



Australian Government
Great Barrier Reef
Marine Park Authority



Reef 2050 Integrated Monitoring and Reporting Program Annual Business Plan 2020-21



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Aboriginal and Torres Strait Islander readers are advised this publication may contain names and images of deceased persons.

The Program acknowledges the continuing land and Sea Country management and custodianship of the Great Barrier Reef World Heritage Area (WHA) by Aboriginal Traditional Owners and Torres Strait Islander Traditional Owners whose rich cultures, values, enduring connection and shared efforts protect the reef and islands for future generations.

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Executive summary

A key component of the Reef 2050 Long-Term Sustainability Plan is the establishment of the Reef 2050 Integrated Monitoring and Reporting Program (the Program). This coordinated monitoring, modelling and reporting program for the Great Barrier Reef and its adjacent catchment will help track the progress towards the Plan's targets and outcomes and drive adaptive management of this world heritage property.

The Program has completed its design phase and entered the implementation phase.

A dedicated group of partner agencies are working together to better share information about the Reef and to deliver practical tools to help managers make the best decisions. Work is underway to establish effective Traditional Owner representation on the Program's governance bodies.

This first Annual Business Plan offers a snapshot of progress made in the past year and outlines key activities for the year 2020-21.

Partners worked together to prioritise activities for 2020-21, based on available resources and guided by the Program's Implementation Roadmap and draft five-year business strategy.

This plan presents a scaffolding of core activities, which will move the Program forward. Activities may be added or adjusted as the year progresses to reflect emerging priorities and progress.

Priorities for the 2020-21 year ahead

- Finalise a non-binding partnership agreement that formalises how partners will work together to deliver the Program.
- Incorporate meaningful Traditional Owner representation to help guide the Program.
- Establish program management and business planning processes and systems, finalise the Business Strategy 2020-2025, and develop the Annual Business Plan 2021-22.
- Develop a communications and engagement strategy.
- Finalise a list of prioritised gaps for indicators and information collection.
- Scope options for a coordinated, 'sentinel site'-based component to coral reef monitoring and modelling.
- Continue collecting critical information about the Reef.
- Identify key requirements and possible options for a data management system to integrate with multiple users.
- Evaluate options and recommend the way forward for a Reef-wide decision support framework which integrates with the data management system.
- Deliver functional tools to help Reef managers make evidence-based decisions.
- Set up the framework for the next stage of Reef 2050 Plan.

About the Program

The Reef Integrated Monitoring and Reporting Program (the Program) was established in 2015 under the [Reef 2050 Plan](#). As an initiative under the Reef 2050 Plan, the Program is reflected in the [Intergovernmental Agreement](#) between the Australian and Queensland governments.

The Program aims to coordinate and integrate more than 100 monitoring and modelling programs that already exist within the Great Barrier Reef World Heritage Area, so that managers can easily access the most up-to-date information when making decisions about the Great Barrier Reef. The program also aims to identify new monitoring and modelling needs and options that may better inform decisions. More information about existing information collection activities can be found in Appendix 1.

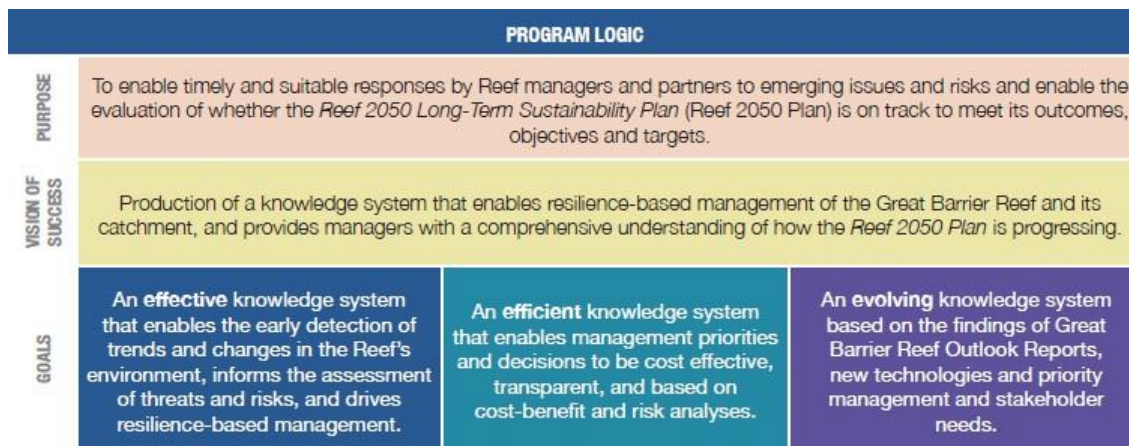


Figure 1: The Program's purpose, vision and goals.

Governance

The Program will be driven by the five-year *Business Strategy 2020-2025* (in review) and is being delivered through an interim governance model based on a collaborative partnership of Reef research and management groups. This partnership is coordinated by the Great Barrier Reef Marine Park Authority (GBRMPA) and includes:

- Australian Government Department of Agriculture, Water and the Environment
- Australian Institute of Marine Science (AIMS)
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Integrated Marine Observing System (IMOS)
- Queensland Department of Environment and Science – Office of the Great Barrier Reef.

An interim Executive Group and interim Operations Group operate under terms of reference to provide cross-partner advice and strategic direction to guide the overall Program. These groups are working to ensure appropriate Traditional Owner representation in the Program's governance. Individual partners remain accountable for the activities and projects which they resource and lead. Partners continue to actively seek out new funding for critical monitoring and modelling activities.

Current state of the Program

Program design phase: 2015 - 2019

The design phase of the Program was completed in June 2019, which produced:

- Program Design Report – Recommendations for overall Program governance, information prioritisation (via the Driver-Pressure-State-Impact-Response framework), data management, guidance tools for management decisions and reporting requirements.
- Monitoring Program Design – Priorities for monitoring and modelling to inform decision-making, including cost estimates.
- Implementation Roadmap - A five-year action plan for delivering the Program.
- Reef Knowledge System – A demonstration version of a ‘first-stop-shop’ web portal where managers can access key information to inform their decisions, as well as Reef 2050 Plan reporting.

Technical reports which informed the design phase include:

- [Integrated Monitoring Framework](#) – A published, peer-reviewed, and credible guide for developing an integrated monitoring program for complex social-ecological systems.
- Thematic expert group advice – Technical reports covering the ten Program themes that present expert monitoring and modelling recommendations based on the Driver-Pressure-State-Impact-Response framework. These have been published on the Great Barrier Reef Marine Park Authority’s website.
- Integration advice - Reports that analysed business needs and identified integration and operational requirements for managing the Program.

These outputs provide the foundations for the Program priorities described in the draft five-year *Business Strategy 2020-2025* (in review) and this *Annual Business Plan 2020-21*.

2019-20 activities

Key achievements in financial year 2019-20 included:

- Delivering outputs of the Program’s design phase to the Great Barrier Reef Ministerial Forum in November 2019.
- Agreeing interim governance arrangements based on the concept of a non-binding partnership model. The interim Executive Group and interim Operations Group began meeting in April 2020, providing guidance on Program implementation, integration and coordination.
- Translating the Implementation Roadmap into a draft 5-year *Business Strategy 2020-2025* (in review) and this *Annual Business Plan 2020-2021*.
- Delivering a public version of the demonstration Reef Knowledge System to allow users to easily access a wide range of information about the Reef.
- Publishing 10 thematic expert group reports, and reviewing and revising the remaining design phase reports for publication in 2020-21.
- Beginning to develop a program management charter to explain how program management functions will be delivered.
- Beginning to align the proposed indicators for the revised Reef 2050 Plan with the Program’s monitoring program design.
- Communicating and engaging with Reef managers, scientists, decision-makers and key stakeholders to ensure the Program meets their needs.

Program priorities

The Program's priorities were developed through the Program design phase and form the basis of the draft five-year *Business Strategy 2020-2025*. The six Program priorities are:

Foundational priorities

1. Governance and program management
2. Science for management

Operational priorities

3. Collecting information
4. Accessing information
5. Guiding management actions
6. Informing Reef 2050 and Outlook reporting.

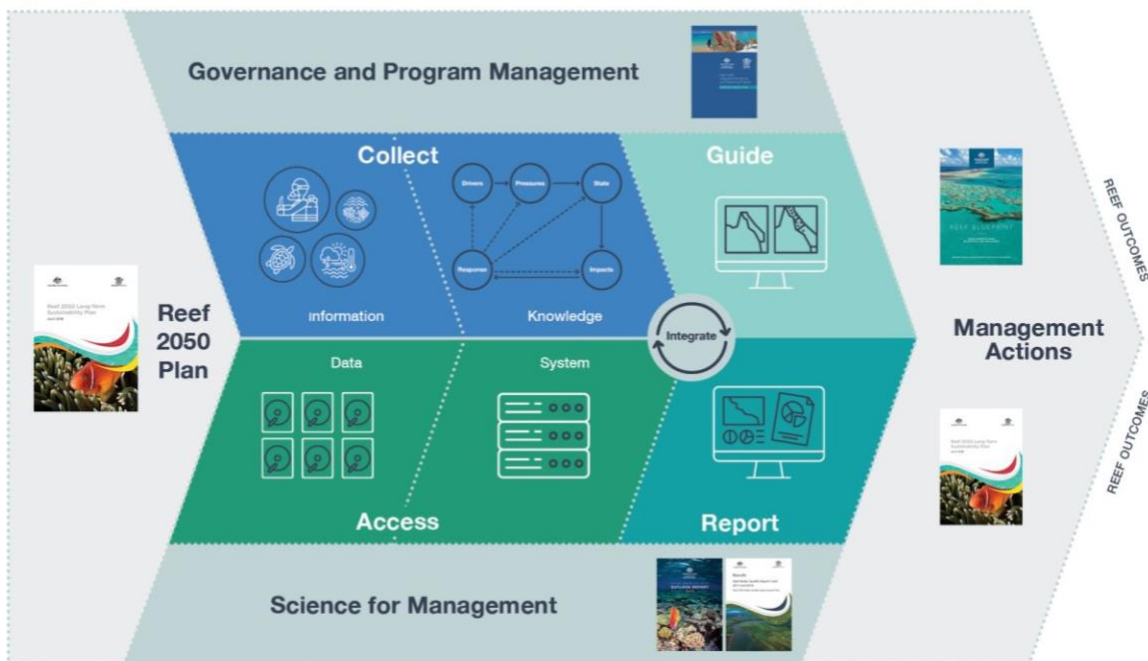


Figure 2: The Program design, illustrating the six Program priorities used throughout this plan. The Program is informed by the Reef 2050 Plan, and will result in better-informed management.

This section outlines the activities planned for 2020-21 related to each Program priority.

These activities were identified through workshops with the Operations Group and endorsed by the Executive Group. This included:

- reviewing the endorsed Program Design and Implementation Roadmap
- reviewing the outcomes of meetings with partner executives
- partners reflecting on their desired outcomes for the year ahead.

This plan recognises two types of activities:

- **Committed** – The Program partners have committed to delivering these activities in 2020-21 using existing resources.
- **Potential** – These activities are high priority, but they cannot be delivered with the resources currently available. The Program partners will continue to seek additional resources and may update this plan at mid-year (December 2020 / January 2021) to shift some activities from ‘potential’ into ‘committed,’ if resources can be secured.

Program Priority 1 (foundational) – Governance and program management

As a new program, significant time and effort will be required in 2020-21 to develop practical and functional processes for governance and program management. This is about partners agreeing how they will work together to implement the Program.

Priority activities for 2020-21

| <i>Activity</i> | <i>Status</i> | <i>Description</i> | <i>2020/21 outputs</i> | <i>Lead</i> |
|--|---------------|---|---|-------------|
| <i>1A – Partnership agreement</i> | Committed | Finalise a non-binding collaboration agreement which explains how the partners have committed to work together to deliver the Program. | <ul style="list-style-type: none"> Partnership agreement endorsed by all partners | AIMS |
| <i>1B – Program management office</i> | Committed | Establish and maintain a Program Management Office to oversee program delivery and lead business planning processes. | <ul style="list-style-type: none"> Program management charter and framework five-year Business Strategy Annual Business Plan 2021-22 | GBRMPA |
| <i>1C – Traditional Owner representation</i> | Committed | Identify and engage appropriate Traditional Owner representation on governance groups. Ensure integration with partners' Traditional Owner engagement processes and strategies. | <ul style="list-style-type: none"> Traditional Owner representative(s) participate effectively in Program governance | GBRMPA |

Note: See section 'Program resourcing' for more details on budget and partner contributions.



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Program Priority 2 (foundational) – Science for management

To be effective, decisions need to be based on the best available science. The Driver, Pressure, State, Impact and Response framework underpins the Program. Through this priority, it will be used to target research and development investments to acquire additional knowledge that enables resilience-based management. This priority is also about continual improvement, ensuring the Program keeps pace with emerging science to equip decision-makers with the best available understanding of the Reef. This priority requires effective engagement with information providers – researchers, Traditional Owners, government agencies, industry groups, and the community – to generate a holistic understanding of the complex social-cultural-ecological system that is the Great Barrier Reef.

Priority activities for 2020-21

| Activity | Status | Description | 2020/21 outputs | Lead |
|---|-----------|--|---|--------|
| 2A – Communications and engagement strategy | Committed | Two-year project (2020/21 to 2021/22) to identify stakeholders and their needs and to develop fit-for-purpose engagement approaches. Identify ways to better align with and leverage off partners' engagement and coordination activities. | <ul style="list-style-type: none"> Stakeholder mapping report Draft engagement strategy Publication of key reports | GBRMPA |

Note: See section 'Program resourcing' for more details on budget and partner contributions.



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Program Priority 3 (operational) – Collecting information

Valuable information about the Reef is collected not only by government agencies and scientific researchers, but also by tourism operators, commercial and recreational fishers, Traditional Owners, port authorities and the general public.

Building on previous coordination successes, this priority aims to work with Reef managers, other stakeholders and end users to comprehensively understand what information is needed to inform decisions, compare that to the information that is already collected, and work to fill critical gaps. This priority also aims to improve consistency across similar monitoring programs, so that information collected by different groups is more easily compared.

Significant work completed during the Program's design phase provided detailed design recommendations for data collection across ten themes (see Figure 3). This work informs the planned activities for 2020-21.

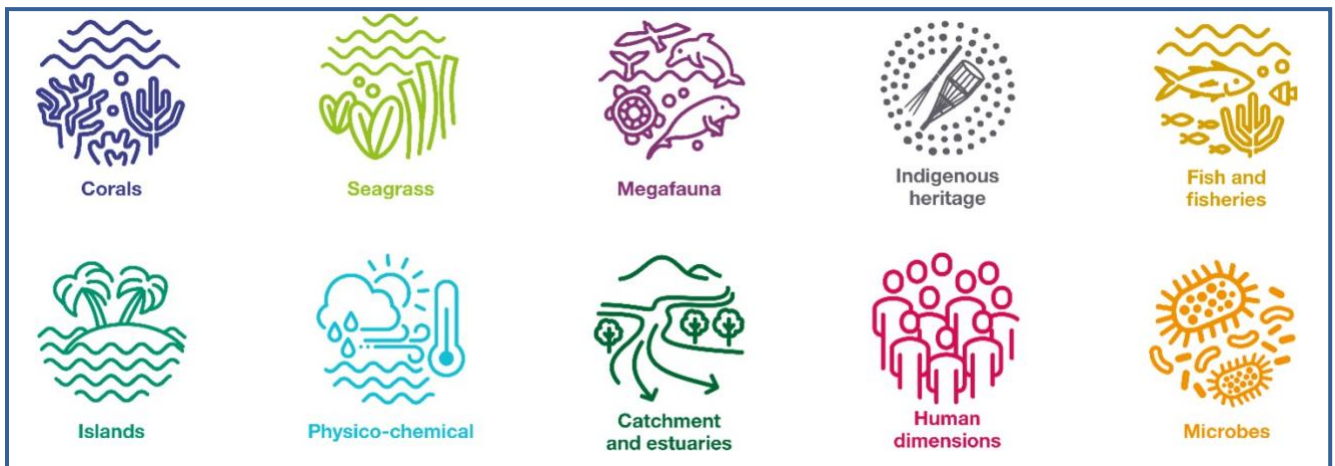


Figure 3: The Program's ten themes.

Priority activities for 2020-21

| Activity | Status | Description | 2020/21 outputs | Lead |
|--|-----------|---|---|----------|
| 3A – Existing data collection activities | Committed | The Program design identified multiple existing, data collection activities as being high priorities for continuation and integration. Those being led by Program partners are summarised in Appendix 1. These form the scaffolding for the initial Program implementation. | <ul style="list-style-type: none"> Critical information about the Reef continues to be available to inform decision-makers | Multiple |
| 3B – Information priorities | Committed | Two-year project (2019/20 – 2020/21): Gap analysis to produce a prioritised list of information, monitoring and modelling needs for consideration in investment decisions. | <ul style="list-style-type: none"> Prioritised list developed and endorsed by Program partners | GBRMPA |

| <i>Activity</i> | <i>Status</i> | <i>Description</i> | <i>2020/21 outputs</i> | <i>Lead</i> |
|---------------------|---------------|--|--|---------------|
| 3C – Sentinel sites | Potential | The design phase recommended greater investment in monitoring at specific 'sentinel' sites to provide deeper insight into environmental processes underpinning Marine Park values. This coordinated, site-based approach is not delivered by existing monitoring programs and requires a scoping activity. | <ul style="list-style-type: none"> Recommendations and cost estimates for two-three scenarios for a full sampling design. | AIMS and IMOS |

Note: See section 'Program resourcing' for more details on budget and partner contributions.



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Program Priority 4 (operational) – Accessing information

This priority relates to integrating existing information technology systems used by multiple partners, and also developing improved systems to store and present data. The aim is to make information more easily findable, accessible, interoperable and reusable by decision-makers.

Priority activities for 2020-21

| Activity | Status | Description | 2020/21 outputs | Lead |
|--|-----------|--|--|------|
| 4A - Data management system (DMS) architecture | Potential | Develop optimal architecture for data discovery, storage, inter-operability and analysis systems. Develop costings for DMS operational requirements. Agree on data sharing protocols with partners. To be integrated with scoping for activity 5A – Decision support system framework. | <ul style="list-style-type: none"> Report identifying key system requirements and possible delivery options | IMOS |

Note: See section ‘Program resourcing’ for more details on budget and partner contributions.



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Program Priority 5 (operational) – Guiding management actions

This priority relates to translating information into knowledge and providing that knowledge to decision-makers through practical tools, that analyse and present information needed for resilience-based management, for example:

1. Diagnostic tools to help understand current Reef health
2. Prognostic tools to help predict how the Reef may respond to changes and to test possible management decisions
3. A decision support framework to guide application of these tools by managers.

This priority will draw on improved understanding of resilience-based management developed through the **science for management** fundamental function of the whole Program.

Priority activities for 2020-21

| Activity | Status | Description | 2020/21 outputs | Lead |
|--|-----------|---|--|--------|
| 5A – Decision support system framework | Committed | Five-year project (2020/21 to 2025/26) to scope, develop and prototype a GBR-wide decision support system. | <ul style="list-style-type: none"> • Options report and recommendations for next steps. • Integration of scoping with activity 4A – Data management system architecture. | GBRMPA |
| 5B – Decision support tools for management | Committed | Two-year project (2020/21 to 2021/22) to continue development of a Reef Knowledge System from a demonstration prototype into a functional tool with custom decision support tools for marine park management. Includes co-design with end-users to ensure tools meet their needs. | <ul style="list-style-type: none"> • Deliver at least one custom landing page to suit a specific management need. • Deliver at least one custom dashboard / decision support tool for management. • Add at least three more datasets to enhance decision support. | GBRMPA |

Note: See section ‘Program resourcing’ for more details on budget and partner contributions.



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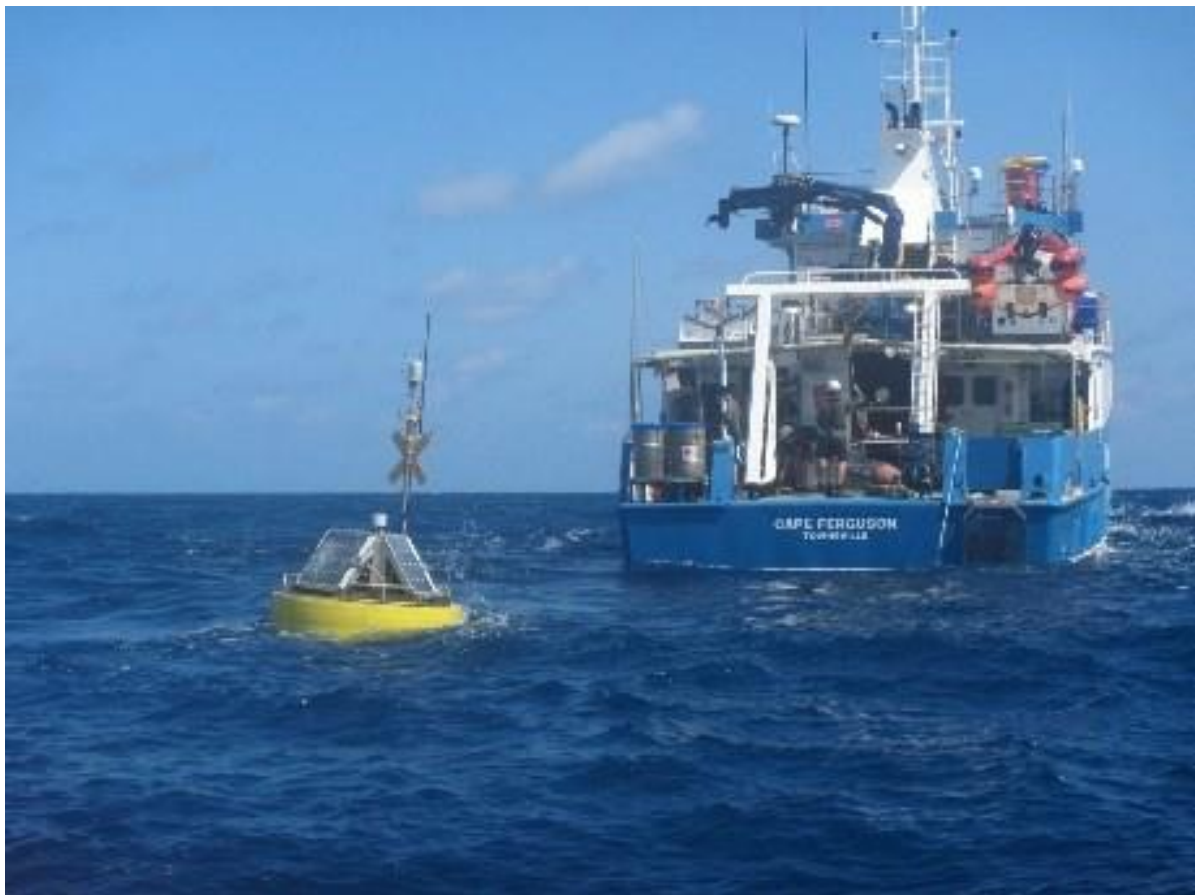
Program Priority 6 (operational) – Informing Reef 2050 and Outlook Reporting

This priority relates to improving key information products available to Reef managers, the public and other stakeholders. Key information products include those that inform annual reporting and five-yearly reviews of the Reef 2050 Plan, and the Great Barrier Reef Marine Park Authority's five-yearly Outlook reports. Work under this priority will enable greater and faster access to data sets and integrated information to facilitate the production of key reports and to more easily measure progress under the Reef 2050 Plan.

Priority activities for 2020-21

| Activity | Status | Description | 2020/21 outputs | Lead |
|------------------------------------|-----------|---|--|--------|
| 6A – Reef 2050 reporting framework | Committed | The updated Reef 2050 Plan will be finalised in 2020-21. This activity will design the associated new reporting framework, including identifying metrics, baselines and data sources for reporting on indicators; and prioritising these where relevant for provision through RIMReP. | <ul style="list-style-type: none"> Agreed design of the reporting framework and content outlines. Agreed format and platform for reporting. Recommendations for next steps and responsibilities for implementation. | GBRMPA |

Note: See section 'Program resourcing' for more details on budget and partner contributions.



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Implementation

More detailed project plans will be developed for new activities scheduled to start in 2020-21, while ongoing activities will continue in line with existing project plans. Partners will remain internally accountable for delivery, while the Program's governance groups will provide strategic direction and ensure integration across activities.

Progress will be reviewed by early 2021 and resulting refinements may be made to this plan.

Program resourcing

The majority of program resourcing for 2020-21 will be sourced from the Great Barrier Reef Marine Park Authority's internal budget. In addition to the primary proposed funding source, all partners will contribute in-kind resources by dedicating staff time to assisting with Program delivery. This in-kind support includes assisting with scope definition activities, participating in workshops and meetings, linking to subject matter experts and providing expert advice, and reviewing key project outputs.

Note: All funding sources and amounts are indicative until confirmed through formal processes. Figures include both expenditure on external goods and services, as well as internal partner agency costs for staff contributions. These will be refined during more detailed project planning in early 2020-21.

| Activity # | Program priority | Activity name | Estimated budget 2020-21 | Primary proposed funding source(s) 2020-21 |
|---------------------------------|---|--|--------------------------|---|
| 1A | Governance and program management | Partnership agreement | \$50,000 | Shared across partners (in-kind staff time) |
| 1B | | Program management office | \$880,000 | GBRMPA |
| 1C | | Traditional Owner representation | \$50,000 | GBRMPA |
| 2A | Science for management | Communications and engagement strategy | \$180,000 | GBRMPA |
| 3A | Collecting information | Existing information collection activities | Varies | Multiple |
| 3B | | Information priorities | \$150,000 | GBRMPA |
| 3C | | Sentinel sites | TBC | AIMS IMOS |
| 4A | Accessing information | Data management system architecture | TBC | TBC |
| 5A | Guiding management actions | Decision support system framework | \$350,000 | Reef Trust Partnership GBRMPA |
| 5B | | Decision support tools for management | \$800,000 | GBRMPA |
| 6A | Informing Reef 2050 and Outlook reporting | Reef 2050 reporting framework | \$200,000 | GBRMPA |
| TOTAL \$2,660,000 (plus) | | | | |

Appendix 1 – Existing information collection activities

The Annual Business Plan 2020-21 builds on existing information collection activities, to help integrate these activities and make the data more useful to decision-makers and the public. This table summarises key existing information collection activities — led by Program partners — that will continue in 2020-21 and form the scaffolding for the initial Program implementation. It does not capture all information that is available about the Reef. Additional activities may be added in future. Over time, the Program will integrate with the Australian and Queensland Government catchment monitoring and modelling programs, and the community partnership work that underpins the [Regional Report Cards](#).

| Activity | Description | Lead partner |
|---|--|---------------|
| AIMS Long-term Monitoring Program | Status and trends assessment of reef benthos cover and composition, fish abundance and biomass, crown-of-thorns starfish numbers | AIMS |
| AIMS weather stations | Real-time data of Reef weather such as temperature, wind strength and direction, surface light | AIMS |
| Crown-of-Thorns Starfish Control Program | <ul style="list-style-type: none"> Reef health and coral cover surveys Crown-of-thorns starfish abundance Number of crown-of-thorns starfish removed | GBRMPA |
| eReefs | Visualisation portal that models and presents data results on water quality and other variables | Multiple |
| Future Reef 2.0 | Longitudinal water chemistry monitoring | CSIRO |
| Eye on the Reef program | <p>The Eye on the Reef system is being updated and integrated into the Reef Knowledge System. It includes the following input Reef health monitoring components:</p> <ul style="list-style-type: none"> Sightings network - citizen science monitoring of Reef biodiversity Rapid assessment monitoring – tourism-focused Reef health surveys Tourism sites monitoring – weekly monitoring of high-use tourism sites Reef health and impact surveys – quantitative, Reef-wide surveys of condition | GBRMPA |
| Integrated Monitoring and Observing System – various | Oceanographic moorings, Yongala National Reference Station, Reef Sensor Networks, Underway systems on Tropical Research Vessels | AIMS and IMOS |
| Integrated Monitoring and Observing System – Autonomous ocean gliders | Deliver ocean profile data for multiple physical, chemical and bio-optical variables | IMOS and AIMS |
| Integrated Monitoring and Observing System – Remote sensing | <ul style="list-style-type: none"> Supports the collection, management, processing, calibration and validation of satellite data for the Southern hemisphere Provides properly documented data in standard formats | IMOS |
| Long-term temperature logger program | Status and trends assessment of reef temperature from in-situ temperature loggers at Long-Term Monitoring Program and Marine Monitoring Program reefs | AIMS |

| Activity | Description | Lead partner |
|--|---|----------------------------------|
| Marine Monitoring Program | Inshore monitoring for status and trends assessment of reef benthos cover and composition, water quality parameters | GBRMPA |
| Monitoring for management (including Joint Field Management Program) | <ul style="list-style-type: none"> • Reef health surveys • Marine incident data • Reef visitation and use data • Island health checks and assessment of values • Seabird monitoring • Assistance with species monitoring (dugong, turtles, etc.), incidental observations, collection of stranded marine animal data • Biosecurity checks on islands • Crown-of-thorns starfish outbreak reconnaissance • Field trials of management actions | GBRMPA and Queensland Government |
| Social and Economic Long-Term Monitoring Program | Provides information on the human dimension of the Reef by conducting large-scale surveys of Reef user groups | CSIRO |



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