



DRAFT Policy on Great Barrier Reef interventions

The Great Barrier Reef is changing. Interventions for conservation gain can contribute to its future, with a focus on supporting and building resilience and maintaining key functions, habitats and species. Under all global climate change scenarios, restoration and adaptation interventions are likely to become of increasing interest at locations across the Great Barrier Reef Marine Park (the Marine Park).

This policy is being developed with wide input to guide the Great Barrier Reef Marine Park Authority (the Authority) on matters related to restoration and adaptation interventions within the Marine Park. The policy is also intended to inform Traditional Owners, partners, proponents, stakeholders and the broader community about these management arrangements.

Purpose of the policy

1. To enable restoration and adaptation interventions designed to support and build ecosystem resilience and provide conservation benefits, at a range of scales, now or in the future, to the Great Barrier Reef; and
2. To ensure the continuing long-term protection and conservation of the Great Barrier Reef, so the values of the Marine Park are safeguarded for current and future generations to the greatest extent possible.

Restoration and adaptation intervention(s) mean an action, or set of actions, undertaken in the Marine Park to support or build ecosystem resilience and achieve conservation benefits for the Great Barrier Reef.

Application of the policy

3. As part of applying an evidence-based approach to decision-making, Staff and delegates of the Authority will consider this policy in relevant decisions about managing the Marine Park and all decisions about restoration and adaptation interventions. This includes relevant applications for permissions (including research into interventions) and restoration and adaptation interventions considered or undertaken as management activities. It also includes decisions about managing any associated matters.
4. The policy applies to the Great Barrier Reef ecosystem as a whole (often abbreviated as 'Reef'). In addition to corals and coral reef habitats, the Great Barrier Reef ecosystem includes the wide variety of other marine, coastal and island habitats and species that occur within the Marine Park.

Note: There are a broad range of possible interventions for the Reef. Some are underway, whereas others require years of development before they may be considered safe and appropriate in the Marine Park.

Examples of current or future restoration and adaptation interventions may include:

- *local and regional cooling and shading to reduce coral stress during acute events with the intent of minimising damage to habitats and species and maintaining key reef functions*
- *stabilising reef substrate and supporting reef structure to help coral replenishment processes*
- *enhanced reproduction and recruitment of species to assist in recovery and support resilience*
- *assisted coral adaptation to warming oceans (via seeding and propagation of coral larvae, recruits and adults derived from existing stock, e.g. hybrids, or synthetic biology and genetic engineering)*
- *other measures to support key species, habitats and island ecosystems including: rehabilitation of habitats damaged by ship groundings; restoration of seagrass meadows, mangroves or saltmarshes following a major die-back; environmental or species manipulations to support breeding populations of at-risk seabirds or marine turtles; controlling crown-of-thorns starfish or *Drupella* snails to protect corals; and enhancing key ecosystem processes such as reef herbivory.*

Where Reef interventions fit in managing the Marine Park

5. Mitigating human-induced climate change through effective emissions reduction and decarbonising the global economy remains the [most urgent and critical need for the Great Barrier Reef's future](#), irrespective of the success or otherwise of restoration and adaptation interventions being considered for the Reef.
6. In addition to continuing strong foundational management, such as Marine Park zoning and compliance, investigating a strategic interventionist approach is now imperative to try to increase the resilience of the Great Barrier Reef to ongoing and future impacts and help prevent or reverse the degradation of Reef ecosystems.
7. The Authority considers restoration and adaptation interventions likely to be an integral part of its work on protection and conservation of the Great Barrier Reef into the future.
8. The Authority recognises restoration and adaptation interventions as a purpose for ecologically sustainable use under the Commonwealth *Great Barrier Reef Marine Park Act 1975*.
9. The role of the Authority is to assess and permit, authorise and potentially undertake restoration and adaptation interventions for the purposes of managing the Marine Park.
10. The main purpose of restoration and adaptation interventions in the Marine Park is to help support and build ecosystem resilience and seek to achieve conservation benefits for the Great Barrier Reef. The Authority also encourages restoration and adaptation interventions that provide secondary benefits to Indigenous and historic heritage, and social and economic values.
11. Restoration and adaptation interventions may be done with, or by, other government agencies, Traditional Owners, researchers and experts, industries (especially those who rely on the Reef for their livelihood), communities, other organisations and individuals.

Strategic guidance to maximise outcomes for the Reef

12. The Authority will seek to adaptively manage restoration and adaptation interventions using risk-based processes, which are socially and culturally responsible and open to public scrutiny. This includes enabling action and innovation while seeking to minimise the risks from any failures that might occur in this emerging area of science, technology and practice.
13. The Authority considers restoration and adaptation interventions should be implemented in a staged way, with low-risk interventions implemented and assessed for effectiveness first, whilst higher-risk interventions will require pilot studies and proof of concept before they are considered for full-scale implementation in the Marine Park.
14. The Authority encourages intervention action where and when the anticipated conservation benefits to the Reef of the restoration and adaptation intervention outweigh the associated risks. Considerations include:
 - a. The anticipated conservation benefits now, or its contribution towards realising conservation benefits in the future.
 - b. The current and probable range of future conditions of Marine Park values under likely climate change scenarios and the effect of cumulative impacts.
 - c. Whether short and long term risks of action can be avoided, mitigated or minimised to a level deemed acceptable by the Authority as far as reasonably practicable.
 - d. The high value of the Great Barrier Reef ecosystem for its intrinsic, environmental, cultural, social and economic values and the need to minimise impacting such values where possible.
 - e. Whether intervention is needed at the proposed location(s) or natural processes are likely to be sufficient.
 - f. The risks of inaction. There may be circumstances under which no action is considered inappropriate and not in line with management responsibilities.
15. The following types of interventions are currently not supported in the Marine Park, either because the known environmental risks are considered unacceptable, or there is significant uncertainty about potential impacts:

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- a. Introduction of non-native species or genotypes from areas outside the Marine Park (e.g. the Red Sea).
- b. Introduction of natural or bioengineered pathogens or viruses (e.g. as biological control agents).
- c. Use of material that is likely to introduce marine pests.
- d. Interventions that could artificially increase endemic species (e.g. *Drupella* spp.) to outbreak levels.
- e. Introduction of chemicals or minerals to encourage localised phytoplankton blooms.
- f. Experimental trials that are very high risk, especially in sensitive environments, at high value locations or in areas with high connectivity to other habitats.

Notes: This list is not exhaustive, and is subject to change. Risk categories are in paragraph 27 of this policy.

If, in future years, uncertainty about impacts is adequately reduced, or environmental risks can be mitigated or minimised to a level deemed acceptable by the Authority, these types of interventions may be considered.

16. Under Marine Park legislation, the Authority will determine when to start, modify and stop an intervention activity for the purposes of management. Under the Authority's permissions system, the Authority will decide on whether to grant or refuse a Commonwealth Marine Park permission, the conditions relating to the conduct of a restoration or adaptation intervention and can suspend or revoke the permission.
17. Depending on factors such as the location(s) and nature of the proposed activities, restoration and adaptation interventions may also require additional approvals under other local, State or Commonwealth regulatory regimes (e.g. for the Great Barrier Reef Coast Marine Park, sea dumping, fisheries, gene technology).
18. The Authority will provide strategic guidance and oversight of current and future restoration and adaptation interventions in the Marine Park. This includes environmental, ethical, social and culturally responsible considerations, such as:
 - a. Ensuring the focus of collective efforts is on helping to maximise ecosystem resilience and support a functioning Great Barrier Reef ecosystem into the future. In particular, encouraging interventions that benefit one or more species, habitat location or ecological process by minimising harm and vulnerabilities; restoring and repairing damage; or increasing the ability to adapt to a changing climate.
 - b. Supporting and encouraging the consideration and involvement of Traditional Owners in all stages of restoration and adaptation interventions in the Marine Park. Traditional Owners have cared for their sea country and heritage for tens of thousands of years.
 - c. Guiding what interventions are deployed where and when, using available information and in consultation with stakeholders, to maximise conservation outcomes for the Reef.
 - d. Setting priority targets for restoration and adaptation interventions efforts. The Authority considers coral reefs a current priority target given their critical state and role as the cornerstones of the Great Barrier Reef's broader values. Seagrass meadows and at-risk marine turtle and seabird populations are additional targets, and other priority targets will be identified as required.
 - e. Working with partners and supporting efforts to identify interventions with the highest likely positive outcomes for the Reef and all the values connected to it, and to reduce critical uncertainty around the intervention performance, costs and risk.
 - f. Being forward-looking and realistic regarding the ability of species, habitats and the ecosystem to withstand or recover from damage. In instances where recovery to a pre-disturbance condition is not considered realistic, goals may focus instead on achieving a level of biodiversity and ecosystem function to meet the needs of the species and people at a given site.
 - g. Engaging positively with risk to enable innovation and progress of restoration and adaptation interventions whilst balancing the risks, the social acceptability implications, ethics of decisions and potential trade-offs that may be required.
 - h. Encouraging activities and innovation to develop, trial, demonstrate, improve and where appropriate scale up interventions tools and actions for potential application across the Marine Park. Innovation, cooperation and engagement are important to help fast-track the identification and delivery of intervention tools and actions quickly while minimising potential negative impacts.

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- i. Adapting management of interventions based on best available science, and feedback and learning, and by using decision support tools as they become available such as the [Reef-wide 'resilience network'](#) (in development). Such a tool could assist in the long-term selection, prioritisation and intervention deployment decisions and in using results from monitoring to improve interventions as they are occurring or when necessary stop interventions.
 - j. Building public acceptance and social licence through education, sharing knowledge of interventions and encouraging others to keep the public informed of successes and failures, and encouraging participation in trials where appropriate.
 - k. Where appropriate, encouraging collaboration between relevant parties in employing multiple and varied restoration and adaptation interventions that work together to increase conservation benefits within or beyond the area directly impacted by the intervention. This may include leveraging synergies in logistics and operations to increase conservation benefits for the same level of investment.
 - l. Coordinating across the Authority's programs (e.g. compliance, crown-of-thorns starfish control, restoration and adaptation interventions being undertaken by management) to maximise synergies and efficiencies that help the Reef and avoid duplication of effort.
19. There are a spectrum of anticipated conservation benefits from restoration and adaptation interventions. This includes low conservation yield interventions (such as demonstration sites) that are designed to aid in realising higher conservation benefits by building public understanding and support for the development and deployment of more effective interventions into the future.
20. The Authority supports early deployment of interventions on a risk-based approach, given the urgent need to do more to help the Reef. There can be value in small- to medium-scale interventions, particularly if they are delivered quickly to help protect existing Reef resilience and slow the decline in Reef condition.
21. The Great Barrier Reef is still resilient, and the Authority recognises this provides an opportunity to develop new interventions that are designed to help retain and facilitate this resilience. The Authority supports such efforts aiming to minimise harm and preserve as much of the Reef's ecological functions as possible so that additional, potentially complex and more high risk attempts at restoration may not be necessary.

Our approach to adaptively managing interventions

22. In delivering and enabling restoration and adaptation interventions, the Authority aims to exemplify world-class practice and ensure planning and management approaches are adapted where necessary and provide robust governance.
23. The Authority is committed to ensuring the joint management arrangements between the Authority and the Queensland Government remain effective, efficient and adaptive into the future for managing current and future restoration and adaptation interventions.

Traditional Owners and restoration and adaptation interventions

24. The Authority recognises that establishing effective and meaningful partnerships with Traditional Owners in all stages of restoration and adaptation interventions is essential to protect cultural and heritage values, while conserving biodiversity and enhancing the resilience of the Great Barrier Reef.
25. The Authority actively supports Aboriginal and Torres Strait Islander aspirations, including the protection of heritage values, by:
- a. Helping to identify and advance opportunities for co-management and benefits to Traditional Owners in delivering restoration and adaptation interventions.
 - b. [Asking first](#) and [engaging early](#) with Traditional Owners on interventions work and future direction and encouraging others to do likewise. This helps to ensure the advice of Traditional Owners is understood to protect against damage to Indigenous heritage values.

- c. Seeking to ensure relevant Traditional Owners are given opportunities to contribute to the planning and implementation of restoration and adaptation interventions in their sea country and where possible are involved as partners.

Fostering partnerships

26. The Authority strives to foster partnerships for action and innovation with Traditional Owners, other government agencies, scientists, industries, not-for-profit organisations and Great Barrier Reef communities. The Authority strongly encourages others involved in restoration and adaptation interventions to identify opportunities for participation by these individuals and groups at all stages including design, deployment and evaluation.

Recent examples of fostering partnerships:

The involvement of Wuthathi and Kemerker Meriam Nation (Ugar, Mer, Erub) Traditional Owners is crucial to the success of the Raine Island Recovery Project. In 2018–19, Traditional Owners were employed as rangers on all seven trips to assist the Reef Joint Field Management Program with species recovery work. Eroded areas were fenced off to stop nesting green turtles falling over rocky edges, and to guide the turtles back towards the beach on a safe path.

In 2018, the Australian Government supported the concept feasibility phase for the development of the Reef Restoration and Adaptation Program to investigate the best science and technology options to help the Great Barrier Reef resist, repair and recover. This collaborative program brings together Australia's leading experts to scope possibilities for restoration and adaptation interventions of coral reefs in the Marine Park. The outcome will inform further investment in reef resilience and adaptation science.

Managing risk

27. Some restoration and adaptation interventions under consideration for possible future deployment in the Marine Park are unprecedented, complex and potentially harmful if they are not appropriately managed. The Authority fully recognises this and will continue to improve the processes for managing interventions and assessing risks; providing transparent, risk-based decision-making that considers all relevant values and factors and carefully identifies, evaluates and manages all types of risk. This includes risks associated with unintended consequences, cumulative impacts, and technical delivery risks. Where relevant, it also includes consideration of scale and of potential impacts in other Australian and overseas jurisdictions.

28. The Authority applies the following risk categories to restoration and adaptation interventions:

Low risk: in general, low risk activities will not require Great Barrier Reef specific pilot studies as proof of concept has already been established or they are inherently low risk.

Medium risk: these activities will generally require proof of concept, and may require initial small-scale pilot studies are encouraged at any suitable location(s).

High risk: these activities will require proof of concept and projects must have an initial small-scale pilot study in the Great Barrier Reef with evidence to support effective and appropriate controls to mitigate/minimise risks.

Very high risk: these activities will require a cautious approach and will only proceed where relevant risks have been identified, and mitigation measures and contingency plans developed that reduce all risks to an acceptable level. For these very high risk activities, there is generally not enough knowledge and significant uncertainty, and the Authority recognises these projects have the potential to cause irreversible damage to the values of the Marine Park. For these reasons, some higher risk interventions are not currently supported in the Marine Park; a non-exhaustive list is provided in paragraph 14 of this policy.

Example of the application of these risk categories: In the [Reef Intervention Application Guidelines](#) as updated from time to time, the above risk categories are the basis for the risk and assessment approach likely to be applied to particular activities when seeking permission (see Table 1 of the Guidelines). Individual project risk is determined through a [risk assessment procedure for the joint permissions system](#) which may differ depending on the temporal and spatial scale of the activity and the proposed location(s).

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Transparency and engagement

29. To help build and maintain public trust, and demonstrate best practice probity, the Authority is committed to transparency and improving pathways and opportunities for engagement and broad consultation on restoration and adaptation interventions. This includes:
- Raising public awareness of interventions being considered, underway or completed. This includes encouraging partners and proponents to provide information online about interventions under development for potential use in the Marine Park in the future or the ongoing overall results of the work as it becomes available, any associated audits or reviews, and risk management and decision-making relating to interventions.
 - Making publicly available information about restoration and adaptation interventions being undertaken by, or on behalf of, the Authority.
 - Making publicly available information about applications received for restoration and adaptation interventions in the Marine Park and any permission granted for interventions. The Authority [consults the public](#) on a range of matters, including some permit applications.
30. The Authority has in place engagement arrangements, and will use or supplement these to help ensure the Authority understands community views on interventions and that decision-making takes account of social, cultural and economic factors, as well as broader ecological considerations. The Authority may facilitate or encourage:
- Engagement activities on restoration and adaptation interventions, as required, to provide for transparency and deliberation on specific technologies and higher risk intervention approaches.
 - Using approaches such as citizen science and demonstration sites, where the public can observe restoration in practice.
 - Monitoring of public attitudes and perceptions, and giving due consideration to this in managing restoration and adaptation interventions. This may include awareness of and attitudes towards interventions (generally and specific options), and any concerns about efficacy and potential impacts.

Monitoring and adapting

31. The Authority recognises there is potential for some unintended and adverse impacts, and that not all restoration or adaptation interventions may be successful. It is as important to learn from these instances as it is to learn from successes. This requires effective monitoring, evaluations and reviews.
32. The Authority is working to adaptively and pre-emptively manage restoration and adaptation interventions in the Marine Park. To support this, the Authority requires relevant programs, and restoration and adaptation interventions to include robust monitoring and reporting and so expects:
- Measurable goals and objectives of specific programs and projects are articulated and the efficacy of achieving desired outcomes is evaluated. This will inform adaptive management of the Marine Park and future restoration and adaptation interventions.
 - Reporting to the Authority of implementation progress and monitoring results of all restoration and adaptation interventions, including processes to aid timely reporting of any unintended or adverse impacts detected. This includes during a permitted activity or authorised activity to allow for appropriate and timely actions to manage risks.
 - Outcomes of restoration and adaptation interventions to be made publicly-available in a timely manner for others to access and use, wherever possible.

How restoration and adaptation will be considered – specific principles

33. Restoration and adaptation intervention may be required in different locations or regions across the Great Barrier Reef. Decisions on particular locations should contribute to maintaining or enhancing the condition and resilience of those locations; and/or providing a conservation benefit by maximising regional or Reef-wide ecological resilience (e.g. through connectivity) even if that location does not specifically benefit. To achieve this, restoration and adaptation interventions should be conducted in a manner that best aligns

with the objectives of any management tools for the location(s). Considerations related to key tools are detailed below:

34. **Zoning Plans:** The Authority may grant permissions for others to undertake restoration and adaptation interventions under the Zoning Plan. In addition the Authority can undertake restoration and adaptation interventions as management activities, or authorise the undertaking of management activities, under [section 5.4 of the Great Barrier Reef Marine Park Zoning Plan 2003](#).
35. Depending on the degree to which restoration and adaptation interventions are anticipated to protect and conserve the Great Barrier Reef, it is feasible that interventions could be in line with the 'conservation', 'protection' and potentially even 'preservation' aspects (as relevant) to the first listed objective of all zones in the Marine Park.

Note: For example, 'the first listed objective' for the Marine National Park Zone (known as 'green zones') provides for the protection of the natural integrity and values of the area, generally free from extractive activities.

36. Restoration and adaptation interventions are considered on a case-by-case assessment which takes into consideration not only the above 'conservation', 'protection' and 'preservation' aspects, but also multiple use as reflected in the other aspects of the objectives of the zone types. In allowing restoration and adaptation interventions it may be appropriate that use of those zones that allow the greatest range of use (e.g. General Use Zone) should be considered before more highly protected zones (e.g. Marine National Park Zone). Additional guidance relating to objectives of more highly protected zones is identified below:

- a. Buffer Zone and Marine National Park Zone:** The objectives of both these zone types include 'the protection of the natural integrity and values of the area', being 'generally free from extractive activities' and providing opportunities for 'certain activities, including the presentation of the values of the Marine Park, to be undertaken in relatively undisturbed areas'.

A proposed restoration and adaptation intervention for a location in the Marine National Park Zone and Buffer Zone is more likely to be considered an acceptable risk where:

- i. it is expected to maintain or improve protection and conservation for that specific location and its key values and/or achieve a conservation benefit to the region; and
- ii. any extractive activities related to the intervention are minimised to a level deemed acceptable by the Authority and must comprise an essential component of the intervention activity; and
- iii. impacts on other activities, including the presentation of the values, are minimised as far as practicable and the intervention is ultimately intended to maintain or improve those presentation values and/or enables people to understand, appreciate, support and assist with restoration and adaptation interventions.

- b. Scientific Research Zone:** The objectives of this zone type include 'the protection of the natural integrity and values of the area', being 'generally free from extractive activities' and providing opportunities 'for scientific research to be undertaken in relatively undisturbed areas'. A proposed restoration and adaptation intervention for a location in a Scientific Research Zone is more likely to be considered an acceptable risk where:

- i. it is expected to maintain or improve protection and conservation for that specific location and its key values and/or achieve a conservation benefit to the region; and
- ii. any extractive activities related to the intervention are minimised to a level deemed acceptable by the Authority and must comprise an essential component of the intervention activity; and
- iii. it mitigates, where possible, impacts on other research being conducted there.

- c. Preservation Zone:** The Authority anticipates it will become increasingly difficult to achieve the objective to 'preserve the natural integrity and values of areas' of the Marine Park through non-intervention, and so is prepared, if essential, to consider implementing restoration and adaptation interventions in Preservation Zones. The objectives of this zone type also include being 'generally undisturbed by human activities'. A proposed restoration and adaptation intervention would only be considered for a location in a Preservation Zone if:

- i. it is expected to achieve a high degree of protection and conservation for that specific location and its key values through a strong location-specific benefit and/or benefit the regional ecosystem most by the action being directly deployed at that particular site; and

- ii. it is a priority for management and done sparingly either under section 5.4 of the Zoning Plan (directly by the Authority, or authorised by the Authority in co-operation with QPWS&P through the Reef Joint Field Management Program, or in partnership with others which may include a formal arrangement) or by permission; and
 - iii. entry is only granted for a specified period of time because these benefits outweigh risks of limited human visitation; and
 - iv. any extractive activities related to the intervention are minimised as far as possible to a level deemed acceptable by the Authority and must comprise an essential component of the intervention activity; and
 - v. it is done using a proven or lower-risk approach to achieve the intended benefits for the Reef, with the least impacts on other values of the site.
- d. Commonwealth Islands Zone:** The objectives of this zone also include aspects to provide for 'facilities and uses consistent with the values of the area'. A proposed restoration and adaptation intervention for a location in Commonwealth Island Zone is more likely to be considered an acceptable risk where:
- i. it is expected to maintain or improve protection and conservation for that specific location and its key values and/or achieve a conservation benefit to the region; and
 - ii. it mitigates impacts on other uses of the location, where possible.

Examples:

When there is a high risk of coral bleaching, the Authority may undertake or consider allowing cooling and shading interventions (after appropriate pilot studies), including associated structures and activities, to reduce local coral bleaching stress and protect high value coral habitat within the Remote Natural Area. The importance of the proposed intervention location(s) for regional coral replenishment and persistence is a key consideration.

When natural recovery is unlikely to occur following disturbance, the Authority may undertake or consider allowing interventions using an established technique to help accelerate recovery in a Preservation Zone.

38. There are a number of management tools that overlay the zoning arrangements outlined above. Additional guidance relating broadly to use of these management tools is identified below:
- a. Remote Natural Area:** Under the Zoning Plan, most of the area north of Lizard Island to the tip of Cape York is part of a Remote Natural Area overlay. The objectives of this overlay include the objectives of the zones that fall within the Area and additional aspects to ensure the Area 'remains in a state that is largely unaltered by works or facilities' and provides 'opportunities for quiet appreciation and enjoyment'. As restoration and adaptation interventions could assist in helping to reverse the degradation in the Remote Natural Area from the 2016 and 2017 mass coral bleaching events, the policy intent in the longer term is to consider a broader range of activities in the Remote Natural Area as part of restoration and adaptation interventions in the future. A proposed restoration and adaptation intervention for a location in the Remote Natural Area is more likely to be considered an acceptable risk where:
- i. it is consistent with the other considerations detailed in this policy for where the proposed intervention would occur; and
 - ii. it is a priority for management and expected to maintain or improve protection and conservation for that specific location and its key values and/or achieve a conservation benefit for the region; and
 - iii. it limits, where possible, facilities and works required to undertake the intervention.
- b. Special Management Areas:** The objectives of Special Management Areas that may relate to restoration and adaptation interventions include conservation of species; conservation of natural resources; protection of cultural or heritage values; appreciation by the public; and emergency situations requiring immediate management action. A proposed restoration and adaptation intervention for a location in a Special Management Area is more likely to be considered an acceptable risk where:
- i. it is consistent with the other considerations detailed in this policy for where the proposed intervention would occur; and
 - ii. it is consistent with the objectives of the specific Special Management Area.

Example: When required, the Authority is prepared to consider a coral nursery/ coral gardening project in a Public Appreciation Special Management Area specifically to support restoration and adaptation interventions that are a priority for management. It cannot include any commercial aquaculture.

- c. **Plans of Management:** Plans of Management help to protect and conserve values of the Marine Park at a regional scale while allowing for a range of experiences. The Plans for offshore Cairns and Port Douglas, Hinchinbrook and the Whitsundays manage access (e.g. vessel length and group sizes at locations), types and numbers of tourism operations and facilities, frequency of visitation and specific uses of the planning areas. Research is enabled under the plans. As interventions move from research to practice, the Authority has discretion to consider the permitting of restoration and adaptation interventions. A proposed restoration and adaptation intervention for a location in a planning area is more likely to be considered an acceptable risk where:
- i. it is consistent with the other considerations detailed in this policy for where the proposed intervention would occur; and
 - ii. it maintains the intent of the Plans. The Plans of Management allow for some discretion by delegates of the Authority when considering activities that were not considered in the making of the Plans.

Example: Coral bommies displaced by cyclones may be returned and stabilised in a Plan of Management 'natural' setting which is generally free from facilities and larger vessels.

39. While a priority intervention is underway, it may be necessary to temporarily restrict other incompatible use of, or access to, an area. The Authority will consult potentially affected Marine Park users before doing this, unless an urgent response is required (e.g. following an incident). Any restrictions would be implemented using appropriate planning and management tools. Generally, a voluntary arrangement to limit access should be considered before considering a more formal option such as a special management area at the location for the duration of the activity.

Example: Entry or vessel transit of a local reef site may not be compatible with the temporary deployment of surface films to shade coral habitat during an acute heat stress event.

40. The Authority recognises a wide range of actions or processes, engineering concepts and delivery methods are likely to be required to produce and deploy restoration and adaptation interventions in the Marine Park at the targeted range of scales. Proposals will undergo careful assessment to safeguard the values of the Marine Park.
41. The management agencies may consider that an intervention has become part of a habitat structure and is providing ongoing conservation benefit (whether specifically designed to or not). If the Authority decides this is the case then the obligations of the permit or authorisation holder would cease. The Authority has the final decisions on if or when this occurs, and any pre-conditions that must be met (see also the [Reef Intervention Application Guidelines](#) for further considerations including choice of materials).

Example: To increase rates of reef recovery following major disturbances, there is a potential role for interventions that add reef structures and stabilise or consolidate habitat (e.g. consolidating cyclone-derived rubble). Over time, a structure may become part of the reef matrix and be a substrate for coral with a growing community of corals and other marine life upon it, and the artificial structure becomes hidden from view. In this case, the conservation outcomes are maximised by the structure remaining in the Marine Park.

42. The Authority will consider and seek to maximise the public good from restoration and adaptation intervention programs and proposals in the Marine Park, especially the conservation outcomes for the Reef and all the values connected to it. The Authority recognises that in order to be financially viable, some restoration and adaptation intervention projects may require association with activities of a commercial nature, and this may result in proponents deriving secondary commercial benefits (see also paragraph 10 of this policy).
43. The Authority considers that it is generally desirable to facilitate and maintain public access to the benefits of restoration and adaptation intervention research and technology development and innovation. This may be through conditions of a permission or other contractual arrangements.

Implementation

44. This Policy will take effect from the date it is approved and be complemented by an updated Reef Intervention Application Guidelines.
45. The Authority will undertake necessary tasks to implement this policy, including:
- Where required, seeking to clarify the Authority's policies and arrangements to provide for more explicit consideration of, and to better enable, appropriate restoration and adaptation interventions.
 - Ensuring good governance, procedures and practices.
 - Continuing to progress tasks under Authority work programs that improve relevant aspects of the planning and management system and associated tools.
 - Implementing periodic reviews of this policy (and supporting Guidelines), and if required developing additional guidelines for specific issues.
 - Continuing to work with other relevant regulators and streamline processes (including for permissions) to enable the conduct of restoration and adaptation interventions.
 - Making information publicly available on restoration and adaptation interventions underway or completed in the Marine Park that is up-to-date, comprehensive, relevant and informative.
 - Encouraging others to make results of interventions open access and to make information publicly available on restoration and adaptation intervention options being investigated and their potential benefits and risks.
 - Sharing practice and lessons learnt from interventions with others, nationally and internationally.

Background information

46. The Australian and international community are concerned about the [very poor long-term outlook for the Great Barrier Reef ecosystem under ongoing climate change](#), as they consider the Reef to be an irreplaceable icon which belongs to the global community.
47. To ensure the Great Barrier Reef is a functioning ecosystem in the future, urgent global action is essential to achieve net zero CO₂ emissions by mid-century and restrict global warming to 1.5°C (or ideally less) above pre-industrial levels under [the Paris Agreement](#). This is why the Authority states that restoration efforts do not negate the need to address the [serious threats from climate change to the Reef](#).
48. The Authority is strengthening its work with partners to improve the condition of Reef values and build resilience to climate change by reducing local, Marine Park and catchment pressures. However, this is no longer enough as climate change is accelerating the impact of many of the threats the Reef faces faster than it can naturally adapt or recover. Additional action to help the Reef is likely to be needed under all climate scenarios, and the Authority is pro-actively preparing for this more interventionist approach as managers and regulators.
49. An interventionist approach in the Marine Park is consistent with contemporary resilience-based and ecosystem-based management of marine protected areas including coral reef ecosystems. This direction of managing the Reef for resilience was signalled in the [Reef Blueprint](#) and [Reef 2050 Long-term Sustainability Plan](#).
50. The impacts of climate change and other cumulative impacts are not only affecting the Reef's ecosystem health, but all other interconnected values as well. Flow-on impacts also extend to the Indigenous heritage values of Traditional Owners, as well as to nationally important and regionally vital industries, particularly tourism and fisheries. Social values for communities along the coast, for which the Reef is part of their enjoyment and daily life, are also being impacted.

51. Significant work is underway to develop interventions to help the Great Barrier Reef ecosystem while climate change is addressed. This presents a considerable technical and scientific challenge, and there are multiple natural, human, and technological factors at play. At this stage the likely future success of Reef intervention efforts remains unknown.
52. In the short to medium-term, restoration and adaptation interventions can provide benefits as part of a dynamic, resilience-based management approach. In the long-term, under circumstances where severe climate change is avoided, it is anticipated interventions are likely to assist in rebuilding the Reef faster.
53. Some restoration and adaptation interventions are ready to deliver small-scale conservation benefits. Others are at earlier stages of development, where project outcomes are mainly about proving a concept, advance techniques, or addressing critical information gaps in our knowledge and understanding of restoration and adaptation. Small-scale interventions and trials are underway in the Marine Park, and some programs have been proceeding for some years (e.g. [to support breeding turtles on Raine Island](#)).
54. Over time, the Authority anticipates the focus shifting to deploying larger-scale interventions, but recognise that delivery methods have upper and lower limitations of scale, driven by logistics or costs. Improving the understanding of relationships between intervention actions and impacts is important.
55. At any particular site, there may be real limitations to achieving recovery to a pre-disturbance condition, and at least in some instances this may not be realistic. This is why the Authority states restoration and adaptation intervention goals and outcomes should be forward-looking and realistic to the species, habitat's or ecosystem's ability to withstand or recover from damage.
56. For restoration and adaptation interventions in the Marine Park, this policy should be read in conjunction with the Reef Intervention Application Guidelines, Environmental Impact Management Policy: Permission System and other relevant legislation, policies and standards, as listed within Appendix 1.
57. Other relevant legislation may include the *Environment Protection (Sea Dumping) Act 1981*, the *Environment Protection and Biodiversity Conservation Act 1999*, the *Marine Parks Act 2004 (Qld)*, the *Marine Parks Regulations 2017 (Qld)*, and the *Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004*. See Appendix 1 and other regulators such as the Office of Gene Technology Regulator and Queensland Department of Agriculture and Fisheries that may require additional permissions, approvals and/or licences.

Definitions

Artificial reef In the context of reef restoration and adaptation interventions the Authority views an artificial reef as a substrate on which corals grow which is meant to remain in the Marine Park.

Aquaculture operation Has the meaning as defined in the *Great Barrier Reef Marine Park Zoning Plan 2003*. In the context of reef restoration and adaptation interventions, the Authority is of the view that an aquaculture operation is an activity of a commercial nature only.

Commerciality or commercial nature In determining if an activity is of a commercial nature, the Authority considers if the primary purpose of the activity constitutes, or has sufficient connection with, the provision of goods or services for reward (either monetary or non-monetary). Refer to the Authority's [Guidelines for applications for joint permissions](#).

Coral nursery / coral gardening A coral propagation activity done for the primary purpose of non-commercial coral reef conservation / restoration (e.g. research). In the context of reef restoration and adaptation interventions, the Authority views an artificial reef as a substrate on which corals grow which is meant to remain in the Marine Park, whilst coral gardening is considered to be corals growing on racks, trees, etc. that are mainly intended for outplanting back into the natural environment.

Ecosystem-based management – the Authority takes an integrated approach to managing an ecosystem and matters affecting that ecosystem, with the main object being to maintain ecological processes, biodiversity and functioning biological communities.

Facility Has the meaning as defined in subsection 3(A)(9) of the *Great Barrier Reef Marine Park Act 1975*.

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Management activities are activities undertaken by the Authority or authorised by the Authority in co-operation or under an agreement, for the purposes of managing the Marine Park under [section 5.4 of the Great Barrier Reef Marine Park Zoning Plan 2003](#). Management activities include, but are not limited to, delivering services, carrying out research or investigations and providing incident response support, to assist in the management of the Marine Park.

Permit A written document issued by the Authority that contains one or more permissions and any conditions attached to such permission(s).

Pilot study In the context of reef restoration and adaptation interventions a pilot study is a small scale preliminary study conducted in the field in order to evaluate feasibility, time, cost, adverse impacts, and gain knowledge prior to allowing a full-scale restoration/adaptation activity.

Proof of concept In the context of reef restoration and adaptation interventions proof of concept is typically derived from pilot studies, literature reviews and scientific papers.

Resilience-based management – defining features of the Authority’s approach are set out in the Great Barrier Reef [Reef Blueprint](#) and include being future-focused, dynamic and adaptive; understanding the processes of resilience to guide management actions and adaptation responses; taking a system perspective; having an understanding of scale; and being collaborative and innovative.

Resilience network means a decision-support system being developed by the Authority under the Great Barrier Reef Blueprint for Resilience, which is intended to be used to identify a set of priority reefs.

Restoration and adaptation intervention(s) mean an action, or set of actions, undertaken in the Marine Park to support or build ecosystem resilience and achieve conservation benefits for the Great Barrier Reef.

Sensitive environments are areas that contain populations or assemblages of organisms, or habitats, that are considered to have significant conservation and / or cultural heritage values. Examples may include dugong protection areas, fish spawning aggregation sites, seagrass beds, breeding areas, and diverse, rare or very old coral assemblages.

Structure In the context of reef restoration and adaptation interventions a structure is a facility.

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Document control information

Approved by:
Last reviewed:
Next review:
Created:
Document custodian:
Replaces:

Appendix 1 Related legislation / standards / policy [as updated from time to time]

[Great Barrier Reef Marine Park Act 1975](#)

[Great Barrier Reef Marine Park Regulations 2019](#)

[Great Barrier Reef Marine Park Zoning Plan 2003](#) (Commonwealth Zoning Plan)

[Whitsundays Plan of Management](#)

[Hinchinbrook Plan of Management](#)

[Cairns Area Plan of Management](#)

[Environment Protection \(Sea Dumping\) Act 1981](#) (Sea Dumping Act) regulates the loading and dumping of waste at sea. The Act fulfils Australia's international obligations under the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Protocol) to prevent marine pollution by dumping of wastes and other matter

[Guidelines for the Placement of Artificial Reefs - London Convention and Protocol/UNEP](#)

[Further information on the Sea Dumping Act](#)

[Environment Protection and Biodiversity Conservation Act 1999](#) (EPBC Act) and associated significance guidelines for matters of national environmental significance. In particular for the Great Barrier Reef Marine Park matter of national environmental significance.

[Further information on assessments of matters of national environmental significance](#)

The following documents, as updated from time to time, are relevant to this policy:

- a. Policies: [Permission system policy](#), cumulative impacts policy and net benefit policy
- b. Position Statements: [Translocation of species in the Marine Park](#); [aquaculture](#); [no-structures sub-zones](#)
- c. [Guidelines on Applications for restoration/adaptation projects to improve resilience of habitats in the Great Barrier Reef Marine Park 2018](#) (Reef Intervention Application Guidelines)
- d. [Traditional Owner Heritage Assessment Guidelines](#)
- e. Other Guidelines: [Management of artificial reefs](#), [COTS control](#), [Managing scientific research](#); [coral transplantation at tourism sites](#); [Assessment guidelines](#); [Application guidelines](#); [Risk assessment procedure](#); [Permission system service charter](#); [EPBC referral deemed application information sheet](#)
- f. The Aboriginal and Torres Strait Islander Heritage Strategy, and the principles of [Asking first](#) and [engage early](#).