Workshops Interviews	Adequate	NA

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority invested in Traditional Owner-led Sea Country values mapping of almost 25 per cent of the Reef coastline. Most of the TUMRA partners progressed in identifying and recording their Sea Country values. Sea Country values mapping is foundational to sharing information with managing agencies to allow improved heritage management. The first publicly available product is from Mandubarra Traditional Owners. • Great Barrier Reef Heritage Strategy addresses all aspects of heritage and Traditional Use. • Sea Country values mapping projects were conducted in nine TUMRA regions to assist in understanding the cultural values of specific Traditional Owner Sea Country estates. Challenge: • 'Data management and data sharing are challenges. Traditional owner data is not well described. There is no systematic data sharing system and information is protected…Appropriate mechanisms will help to ensure that people manage their own data or knowledge including consideration of how others interact with that information' (workshop participant). Resourcing to address data issues is challenging.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
IN8 There are additional sources of **non-government input** (e.g. volunteers) contributing to address traditional use of marine resources	4	• Traditional Owners have TUMRAs and ILUAs covering 46% of the Reef coastline (and about 22% of the area of the Marine Park). Many Traditional Owners are working on country and in most instances this work is on a voluntary basis. This includes **Eyes and Ears**, monitoring, beach clean ups, restoration and others. – Voluntary participation in Eyes and Ears compliance networks contributes to protect matters that underpin Traditional Use and use of marine resources by people who are not Traditional Owners. • Significant actions have occurred through the TUMRA program to address Traditional Use. Given the TUMRA coordinator is usually the only Reef Authority funded/subsidised position, many TUMRA activities are conducted voluntarily. • The Reef Knowledge System hosts several Land and Sea Country webpages, which provide key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community. The Land and Sea Country Planning page provides links to non-government involvement in Traditional use of marine resources.	Land and Sea Country | Reef Knowledge System Planning | Reef Knowledge System	Adequate	Improving
PROCESSES					
PR1 The main **stakeholders** &/or industry(ies) are **effectively engaged** in the ongoing	4	• Refer CO5, PL1 (planning system), PL6 (engaged in planning), IN8 (non-government input), PR2 (local community), PR3 (governance system) where issues relating to stakeholders are discussed.	Consultation (public comments on Reef Authority website)	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
management of traditional use of marine resources		• Traditional Owners of the Reef assert their inherent rights and interests from their continuing connection to Land and Sea Country. As custodians of land and sea, **Traditional Owners assert that their special rights and interests extend beyond the definition of 'stakeholders'** (refer CO5 and PL1). • Traditional Owners stated that '*we have not been heard and what we have said has not been interpreted in the way that we would have expected*' (p.iv). The Traditional Owner Implementation Plan represents '*a significant departure from a government-led process to one where we have our hands on the steering wheel*' (p.iv). It is based on a more holistic and inclusive approach to the formal governance and management of the Reef. It is based on effective partnerships that empower Traditional Owners to lead, co-design and co-deliver management programs, resulting in better coordination of programs across the Reef and catchment. • As rights holders, Traditional Owners are engaged through their own practices and partnerships with managing agencies and other stakeholders to look after their Sea Country and associated Indigenous heritage. • On ground engagement between QPWS and Traditional Owners is reported to be 'good', with officers showing 'respect' to Traditional Owners. Indigenous and non-Indigenous rangers are working together on country to achieve outcomes e.g. checking sites and undertaking mitigation work (Interviewee 2023).	Annual Report 2019-2020: Introduction: Working with Partners and Stakeholders, p13; Governance, p14; Overview, p16; Performance: Program area 1 - Marine Monitoring Program, p24; Program area 2 – Policy and Planning Strategic Roadmap – Knowledge Stream, p42, Traditional Owners Stream, p43, Resilience Stream, p44 Annual Report 2020-2021: Introduction: Reef Joint Field Management Program, p4; Program area 1: Enhancing Reef resilience by providing expert knowledge to advise key decision-makers on managing, reducing or avoiding significant threats to the Reef- p21 Annual report 2021-2022: Sustainable Use of the Reef;		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Traditional Owners have entered into **co-management/governance arrangements** i.e. jointly deciding on objectives, sharing power, authority and responsibility, and being jointly held accountable for outcomes. • The Reef Authority is the lead agency for matters relating to the Reef and provides expert technical and policy advice to the Australian Government, the public and other stakeholders. • Traditional Owners are the main group directly involved in Traditional Use and they are engaged in a range of management processes and actions: – **Indigenous Reef Advisory Committee** - advises on ways to facilitate partnerships, enhance engagement and build capacity with Traditional Owners in the management of marine resources. – **Indigenous Ranger Groups** work in partnership with the long-term Marine Monitoring Program that monitors, analyses and reports on inshore water quality and the health of inshore coral reefs and seagrass meadows. • Other fora that include Traditional Owner guidance on matters related to Sea country management are the Tourism RAC and LMACs (11). • The Reef Authority continues to develop **a Partnerships Framework** (to be in place by September 2023), which will guide the Reef Authority on how to effectively enter into formal partnerships. Formal partnerships will be co-designed	Reef Rehabilitation Projects – p18		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		with shared decision-making and co-benefits. The Partnerships Framework and the **Engagement and Participation Framework** are essentially interdependent. • The Reef Authority will be collaborating with Traditional Owners in the development of the new **Plan of Management for the Southern region**. • Manbarra Traditional Owners collaborated to develop the John Brewer Reef Site Plan. The Reef Authority is working with Mandubarra Traditional Owners to protect values identified in their cultural values mapping project. • Sea Country Values mapping projects are underway (refer PL2). • A number of projects were initiated during 2019–20 to improve the Reef Authority's understanding of the changes to the values and use of the Marine Park. The initial focus was supporting Traditional Owners in four Sea Country values mapping projects. • TUMRA Program - there are 10 TUMRAs supporting 18 Clan groups in total, covering approximately 43% of the Reef coastline (there is one Indigenous Land Use Agreement in place that brings the total approximate coverage of agreements to 46%). The TUMRA Program is the leading Sea Country management program in the Marine Park and other Traditional Owner groups are interested in developing agreements.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• TUMRA Traditional Owner groups have utilised their TUMRAs in many different ways to support their Sea Country management aspirations, including employing TUMRA coordinators and support officers, mapping cultural sites to improve their protection, providing input and advice on permit referrals, researching and monitoring activities, a wide and diverse range of on-country activities, attending local events to raise awareness of their TUMRA and Sea Country management activities, and developing TUMRA-specific communication and education products. • AIMS identifies four levels of engagement with Traditional Owners, ranging from basic engagement, to consultation, joint AIMS-Traditional Owner co-led projects with co-design and co-delivery, and Traditional Owner led projects with AIMS support. The level of engagement will depend on the type of project being developed and implemented. • There have been some delays in the delivery of a number of TUMRA Program activities due to COVID-19 operational restrictions on travel to remote communities and bringing Traditional Owners together. The Reef Authority continued to support TUMRA groups remotely and reassured groups of its ongoing commitment to supporting delivery of TUMRA activities into the future, including through existing contracts that support the employment of TUMRA coordinators and staff. The TUMRA team will continue to work with groups to			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		support an administratively sound process that ensures contracts are maintained. • Information is collected through various programs and draws on a range of sources/stakeholders. These include a diverse range of knowledge from Traditional Owners, scientists, stakeholders and Reef Authority staff, which informs management decisions and provides evidence-based advice to the government, the public and stakeholders. Information is shared with various stakeholders, through publications such as the Reef summer snapshot and Marine Monitoring Program reports, along with briefings and engagement opportunities. • The RJFMP has been trialling new tools and management techniques to improve Reef health and resilience. The Reef Authority works with scientists, the tourism industry, Traditional Owners and private corporations on direct intervention projects, such as the installation of reef stars and Coral clips® to stabilise coral rubble and improve coral growth in areas impacted by bleaching, cyclones and maritime incidents. Challenges: • A reef-wide approach to engaging effectively with Traditional Owners. • Exploring opportunities for Indigenous peoples to build capacity by working in a range of work environments (e.g. with tourism operators, fishing industry and other) and for			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		reciprocal arrangements to be developed (e.g. fishing operators to join reef rangers on joint patrols) (Interviewee). • '*The ability of Traditional Owners to be able to commit to a multi-level system of engagement….there are lots of people asking for advice*' (Workshop participant 2023) • '*Engagement can be overwhelming. We need to break this down into manageable components…Don't overwhelm Traditional Owners – some are still hurting….We need to think about appropriate remuneration for all engagement*' (Interviewee 2023). • '*Many Traditional Owner groups are looking at how to take the next step to co-governance – a true partnership where Traditional Owners have a real say….Currently we (government) are working with a pilot group to see how to do it (on Cape York). Many groups want this, but we are struggling internally in delivering …a true partnership and design co-governance that works for everyone*' (Workshop participant 2023). • '*Trust is a big issue as government does not always have great relationships with Traditional Owners…We now have a new language of co-design and new language around engagement….Engagement is a way of the past - partnering is the way we are going and should have been going for a long time….There are multiple ways, interlinkages and decision making does not fall centrally. In the past (centralised decision making) has caused trust deficits…(In response) government needs internal capacity in terms of*			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		cultural competency …and related training' (Workshop participant 2023) • '*Traditional Owners don't trust government. What are we doing to fix the trust? We need joint decision making - a co-management model with Traditional Owners fully involved as a partner – that is the key gap*' (Workshop participant 2023). • Information management – passing on of knowledge, electronic storage of knowledge • Lack of recognition of the interconnectedness of the environment, culture and people.			
PR2 The **local community is effectively engaged** in the ongoing management of traditional use of marine resources	4	• The local community with regard to Traditional Use is predominantly the Traditional Owners in the local communities (refer PR1). • A requirement of all TUMRA contracts is that the TUMRA coordinator attends LMAC meetings within their area. This facilitates communication and awareness of traditional use management and other synergies and partnerships that are possible through the community. • ' in the School Curriculum and their traditional use of marine resources is included on interpretive signage around the island. Through the partnership Woppaburra are hosted by the Centre in an annual on–country weekend. Note that no Woppaburra people actually live on-country. • **Raine Island Recovery project** is a partnership with Traditional Owners and park managers to monitor the values and restore the Island where the values are being impacted.	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR3 There is a **sound governance system** in place to address traditional use of marine resources	3	• Refer PL2 for relevant legislation, plans, strategies related to Traditional Use. The Zoning Plan is a key document – it was revised and introduced a new system for providing for Traditional Use in Marine Parks, including traditional hunting and traditional fishing. Under these arrangements, the Traditional Use in areas with accredited agreements are managed in accordance with TUMRAs developed by Traditional Owners and accredited by the Managing Agencies. • **Traditional Owners live under two laws** – their own and those of non-Indigenous Australia – i.e. Traditional Owners need to maintain the internal effectiveness and legitimacy of their governance and need to be effective and credible with external stakeholders (AIGI) that include other organisations, groups, communities, businesses, companies, governments, economic forces and laws. • For Traditional Owners **effective governance** means having rules, structures and processes that are capable of achieving identified objectives. – This governance must be **legitimate** i.e. the rules, structures and processes are seen as credible and worthy by your members (Indigenous Governance Organisation 2023). – Contemporary Indigenous governance refers to the 'melding of our traditional governance with the requirement to effectively respond to the wider governance environment' (Godda 2012, Indigenous Social	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Justice Commissioner -Social Justice Report). It incorporates how Traditional Owners organise their families, communities, manage their resources, share knowledge, and act. Traditional Owner social and philosophical systems, cultural values, traditions, rules and beliefs are central to this governance system (Aust Indigenous Governance Institute, 2023). – 'Aboriginal and Torres Strait Islander people put their culture at the heart of their governance' (AIGI 2023). – The distinguishing characteristics of Indigenous governance in the Reef typically include: o Consensus-building in decision making o Elders and cultural leaders included with clear roles o Group focussed resource sharing o Cultural and traditional ties as a basis for recognition of land and sea tenure o Community cohesion-based relationships (Commonwealth of Australia 2018: 26) • Other forms of governance arrangements relevant to the Reef include: – Corporate and organisational entities e.g. Indigenous corporations and associations – Native title related organisations e.g. Land and Sea Ranger Programs – Geographically defined organisational governance e.g. Girringun Aboriginal Corporation (Cardwell) comprising an alliance of nine tribes.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		– Deeds of Grand in Trust e.g. Aboriginal and Torres Strait Shire Councils within Reef catchments – Native Title Representative Bodies e.g. four in the Reef include Cape York Land Council, North Queensland Land Council, Queensland South Native Title Services and Torres Strait Regional Authority. – Natural Resource Management groups – Formalised local arrangements e.g. TUMRAs and ILUAs – Informal committees, boards and taskforces e.g. Sea Country Forums. • Management of Traditional Use in the Reef is **complex** and involves numerous State and Commonwealth legislation and policy. The Marine Park Act provides the head of power for consideration and protection of cultural values. The Regulations allow consideration of potential impacts on cultural values through the permitting process (see r88Q) and provide for the accreditation of TUMRAs (part 2B). Plans of Management and site planning arrangements provide some consideration for cultural heritage and aim to minimise conflicting use, but mostly with recreational users and tourism rather than major developments. • There is no 'one size fits all' governance arrangement for Indigenous heritage – the gap is in **connection and learning from each other** and also in **connecting with existing structures such as the IRAC** (Interviewee 1, 2023).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Commonwealth and State governments have agreed to establish a **Reef Traditional Owner Sea Country Alliance** to be developed by the Indigenous Coordination Unit (funding was committed in 2022). • The **governance system** in relation to Traditional Use is beginning to show evidence of **'empowering'** (i.e. to place final decision-making in the hands of the Traditional Owners). For example: – The Gurra Gurra Framework (2020-26) reframes relationships with First Nations peoples by holding Country and people at the centre, including policy, programs, and service delivery and working in partnership to build a strong and shared future. The Framework seeks to 'understand and respect the diversity of First Nations cultures…., the collectivist nature of decision-making, the importance of Elders and other knowledge keepers, and the primacy of relationships and connection to Country above all things' (p.6). The process considers structures and the people who work within those structures; the functions, and the processes that deliver on those functions; and governance and leadership. This involves working in partnership from the earliest stages of development through to implementation and evaluation; working together to define outcomes and benefits; empowering First Nations leadership; structurally **enabling co-governance** and co-stewardship; respecting community-led decision-making processes			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and timeframes; and exploring new ways of working through co-design and co-delivery. Initiative 8 in the Framework focuses on '**strong governance'** and the need to review existing governance structures to appropriately '**embed shared responsibility** for the implementation of the Framework….; and consider potential gaps in existing structures **ensuring First Nations people are represented with the governance process**' (p.19). – **Partnerships** - various **TUMRAs** are moving towards a **co-governance approach**, where engagement is based on Indigenous aspirations and priorities within an Indigenous framework, process, context and time frame, one that is Indigenous-driven. There is increasing evidence of sustained engagement processes that provide Indigenous people with the opportunity to actively participate in decision making from the earliest stage of defining the problem to be solved, with participating continuing during the development of policies, programs and projects and the evaluation of outcomes. There are currently 10 accredited agreements, covering approximately 43% of the Reef coastline, and one Indigenous Land Use Agreement. '*We do not have co-governance yet. It is co-management…ideas about protected areas come from government not Traditional Owners*' (Workshop participant 2023). – Assessment of TUMRA applications is managed under part 2B of the Great Barrier Reef Marine Park			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Regulations. This is the primary governance system in place and works effectively. – The Reef Authority commenced new partnerships with Traditional Owner groups to develop **four new Traditional Owner-led agreements**. – The Reef Authority is actively seeking co-management opportunities with Traditional Owners on all island protected areas (Workshop participant 2023). – **Reef 2050** Traditional Owner Implementation Plan (2022) (refer PL2) - Traditional Owner led and builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. Culturally appropriate communication products help to inform community, government and stakeholders of the long history and desired path forward. – At the local level, the development of the John Brewer Reef Site Plan included working with Manbarra Traditional Owners to understand the cultural values of the area. The Mandubarra Sea Country Cultural Values: 2019-2020 mapping project, involved two workshops with Mandubarra Traditional Owners to develop a plan to protect the cultural values identified in this document. – **Queensland First Nations World Heritage Strategy** was co-designed and developed with First Nations people and seeks to centre Country and people across all			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		aspects of World Heritage to better identify, protect, conserve, present and transmit to future generations the irreplaceable values of World Heritage areas. – Strong and strategic Indigenous leadership is in place, with guidance from Elders. • Governments and other agencies are striving to provide leadership and secure adequate resources and culturally competent staff capable of building trusting relationships. **Lack of human resources** and skill sets (refer IN2, IN3) **are limiting factors currently as is short-term funding and support**. • **Investments are being made to strengthen the governance** and capacity of Indigenous and government partners for effective partnership. These efforts start early and continue over the long term and build on existing community organisations and governance structures. • TUMRAs are viewed by Traditional Owners as a **leveraging platform** to engage with a wide range of partners to obtain grants, funding and assistance. '*We now have big programs because of TUMRAs*. **TUMRAs are really important connectors** and we have engaged with a lot of partners '(Interviewee 1, 2023). – '*TUMRAs have been a good mechanism to establish relationships between the Authority and Traditional Owner groups but they need more 'teeth"* (Interviewee 13, 2023), including more formal arrangements to manage take of species (usually by outsiders) in TUMRA areas.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Knowledge System - the Land and Sea Country Maps, Planning, and Strategy pages provide links to governance arrangements relevant to Traditional Use. • In terms of representation: an additional Traditional Owner position added to Reef 2050 Advisory Committee to provide for one male and one female Traditional Owner member; and additional Indigenous heritage expertise has been added to the Reef 2050 Independent Expert Panel. • The Reef Authority has adopted the **Engagement and Participation Framework**, which promotes a best practice approach to engagement, collaboration, and partnerships. The Reef Authority training staff and aims to embed the Framework to deliver a consistent approach to how the Reef Authority engages and partners regardless of who the stakeholder is. • The RJFMP have established a governance group a to manage the delivery of the **RJFMP Traditional Owner Partnership Strategy** and aid coordination and cooperation with Traditional Owners working and living in sea country. Challenges: • **enhancing the governance capacities** of Traditional Owner organisations, as well as families, clans, tribes, sub-regions and regions. Capacity building can help to ensure Traditional Owners are able to engage meaningfully; and non-Indigenous decision makers understand the importance of			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		other ways of knowing and engaging in genuine partnerships. • **enhancing and resourcing linkages among Traditional Owner groups** and with other structures and decision-making groups, including the IRAC (Interviewee 1, 2023). '*Traditional Owners sit on boards, but they are never equipped to go out on Country. The process is flawed*' (Interviewee 13, 2023). '*The IRAC needs to give advice but they have no way to engage directly themselves*' (Interviewee 13, 2023). • normalising rights-based agreement making through policy, procedures and ongoing participation and support to mobilise approaches for co-governance (and co-management) across the Reef at regional, sub-regional and local scales – '*government bodies struggle with siloing…*' (Workshop participant 2023) • establishing **regional governance models that include Traditional Owners** and that can inform Reef management. • **amending legislation to facilitate co-governance** arrangements with Traditional Owners (e.g. Marine Park Act) • multiple organisations addressing matters that may impact on Traditional Use (e.g. tourism, fishing, shipping, defence, education and others) and this places undue pressure on Traditional Owners • ensuring clarity surrounding sustainable take of marine resources			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• **addressing limited resources, the significant demands** from the members of Indigenous organisations and government and the complex governance environment, which place a heavy demand on most Indigenous organisations – trying to do too much, with too little. Rebuilding organisational governance may help to address these challenges (Aust. Indigenous Governance Institute). • equity issues, in particular the **engagement of women** (equal representation, decision making power, respect and recognition of women's voices, leadership, structural barriers to women's participation) - 'rebuilding Indigenous governance to strategise to support women's active participation' (IAGI 2023).			
PR4 There **is effective performance monitoring**, including regular assessment of **appropriateness and effectiveness of tools**, to gauge progress towards the objective(s) for traditional use of marine resources	3	• The performance planning protocols within the Reef Authority internally evaluate how effective the Reef Authority staff have been at achieving their work programs against the Corporate Plan, Strategic Plan, Land and Sea Country Partnerships Program and Annual Operating Plans (refer PL2). In general, all programs reliant on external or project funding are required to monitor and evaluate performance. • **Reef 2050 Indigenous Heritage Indicator Project** - CSIRO is supporting an Indigenous Heritage Expert Working Group under the Reef 2050 Reef Integrated Monitoring Modelling and Reporting Program to develop Indigenous heritage indicators to monitor progress under Reef 2050. The project	Report to Closing the Gap – MERI plans Attachment C_ Reef Rescue Indigenous Land and Sea Country Partnerships Program. Independent TUMRA review report	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		product will be a Traditional-Owner developed monitoring framework and indicators. • MERI Plan for the Land and Sea Country Partnerships Program is in place. • The continued resourcing of a dedicated Policy and Planning section enabled the Reef Authority to progress implementation of the **Policy and Planning Strategic Roadmap**. Achievements include releasing a draft Interventions Policy for public comment and cultural mapping projects as part of the Aboriginal and Torres Strait Islander Heritage Strategy. • The Reef Authority reports bi-annually to DCCEEW on its performance, and the performance of TUMRA groups under the Land and Sea Country Partnerships program. Nearly all milestones under this program have been met, and the program is on track to meet all deliverables. **Challenges:** • Recent research questions the effectiveness of performance monitoring generally - 'analysis of **40 years of GBRMPA Annual Reports highlights a continuous pattern of mismatches between threats** identified by the Reef Authority **and subsequent management goals**, as well as **mismatches between management goals and subsequent management interventions**' (Morrison et al. 2020).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• It is unclear the extent to which monitoring interrogates how interventions work together as a group and in sequence. • Simplifying onerous reporting and overlaps in reporting. • Embedding Traditional Owners in all aspects of Reef monitoring and evaluation using culturally appropriate approaches (Strong Country – Strong People Framework).			
PR5 Appropriate **training** is available to the managing agencies to address traditional use of marine resources	3	• Please refer IN3 where skills and expertise in relation to Traditional Use were discussed. • **Cultural competency training** for all Reef Authority staff will be undertaken as part of the annual mandatory training for 2022-23. The Queensland Government has mandatory cultural competency online training. Additional training is offered through Departmental training resources with Indigenous owned organisations to build cultural capability. • **The TUMRA program's mentoring and 'buddy' system** between established TUMRAs and developing ones has been a significant capacity builder for saltwater Traditional Owners. The mentoring and development in a two-way partnership between TUMRA Program Manager (within the Reef Authority) and the TUMRA Coordinator (within Traditional Owner Group) is central to the capacity and development of the TUMRA Program. TUMRA Programs offer many pathways for skills and certification. • **Sea Country Values Mapping activities provide various and diverse** opportunities for saltwater Traditional Owner and	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		groups to build capacities, skills and/or certifications through planning or product development, establishing or building management partnerships and especially when integrating mapping/product developments. • Gurra Gurra Framework (2020-26) emphasises the need for: '**cultural capability'** i.e. in terms of skilling the DES workforce to build and sustain permanent relationships with First Nations peoples; and a workforce that considers attraction, recruitment, retention, career pathways and cultural safety. Key initiatives are: 'Improving cultural capability and agility', focused on increasing cultural understanding and ability to apply this knowledge and increasing learning opportunities to build cultural proficiency; and 'attract and develop First Nations people to our workforce' by strengthening employment pathways for First Nations staff to progress through the agency, reducing barriers, building retention and progression initiatives. • **On-ground action** is integral to the management of the Reef, particularly through incident response. To further support and empower Indigenous Rangers, the Reef Authority co-facilitated training to provide the opportunity to **cross-pollinate traditional knowledge and expertise with western science** to better protect traditional estates and, ultimately, the Reef. Twenty-eight Indigenous rangers graduated from our compliance training course in March 2020, joining more			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		than 50 rangers who have achieved nationally recognised accreditation. • **Eyes and Ears Compliance Training** assists Traditional Owners to understand: Zoning - how different users can utilise the Marine Park and what the zoning means for them; How Native Title works with the Zoning and other marine legislation; How to identify local issues/risks; How to identify stakeholders/knowing who to contact if they suspect illegal activity; To assist participants obtain high standard surveillance and evidence collection, such as photographs, notes, location evidence and sufficient details to identify potential suspects. • A detailed **inspector's package** has been delivered under the Field Management Program to broaden staff knowledge of cultural issues and to manage interactions with Traditional Owners in an operational environment. The Reef Authority regularly hosts legislation training for all staff. • Diver training supported 16 Indigenous Land and Sea Rangers from 10 TUMRA groups to complete Open Water and Advanced Open Water diver training (Annual Report 2021-2).			
PR6 Management of traditional use of marine resources is **consistently implemented** across	3	• Governance and planning system jurisdictional arrangements are very complex (refer PL1 and PL2 which address jurisdictional issues in relation to the planning system, PL8 which addresses consistency across jurisdictions when planning, and PR3 which addresses the governance system).	Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
the relevant jurisdictions		• **Reef 2050 Plan** details coordination of actions to better address Traditional Owner involvement in management and protection of the Reef. • The Traditional Owner Implementation Plan (2022) is owned by all Reef 2050 partners across jurisdictions to better coordinate actions that address Traditional Owner involvement in the management and protection of the Reef. It builds on a strong history of Traditional Owners articulating their priorities for the Reef and provides an operational platform to strategically coordinate and advance the delivery of actions to achieve their aspirations. • The Reef Authority and the Reef **Joint Field Management Program** coordinate their work and approach in relation to Traditional Use. • **Joint Marine Parks permits** are assessed on matching criteria and the cultural referral program informs both State and Commonwealth marine parks permit assessments and decisions. • The **Permissions Cultural Heritage Referral project** is improving the Reef Authority's ability to include Traditional Owner cultural knowledge in permit decisions. Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi) are currently involved. These four TUMRA groups provide comments, in a formal and structured way, on location-specific permit applications. TUMRA groups, including those with Sea Country Values (SCV) Mapping activities, can identify potential impacts to cultural values. Jointly with QPWS, comments are			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		included in permit assessments. The permits team facilitates discussion between TUMRA groups and applicants where appropriate. - Indigenous rangers may be employed across a number of different programs and organisations and in general these cross jurisdictional programs work well, with rangers and others working together to protect Traditional Use values. • TUMRAs have a legislative base and are available to all Traditional Owner groups. TUMRAs are jointly accredited by both the Reef Authority and the State/Qld. • Joint permit arrangements provide some consideration for cultural heritage and aim to minimise conflicting use – but mostly with recreational users and tourism NOT major developments. Challenge: • Permitted activities in the marine parks are 'a confusing space for Traditional Owners' (Workshop participant 2023) with government decision making reflecting hard boundaries whereas Traditional Owners recognise connections to country across land and sea. 'Traditional Owners have a say… but we can't remove the permits that are there…managing this is difficult…but now if Traditional Owners say no (to an activity or use) the Reef Authority can permit the use (e.g. research) outside the area' (Workshop participant 2023).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
PR7 There are effective processes applied to **resolve differing views**/ conflicts regarding traditional use of marine resources	3	• Refer to PR1 where the TUMRA/ILUA process is described. • Checklist developed by the Reef Authority's TUMRA managers to ensure Traditional Owner groups address all requirements - includes engaging with neighbouring Traditional Owner Groups and getting their written endorsement before a TUMRA boundary can be set. • There is a dispute resolution clause and process within each TUMRA contract. • Traditional Owners are engaged in a range of fora, including the IRAC, TRAC, Advisory Board, LMACs and can express their views and engage in processes to resolve differing views (and potential conflicts). Challenge: • Developing a '*joint governance approach about how to deal with conflict, monitor and evaluate outcomes*' (Workshop participant 2023)	Accreditation of a TUMRA (Australian government)	Adequate	Stable
PR8 **Impacts** (direct, indirect and cumulative) of activities associated with traditional use of marine resources are **appropriately considered**.	3	• The condition and trend of values relevant to Traditional Use (including fishing, hunting, collecting and looking after cultural and heritage sites) were addressed in CO2; a range of impacts were identified in CO3; and the role of the planning system in addressing major factors influencing Reef values was addressed in PL2. • Most Traditional Owner groups along the Reef coast continue to exercise their Native Title rights and hunt or collect in line	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		with s211 Native Title Act 1993. Of the groups with a TUMRA, many have placed a voluntary moratorium on the take of turtle and dugong. TUMRA groups manage their land/sea country sustainably e.g. set hunting limits through a permitting process. Hunting permit systems perform many functions including: permission, monitoring, recording and facilitating compliance actions. • During the TUMRA development and accreditation assessment the Reef Authority works with Traditional Owners and scientists to access the best information available on culturally important species such as dugong and green turtles. Scientists can estimate the total losses these populations can withstand and still maintain population recovery or increases. Traditional Owners use these estimates as the basis for determining ecologically sustainable levels of take for these animals within their TUMRA. • Green turtles and dugong are vulnerable to a range of impacts including boat strike, habitat degradation, by-catch, pollutants, marine debris and disease. **Current known legal hunting by Traditional Owners is considered to be sustainable, provided other threats are addressed**. • Illegal hunting of threatened species by people who are not Traditional Owners (known as poaching) is a concern of Traditional Owners and managing agencies			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The **consequential and cumulative impacts of activities associated with Traditional Use are not optimally understood** (refer PR8, CO2,3). • Gunggandji TUMRA did not allow any take. • There is a reporting requirement within each accredited TUMRA. However, there is no formal administrative process within Reef Authority to regularly follow this up. • Within the Compliance section of the Reef Authority a specific part of the compliance database was established in ~2015 to record and manage Indigenous activities, which may or may not be illegal. This section of the database functions as a holding area to facilitate preliminary investigation of the reported Indigenous activity. If it is deemed to be potentially illegal, it is released into the compliance database as an incident for investigation. If it is determined to be legal it is closed off and not investigated further. • Decarbonisation of the Reef islands (Qld Govt) supports businesses and communities to transition to a low carbon future and build resilience. There are about 20 participating resort islands with funding for solar/battery combinations, biodiesel/biogas, solar hot water, hybrid ferries, wind/tidal turbines etc. About 70 projects were piloted in four whole-of-island communities (Great Keppel, Magnetic, Palm and Masig) including green waste composting, upgrading waste management, rooftop solar/battery systems etc. All projects			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		were based on cultural integrity and place-based design, ensuring respectful, meaningful engagement. Challenge: • While some direct and indirect impacts are considered, especially in the permissions system, several key stressors are less well considered, especially the cumulative and additive impacts of climate change, on Traditional Use values.			
PR9 The best available **biophysical research** and/or monitoring information is applied appropriately to make relevant **management decisions** regarding traditional use of marine resources	3	• Refer IN4 where biophysical information is discussed, PR8 regarding the scientific information relied upon by Reef Authority permit assessors to determine sustainable take limits under a TUMRA, and the Biodiversity topic (Table 35). • There is an increasing amount of biophysical information relevant to Traditional Use. This includes Traditional Owners' extensive knowledge of their Sea country, data from a range of monitoring projects, evidence from research-based projects and the synthesis of information provided in ongoing Outlook Reports. While there may be gaps in biophysical knowledge relevant to Traditional Use, in general the available information is applied to assist in management decision making in relation to Traditional Use. This information is used at all levels within the governance system, including by the Reef Authority Board, Advisory Committees, LAMCs, Reef Authority staff and mangers from related sectors (e.g. fishing, agriculture, coastal development, defence etc), and on-ground by Traditional Owners, rangers and staff who implement the permissions	Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		system and review and update related policies, plans and other documents. • Aerial dugong research (2022-23) and monitoring information, which is a requirement of the Reef 2050 Plan informs the assessment of TUMRA applications in the Reef. - Northern Great Barrier Reef green turtle population model informs Traditional Use - Traditional Owners adjust their take of reef species on the basis of the available biophysical research/monitoring information and their knowledge of related systems and processes. • Improvements to the permission system include the mandatory requirement to consider monitoring and managing relevant impacts. In some cases biophysical research and monitoring will be required to understand the implications of the proposed activity on the known values within the vicinity to develop effective avoidance and mitigation measures. Monitoring includes background, works or operational monitoring and long-term monitoring (as described in the Assessment Guidelines). Further, EMP as part of a permit requirement includes monitoring requirements designed to manage potential impacts of the values of the Marine Park. Challenge: • While there is extensive research into trends in relation to climate change and impacts on reefs, the extent to which this information informs the Reef governance system and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		management decision making is unclear, including in relation to Traditional Use.			
PR10 The best available **socio-economic** research and/or monitoring information is applied appropriately to make relevant **management decisions** regarding traditional use of marine resources	3	• Refer IN5 where socio-economic information is discussed; IN6 for development of cultural protocols and data sharing agreement templates; and PR1 which includes socio-economic values relevant to TUMRAs. • Reef Authority works closely with 70 Traditional Owner clan groups within the Reef and incorporates relevant Traditional Use information to assist in decision making. • **Social and Economic Long-Term Monitoring Program (SELTMP)** provides information required for adaptive management of the changing Reef social-ecological system (refer IN5 for broad objectives of SELTMP). It aims to create a greater understanding of how people, including Traditional Owners, use and benefit from the Reef. • **NESP Project 1.17**: Research needs for a national approach to socio-economic values of the marine environment. This project reviewed common frameworks that conceptualise the relationship between people and nature to identify which parts of the system influence environmental outcomes, and factors relevant to designing policy or influencing behaviours. • **The Strong People-Strong Country Framework** – phase 2 involves developing a set of objective indicators to provide information and insights about the condition and trends in	Social, cultural and economic values associated with the Reef SELTMP Core Module Report SELTMP Core Module 2021 Survey dataset: Regional Report Cards social survey dashboard Regional Report Cards Module Report Social & economic long-term monitoring survey of residents in Reef catchment, 2021 Integrated Monitoring and Reporting - Great Barrier Reef Foundation	Adequate	NA

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Indigenous heritage values, including Traditional Use in the Reef and its catchments. • Various projects/programs provide information that can be used to assist in management decision making: • The **Reef Knowledge System** currently hosts several Land and Sea Country webpages, which provide key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community. The Land and Sea Country Research and Monitoring page provides links to research and monitoring relevant to Traditional use of marine resources. • Sharing of Indigenous heritage information, including Traditional Use, will be captured through the **RIMReP Reef Knowledge System** (as related to Reef 2050) and negotiated through Data Sharing Agreements with the knowledge holders. The system provides key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community. • Toolkit for safeguarding Indigenous heritage and knowledge (2020) is available as a guidance tool for parties engaging with Reef Traditional Owners. • **Human Use Dashboard** (2021-2023) - aims to produce a prototype dashboard that will provide access to human use data to Reef managers. The user-friendly interactive dashboard is dynamic and responsive and has functionalities	Land and Sea Country | Reef Knowledge System Research and monitoring | Reef Knowledge System Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		like maps, filters and graphs. It uses the IT Cloud environment to allow for data flow. • 'Science and Knowledge Needs for Management' (2021) – refer IN4.			
PR11 The best available **Indigenous heritage information** is applied appropriately to make relevant **management decisions** regarding traditional use of marine resources	3	• Refer IN6 for a discussion of the available information relating to Traditional Use. • Traditional Owners have extensive knowledge of their Sea Country and apply this in decision making related to the management of their Sea Country. • **Co governance** and **co-management** arrangements will assist in ensuring that relevant information related to Traditional Use is included in relevant management tools (e.g. Plans of Management, Special Management Areas and others) • The **Permissions Cultural Heritage Referral project** is improving the Reef Authority's ability to include Traditional Owner cultural knowledge in permit decisions. Four TUMRA groups (Woppaburra, Mandubarra, Girringun and Wuthathi) are currently involved. These four TUMRA groups provide comments, in a formal and structured way, on location-specific permit applications. TUMRA groups can identify potential impacts to cultural values. • The Reef Authority is currently developing a **Traditional Owner Payments Policy** to effectively and meaningfully engage First Nations peoples to provide cultural advice and participate in Reef Authority processes. This piece of work is due for completion in 2023.	Workshops Interviews	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Jointly with QPWS, comments are included in permit assessments. The permits team facilitates discussion between TUMRA groups and applicants where appropriate. This process helps to manage and mitigate risks where applicable. • Sharing of Indigenous heritage information will be captured through the **RIMReP Reef Knowledge System** and negotiated through Data Sharing Agreements with the knowledge holders. The Reef Authority is building on existing work with Traditional Owners to develop a **partnering framework** to ensure that the Reef Authority genuinely embeds Traditional Owners and their knowledge in policies and programs for a better-managed Reef.			
PR12 The best available **historic heritage** information is applied appropriately to make relevant management decisions regarding traditional use of marine resources	3	• Where available the best historic heritage information is applied (refer IN7) to ensure Traditional Use does not impact on historic heritage sites or values. • Traditional Use activities are undertaken in recognition of the Reef's Historic heritage values. • In some cases historic heritage assessment guidelines provide location specific information about Indigenous heritage values, including Traditional Use. The information available is limited and most of the references relate to Woppaburra (the only location specific Indigenous guideline developed). • The Reef Authority considers Indigenous heritage and Traditional Use within specific management plans for Commonwealth heritage sites, e.g. for Low Isles this includes the Bama Ngulkurrku Wawu Wawurrku Bundangka Bubungu	Workshops Interviews	Adequate	NA

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Jalunbu, Healthy Mob, Healthy Land and Sea, Eastern Kuku Yalanji Indigenous Protected Area Management Plan.			
PR13 Relevant **standards** are identified and being met regarding traditional use of marine resources	3	• Refer PL2 for a discussion of a wide range of plans, strategies and other documents that incorporate standards in relation to Traditional Use. • Standards are established for TUMRAs in relation to the process of establishment and content of the agreements and these are being met. • The Toolkit for safeguarding Indigenous heritage and knowledge (2020) is accessible by Traditional Owner groups. • Historic heritage assessment- other places of historic and social significance; and DMS4 Cultural Protocol/ Guidelines/Data Sharing Agreement Template. These are targeted at internal agency assessors (assessing permit applications) and proponents who apply for permits to ensure everything is done to consider impacts on Indigenous heritage, including Traditional Use, and pre-emptively avoid or mitigate those. • The Gurra Gurra Framework 2020–2026 aims to assist the Commonwealth and Queensland governments to meet existing and emerging legislative obligations under: the United Nations Declaration on the Rights of Indigenous Peoples; the *Native Title Act 1993* (Cwth); the *Torres Strait Islander Cultural Heritage Act 2003* (Qld); the *Aboriginal Cultural*	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		Heritage Act 2003 (Qld); the *Human Rights Act 2019* (Qld); the *Nature Conservation Act 1992 (Qld);* other legislation; and obligations and commitments outlined in our agreements and contracts. The implementation of the Framework aligns with whole-of-government strategic initiatives such as Tracks to Treaty. - National Environmental Standards are proposed to guide decision making and are expected to cover First Nations engagement and participation in decision making.			
PR14 **Targets** have been established to **benchmark management performance** for traditional use of marine resources	3	• Clear targets for Reef Rescue projects were established to benchmark performance (see MERI Plan). • The joint Field management Program – has a specific 5-year business strategy which includes Indigenous engagement with established targets to benchmark performance (e.g. set number of TUMRA meetings attended, target to increase the number of Traditional Owners on Marine Parks vessels over time). • Targets identified in the Reef Authority's Corporate Plan in relation to expanding and establishing new TUMRAs are being met.	See Attachment C_ Reef Rescue Indigenous Land and Sea Country Partnerships Program.	Adequate	Stable
OUTPUTS					
OP1 To date, the actual **management program** (or activities)	3	• The Land and Sea Country Partnerships Program specified a number of key deliverables and yearly targets to be achieved over the five-year duration of the program.	Annual Report 2020-2021: Introduction: Reef Joint Field Management Program, p4;	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
have progressed in accordance with the **planned work program** for traditional use of marine resources		• The **expansion of the Reef Joint Field Management Program**, conducted in partnership with the Queensland Government, continued to roll out in 2020–21, despite impacts from COVID-19. The program delivers practical and critical on-ground actions to protect and maintain well-functioning marine and island ecosystems that support economic, traditional and recreational uses of the Great Barrier Reef. This work plays a critical role in delivering a number of the Reef Authority's key activities including conservation, monitoring, incident response, providing recreation and tourism facilities and upholding compliance. • The Aboriginal and Torres Strait Islander Heritage Strategy for the Marine Park is in place. It contains 30 short to long-term actions to keep the Indigenous heritage, including Traditional Use of the Reef strong, safe and healthy. - more than 90 per cent of actions are underway, of which, 60 per cent are on track and 30 per cent are on track with limitations. Substantial progress on major foundational activities and additional resourcing led to significant achievements in implementing the strategy. • Indigenous representation in governance of the Marine Park increased, with a new Indigenous Reef Advisory Committee appointed and Indigenous membership on the Tourism Reef Advisory Committee, Local Marine Advisory Committees and the Reef 2050 Integrated Monitoring and Reporting Program Executive Group.	Performance information analysis: Outcome 1, Portfolio Budget Statement – The Reef is protected- *Aboriginal and Torres Strait Islander Heritage Strategy* p16. Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• The Reef Authority commenced new partnerships to develop two new TUMRAs. • The expansion of the TUMRA program supports the identification of cultural authority and Sea Country boundaries and provides capacity for Traditional Owner clan groups to engage in broader Marine Park management. The Mandubarra Aboriginal Land and Sea Incorporation (Traditional Owners from the Kurramine Beach/Innisfail area) are the 10th Traditional Owner group to implement a TUMRA). • The TUMRA program contributes to a range of Reef 2050 actions and good progress is being made. • The Reef Authority invested in Traditional Owner-led Sea Country values mapping of almost 25 per cent of the Reef coastline. Nine of the marine resource agreement partners progressed in identifying and recording their Sea Country values. Sea Country values mapping is foundational to sharing information with managing agencies to allow improved heritage management. The first publicly available product is from Mandubarra Traditional Owners. • A suite of projects to support increasing Traditional Owner involvement in the Marine Park permissions system were progressed. These projects are multi-year and seek to transform the consideration of potential impacts on Indigenous heritage by inviting Traditional Owner clan groups with known cultural authority to provide advice on relevant Marine Park permit applications.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Communication and education activities increased throughout 2020–21 to improve public awareness and promote the inherent rights and connection of Traditional Owners. Major funding was secured to embed Indigenous content throughout a co-designed Reef HQ Aquarium, which is currently under renovation.			
OP2 **Implementation** of management documents and/or programs relevant to traditional use of marine resources have progressed in accordance **with timeframes specified** in those documents	3	• Refer PL2 for a discussion of the key documents related to Traditional Use. • The TUMRA program implemented a number of modified work arrangements in response to the COVID-19 pandemic. While this enabled the program to continue with the delivery of on-ground activities across the World Heritage Area in 2019–20, there were **reductions in field delivery and some activities** needed to be deferred, including Raine Island recovery, planned burns and pest control, face-to-face engagement, reef health and bird surveys, and regular contact and delivery of activities with First Nations People. • The Annual Report (2021–22) states that more than 90 per cent of actions are underway. **70 per cent of the strategy's actions are on track and 20 per cent are on track with limitations**, due mainly to resource constraints limiting new engagement with Traditional Owner groups (the Reef Authority has secured additional resourcing to meet the 75 per cent on track target in future years).	Workshops Interviews	Adequate	Declining
OP3 **The results** (in OP1 above) have achieved	4	• Results have been achieved and some exceeded (Annual Report 2021-2).	Workshops	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
their stated management **objectives** for traditional use of marine resources		• Increased Indigenous representation in Marine Park governance, with regular meetings of the Indigenous RAC and an increased Indigenous membership on the Tourism RAC, LMACs and the Reef 2050 Integrated Monitoring and Reporting Program Executive Group. • Securing several **new investments and partnerships** to develop four new TUMRAs and enhance existing agreements — the program identifies cultural authority and Sea Country boundaries and engages Traditional Owner clan groups in broader Marine Park management. TUMRAs are important in ensuring sustainable Traditional Use. • TUMRA development includes standardised contracts for all TUMRAs. Enhanced compliance around Traditional Use has occurred through the development and delivery of a two-year specialised Indigenous ranger program. • Implementation of other planning and management tools for Traditional Use (i.e. 39ZA agreement, site management plan, special management area, data sharing agreements and a formal Traditional Use reporting system) have not occurred. However there is capacity to explore the application of these tools in future. • Securing new investment to expand Traditional Owner-led Sea Country values mapping, which is shared with agencies for better heritage management. • Various projects to increase Traditional Owner involvement in the Marine Park permissions system — these projects invite clan groups with known cultural authority to provide advice on	Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		relevant Marine Park permit applications (for example, the Reef Authority has started referring location-specific permissions applications to Mandubarra Traditional Owners for advice). • Communication and education activities throughout 2021–22 to improve public awareness and promote the rights and connection of Traditional Owners — this included a new Sea Country e-newsletter to promote Traditional Owner activities and further co-design work on the Reef HQ Aquarium to embed Indigenous content.			
OP4 To date, **products or services** have been produced in accordance with the stated management **objectives** for traditional use of marine resources	3	• Refer OP1 and OP3 where work has been produced in accordance with stated objectives for Traditional Use. • Refer PL2 for a detailed description of planning related documents that are in place. • SELTMP is undertaking monitoring projects in relation to dugong, seabird and island habitat monitoring, biosecurity surveillance, integrated reef fish monitoring program, sustainable use and benefits monitoring etc.	Workshops Interviews	Limited	Declining
OP5 Effective **knowledge management systems** regarding traditional use of marine resources are in place within agencies	3	• Supporting the release of the **Reef 2050** Traditional Owner Implementation Plan (2022) were culturally appropriate communication products including an animation and timeline to inform community, government and stakeholders of the long history and desired path forward for Traditional Owners of the Reef.	Land and Sea Country | Reef Knowledge System	Adequate	Improving

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• DES launched **Jawun**, an internal knowledge and resource hub accessible by all staff. It contains information about culture, heritage, legislation, communities, respectful engagement, case studies and other resources that will contribute to implementing the vision and principles of the Gurra Gurra Framework. It is being co-developed with Reef Authority staff to increase shared understanding of First Nations culture and heritage and contribute to stronger outcomes for community and Country. • DES quarterly **Native Title and Cultural Heritage Newsletter** is distributed DES-wide to keep staff informed about important changes, legislation, case law, decisions regarding Native Title, Culture Heritage and Traditional Use. • The **Reef Knowledge System** hosts several Land and Sea Country webpages, which provide key links and information relevant to Indigenous heritage, Traditional Owners, and the broader Reef community. • **RIMReP** is a partnership involving Australian and Queensland government entities, together with Traditional Owners. Four Traditional Owner Members sit on the RIMReP Governance groups to provide guidance and advice on cultural, social, economic, and other matters, engagement strategies and approaches and Traditional Owner issues relevant to achieving the RIMReP vision. • Toolkit for safeguarding Indigenous heritage and knowledge (2020) is available as a guidance tool for parties engaging with the Reef Traditional Owners.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Sharing of Traditional Owner information will be captured through the RIMReP Reef Knowledge System (as related to Reef 2050) and negotiated through **Data Sharing Agreements** with the knowledge holders. Future engagement requirements for RIMReP. • The **Heritage Database** contains information about natural, historic and Indigenous places located within the Marine Park, as well as Indigenous places. • Spatial information and datasets arising from research conducted on in the Marine Park are housed and managed by the Reef Authority's **Spatial Data Centre.** Continued collaboration between the Reef Authority and its partners will help to identify and address gaps in spatial data and opportunities to share data and make it more 'discoverable' by others. • **Cultural Knowledge Management System (CKMS)** designed and implemented. TUMRA staff have used it to record on country meetings and events and manage TUMRA contracts and deliverables (from a project management perspective). It has functionality that would enable the Reef Authority to hold culturally sensitive information relevant to different Traditional Owner groups (e.g. story lines, voice recordings, sensitive locations). The database can be accessed externally to allow Traditional Owners with a login and password to enter their own information and manage it (refer OP1). • Protocol for managing culturally sensitive information.			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		• Cultural knowledge management system holding negotiated and agreed information. • Improvements to permission system (in line with Reef 2050 Plan).			
OP6 Effective systems are in place to **share knowledge** on traditional use of marine resources with the community	3	• Eleven island national parks in Cape York Peninsula have been transferred to Indigenous ownership, Marpa NP (CYPAL), Wuthara Island NP (CYPAL), Mitirinchi Island NP (CYPAL), Ma'alpiku Island NP (CYPAL), Piper Islands NP (CYPAL), Howick Group NP (CYPAL), Flinders Group NP (CYPAL), Wuthathi (Sir Charles Hardy Group) NP (CYPAL), Wuthathi (Saunders Islands) NP (CYPAL), Hope Islands NP (CYPAL), Yamarrinh Wachangan Islands (Denham Group) NP (CYPAL). Each land handback includes considerable media coverage with DES Media advising the Eastern Kuku Yalanji handback in 2021 (which includes Hope Islands NP (CYPAL) attracting 58 mentions, a potential reach of 676,564 people and an ASR of 1,362,871. • Supporting the release of the **Reef 2050** Traditional Owner Implementation Plan (2022) were culturally appropriate communication products including an animation and timeline to inform community, government and stakeholders of the long history and desired path forward for Traditional Owners of the Reef. The ReefTO website houses this information and keeps community and partners up to date. • **Jawun** is a key deliverable from the Gurra Gurra Framework 2020–2026 and is being co-developed with staff to increase	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		our shared understanding of First Nations culture and heritage and contribute to stronger outcomes for community and Country. Jawun is an internal knowledge and resource hub accessible by all staff and contains information about culture, heritage, legislation, communities, respectful engagement, case studies and other resources that will contribute to implementing the vision and principles of the Gurra Gurra Framework. • **Social media and communications outputs** (refer Land and Sea Country Partnerships reports). • Regular articles in CEO's Updates produced on a monthly basis. **Challenges:** • while there is good management and partnerships between certain sections of the Reef Authority (Field Management Program) with Traditional Owner groups, this is not as strong as it could be across government (and within Reef Authority as a whole). • greater cultural competency and understanding of Traditional use is needed. In addition, a greater understanding of how much traditional use occurs and where is needed to support evidence-based statements about traditional use, inform spatial management under TUMRAs and understand its role relative to other pressures such as entanglement, habitat loss, and climate change.			
OUTCOMES					

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC1 The relevant managing agencies are to date **effectively addressing** traditional use of marine resources and moving towards the **attainment of the desired outcomes**.	3	• Managing agencies, including Traditional Owner groups are more effectively addressing Traditional Use. In particular the TUMRA program has grown and more groups are interested in projects on country. • Aboriginal and Torres Strait Islander **Heritage Strategy** for the Marine Park contains 30 short-to long-term actions that aim to support Traditional Owners to keep their Indigenous heritage strong, safe and healthy. Heritage encompasses 'everything in Sea Country', which is both tangible and intangible. Achievements that are addressing desired outcomes include: - a trial of the Traditional Owner Place Specific Assessment Guidelines was completed with Woppaburra Traditional Owners, and proved to be a practical and valuable tool to facilitate the effective consideration of Indigenous heritage values in permit assessments - the Sea Country Values Mapping Project provided resources to assist Traditional Owner groups to map their values and decide on the cultural information to share for management purposes o The Reef Authority invested in Traditional Owner-led Sea Country **values mapping** of almost 25 per cent of the Reef coastline. Nine of the marine resource agreement partners progressed in identifying and recording their Sea Country values. Sea Country values mapping is foundational to sharing information with managing agencies to allow improved heritage	Annual Report 2019-2020 Performance: Program area 2 – Aboriginal and Torres Strait Islander Heritage Strategy, p48,49; Program area 2 – Policy and Planning Strategic Roadmap, p42 Annual Report 2020-2021: Performance information analysis: Outcome 1, Portfolio Budget Statement – The Reef is protected- *Aboriginal and Torres Strait Islander Heritage Strategy* p16; Policy and Planning Strategic Roadmap, p16, 17; Traditional Use of Marine Resources Agreements - p50 Annual report 2021-2022: Sustainable Use of the Reef; Traditional Owner Partnerships Strategy 2022-2027 – p18, 19.	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		management. The first publicly available product is from Mandubarra Traditional Owners and can be viewed on the Reef Authority's website. - the Sea Country Communications Plan promoted cultural change and cross-cultural training delivered through the implementation of the Reflect Reconciliation Action Plan o **Communication and education** activities increased throughout 2020–21 to improve public awareness and promote the inherent rights and connection of Traditional Owners. Major funding was secured to embed Indigenous content throughout a co-designed Reef HQ Aquarium, which is currently under renovation. - The implementation of strategy actions has progressed throughout 2020–21, with more than 90 per cent of actions underway, of which, 60 per cent are on track and 30 per cent are on track with limitations. • **Indigenous representation in governance** of the Marine Park increased, with a new Indigenous Reef Advisory Committee appointed and Indigenous membership on the Tourism Reef Advisory Committee, Local Marine Advisory Committees and the Reef 2050 Integrated Monitoring and Reporting Program Executive Group. • The Reef Authority commenced **new partnerships** to develop two new TUMRAs. The expansion of the program supports the identification of cultural authority and Sea Country boundaries	Workshops Interviews		

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		and provides capacity for Traditional Owner clan groups to engage in broader Marine Park management. • A suite of projects to support increasing Traditional Owner involvement in the Marine Park permissions system were progressed. These projects are multi-year and seek to transform the consideration of potential impacts on Traditional Use by inviting Traditional Owner clan groups with known cultural authority to provide advice on relevant Marine Park permit applications. • The Reef Authority's Policy and Planning Strategic **Roadmap** aims to better protect key Reef values, enable ecologically sustainable use and work with Traditional Owners and partners, including the tourism industry. It is a significant undertaking that will deliver cohesive forward planning that is more risk-based, strategic, efficient and adaptive. The implementation of the Roadmap is progressing well with substantial achievements actioned in 2020–21. The full implementation of the Roadmap will be progressed over several years and is updated to reflect work that has commenced or is completed, and as new areas of work are added. The Roadmap covers significant areas of the Reef Authority's regulatory approach, including: • The Roadmap comprises five key themes of work: knowledge, risk, Traditional Owners, tools and resilience. Work on the knowledge stream has been slower than the other streams. To date, work to collate Marine Park value and use information for planning purposes has been limited to targeted issues and			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		locations. Broader understanding of Marine Park use changes has not progressed due to other priorities. The Reef Authority is actively pursuing projects with the Science for Management section to address some of these limitations. • Marine Park policy (e.g. future-focused intervention and permit guidance, tourism and other Marine Park use and protection policies). • Implementation of the Aboriginal and Torres Strait Islander Heritage Strategy (refer above) and, development of further co-management opportunities permissions streamlining Marine Park planning (including zoning, plans of management and site planning).			
OC2 The **outputs** relating to traditional use of marine resources are on track to **ensure the values** of the Great Barrier Reef are protected (refer CO1)	3	• Refer to OC1 for a discussion of the main outputs, CO1 for the key values, and PL2 for a list of key documents. • Refer PR4,9,10,11,12 where a range of monitoring information is detailed in relation to protecting Reef values. • Refer CO2 where condition and trend are discussed). • 'There has been so much damage to our Country and she is struggling to recover from threats on a scale never faced before. Country is stressed, Country is crying' (Heart of the Reef – A Call for Healing). • Some natural values which are relevant to traditional use of marine resources, such as coral reefs, seagrass beds and some species (e.g. turtles, dugong) are well studied and Traditional Owners, in general are aware of their condition and trends. However, the ongoing impacts of climate change,	Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		combined with other stressors such as sediment input, COTS and others can result in rapid change in the condition of diverse components of the Reef.			
OC3 The outputs (refer OP1 and 3) for traditional use of marine resources are **reducing the major risks and the threats** to the Great Barrier Reef	3	• See OC1 above. • Several outcomes from the Reef Rescue projects are reducing risks from illegal hunting, killing of vulnerable species, biodiversity protection etc. • Traditional use of marine resources is not considered one of the major risks to the Reef, however, there is **limited information available** to confirm this and in particular the impact on threatened species. • The Australian Governments Dugong and Turtle Protection Plan (DTPP) includes programs and activities to help understand the risks posed by traditional use (both legal and illegal poaching). The DTPP outcomes are designed to address risks that may affect turtle and dugong populations (e.g. marine debris, poaching, illegal use by any marine park user). A specific outcome of the Specialised Indigenous Ranger Program component of the DTPP has resulted in the training of 26 Indigenous Rangers and the ability to attain inspector powers. This has resulted in more trained compliance officers along the Reef coastline that are able to identify, report and respond to non-compliance incidents (that may be caused by any user of the marine park). An additional outcome of this training is these officers will have a level of	Workshops Interviews	Limited.	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		cultural competency and understanding when it comes to traditional use and native title.			
OC4 Use of the Great Barrier Reef relating to traditional use of marine resources is demonstrably **environmentally sustainable**	3	• Refer PR9-12 for relevant monitoring data, especially in relation to species relevant to Traditional Use and refer OC2 and OC3 (recent TUMRA accreditations). • TUMRA incorporate strategies to sustainably manage species and habitats and this enhances environmental sustainability. - For Traditional Owners, the sustainable use of marine resources is part of looking after Sea Country - The take of several species, such as turtle and dugong, are managed under agreed guidelines. - Queensland Marine Turtle Conservation Strategy 2021-2031 indicates that Traditional Use 'is not the primary cause of the dramatic decline in the populations of many species of marine turtles' (p.13). • Not all parts of the Queensland coast are managed through TUMRAs and there is little available evidence to confirm whether Traditional Use is environmentally sustainable. • Partnership approaches between Traditional Owner groups (often through TUMRAs) and the State government (through QPWS) and the Reef Authority have been crucial in addressing Traditional Use and working to enhance environmental sustainability. - Indigenous rangers work with QPWS to undertake biosecurity work, bird surveys, monitoring coral bleaching and COTs outbreaks, beach clean-ups (removal of 'ghost	Workshops Interviews	Limited	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		nets'), pest management, and compliance (i.e. ensuring that no one is hunting or taking species illegally within the Marine Park zones). 'Sustainability is embedded in our culture' (Yirriganydji TUMRA). – 'Rangers deliver the practical, on-the-ground arrangements to conserve these species' (dugong and turtle). They play a valuable role at Raine Island in rescuing stranded turtles, using fences to stop turtles falling over cliffs and assisting in altering beach profiles (Marsh & Hamman 2016). • Traditional Use represents one use among many that impact on the Reef's values. However, collectively several Reef values are in decline and will be further impacted by the cumulative impacts of climate change, sediment input and COTs. Challenge: • Better understanding of emerging threats such as underwater noise pollution and water quality to several marine species (e.g. turtles).			
OC5 Use of the Great Barrier Reef relating to traditional use of marine resources is demonstrably **economically sustainable**	3	• The term 'economic' as it relates to cultural use has a different meaning for non-Indigenous people. For Traditional Owners Traditional Use may have a very high value but this does not necessarily infer monetary value. • Gaps remain in understanding of the total economic worth of Traditional Use. • While there is limited Indigenous tourism established within the Reef, several TUMRA groups are developing partnerships	Workshops Interviews	Limited	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		with tourism operators. For example, Yirrganydji and Gunggandji Traditional Owners partner with Reef Magic and Sunlover Cruises in Cairns to run on-country cultural activities (for example Junior Ranger field trips), develop Traditional Owner cultural interpretation materials (e.g. TUMRA and Traditional Owner videos) for presentation on vessels to tourists in transit to or through Traditional Sea country and to develop career pathways for Traditional Owners on tourist vessels. • Yirrigangdji TUMRA – an educational video showcasing the TUMRA and what is means to Traditional Owners and the Reef Authority. Short videos are being developed for tourists and visitors. The group have worked with Reef Magic Cruises, Passions of Paradise and Sunlover Reef Cruises to deliver and develop reef education programs and identify training and employment pathways. • Fee for service arrangements are developing and this will grow as Traditional Owner groups build their capital base. There is increasing procurement and revenue sharing. Custodians are getting back on country and many intend to be major service providers (Interviewee 1, 2023).			
OC6 Use of the Great Barrier Reef relating to traditional use of marine resources is demonstrably **socially sustainable,** in terms	3	• While there is good management and partnerships between certain sections of Reef Authority/RJFMP with Traditional Owner Groups, this isn't as strong as it could be across government and the wider community. Greater societal cultural competency and understanding of Traditional use and its value is needed.	Workshops Interviews	Adequate	Declining

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
of understanding and/or enjoyment		• **Loss of Indigenous knowledge is a major risk**. The passing of elders results in loss of knowledge. There is some **difficulty in exercising cultural rights and responsibilities**, due to loss of access and lack of resources. The disruption of the traditional lifestyle creates **challenges the transferring of knowledge** to the younger generation. Heritage is intricately linked with the people to whom it belongs. **Without the systemic passing on of cultural knowledge that occurred prior to European disruption, heritage is at risk of not being passed on to the next generations, and thus lost forever.** • A further risk to heritage is a **lack of on-ground management capacity and opportunities for Traditional Owners**. Limited access to marine areas due to not having **suitable boats, and limited resources to conduct protection and rehabilitation activities** can prevent active management. On-ground management requires competent organisations with strong governance in place that have cultural authority to make decisions, and resources such as boats and rangers to implement management activities. Without on-ground management, cultural and legislative rules and responsibilities cannot be implemented or enforced. • There are differences in capacity between TUMRA groups and non-TUMRA groups in terms of accessing support and undertaking on-country management. This has implications			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		for passing on of Traditional knowledge, practices and culture and accessing country (Interviewee 1, 2023). • Australian Academy of Science (2023) climate change scenarios identify: near future (2030-40) impacts from climate change as a loss of cultural totems and practices, loss of scared Indigenous sites from flooding and wider impacts on Indigenous cultures, values and practices; medium-term future (2040-60) high emissions resulting in loss of functions, including coastal communities and Traditional Knowledges; and medium-term future (2040-60) low emissions resulting in threats to Traditional values and practices, food availability, wellbeing and important totem species. • **The lack of knowledge of Indigenous heritage and Traditional Use by other Reef managers and users**, including the Reef Authority, puts heritage at risk of being impacted unintentionally. Without information on heritage and Traditional Use, the Reef Authority can't consider it during assessment or planning processes. Without use of Traditional Owner knowledge in decision making, decisions can impact on heritage irreversibly. • The DES Cape York Peninsula Tenure Resolution Program negotiates Island Book Protocols in conjunction with Traditional Owners for commercial tour access to islands. This places restrictions on how islands area accessed and any cultural requirements. IBPs were signed in 2021 for Hope Islands NP (CYPAL) and in 2022 for Yamarrinh Wachangan Islands (Denham Group) NP (CYPAL).			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
OC7 The relevant managing agencies have developed **effective partnerships** with local communities and/or stakeholders to address traditional use of marine resources	4	• One of the strengths of the management of the Reef are the partnerships that have been developed (refer CO5, PL4 and PL6, IN8, PR2, 3, OC4). • TUMRAs are an effective vehicle to enhance partnerships and enable TUMRA groups to access a range of programs and services. • The Reef Authority collaborated with Manburra Traditional Owners to incorporate cultural values in the John Brewer Reef Site Plan. • Strong partnerships have been built in developing TUMRAs, ILUAs, and Indigenous Management Agreements: – In 2022 the **Ipima Ikaya Aboriginal Corporation RNTBC** and the State entered into an Indigenous Land Use Agreement and two Indigenous Management Agreements to jointly manage the Apudthama National Park (Cape York Peninsula Aboriginal Land) and the Yamarrinh Wachangan Islands (Denham Group) National Park (Cape York Peninsula Aboriginal Land). – Entered into a PTUKI Protocol to guide how researchers access and undertake studies on natural resources within the national parks (CYPAL). Under the CYPAL the QPWS follow a 'Permits to take, use, keep or interfere with Natural Resources Protocol' (PTUKI) where researchers want to take things within a Traditional Owners land/sea country. This protocol implements a respectful governance arrangement where there is formal	See Joint Field Management reports Traditional Owner Implementation Plan (2022) Heart of the Reef - A Call for Healing Workshops Interviews	Adequate	Stable

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		notification, involvement and data sharing between western science and Traditional Owners (between Atambaya, Ankamuthu (Seven Rivers) and Gudang/ Yadhaykenu peoples and the State). The Shelburne Bay agreement was put in place in 2016 with the Wuthathi Traditional Owners. • The TUMRA program has established strong partnerships with 18 Traditional Owner clan groups (via TUMRAs). The Reef Authority commenced new partnerships with Traditional Owner groups to develop **four new Traditional Owner-led agreements** The TUMRA program covers about 43% of the Queensland coastline. • The Gurra Gurra Framework 2020–2026 provides the guiding principles to ensure Country and First Nations People's rights are at the forefront for the State government and will provide minimum standards, principles and guidelines on effective engagement with First Nations People (delivery expected by mid to late 2023). • Raine Island Recovery Project has established effective partnerships with several Traditional Owner Groups, leading to outcomes for science, monitoring and restoration. • Information Sheets produced by Traditional Owner groups (in partnership with QPWS) advice visitors and researchers on how to conduct their activities within their land and sea country (e.g. Stanley Island in the Flinders Group National Park (Cape York Peninsula Aboriginal Land) which is owned			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		by the Cape Melville, Flinders and Howick Islands Aboriginal Corporation). • Woppaburra Guidelines is the first of its kind and was built form developing effective partnerships with Woppaburra Traditional Owners. It is currently being implemented throughout the permit system for any activities that meet the trigger points for referral in the Keppel Island group. • In 2021–22, the RJFMP launched the **Traditional Owner Partnerships Strategy** to strengthen and enrich cooperation with Traditional Owners and First Nations people of the World Heritage Area. The strategy will build on the strong relationships that the Reef Authority and QPWS have with many Traditional Owners and First Nations communities. The Program is committed to increasing Traditional Owner involvement in field management activities and expanding collective management of the World Heritage Area. • This strategy sets the tone, expectation and intent of our engagement practices. It will also guide future investment in Traditional Owner partnerships (particularly Program funded initiatives). The strategy complements the Aboriginal and Torres Strait Islander Heritage Strategy for the Great Barrier Reef Marine Park and provides a culturally safe environment for meaningful partnerships. • The Reef Authority continues to develop **a Partnerships Framework** (to be in place by September 2023), which will guide the Reef Authority on how to effectively enter into formal partnerships. Formal partnerships will be co-designed			

Component of Management	Rating	Justification	Evidence/sources	Confidence	Trend
		with shared decision-making and co-benefits. The Partnerships Framework and the Engagement and Participation Framework are essentially interdependent. Challenges: • Developing Indigenous-led approaches and policies that address customary use of resources and access and benefit sharing arrangements. • Enhancing equity, especially in relation to the engagement of women in decision-making. • Sufficient funding and resourcing to enhance the outcomes from all partnership arrangements.			

Appendix 6 Updated data for 2019 Management Effectiveness Report provided by 2019 Assessors

Table 51: Updated 2019 management effectiveness report indicator ratings, element grades (for each Topic and overall), means and standard deviations, provided by Reef Authority on behalf of 2019 assessors[16]

	Issue	Biodiversity	Climate Change	Coastal Development	Commercial Marine T	Community Benefits	Defence	Fishing	Heritage	Land-based Run-off	Ports	Recreation	Research	Shipping	Traditional Use	Mean	Standard deviation
CO1	Values	4	4	3	4	3	4	3	3	4	3	4	4	4	*4*	*3.64*	*0.50*
CO2	Condition and trend	2	2	3	3	3	4	3	2.5	4	3	3	4	4	*3*	*3.11*	*0.68*
CO3	Impacts	3	3	3	4	3	3	3	3	4	4	4	3	3	3	*3.29*	*0.47*
CO4	National and international influences	4	3	4	4	4	4	4	4	4	4	4	4	3	4	3.86	*0.36*
CO5	Stakeholders	4	4	4	4	4	4	4	4	4	4	4	4	4	4	*4.00*	*0.00*
CO	Overall grade	ME	ME	ME	E	ME	E	ME	ME	E	E	E	E	E	*E*	*E*	
PL1	Planning system	4	2	3	3	3	4	*3.5*	3.5	4	4	3	3	4	4	*3.43*	*0.62*
PL2	PS addresses factors influencing	3	2	3	4	3	3	*3.5*	2.5	4	4	4	4	4	3	*3.36*	*0.66*

[16] *Note:* The 2019 management effectiveness report (Appendix 2) did not include trends for each Topic across the six elements. However, as seven element grades have been corrected (blue highlights) in the attached table, this has also affected the trends from 2014 to 2019 that were reported in the Topic summary tables. All corrections to trends are footnoted in relation to each of the Topic summary tables within this 2024 report.

	Issue	Biodiversity	Climate Change	Coastal Development	Commercial Marine	Community Benefits	Defence	Fishing	Heritage	Land-based Run-off	Ports	Recreation	Research	Shipping	Traditional Use	Mean	Standard deviation
PL3	Actions clear	3	2	3	4	3	4	3.5	2.5	4	4	4	4	4	4	3.50	0.68
PL4	Objectives measurable	3	2	3	3	3	4	3.5	3	4	3	3	4	3	4	3.25	0.58
PL5	Monitoring	3	3	3	3	3	3	3	3	4	3	2	3	3	3	3.00	0.39
PL6	Stakeholders engaged	4	2	3	4	4	4	3.5	3	4	3	4	3	4	4	3.54	0.63
PL7	Sufficient policy	3	1	3	3	3	3	3	3	4	4	3	4	4	3	3.14	0.77
PL8	Consistency jurisdictions	4	1	3	4	3	4	3	3	4	3	3	4	4	4	3.36	0.84
PL9	Certainty	3	2	3	3	3	4	4	2.5	3	4	3	4	4	4	3.32	0.67
PL	Overall grade	ME	PE	ME	ME	ME	E	ME	ME	E	E	ME	E	E	E	ME	
IN1	Adequate finances	3	2	3	4	3	4	3	2.5	4	3	3	4	3	3	3.18	0.61
IN2	Adequate staff	3	1	3	3	3	3	3	2.5	4	3	2	3	3	3	2.82	0.67
IN3	Right skills	3	2	3	3	3	3	3	3	4	3	3	4	3	3	3.07	0.47
IN4	Biophysical information	3	3	3	4	3	3	3	3	4	3	3	4	4	3	3.29	0.47
IN5	Socioeconomic information	3	3	3	3	3	3	3	2	3	4	3	3	4	2	3.00	0.55
IN6	Indigenous information	3	2	2	3	2	4	2	2.5	3	3	2	3	3	3	2.68	0.61

	Issue	Biodiversity	Climate Change	Coastal Development	Commercial Marine	Community Benefits	Defence	Fishing	Heritage	Land-based Run-off	Ports	Recreation	Research	Shipping	Traditional Use	Mean	Standard deviation
IN7	Heritage information		1	3	3	2	4	3	3		3	2	3	3		2.73	0.79
IN8	Volunteer inputs	4	4	3	4	3	4	3	2.5	4	3	4	4	4	3	3.53	0.60
IN	Overall grade	ME	PE	ME	ME	ME	E	ME	PE	E	ME	ME	E	ME	ME	ME	
PR1	Stakeholders engaged	4	3	3	4	4	4	3	3	4	4	3	4	4	4	3.64	0.50
PR2	Local community engaged	4	2	3	4	4	4	3	2.5	4	4	3	3	4	4	3.46	0.69
PR3	Sound governance	3	2	3	4	4	4	4	3	4	4	4	4	4	3	3.57	0.65
PR4	Performance monitoring	4	2	3	3	3	3	3	3	4	3	2	4	3	3	3.07	0.62
PR5	Training	3	2	3	3	3	3	3	2.5	4	3	2	4	3	3	2.96	0.57
PR6	Consistent implementation	3	2	3	3	3	4	3	3	4	3	4	4	4	4	3.36	0.63
PR7	Conflict resolution	3	2	3	4	3	4	3	2	4	2	3	4	4	3	3.14	0.77
PR8	Impacts considered	3	2	3	3	3	4	3	3	3	3	3	4	3	3	3.07	0.47
PR9	Biophysical info applied	4	3	3	4	3	4	3	3	4	2	3	4	3	4	3.36	0.63
PR10	Socioeconomic info applied	3	2	3	3	3	4	3	2.5	3	3	3	3	4		3.04	0.52
PR11	Indigenous info applied	2	2	2	3	2	4	2	3	3	3	3	3	3	2	2.64	0.63

	Issue	Biodiversity	Climate Change	Coastal Development	Commercial Marine	Community Benefits	Defence	Fishing	Heritage	Land-based Run-off	Ports	Recreation	Research	Shipping	Traditional Use	Mean	Standard deviation
PR12	Heritage info applied		2	2	3	2	4	3	3		3	3	3	3		2.82	0.60
PR13	Standards	3	1	3	3	3	4	3	2.5	4	3	3	4	4	3	3.11	0.79
PR14	Targets for benchmarking	4	1	3	3	3	3	3	2.5	4	3	1	3	3	3	2.82	0.90
PR	Overall grade	ME	PE	ME	ME	ME	E	ME	ME	E	ME	ME	E	E	ME	ME	
OP1	Work program progress	3	1	3	3	3	4	3	3	4	3	3	4	4	4	3.21	0.80
OP2	Timeframes met	3	1	3	3	3	4	3	3	3	3	2	4	4	4	3.07	0.83
OP3	Results achieved objectives	1	1	2	3	3	4	2.5	3	3	3	2	4	3	4	2.75	0.98
OP4	Products delivered	3	2	3	4	3	4	3	3	4	3	2	4	4	4	3.29	0.73
OP5	Agency knowledge management systems	4	2	3	4	3	4	3	3	4	2	3	4	3	2	3.14	0.77
OP6	Community knowledge management systems	3	2	3	4	3	4	3	2.5	4	3	3	4	2	3	3.11	0.70
OP	Overall grade	ME	I	ME	E	ME	E	ME	ME	E	ME	PE	E	ME	E	ME	
OC1	Outcomes being achieved	2	1	3	4	3	4	2.5	3	3	3	3	4	4	4	3.11	0.98
OC2	Values protected	1	1	3	3	3	4	2.5	2.5	2	3	3	4	4	3	2.79	1.02
OC3	Threats reduced	2	1	2	4	3	4	2.5	2.5	3	4	3	4	4	3	3.00	1.01

	Issue	Biodiversity	Climate Change	Coastal Development	Commercial Marine	Community Benefits	Defence	Fishing	Heritage	Land-based Run-off	Ports	Recreation	Research	Shipping	Traditional Use	Mean	Standard deviation
OC4	Environmentally sustainable	1	1	2	3	3	3	2	3.5	2	4	3	4	4	4	*2.82*	*1.10*
OC5	Economically sustainable	2	1	2	3	4	4	*2.5*	2.5	2	4	3		4	3	*2.85*	*1.03*
OC6	Socially sustainable	3		3	4	4	4	3	*2.5*	2	3	4	4	4	4	*3.42*	*0.95*
OC7	Effective partnerships	4	2	3	4	3	4	3	3.5	4	4	3	4	4	4	*3.54*	*0.90*
OC	Overall grade	PE	I	PE	E	ME	E	PE	ME	PE	*E*	E	E	E	E	ME	

*Data *highlighted* are the corrected indicator ratings, element grades, means and standard deviations for 2019 (i.e. they differ from those published in Appendix 2 of the Management Effectiveness Report 2019).