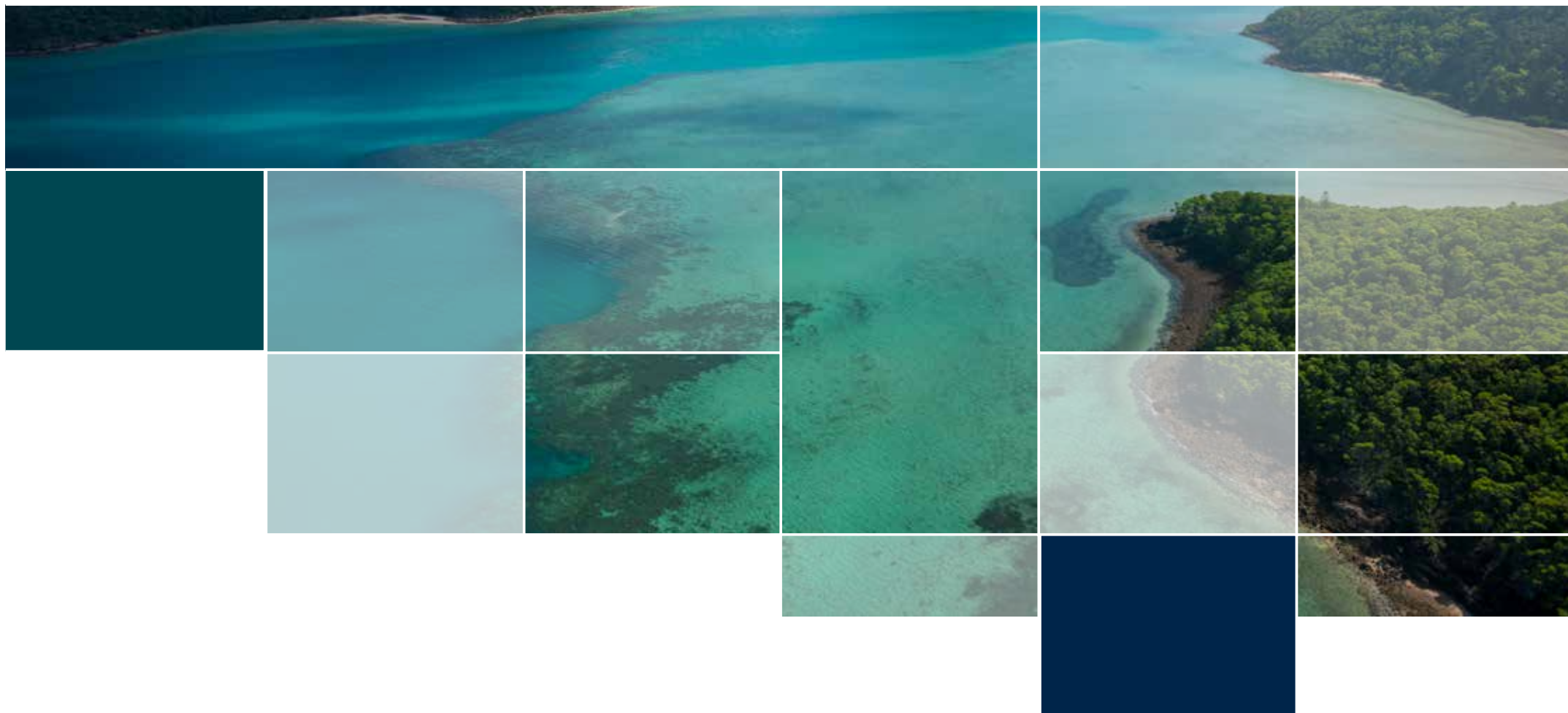




Australian Government



Queensland Government



Reef 2050 Objectives and Goals

2021–2025

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Our cover

Aerial view of Nara Inlet, Hook Island: Jumbo Aerial Photography (© Commonwealth of Australia (GBRMPA))

Back cover: Aerial of Cape Gloucester, north Airlie Beach: Jumbo Aerial Photography (© Commonwealth of Australia (GBRMPA))

The *Reef 2050 Objectives and Goals* is the key supporting document to the updated *Reef 2050 Long-term Sustainability Plan* (the Plan). This document should be read in context with the updated Plan, including its renewed vision and outcomes framework.



Colourful reef fish swim amongst *Acropora* corals:
A. Chin (© Commonwealth of Australia (GBRMPA))

The updated Plan includes a set of 20 objectives for the Great Barrier Reef (the Reef) through to 2050, underpinned by associated indicators (Table 1), to better guide delivery of the Plan's vision and outcome *Healthy Reef, Healthy People*. The objectives and indicators were developed in partnership with over 100 technical and subject matter experts, and cover a selection of attributes of *Healthy Reef, Healthy People*.

Many objectives refer to a value being 'healthy' and/or 'resilient'¹. In this context healthy means the ability for the value to maintain its key characteristics and self-renewal capacity. Resilience, in the broadest sense, is the capacity of a system to absorb disturbances and recover so as to retain essentially the same structure and function.² Maintaining resilience may be achievable for some species and habitats (e.g. island vegetation post disturbance) but not others, particularly if disturbances have caused too much change over time or recur too frequently to allow

for system recovery. In these instances, the focus will be on maintaining or improving condition or ecological function over time. Where appropriate, the focus may also include adaptation and transformative change (for example, building adaptive capacity of people and industries and addressing any unsustainable practices).

The objectives have been designed to apply from local to Reef-wide scales, and some objectives will have regionally relevant thresholds for different spatial areas. For example, green turtles in the Reef are divided into two different populations: northern and southern. Indicators and the rate of recovery needed in each population differ, sometimes regionally, and therefore thresholds will need to be sensitive to this.

Progress against objectives will be assessed against a set of indicators contained within this supporting document (Table 1), which may be updated over time as new evidence arises. Some

indicators will continue to be refined, and where required, reference levels/years or benchmarks will be developed through further expert input.

The updated Plan includes goals to drive and track management efforts under the Plan over the five years to 2025 (Table 2). Indicators or performance criteria for these goals are being developed. This work will be completed in 2021–22 and then the details included in an update of this document.

The objectives and goals have been designed to be measurable, interpretable, sensitive to scale and reliable. Information based in both scientific and Traditional knowledge will be used to measure progress and delivery of outcomes.

The [Strong Peoples – Strong Country Monitoring Framework](#) 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 help in measuring progress against the Plan's objectives and goals. For example, cultural heritage is intrinsically linked to the natural environment, and indicators for this connectedness are to be developed with Traditional Owners through the implementation of this framework.

Factors that influence the state of objectives will also be monitored, as detailed below. For example, in order to understand what is driving the state of seagrass meadows, it is also important to measure factors like sea temperature, water clarity (a measure of light penetration through the water) and fine sediment loads.

Relevant objectives from the *Reef 2050 Water Quality Improvement Plan* (as updated periodically) have been incorporated into this Plan's objectives, goals, and key factors to be monitored. Additionally, aspects of the *Reef 2050 Water Quality Improvement Plan* such as load reduction targets will inform reporting against relevant objectives, goals and factors.

There are a diverse range of monitoring programs and data sets that will contribute to reporting against these objectives, goals and factors, and these are being mapped. A [report prioritising monitoring gaps](#) has also been published by the Great Barrier Reef Marine Park Authority. In preparing this, the Authority worked with Reef managers, scientists, other stakeholders and end users to comprehensively understand what information is needed to assess progress and inform decisions, compare that to the information that is already collected, and prioritise the work required to fill critical gaps.

Additionally, the need to improve monitoring, data management capability and integration across different programs is recognised. Addressing these and continuously identifying and addressing priority knowledge gaps will form a key aspect of work under the updated Plan.

The Reef Integrated Monitoring and Reporting Program, and its front end portal – the [Reef Knowledge System](#) – will help track progress in delivering the Plan's objectives and goals. Work to operationalise the new reporting framework for the updated Reef 2050 Plan is underway, and future reporting on the Plan will be through the Reef Knowledge System.

Factors that influence the state of objectives

Key pressures and large-scale processes which influence the state of the Reef will be monitored. Their condition and trend provide important context for how the Reef is managed, the achievement of objectives and the responsiveness of managers and partners. The list of factors that follows is not exhaustive, and includes a few (e.g. on noise) that are aspirational, for which information may be limited or not available in the next few years.



Eye on the Reef diver surveying the health of the reef:
R. Beeden (© Commonwealth of Australia (GBRMPA))

- Anthropogenic noise levels
- Atmospheric carbon dioxide concentrations
- Changes in coastal erosion
- Changes in extreme weather event frequency, severity and extent of influence
- Changes in ocean currents
- Changes in ocean pH
- Changes in the benthic sediment type (e.g. particle size, organic content)
- Changes in wave energy
- Microbes and plankton abundance and distribution
- Sea level rise
- Sea surface temperature / degree heating days
- Water quality parameters, including but not limited to:
 - Anthropogenic dissolved inorganic nitrogen loads to the Great Barrier Reef
 - Anthropogenic fine sediment loads to the Great Barrier Reef
 - Anthropogenic sourced particulate nutrient loads to the Great Barrier Reef


Table 1: Reef 2050 Plan objectives, and associated indicators to guide evaluation and progress reporting


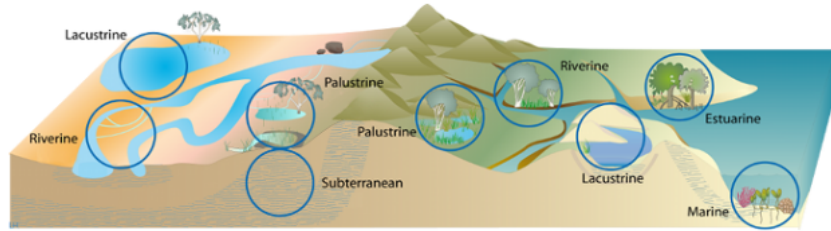
Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Coral reef habitats maintain good condition and resilience	<p>Coral reef habitats occur across a broad depth range and cover an area of around 26,000 square kilometres (~seven per cent of the Marine Park) (Strategic Assessment, 2014). Corals are susceptible to multiple pressures, for example, thermal stress from warmer than average seawater, poor water quality which can reduce light, crown-of-thorns starfish predation, changes in ocean pH (ocean acidification) effecting the net rate of calcium carbonate accretion, and physical damage caused by cyclones and anchor damage (GBRMPA 2019a).</p> <p>Where degradation has occurred, the aspiration is to improve and then maintain coral reef habitats in good condition, to sustain their ecological functions and support their resilience.</p> <p>Coral reef habitat recovery requires conditions that provide for sustained positive carbonate budgets. This includes periods of time without disturbance, favourable environmental conditions, inter-reef connectivity, an adequate supply of coral larvae, and successful coral recruitment (GBRMPA 2019a).</p>	<p>Monitoring and reporting that measures the condition and trend in coral reef condition over time is needed to understand the extent and rate of any changes, inform management decisions, and assess the effectiveness of particular management actions (Schaffelke et al. 2020).</p> <p>Indicators:</p> <ul style="list-style-type: none"> Condition of 'individual' surveyed reefs as measured through state and trend of: <ul style="list-style-type: none"> Percentage hard coral cover Coral disease per unit of coral cover Benthic algae: <ul style="list-style-type: none"> Proportion of macroalgal cover Algal turf height Percentage of crustose coralline algae (CCA) cover Microbial community composition (<i>Note: While preliminary work is underway, any data on this indicator is unlikely to be available in the next few years. Therefore this is an aspirational indicator only at this time.</i>) Herbivore biomass 	ix vii x Integrity	

1. Knowledge – this indicates the basic level of knowledge and measurement using repeatable methods available to inform indicators and reporting. Even where assessed as adequate, there may still be gaps in present knowledge and measurement. The associated uncertainty will be taken into account in designing the evaluation and progress reporting under the Reef 2050 Plan. The gaps are being identified and prioritised, and significant additional funding is being directed at filling the critical gaps.

- Adequate level of knowledge and measurement
- Limited level of knowledge and measurement
- Inadequate level of knowledge and measurement

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Coral reef habitats maintain good condition and resilience <i>(continued)</i>		<ul style="list-style-type: none"> • Mitigated crown-of-thorns starfish damage through maintenance of populations at below outbreak densities • Capacity of individual reefs to recover post disturbance as measured through state and trend of: <ul style="list-style-type: none"> – Hard coral community composition • Density of juvenile corals <ul style="list-style-type: none"> – Post disturbance coral size class distribution • Capacity for sustained functioning of the Reef ecosystem, as indicated by <ul style="list-style-type: none"> – measuring the current carbonate budget of individual reefs and – predicting the future carbonate budget <p>An integrative analysis framework is being developed to support reporting against this objective, with a focus on the condition and recovery capacity of coral reef habitat.</p>		●

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Resilient seagrass meadows that maintain condition	<p>This objective is about maintaining resilient seagrass meadows.</p> <p>Seagrasses vary spatially and temporally in their distribution and abundance across the Great Barrier Reef. They cover 35,000 square kilometres and have a potential habitat area of 228,300 square kilometres.</p> <p>Occurring in different water quality types (estuaries, coastal, reefal and offshore) and at different water depths (intertidal, shallow subtidal, deep water), they support the outstanding universal value of the Great Barrier Reef. Seagrasses are a critical food source for some protected species as well as habitat for many recreationally and commercially important fisheries species.</p> <p>The presence and abundance of seagrasses are often used as indicators for ecosystem health, as they require good water quality and relatively stable benthic habitats in order to thrive.</p>	<p>Monitoring of seagrass meadows needs to consider an assessment of the sites where seagrass has the potential to grow, an assessment of plant and reproductive health and monitoring of the processes that underpin resilience (Udy et al. 2019).</p> <p>Indicators:</p> <ul style="list-style-type: none"> • The long-term trend of seagrass spatial distribution does not decline. • The long-term trend of seagrass biomass / cover does not decline. • Community composition and expected community types for an area are maintained or improved. • Short-term trend in asexual / sexual reproductive capability does not decline. <p>Where known, baseline period will be specified.</p>	x Integrity	

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
No loss of the extent of natural wetlands	<p>'Wetland' is a broad term used for different kinds of wet ecosystems or ecosystems that are wet for a period of time. There are many definitions of wetlands in Queensland and which have been grouped into different types or classes based on their diversity, values and uses (see Figure 1 below). Wetlands can be natural, artificial or a mixture of both. Chemical changes and the life cycles of wetland plants and animals combine to create a system that supports a healthy Great Barrier Reef by removing sediments and stopping chemicals getting into healthy rivers, the sea and the Reef.</p> <p>This objective includes lacustrine, palustrine, riverine and estuarine (mangrove and salt flat) natural wetlands, which are key contributors to the outstanding universal value of the Great Barrier Reef.</p>	<p>Although highly variable, the extent of wetlands is a key indication of their status, captured through the following indicators to describe the overall trend in the extent of natural wetlands.</p> <p>Indicators:</p> <ul style="list-style-type: none"> • Volumetric extent of wetlands does not decline. • Existing spatial extent of wetlands does not decline. <p>Where known, baseline period will be specified.</p>	vii x Integrity	
		 <p>Figure 1: Wetlands are usually divided into broad systems based on their general characteristics which is useful for managing wetlands with different functional needs (© Queensland Wetlands Program)</p>		

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Wetland condition is improved	<p>Wetlands provide essential functions and services in, and to, coastal and marine ecosystems by connecting sections of the landscape to allow animal and plant species to move and spread from place to place to maintain their populations, and filtering catchment runoff (GBRMPA 2019a and the Wetlands in the Great Barrier Reef Catchments Management Strategy 2016–21). Threats to wetlands include weeds and invasive animals, land development, changes in salinity, drainage and water extraction, and excessive land-based runoff of nutrients, pesticides and sediments (Wetlands in the Great Barrier Reef Catchments Management Strategy 2016–21). Wetlands support numerous species, making them diversity hotspots and key contributors to the outstanding universal value of the Great Barrier Reef.</p>	<p>Monitoring the extent of wetlands only partially informs an understanding of condition and impacts on them. For example, while a wetland may exist over a large area, its condition may be so degraded that it does not provide the range of values that it would if it was in a better condition. Four wetland environmental values are assessed, comprising a number of indicators of condition.</p> <p>Indicators:</p> <ul style="list-style-type: none"> • Biological health and diversity of the wetland's ecosystems is improved. • The wetland's natural physical state and integrity is improved. • The wetland's natural hydrological cycle is improved. • The natural interaction of the wetland with other ecosystems, including other wetlands, is improved. <p>Where known, baseline period will be specified.</p>	vii ix x Integrity	



Adequate level of knowledge and measurement




Limited level of knowledge and measurement



Inadequate level of knowledge and measurement

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Key values associated with islands are in a desired condition	<p>The Great Barrier Reef ecosystem includes approximately 1050 islands, comprising of coral cays, continental islands and mangrove islands (GBRMPA 2019a). They are important refugia for animals and plants, and provide a number of ecosystem services, such as buffering the coast from storms, supporting nutrient cycling to adjacent marine ecosystems, and contributing to soil and sand formation (GBRMPA 2019a). Healthy islands are also important to support healthy fringing reefs. Many have historic heritage sites and are of Indigenous heritage significance. They are threatened by sea-level rise, coastal erosion, severe weather (including cyclones and wildfires), marine debris and invasive species (GBRMPA 2019a).</p> <p>Great Barrier Reef islands provide a diversity of natural, cultural, social and economic values and these contribute to its outstanding universal value.</p> <p>The focus of monitoring and management for islands is on key values associated with 'protected' islands. Approximately half of the Great Barrier Reef's islands are protected areas.</p>	<p>Under the Values Based Management Framework (VBMF), the current condition and desired condition for each key value is determined along with the strategic direction for its management. The condition and trend of key values are monitored through a health check program, and more detailed monitoring if needed.</p> <p>Indicators and progress reporting will be drawn from the VBMF and combined here into higher-level reporting to determine whether key values associated with islands are in a desired condition. For example:</p> <ul style="list-style-type: none"> • % of key natural values where condition is maintained or improved • % of key social values where condition is maintained or improved • % of key cultural values where condition is maintained or improved. <p>Condition of values is expressed as a four point scale from Good to Critical, and further information is provided in the Health Check Guides developed by QPWS&P.</p>	ix vii x Integrity	

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Key values associated with islands are in a desired condition (continued)	<p>In managing the Reef's protected islands, the Queensland Parks and Wildlife Service and Partnerships' (QPWS&P) Values Based Management Framework (VBMF) is used to identify key natural, cultural and social values, as well as threatening processes and prioritise actions to address threats and maintain or improve key value condition (https://parks.des.qld.gov.au/managing/framework).</p> <p>The values are determined by stakeholder groups relevant to the significance of the protected area and in co-design with First Nations people as partners in management.</p>	<p>Indicator themes include indices on ecosystem health, cultural heritage and visitor presentation, such as:</p> <ul style="list-style-type: none"> • the extent, prevalence and scope of pest invasion, • extent and condition of habitat and regional ecosystems, • functionality and health of key breeding and nesting sites • protection of culturally sensitive sites • availability and quality of visitor experiences at key visitor destinations 		



Adequate level of knowledge and measurement



Limited level of knowledge and measurement



Inadequate level of knowledge and measurement

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Populations of seabirds and shorebirds are healthy	<p>The Great Barrier Reef Region supports breeding populations of 20 seabird species and approximately 41 shorebird species (GBRMPA 2019a). Seabirds and shorebirds have profound influences on island ecosystems by bringing nutrients from sea to land (GBRMPA 2019a). Changes in sea surface temperature affect food supplies and can have implications at a population level (GBRMPA 2019a). Other threats to seabirds and shorebirds include, but are not limited to, commercial and recreational fishing impacts on prey species, direct disturbance by recreation and tourism visitors to islands, the introduction of exotic plants and animals (including predation and disturbance by domestic and feral animals), and ingestion and use in nesting of marine debris (GBRMPA 2019a). Seabirds and shorebirds are attributes of the Great Barrier Reef's outstanding universal value.</p> <p>Healthy populations of seabirds and shorebirds are those that are viable and self-sustaining.</p>	<p>Optimal monitoring would effectively describe healthy populations, detect adverse changes in population size, short-term changes in reproductive success, and identify the potential ecological and threatening processes that drive these changes (see Woodworth et al. 2019a and Woodworth et al. 2019b).</p> <p>Indicators:</p> <ul style="list-style-type: none"> Trends in overall population size, reproductive population size, and population size at key sites are not declining. <p>Recommended future indicators include:</p> <ul style="list-style-type: none"> Trends in key demographic parameters are not declining: <ul style="list-style-type: none"> Fecundity Recruitment Adult and chick survivorship rates Nesting (including roosting areas) and feeding and foraging habitats are maintained and in good condition. <p>There may be separate lists of indicators used for seabirds and for shorebirds (<i>Note: as many shorebirds are migratory, some demographic variables cannot be measured in Queensland</i>). For some species, populations or sites, additional data collection and monitoring may occur to inform assessments, reporting and management. Where known, baseline period will be specified.</p>	vii x Integrity	

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Populations of protected species² are healthy	<p>Protected species are those that are protected at an international, national, state or local level:</p> <ul style="list-style-type: none"> • International level: species that are listed as vulnerable, endangered or critically endangered under IUCN (World Conservation Union) Red Data Book. • National level: species that are a listed threatened species, a listed migratory species or a listed marine species under <i>the Environment Protection and Biodiversity Conservation Act 1999</i> • State level: species of marine mammal, bird or reptile that are prescribed as critically endangered, endangered, vulnerable, and near threatened under the <i>Nature Conservation Act 1992</i> of Queensland • Reef-wide level: species referred to or mentioned in Section 30 of the <i>Great Barrier Reef Marine Park Regulations 2019</i>. <p>Many protected animal species are attributes of the Great Barrier Reef's outstanding universal value. Populations of protected animal species are impacted by indirect pressures that affect their growth, fecundity, movements and mortality by causing changes in the status of the communities on which they depend for food, and direct pressures that cause mortality (Marsh et al. 2019). For many protected species, loss of even small numbers of individuals may have a substantial effect on population status, resilience and rate of recovery from past impacts (GBRMPA 2019a).</p> <p>Recovering and sustaining the Reef's protected species requires population health to be improved for a number of species. For these species, the aspiration is improving population size and recruitment, in addition to preventing further declines.</p>	<p>In order to effectively describe healthy populations, monitoring of population-level indicators over long time scales is necessary to establish trends in distribution, abundance and threat exposure for adults and juveniles.</p> <p>Indicators:</p> <ul style="list-style-type: none"> • Trends in population size are not declining and are improving, as measured by: <ul style="list-style-type: none"> – Abundance – Density – Mortality versus populations size • Trends in recruitment are not declining and are improving, as measured by: <ul style="list-style-type: none"> – Encounter rate – Gender ratio – Neonatal mortality – Calving pairs – Hatchling production • Nesting and feeding habitat are available and in good condition. <p>A list of protected species for the Reef to be monitored will be developed. Where known, baseline period will be specified.</p>	vii x Integrity	

² Excluding seabirds and shorebirds





Adequate level of knowledge and measurement



Limited level of knowledge and measurement





Inadequate level of knowledge and measurement

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Populations of species of cultural significance to Traditional Owners are healthy	<p>The Great Barrier Reef has many species that are of cultural significance* to Traditional Owners, which may include totem species and protected species.</p> <p>*Cultural significance refers to aesthetic, historic, scientific, social or spiritual value for past, present or future generations. For a place, cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects. (AICOMOS 2013).</p>	The Strong peoples – Strong country framework is an Indigenous heritage monitoring framework connecting the health of the Reef and its catchment to Traditional Owners' quality of life. It provides a Traditional Owner-led approach for systematic monitoring of the condition of the Reef and its catchment as an Indigenous heritage asset. It reflects the Traditional Owner worldview that their quality of life is connected inseparably to and underpinned by, their land and sea country (Jarvis et al. 2019a). Indicators to describe healthy populations of species of cultural significance will be developed through the implementation of this framework.	vii x Integrity	
Populations of bioculturally important fish and invertebrate species are healthy	<p>Many Great Barrier Reef fish and invertebrate species are of biocultural importance to Traditional Owners.</p> <p>Biocultural heritage is a complex system of interdependent parts centred on the relationship between Indigenous Peoples and their natural environment. Its components include biological resources, from the genetic to the landscape level; and long standing traditions, practices and knowledge for adaptation to environmental change and sustainable use of biodiversity (International Institute of Environment and Development (n.d), About biocultural heritage, International Institute of Environment and Development)</p>	The Strong peoples – Strong country framework is an Indigenous heritage monitoring framework connecting the health of the Reef and its catchment to Traditional Owners' quality of life. It provides a Traditional Owner-led approach for systematic monitoring of the condition of the Reef and its catchment as an Indigenous heritage asset. It reflects the Traditional Owner worldview that their quality of life is connected inseparably to and underpinned by, their land and sea country (Jarvis et al. 2019a). Indicators to describe healthy populations of species of bioculturally important fish and invertebrate species will be developed through the implementation of this framework.	ix vii x Integrity	


Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Populations of fish and invertebrate species that are important for recreational, commercial and culturally-based fisheries are healthy	<p>There are approximately 1625 bony fish species, 136 cartilaginous fish species (sharks, rays, skates and chimaeras) and over 12,000 described invertebrate species found in the Great Barrier Reef (GBRMPA 2019a), that contribute to its outstanding universal value. They influence habitat structure, population dynamics and the flow of energy and nutrient cycling (GBRMPA 2019a). Many species are of high ecological value and some are also of high cultural and economic value (GBRMPA 2019a). Significant threats continue to compromise the health and resilience of many species, including climate change, unsustainable fishing of some target species, impacts on non-target species (including mortality), illegal fishing, and damage to habitats.</p> <p>An understanding of functional herbivore biomass is an aspect of this objective, and will help to inform the coral habitat objective. By understanding herbivore biomass at different reefs, this will help to integrate and inform recovery capacity following disturbance.</p> <p>Indicators for measuring and reporting against this objective will, in part, utilise and build upon established monitoring and assessment programs that are managed and funded by Queensland's Department of Agriculture and Fisheries</p> <p>(https://www.daf.qld.gov.au/). This includes results of recreational fishing surveys and biological monitoring of fish species, reporting on stock status, stock assessment reports, and ecological risk assessments.</p>	<p>A list of key fishery species to be monitored will be developed.</p> <p>Indicators:</p> <ul style="list-style-type: none"> Fishery species populations are maintained at no less than 60 per cent virgin (or pre-fishing) biomass. No fishery species are categorised as depleted or subject to overfishing. Stock status is known and assessed for all fishery species. <p>The above will largely be informed by fisheries monitoring and assessment programs. Additional indicators will be developed as required to provide for reporting against this objective. This will include but not be limited to understanding functional herbivore biomass (selection of relevant indicator species recommended).</p> <p>Where known, baseline period will be specified.</p>	ix vii x Integrity	



Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Traditional Owners caring for country	<p>Aboriginal and Torres Strait Islander peoples are the Traditional Owners of the Great Barrier Reef area and have a continuing connection to their land and sea country.</p> <p>Aboriginal and Torres Strait Islander peoples have cared for their sea country and heritage for tens of thousands of years (GBRMPA 2019b). Since colonisation, their sea country and cultural practices have come under increasing pressure from other uses. Many cultural practices linked with the Reef remain strong, whilst other Indigenous heritage values linked with the Reef have deteriorated with changes in the environment and impacts on heritage. Partnerships between Aboriginal and Torres Strait Islander peoples and other land and sea managers are increasingly important to assist with managing these external pressures.</p> <p>Despite this recent history, many Reef Traditional Owners remain connected to their sea country and strong in their culture (GBRMPA 2019b). Many people work tirelessly through their communities and various Aboriginal and Torres Strait Islander organisations to maintain the remaining heritage values of the Reef. Aboriginal and Torres Strait Islander peoples are increasingly re-asserting their role in managing their country through active engagement in on-country management and policy and planning programs.</p>	The Strong peoples – Strong country framework is an Indigenous heritage monitoring framework connecting the health of the Reef and its catchment to Traditional Owners' quality of life. It provides a Traditional Owner-led approach for systematic monitoring of the condition of the Reef and its catchment as an Indigenous heritage asset. It reflects the Traditional Owner worldview that their quality of life is connected inseparably to and underpinned by, their land and sea country (Jarvis et al. 2019a). Indicators to demonstrate the protection and retention of traditional knowledge will be developed through implementation of this framework.	ix	○

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Traditional knowledge about the Great Barrier Reef is owned and managed by Traditional Owners and is protected and retained for future generations	Aboriginal and Torres Strait Islander peoples have been linked with the Reef since time immemorial (GBRMPA 2019b). Knowing, managing, protecting, and having access to country (land and sea) and heritage, as well as being able to continue the oral history, transfer of knowledge and interaction with western science is a key component of Indigenous heritage values.	The Strong peoples – Strong country framework is an Indigenous heritage monitoring framework connecting the health of the Reef and its catchment to Traditional Owners' quality of life. It provides a Traditional Owner-led approach for systematic monitoring of the condition of the Reef and its catchment as an Indigenous heritage asset. It reflects the Traditional Owner worldview that their quality of life is connected inseparably to and underpinned by, their land and sea country (Jarvis et al. 2019a). Indicators to demonstrate the protection and retention of traditional knowledge will be developed through implementation of this framework.	ix	
Traditional Owners' rights are genuinely recognised and prioritised and inform and drive how benefits are shared	Aboriginal and Torres Strait Islander peoples are the first peoples of the Great Barrier Reef and their connection to country continues to be a key element of the ecosystems (ref LTSP Indigenous Targets Report 2014). They seek full recognition as the 'first peoples' of the Great Barrier Reef and, as such, to have a strong voice in its governance, especially in relation to conservation, management and use (ref LTSP Indigenous Targets Report 2014).	The Strong peoples – Strong country framework is an Indigenous heritage monitoring framework connecting the health of the Reef and its catchment to Traditional Owners' quality of life. It provides a Traditional Owner-led approach for systematic monitoring of the condition of the Reef and its catchment as an Indigenous heritage asset. It reflects the Traditional Owner worldview that their quality of life is connected inseparably to and underpinned by, their land and sea country (Jarvis et al. 2019a). Indicators to measure the extent to which Traditional Owners rights are recognised and describe how the benefits are shared will be developed through implementation of this framework.		

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Local Traditional Owner land and sea management organisations are equipped to operate at the appropriate scale	To continue to deliver cultural responsibilities for sea country and lore, Aboriginal and Torres Strait Islander peoples have formed organisations to manage land and sea programs through administration, project officers and rangers. Many are Traditional Owner organisations, following cultural protocols and exercising cultural authority on behalf of specific Traditional Owner groups. These organisations can have partnerships with other organisations that also contribute to heritage management. Partnerships between Aboriginal and Torres Strait Islander peoples and other land and sea managers are increasingly important to assist with managing external pressures to the Great Barrier Reef (GBRMPA 2019b).	The Strong peoples – Strong country framework is an Indigenous heritage monitoring framework connecting the health of the Reef and its catchment to Traditional Owners' quality of life. It provides a Traditional Owner-led approach for systematic monitoring of the condition of the Reef and its catchment as an Indigenous heritage asset. It reflects the Traditional Owner worldview that their quality of life is connected inseparably to and underpinned by, their land and sea country (Jarvis et al. 2019a). Indicators to measure the capacity of Traditional Owner groups to undertake and participate in land and sea management will be developed through implementation of this framework.		○

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Country is healthy and culture is strong	<p>Country (land and sea) needs to be healthy for Traditional Owners to feel that they have carried out their cultural obligations and responsibilities in looking after country (Jarvis et al. 2019b). 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 (GBRMPA 2019b). Many cultural practices remain strong, whilst other Indigenous heritage values have deteriorated with changes in the environment and direct impacts (GBRMPA 2019b). For example, story, language, songlines and totems are being affected by activities such as shipping, anchoring and dredging (GBRMPA 2019b). The specific wording in the retrospective Statement of Outstanding Universal Value for the Great Barrier Reef (2012) under criteria (ix) refers to “<i>Man’s interaction with his natural environment</i>” is of particular significance to Aboriginal and Torres Strait Islander peoples who have lived in the area for 40,000 years and have strong connections to what we know today as the Great Barrier Reef (Day 2012).</p> <p>*Cultural significance refers to aesthetic, historic, scientific, social or spiritual value for past, present or future generations. For a place, cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects. (AICOMOS 2013).</p>	The Strong peoples – Strong country framework is an Indigenous heritage monitoring framework connecting the health of the Reef and its catchment to Traditional Owners’ quality of life. It provides a Traditional Owner-led approach for systematic monitoring of the condition of the Reef and its catchment as an Indigenous heritage asset. It reflects the Traditional Owner worldview that their quality of life is connected inseparably to and underpinned by, their land and sea country (Jarvis et al. 2019a). Indicators to describe healthy country and strong culture will be developed through the implementation of this framework.	ix	○

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Uses of the Reef are ecologically sustainable as the system changes, in turn sustaining economic and social benefits	<p>Since European settlement, use of the Great Barrier Reef has increased through a combination of direct commercial and non-commercial uses (Reef-dependent uses) and Reef-associated uses that require access through (or to) the area (GBRMPA 2019a). The Great Barrier Reef has an economic, social and icon asset value of \$56 billion. It supports 64,000 jobs and contributes \$6.4 billion per year to the Australian economy, mostly through tourism (figures reflect economic benefits prior to COVID-19 pandemic impacts on the international tourism industry (Deloitte 2017)). For more than 45 years, implementation of government management plans and policies have had to balance the protection of the Great Barrier Reef against the needs of communities and industries that depend on the Reef for traditional use, social and cultural purposes, and livelihoods. Factors such as climate change and coastal development that influence the Great Barrier Reef have changed and intensified over the years, making this management balance more challenging.</p> <p>To be within ecologically sustainable limits of the Reef ecosystem as it changes, the co-existence and operation of Reef-dependent and Reef-associated activities must not compromise other objectives of the Plan or the health and resilience of the Great Barrier Reef. Activities must reflect the ecological constraints consistent with the World Heritage status of the area and be consistent with protecting and sustaining the Reef's outstanding universal value. This applies at all scales from local to Reef-wide.</p>	<p>Monitoring of the economic benefits that people derive directly or indirectly from a healthy and well-managed Great Barrier Reef is an aspect of 'healthy people' and provides important context for management and an indication of how natural values interact with social and economic benefits. These benefits are derived from both Reef-dependent (e.g. commercial fishing, tourism, recreation, research) and Reef-associated (e.g. shipping, catchment industries such as agriculture, urban, industrial and ports) uses (Gooch et al. 2019).</p> <p>Indicators:</p> <ul style="list-style-type: none"> • Reef benefits are sustained and maintained within the ecologically sustainable limits of the whole system as it changes for Reef dependent users and industries: recreational and tourism visitors; recreational and commercial fisheries; and research. (Note: While preliminary work is underway, full data on this indicator is unlikely to be available in the next few years. Therefore this is an aspirational indicator.) • The number of businesses in the Reef's catchments and marine environment transitioned to green energy rises and net greenhouse gas emissions of Reef associated and dependent industries is reduced. • The adoption of environmental best practice for the Reef is increased by agriculture; Reef recreational users; industry and urban sector; and marine industries. 		


Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
	With the Reef changing in complex ways, and concerns and uncertainty about futures under ongoing climate change, there is a need to build preparedness and adaptive capacity of people and industries. This will help them to navigate through potentially major and uncertain changes.	<ul style="list-style-type: none"> The number of Reef-dependent industries with low climate risk/vulnerability ratings is increased. Adaptive capacity of Reef users continues to improve. Improved economic confidence in the Great Barrier Reef Region. <p>Where known, baseline period will be specified.</p>		
People maintain or grow their attachment to the Great Barrier Reef	<p>The Great Barrier Reef is considered Australia's most inspiring landmark by the general Australian population and, nationally, the most socially significant natural environment (GBRMPA 2019a). People across the world and in its catchment love the Great Barrier Reef and value it at \$56 billion dollars (DAE, 2017).</p> <p>Many Australian residents feel the Reef is part of their Australian identity.</p>	<p>Association with the Great Barrier Reef creates a strong sense of place attachment and identity within the community (Gooch et al. 2019).</p> <p>Indicators:</p> <ul style="list-style-type: none"> For (i) Great Barrier Reef region residents, (ii) the Australian public, and (iii) International community: <ul style="list-style-type: none"> Wellbeing and satisfaction associated with the Great Barrier Reef is maintained or improved. Attachment and identity associated with the Reef is maintained or improved. Pride in the Reef is maintained or improved. Non-use values for the Reef are maintained or improved <p>Where known, baseline period will be specified.</p>	vii	

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
People and communities take individual and collective action to maintain Reef resilience	Communities with a relationship with the Great Barrier Reef range from residents in catchment towns and cities, to people across the nation or globe, that may either have an interest in the Reef or influence (directly or indirectly) the condition of the Reef (ref RIMReP HD Report). Cohesive vision and aspirations for the future of the Reef, together with awareness, skills, knowledge and capacities, is necessary to turn aspirations into action (ref RIMReP HD Report). To support the resilience of the Reef, individual and collective stewardship efforts are required.	<p>An informed community has a role to play in protecting the benefits of the Great Barrier Reef for current and future generations.</p> <p>Indicators:</p> <ul style="list-style-type: none"> Levels of community awareness and education about the Great Barrier Reef is maintained or improved. Opportunities for community leadership and stewardship are increased and supported. Adoption of stewardship practices by the community are maintained or improved. Non-use values for the Reef are maintained or improved. <p>Where known, baseline period will be specified.</p>		
Intangible and tangible historic heritage and cultural heritage and contemporary cultural values remain intact	<p>Non-Indigenous cultural heritage includes buildings, monuments, gardens, industrial sites, landscapes, cultural landscapes, archaeological sites, groups of buildings and precincts, or places which embody a specific cultural or historic value (Gooch et al. 2019). Historic heritage relates to the occupation and use of an area since the arrival of European and other migrants, and describes the way in which the many cultures of Australian people have modified, shaped and created the cultural environment (Gooch et al. 2019, GBRMPA 2019a). By its nature, historic heritage will continue to evolve, representing the flow of history, changing community perceptions and contemporary attributes (GBRMPA 2019a).</p> <p>Maintaining connections to these heritage values promotes a sense of place associated with Great Barrier Reef communities. In turn, this may also encourage care and protection of the Great Barrier Reef.</p>	<p>Contemporary cultural and heritage connections promote a sense of place associated with Great Barrier Reef coastal communities (Gooch et al. 2019).</p> <p>Indicators:</p> <ul style="list-style-type: none"> Protection of tangible historic maritime heritage assets (e.g. lighthouses and shipwrecks) is maintained or improved. Aesthetic values scores are maintained or improved. <p>Where known, baseline period will be specified.</p>	vii Integrity	

Adequate level of knowledge and measurement

Limited level of knowledge and measurement

Inadequate level of knowledge and measurement

Objective	Narrative	Indicators	OUV Criteria	Level of Knowledge ¹
Governance systems are inclusive, coherent and adaptive	<p>Governance arrangements for the Great Barrier Reef are complex and multi-tiered (GBRMPA 2019a).</p> <p>Sound and inclusive governance is important for effective and timely action. Reef-based decision-making (from local to international scales) needs connectivity between different parts of governance arrangements and the community to ensure effective use of diverse knowledge sets. Policy and program coherence between tiers of government, and between portfolio areas, can also be important for achieving desired management outcomes.</p> <p>Governance arrangements also need to be adaptive. Additionally, some existing arrangements may not have been designed to directly address the effects of a changing climate. As such, managers are increasingly intervening where critical habitats or species require assistance (GBRMPA 2019a).</p>	<p>A multi-tiered governance and management regime for the Great Barrier Reef and its catchment exists and aims to protect biodiversity, ecosystem and heritage values through a range of management tools.</p> <p>Indicators:</p> <ul style="list-style-type: none"> • Support for decision-making improves, including: integrated monitoring and reporting, data management and decision-support. • Planning, management and decision-making is more inclusive of rights and interests of stakeholders, Traditional owners and communities • Capacity for adaptive and anticipatory management increases • Policy and program coherence between tiers of government and portfolio areas is improved • Satisfaction with governance and management increases • Co-management with Traditional Owners increases. <p>Where known, baseline period will be specified.</p>	adequate protection and management system	



Adequate level of knowledge and measurement



Limited level of knowledge and measurement



Inadequate level of knowledge and measurement

Table 2: Goals to reduce cumulative impacts and protect and conserve the Reef, and to enable delivery³

Goal	Narrative/description
Australia contributes to an effective global response to climate change through the Paris Agreement, to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels	Concerted global action to limit global warming is critical to the future of the Reef – and all other coral reefs. The Paris Agreement aims to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C. Limiting global temperature rise to the maximum extent possible, and certainly within the temperature goals of the Paris Agreement, is critical to improve the outlook for the Reef. Within the Paris Agreement, the 1.5°C ambition would deliver a far better outcome for the Reef than the ‘well below 2°C’ ambition.
The capacity of Reef communities, Traditional Owners and industries to adapt to a changing climate is increased	With the Reef changing in complex ways, and uncertainty about futures under ongoing climate change and other drivers, there is a need to build preparedness and adaptive capacity of people and industries. This will help them to navigate through potentially major and uncertain changes, and in turn can help support the resilience of the environment, communities and the economy to deal with the impacts of climate change.
Species and habitats are supported to adapt to a changing climate	Significant work is underway to develop restoration and adaptation interventions to try to help the Great Barrier Reef ecosystem while climate change is addressed. This will be done using risk-based processes (such as staged trials), and these will be managed in a way that is socially and culturally responsible and open to public scrutiny. This does not negate the need to limit global temperature rise to the maximum extent possible, as quickly as possible for the future of coral reefs.
The quality of water is improved through increased effective land management practices in catchments	Refer to Reef 2050 Water Quality Implementation Plan 2017-2022 targets: <ul style="list-style-type: none"> • 25% reduction in anthropogenic end of catchment fine sediment loads • 60% reduction in anthropogenic end of catchment dissolved inorganic nitrogen loads • 20% reduction in anthropogenic end of catchment particulate nutrient loads

3. Indicators or performance criteria for these goals are being developed, and then these details will be included in an update of this document.

Goal	Narrative/description
The quality of water is improved through increased effective land management practices in catchments <i>(continued)</i>	<p>Refer to water quality guidelines for each region:</p> <ul style="list-style-type: none"> • Wet Tropics region including all waters of the Daintree, Mossman, Barron, Mulgrave-Russell and Trinity Inlet, Johnstone, Tully, Murray, Hinchinbrook Island and Herbert River basins. • Townsville region including all waters of the Black and Ross River basins, Cleveland Bay, Magnetic Island. • Mackay-Whitsundays region including all waters of the O’Connell, Pioneer and Proserpine River basins, Plane Creek and Whitsunday Island basins, Repulse Bay, the Whitsundays. • Capricorn and Curtis Coast region including all waters of the Styx, Shoalwater and Water Park Creek Basins, Keppel Bay, the Boyne, Calliope and Curtis Island Basins, including Gladstone Harbour, the Narrows, lower Fitzroy estuary. <p>Other basins include Cape York, Wet Tropics (coastal waters), Burdekin-Don-Haughton, Mackay-Whitsunday (coastal waters), the Fitzroy region, and the Burnett Mary.</p>
Integrated catchment-to-Reef management reduces cumulative impacts	<p>Refer to the Wetlands in the Great Barrier Reef Catchments Management Strategy.</p> <p>The hydrological processes within catchments set the backbone of all ecological functions and water quality outcomes. These catchment ecosystems and water quality outcomes in turn are in direct connection with the health of the marine environment to which they drain, and are impacted by factors such as pollution from transport, connectivity, and fish passages. Therefore, these have been of increasing concern for the long-term health of the Great Barrier Reef World Heritage Area.</p> <p>Management of cumulative impacts should consider how decisions about planning, programs, development assessment and on-ground actions within the Great Barrier Reef, along the coast, in coastal catchments and globally will impact Great Barrier Reef values. Cumulative impacts should be considered at all scales of decision-making and applied proportionately to the nature and scale and risk of likely impacts.</p>
Lighting and recreational impacts on sensitive shoreline ecosystems and cultural sites are reduced	<p>Decisions about planning, development assessment and activities along the coast and in coastal catchments should consider ways to avoid or reduce impacts on sensitive shoreline ecosystems and cultural sites. This should be applied proportionately to the nature and scale and risk of likely impacts.</p>
Biodiversity and heritage protection are enhanced and ecosystem resilience is supported through strengthened efforts to ensure water-based activities are sustainable	<p>Resilience refers to the capacity of the ecosystem to resist and recover from disturbance and undergo change while still retaining essentially the same function, structure and integrity. Strengthened efforts on a risk-basis to ensure water-based activities are sustainable and using a resilience-based approach is important for reducing local and regional risks and supporting ecosystem resilience.</p> <p>To be within ecologically sustainable limits of the Reef ecosystem as it changes, the co-existence and operation of Reef-dependent and Reef-associated activities must not compromise the objectives of the Plan or the health and resilience of the Great Barrier Reef. Activities must reflect the ecological constraints consistent with the World Heritage status of the area and be consistent with protecting and sustaining the Reef’s outstanding universal value. This applies at all scales from local to Reef-wide.</p>

Goal	Narrative/description
Traditional Owners are supported to continue to manage sea Country	This reflects the Traditional Owner worldview that their quality of life is connected inseparably to and underpinned by their Country. Working in partnership with Traditional Owners to manage sea Country is a focus under the Plan and is essential to keep Indigenous heritage strong, safe and healthy.
The threats associated with legal and illegal fishing are reduced	Fishing is the largest extractive use of the Great Barrier Reef Region and comprises a range of fishing activities targeting a variety of species, including fishes, crabs and prawns. This management goal refers to fishing associated with recreational, cultural, charter and commercial fisheries. A number of threats associated with fishing (illegal fishing, incidental catch of species of conservation concern, discarded catch, extraction of predators and particle feeders, and extraction from unidentified or unprotected spawning aggregations) are rated as high or very high risk, and this goal is about reducing those threats to support the health and resilience of the Reef.
Noise pollution and artificial light impacts from sources within and adjacent to the Marine Park are reduced	<p>This goal is focused on indirect environmental impacts associated with intermittent noise pollution, and artificial light impacts from sources including ports and island infrastructure and shipping.</p> <p>Growth in shipping and urban and industrial development is likely to continue to increase the amount of artificial light. The main known issue is the effect of artificial light on turtle hatchlings' orientation, including where artificial light leads to misdirection, aggregation and increased predation. Current hotspots for elevated light near turtle nesting beaches include the Woongarra coast, Gladstone and Mackay. Other impacts include effects on fish behaviour, including on juvenile fish and the orientation of pelagic species around vessel lights, and potential effects on seabird behaviour.</p>
New outbreaks of disease are reduced and incursions of introduced species and pests are prevented	<p>Diseases are infections of plants and animals by pathogenic microorganisms, such as bacteria, viruses, fungi and parasites. Although many of these microorganisms are naturally present in the environment and usually do not cause widespread disease, outbreaks can occur when microorganism abundance increases rapidly or the immunity of a potential host is compromised.</p> <p>Environmentally induced disease outbreaks can occur, such as white syndromes disease of corals during marine heatwaves.</p> <p>Introduced species or 'pests' include non-native plants or animals that establish beyond their natural range and threaten values within their new range. Introduced species are a threat to native plants and animals because they compete for food and space, and in some cases may directly prey on native species.</p>
Marine debris, rubbish pollution and at-sea disposal of waste is reduced	Marine debris, in particular plastic, causes environmental, economic, aesthetic and human health impacts. The most common marine debris found in the Great Barrier Reef Region are plastic remnants (including lids, wrap and containers), rope and net scraps, cigarette butts and rubber footwear.
Australia actively engages in international forums and agreements to minimise international sources of impact to the Reef	Australia works through various international treaties, bodies and initiatives to reduce marine debris entering the Reef and influence the protection of habitat for migratory species that spend part of their lives in the Reef.

Goal	Narrative/description
Outbreaks of pests, introduced species and disease are reduced	<p>Crown-of-thorns starfish are native coral predators on the Reef, and high densities of these starfish can lead to outbreaks. At natural densities (less than one starfish per hectare), the starfish do not pose a threat to coral reefs because coral growth rates exceed predation rates. However, when densities of starfish reach a point where the consumption of coral tissue exceeds coral growth (approximately 15 starfish per hectare), an outbreak is established.</p> <p>Introduced species or 'pests' include non-native plants or animals that establish beyond their natural range and threaten values within their new range. Introduced species are a threat to native plants and animals because they compete for food and space, and in some cases may directly prey on native species</p>
Key habitats are being actively rehabilitated or restored	<p>Significant work is underway to develop restoration and adaptation interventions to try to help the Great Barrier Reef ecosystem while climate change is addressed.</p> <p>Small-scale interventions and trials are underway in the Marine Park and other potential intervention options are at earlier stages of development, where project outcomes are mainly about proving a concept, advancing techniques, or addressing critical information gaps in our knowledge and understanding.</p> <p>Over time, as options are developed, the focus is anticipated to shift to more to interventions at a range of scales. This will be done using risk-based processes (such as staged trials), and these will be managed in a way that is socially and culturally responsible and open to public scrutiny. This does not negate the need to limit global temperature rise to the maximum extent possible, as quickly as possible for the future of coral reefs.</p> <p>Targeted catchment restoration can help slow the flow of water from the catchment to the Reef. This is particularly important under ongoing climate change since there are predicted to be more intense rainfall events in the future.</p>
Historic and cultural heritage sites are being conserved	<p>This is about conserving historic heritage sites, such as shipwrecks and aircraft wrecks, and Indigenous cultural heritage sites, as well as shared heritage sites.</p>
Adoption of best-practice voluntary compliance and stewardship behaviours is maintained and increased	<p>To address the cumulative pressures, personal and collective (including industry) effort is necessary to:</p> <ul style="list-style-type: none"> • minimise impacts on the Great Barrier Reef and its catchment; • restore degraded marine, coastal and catchment ecosystems; • apply ecologically sustainable development principles; and • be actively involved in Great Barrier Reef and catchment management
Collaboration and effective partnerships between managers, partners and stakeholders are maintained and enhanced	<p>Collaboration and partnerships, supported by sound governance arrangements, are critical to the effective delivery of the Plan. The viability of institutional arrangements; community participation in Reef management; and use of strong principles in planning and management is also an important consideration.</p>

Goal	Narrative/description
Traditional Owner Indigenous heritage, rights and responsibilities are incorporated into all facets of management	<p>The Plan has a strong emphasis on actions that recognise Traditional Owner Indigenous heritage, rights and interests; and work towards increased participation, voice and capacity in governance processes for Reef protection and management.</p> <p>Indigenous heritage means Physical (tangible) and non-physical (intangible) expressions of Traditional Owners' relationships with country, people, beliefs, knowledge, law, language, symbols, ways of living, sea, land and objects; all of which arise from Indigenous spirituality, including heritage places (sites) and/or values.</p> <p>Indigenous heritage includes everything in sea country, including natural values, Indigenous values and historic values.</p>
Science and knowledge are advanced, easily accessible and able to be used in decisions	<p>Efforts to advance science and knowledge, and to facilitate its wide uptake, play an important role in enabling the protection and management of the Reef and its catchment.</p> <p>A holistic scientific perspective is important. Robust science, traditional and intergenerational knowledge are key to understanding the condition of the Reef and its catchment, how it is changing and whether actions to improve its health are working.</p> <p>An evidence-based approach is fundamental to delivery of the Reef 2050 Plan, and to decision-making about protection and management of the Reef and its catchment.</p>
Traditional knowledge is protected and retained	<p>Traditional knowledge of the Reef is deeply important and yet currently lacks prominence in Reef science and research. The way that traditional knowledge is shared is up to Traditional Owners. Traditional Owners will be supported in work to help protect and retain Traditional Knowledge.</p>
Comprehensive monitoring, evaluation and reporting supports informed and agile management responses	<p>Comprehensive monitoring, evaluation and reporting is important to guide management, and is well-developed in the Reef context.</p> <p>To evaluate the effectiveness of management actions and respond to challenges faced by the Reef, managers and stakeholders need up-to-date, reliable information on the Reef's condition, and the driving forces and pressures impacting it. Conditions can change rapidly. To enable agile responses, information needs to be in an accessible, usable format to enable effective preparation and response.</p> <p>Monitoring and evaluation is essential to determine if management responses need to be adapted to achieve the desired objectives. Management responses need to be agile, and priorities may need to be revised to achieve these outcomes. Transparent reporting will inform and support management responses.</p>
Investment supports delivery of the Reef 2050 Plan	<p>Investment is required for the effective and successful delivery of the Plan.</p>

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