



Social Value Assessment

(Revision 0) Effective from 4 October 2017

Objective

To provide guidance on assessing impacts to social values within the permission system.

Target audience

Primary: Great Barrier Reef Marine Park Authority officers assessing applications for permission.

Secondary: Groups and individuals applying for permission; interested members of the public.

Warning: These guidelines include links to videos which may contain images of deceased persons that may cause sadness and distress when viewed by some Aboriginal and Torres Strait Islander people or communities.

Purpose

1. Permission decisions contribute to maintaining and enhancing the social values of the Great Barrier Reef Marine Park (the Marine Park).

Context

Description and importance of the values

2. For the purpose of these guidelines, the social values of the Marine Park are considered to include:
 - a. access
 - b. aesthetics
 - c. appreciation, understanding and enjoyment
 - d. human health
 - e. personal connection
 - f. equity - intra and inter-generational
 - g. empowerment
 - h. employment and income.
3. The social values discussed in these guidelines fall within the following two of four themes identified in the [Reef 2050 Long-Term Sustainability Plan](#) (Reef 2050 Plan):
 - a. **Community benefits** includes subthemes of Traditional Owner and community wellbeing, as well as community use and dependency. Social values that contribute to community benefits include: access; aesthetics; appreciation, understanding and enjoyment; human health; personal connection; equity and empowerment.

Community benefits are the non-monetary advantages that people gain from a healthy and well-managed Marine Park.

- i. The Marine Park contributes to the wellbeing of local, regional, state, national and international communities and plays a vital role in community life.
- ii. People value and visit the Great Barrier Reef for a wide range of reasons, such as nature appreciation, relaxation, recreation, and for its outstanding universal value as a World Heritage Area.
- iii. The consequential and cumulative impacts on community benefits from activities have not historically been well documented.

- b. **Economic benefits** includes subthemes of Traditional Owner use and dependency, community use and dependency, as well as wellbeing. The focus of economic benefit is on employment and income but also relates to access, aesthetics, personal connection, equity and empowerment.

Economic benefits are the monetary advantages that people derive directly or indirectly from a healthy and well-managed Marine Park. A healthy Great Barrier Reef supports industries such as commercial fishing, tourism and recreation. These industries generate income and employment for thousands of people in coastal communities near the Reef, and beyond. Economic activities, in accordance with the GBRMP Act, are to be ecologically sustainable and generally Reef dependent industries have a vested interest in ecologically sustainable development.

4. Perceptions and attitudes underpin social values and when impacts to social values occur it can lead to real consequences, including psychological effects and changed behaviour.¹
5. Social values should be considered at appropriate scale – local, regional, Reef-wide, state, national and international scales.
6. The social values of specific groups within a community should also be considered. In particular, Traditional Owners have a unique perspective on social values stemming from their long and continuing interactions with the Great Barrier Reef (also refer to [Traditional Owner heritage assessment guidelines](#) and [Woppaburra heritage assessment guidelines](#)).

Access

7. Access refers to people's ability to enter and use the Marine Park and its resources, in the past, the present and in the future.^{2,3,3,4,4}
8. Millions of people visit the Marine Park each year. It provides a wide range of recreational opportunities such as boating, snorkelling, diving, fishing and nature appreciation. There are also opportunities for commercial fishing, marine tourism and education.
9. In some locations, management arrangements such as [Plans of Management](#) separate or limit certain use to avoid conflicts.

Aesthetics

10. Aesthetics refers to people's perceptions of the beauty of a site or object. While aesthetics is strongly influenced by visual appearance, all the senses play a role – sight, sound, smell, touch and taste. Aesthetics influence the way in which people value and enjoy the Great Barrier Reef.
11. The aesthetic values of the Great Barrier Reef are experienced and described from a variety of perspectives:
 - a. panoramic – above in the air or high lookout points. This perspective displays patterns of waters, reefs, cays and islands, and as a vast landscape.
 - b. at water or land level – the Great Barrier Reef at eye level, as sky, water, and land emerging from water, with an indirect sense of world beneath the water.
 - c. below the water – the Great Barrier Reef is an underwater landscape with its abundance and diversity of life. The three-dimensional qualities of the underwater landscape.⁴
12. Aesthetics is highly personal – one person may seek solitude and quiet, while another seeks social interactions. The same person often values different elements at different times. Places that are easy to access are less likely to provide opportunities for enjoying solitude or tranquillity, but may enhance opportunities for socialising and personal comfort.
13. Perceptions of the beauty and desirability of natural areas are influenced by people's personal experiences and cultural backgrounds. As a result, aesthetic responses are linked to both the characteristics of an environment and the cultural or personal preferences. Psychological, social or cultural dimensions of aesthetics include a sense of history, a sense of place, inspiration, spiritual connections; and opportunities for learning, relaxation, recreation and escapism.⁴
14. Aesthetics is closely linked to the condition of natural, cultural and historic heritage values within the Marine Park. For natural features of a reef for example, aesthetic values are generally associated with the outstanding natural values and attributes of the environment.⁴ However, historic features and sites (for example a shipwreck and lightstations) also have aesthetics as one of the criterion used to measure its social significance (for example [National Heritage List](#), [Commonwealth Heritage List](#)).⁵
15. Indigenous perspective on aesthetic values may include cultural expressions such as storytelling, mythology, spirituality, literature, music/art, symbols of power, or wealth.⁴
16. Aesthetics are recognised under criterion (vii) of the [Convention Concerning the Protection of the World Cultural and Natural Heritage](#) for attributes which 'contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance.'

17. Aesthetics is connected to both environmental attributes (such as bays, beaches, continental islands, coral cays, mangroves, marine animals, water, and/or seagrass meadows) and experiential attributes (presented by beauty, discovery, naturalness, remoteness, sense of inspiration, tranquillity and solitude).⁴
18. Aesthetics is linked to wellbeing and human health and is closely related to other social values, such as access, understanding, appreciation and personal connection. Therefore any impact to aesthetics is likely to affect a number of social values. Further, as impacts to aesthetics are likely to persist in the longer term, there are possible equity considerations where the impacts may be evident for one or many generations. There are also possible empowerment considerations where changes to aesthetics may alter people's aspirations to participate in stewardship actions.

Understanding, appreciation and enjoyment

19. Understanding refers to people's knowledge of the Marine Park, its values and the interconnected systems that support life on the Great Barrier Reef.
 - a. Understanding comes from learning, either in-person or remotely. The levels of understanding held by coastal residents and Great Barrier Reef visitors is an important factor in how they may respond to potential impacts to the health of the Great Barrier Reef, as well as the conservation of heritage values of the Marine Park.
 - b. Personal experiences, together with scientific knowledge and cultural knowledge gained from stories passed from one generation to the next (including intergenerational aspects of learning for wise decision-making)², provide a context for understanding the Marine Park and its values (including biodiversity, historic and Traditional Owner heritage).
 - c. Understanding allows reflection on what the Great Barrier Reef may have been like in the past; how it contributed to human wellbeing; and how it has responded to human activities.
20. Appreciation refers to realising and feeling grateful for the uniqueness of the Great Barrier Reef or appreciating being able to use and enter the Marine Park. Appreciation often grows with understanding.
21. Enjoyment refers to the positive emotions people experience when they visit or see the Marine Park.
 - a. Most people in the world will never visit the Marine Park in person, but many still enjoy the Marine Park through photographs, videos or stories.
 - b. The Marine Park's biodiversity and heritage values are the primary reasons for visitation to the Reef either as part of a commercial tourist program or in a recreational capacity.

Human health

22. Human health refers to the physical and mental health benefits that residents and visitors derive from the Marine Park. People benefit from relaxation and stress reduction through recreational activities and access to natural settings; healthy inputs to diets from freshly caught local seafood; and exercise from snorkelling, boating and fishing.
23. The health benefits people derive from the Marine Park are diminished by impacts that make the Marine Park a less attractive and fulfilling place to visit, and by those that reduce the quality and availability of its food resources, clean air, water or sediment. There are also negative emotions and subsequent mental health issues (such as depression) associated with severe negative environmental impacts.^{6,7}

Personal connection

24. Personal connection refers to people's aspirations, spiritual connections and associations, cultural ties, experiences, employment, stewardship activities, places of residence and recreational activities associated with the Marine Park. It links individual stakeholders, visitors, local residents and Traditional Owners to the Marine Park.
25. The Great Barrier Reef is a key part of the identity of adjacent coastal communities. It is a major source of pride and distinction for these communities. More than 95 per cent of nearby residents have visited the Great Barrier Reef at least once in their lives. Many coastal residents report that they chose where they live so as to be close to the Great Barrier Reef and that there are '*not many other places better than the Great Barrier Reef for the recreation activities they enjoy*'.⁸
26. Commercial fishers and tourism operators identify very strongly with their occupations and the places where they live and work. This is highlighted by the fact that few, if any, who were directly affected by Severe Tropical Cyclone Yasi or the central Queensland floods in 2011 changed their jobs or moved elsewhere, despite economic imperatives to find alternative income.⁹

27. Traditional Owners continue to maintain connection to their land and sea country through stories and songlines, sites of cultural significance and important saltwater ceremonies, for example. See the Traditional Owner heritage assessment guidelines for more information.
28. Australians in general also identify strongly with the Great Barrier Reef as a national icon. A 2014 survey conducted as part of the Social and Economic Long Term Monitoring Program found that 80 per cent of Australians see the Great Barrier Reef as vital to their identity.⁸ Across the world, people of many nations feel a strong personal connection to the Great Barrier Reef, even if they have never visited in person.
29. A study conducted by Larson et al. 2014 found that of the residents surveyed in the region of the Great Barrier Reef, healthy reef fish, coral reefs, mangroves and wetlands, iconic marine species, as well as no visible rubbish, were considered more important for quality of life than jobs and income associated with industry (such as mining, agriculture, shipping, commercial fishing).¹⁰
30. Personal connections with the Great Barrier Reef may be derived from the biodiversity values, historic heritage values and/or cultural values of a site, a region or at the GBR scale. Refer to the [value assessment guidelines](#).

Equity

31. Equity relates to fairness in the distribution of benefits and impacts across the community. In the context of sustainable development, equity is ecologically sustainable use that meets the needs of the current generation without compromising the ability of future generations to meet their own needs.² Equity is both intra- and inter-generational, meaning there are considerations for social equity within each generation, as well as between generations.
32. Any use of the Marine Park that changes the ability of other people (current and future generations) to access, enjoy, appreciate or sustainably use the Marine Park may have an impact on equity. Further, equity is also compromised if there are impacts to human health through the decline of ecosystem health or contamination of air, water or sediment.
33. As well as assessing the impacts on social values described in these guidelines, the integration of both short-term and long-term social and equitable considerations is required in the context of ecologically sustainable use. Refer to the [Permission System Policy](#) and [Assessment Guidelines](#) for more information about intra- and inter-generational equity.

Empowerment

34. For the Great Barrier Reef, empowerment is the process that enables businesses, community groups, individuals and Traditional Owners to undertake actions and participate meaningfully in the protection and management of the Great Barrier Reef. Factors that enhance human wellbeing of Reef-dependent people may contribute to empowerment.
35. Further, negative changes to empowerment may result in a reduction of people in the community that have positive aspirations for the future of the Great Barrier Reef and commit to personal or collective stewardship initiatives.

Examples of GBRMPA stewardship initiatives

- [Reef Guardian](#) stewardship program - local stakeholders are encouraged to take hands-on action to care for the Great Barrier Reef. The program includes schools, local councils, farmers, graziers and commercial fishers. Participants are encouraged to go beyond what is required by law in their daily activities and to become active stewards. This includes sharing information about their actions.
- [Eye on the Reef](#) program - contributes vital information about Marine Park values from people who are in the Marine Park daily, such as tourism operators, researchers, students, as well as Queensland Parks and Wildlife Service officers. Participants contribute substantially to understanding trends in the condition of values through time and at many locations throughout the Marine Park.
- [Eyes and Ears Incident Reporting Network](#) – community monitoring program to assist with Marine Park management and compliance.

Employment and income

36. Employment refers to jobs created or maintained as a result of activities conducted in the Marine Park. Income refers to money that people receive as a result of activities conducted in the Marine Park.
37. The benefits that businesses, individuals and communities derive from the Marine Park are founded on its biodiversity, species distribution and abundance, geomorphological features, and the range of social, Traditional Owner and historic heritage values. Employment and income can be affected by impacts that diminish the condition of these foundational values.
38. Activities in the Marine Park generate income and employment for tens of thousands of people both within and outside the Marine Park, as the flow-on benefits reach far beyond the boundaries of the Marine Park. The Marine Park supports significant commercial uses linked to recreation, tourism and commercial fishing. These industries play an important role in regional Queensland and rely on a healthy Reef ecosystem for long-term economic stability.
39. The economic contribution generated by tourism, recreation, commercial fishing and scientific research in the Great Barrier Reef catchment and the World Heritage Area in 2012 was estimated to be \$5.6 billion. This has been relatively stable over the past five years.¹¹
40. Commercial marine tourism is a major use of the Marine Park, both in terms of economic value and employment. It is estimated that in 2011–12, Great Barrier Reef-based tourism contributed approximately \$5.2 billion to the Australian economy and supported employment equivalent to about 69,000 full-time positions.¹¹
41. It is important to note, the economic estimates are likely to be only a portion of the total economic value of the Great Barrier Reef, as most ecosystem services that are not traded in markets have not yet been calculated. For example, the non-market economic value of a healthy coral reef system in providing a physical barrier from wave and tsunamis impacting coastal areas, or mangrove habitats that also provide a buffer between land and sea and filter sediment and nutrients. As well as these habitats providing refugia for locally harvested species and supporting food production.

Management

42. This section explains the most commonly used legislation, policies and management plans in managing social values. Also refer to the Permission System Policy for a list of legislation, standards and policies used through the permission system.

Zoning and Legislation

43. One of the objects of the *Great Barrier Reef Marine Park Act 1975* is to allow ecologically sustainable use of the Great Barrier Reef Region, so far as is consistent with the main object of providing for the long term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region.
44. Human uses which may be allowed include:
 - a. public enjoyment and appreciation
 - b. public education
 - c. recreational, economic and cultural activities
 - d. research in relation to the natural, social, economic and cultural systems and values of the Great Barrier Reef.
45. [Plans of Management](#) are statutory plans used primarily for managing human uses in popular recreation or tourism areas. They seek to protect biodiversity and heritage but also to manage competing uses. As such, they are highly relevant to social values.

Example

The Cairns Area Plan of Management limits tourism to balance opportunities for recreation with protection of the natural environment. The plan includes rules relating to motorised water sports, anchoring, mooring, vessel size and passenger numbers to protect locations and species vulnerable to high levels of use.

46. [Special Management Areas](#) (SMA) are designated for a number of reasons. One type that is particularly relevant to social values is the Public Appreciation SMA, which restricts spearfishing, commercial aquarium collecting, and other extractive uses in specific Conservation Park (Yellow) Zones which are popular with recreational visitors. Refer to [Location specific assessment guidelines](#) for more information about Plans of Management and Special Management Areas.

Policy

47. Site-specific plans, policies and management arrangements have been published for many locations and sites within the Marine Park. They identify significant values of the site and describe how GBRMPA intends to manage human uses to protect these values. See the Location-specific assessment guidelines for more information about these non-statutory site plans.

Management objectives

48. The joint Queensland and Commonwealth [Reef 2050 Plan](#) responds to the challenges facing the Great Barrier Reef and presents actions to protect its values, health and resilience while allowing ecologically sustainable use. It addresses the findings of the [Outlook Report](#) and builds on the [Strategic Assessment](#). Reef 2050 Plan specifically identifies the need to build capacity to involve Traditional Owners in cooperative management, including impact assessment.
49. The values of the Marine Park, their integrity and their current condition are described in the [Outlook Report](#) and the [Strategic Assessment](#). Refer to Table 1 for summary assessment of current condition, trend and management objectives for each of the social values. Equity and empowerment are not included in the table as they were not considered at the time of the Outlook Report and Strategic Assessment.

Table 1: Summary assessment of condition, trend and overall management objectives of social values from the Strategic Assessment

Value	Area	Current Condition	Trend	Management Objective
Access	Reef-wide	Good	Stable	Maintain
Aesthetics	Reef-wide	Good	Deteriorating	Improve
Appreciation, Enjoyment and Understanding	Reef-wide	Very good	Stable	Maintain
Personal Connection	Reef-wide	Very good	Stable	Maintain
Human Health	Reef-wide	Very good	Stable	Maintain
Employment and Income	Reef-wide	Good	Stable	Maintain

Common assessment considerations

50. GBRMPA expects that a Marine Parks application for permission should provide adequate information about the proposed activity to allow an assessment of potential impacts and determine appropriate avoidance and mitigation measures. The applicant should give consideration to the potential impacts (direct, indirect, flow-on and cumulative) on the Marine Park values (such as social values) over time and space (refer to Permission System Policy).
51. Stakeholder analysis is an effective approach in understanding who may be interested in or affected by the proposed activity. For example consider, what is the nature of their interest? Is it likely to be positive or negative and why? Is the proposed activity likely to cause conflict among Marine Park users?
52. Avoiding impacts on particularly vulnerable sections of the community should generally be the priority for decision makers. These are the businesses, individuals or communities that are less able to adapt to change, often due to other pressures unrelated to the current proposal.

53. One of the most challenging aspects of evaluating impacts to social values is that a positive impact for one section of the community often creates a negative impact for another section. For example, building a new marina may generate employment and income for the tourism industry (and flow-on benefits to the broader regional economy) but may result in a reduction in aesthetics, amenity or personal connection for people who value the existing site in its more natural state. Such 'trade-offs' can be difficult to evaluate objectively in an assessment but the goal is to reduce risks and enhance benefits for all sections of the community to the greatest extent possible.
54. As well as assessing the impacts on social values described in these guidelines, the integration of both short-term and long-term social and equity considerations is required in the context of ecologically sustainable use (refer to Permission System Policy and Assessment Guidelines).
55. Avoidance measures may involve restricting access and specifying exclusions in permission conditions. These specifications are usually in line with GBRMPA planning tools (such as Site Management Arrangements, Special Management Areas or Plans of Management) and policy documents (refer to Locations specific guidelines for further information). However, in some cases where the proposed activity is inconsistent with the existing policies and planning arrangements and/or is likely to impact on other users of the Marine Parks, public consultation is generally required to be carried out by an applicant as part of the permission assessment approach.
56. As described in the [Permission System Policy](#), permission applications involving Public Information Package, Public Environment Report or Environmental Impact Statement assessment approaches require the applicant to carry out public consultation.
57. The Terms of Reference for these more complex, higher risk proposals may specify a Social Impact Assessment to be conducted, determined on a case by case basis (refer to Assessment Guidelines).
58. Further, in some cases, an Environmental Management Plan (EMP), including a Social Management Plan may be required (refer to [Assessment Guidelines](#)), which details avoidance and mitigation measures, as well as monitoring programs designed to evaluate the effectiveness of the management measures.
59. A community reference group or another formal structure, such as relevant Local Marine Advisory Committees, may be required to provide input and advice, and to gather information and evaluate options to minimise impacts to community and economic benefits and ensure ecologically sustainable development.
60. The Environment Institute of Australia and New Zealand has developed [Environmental and Social Impact Assessment Reform: A discussion paper](#) which provides good practice guidance and considerations for the assessment of environmental and social impacts and how to effectively evaluate if the proposed activity is ecologically sustainable.
61. Underpinning the Reef 2050 Plan is the [Reef Integrated Monitoring and Reporting Program](#). Through this program, the GBRMPA is working with partners to classify, select and prioritise indicators for assessment, monitoring, evaluation and reporting on social values.
62. Applicants should also refer to other publicly available materials and qualified professionals to assist. These resources are not endorsed by GBRMPA but may be useful reference:
 - a. Queensland Coordinator-General's [Social Impact Assessment Guideline 2013](#).
 - b. International Association for Impact Assessment's [Guidance Note on Social Impact Assessment 2015](#).
63. Many different tools and methodologies are available for conducting social impact assessments. GBRMPA may use such tools to support its own assessment of social impacts. Where applicants are considering using a particular tool or methodology, this should be discussed with GBRMPA early in the process to be sure it meets GBRMPA's requirements.

Information box - useful information sources in understanding social values in the Great Barrier Reef region

- The [Australian Bureau of Statistics, Office of Statistical and Economic Research Queensland Regional Profiles](#) and [Social and Economic Long-term Monitoring Program eAtlas](#) offer many useful resources for quantitative data about communities.
- Local councils and regional Natural Resource Management bodies are useful sources of information about social values. In most cases, the local council planning scheme describes the council's desired outcomes for social development.
- [Statutory regional plans](#) developed under Queensland planning legislation are important expressions of State interests in a given region. In most cases, these regional plans describe the State's desired social outcomes for the region. Regional plans exist for all regions in Queensland, except the Townsville/North Queensland region (which is under development).
- Regional report cards which include social values have been developed by many regional natural resource management bodies in partnership with regional National Regional Management bodies, local councils, state government, businesses and research institutes. These provide valuable local insight into social values and their condition. Examples include:
 - [Fitzroy Partnership - Ecosystem Health Report](#)
 - [Gladstone Healthy Harbour Partnership](#)
 - [Mackay-Whitsunday Waterway Health](#)
 - [Managing Fitzroy River Water Quality](#)

Links to other values

Historic heritage values

64. Historic heritage refers to the occupation and use of an area since the arrival of European and other migrants. Social and historical heritage values are closely linked. The four lightstations located in the Marine Park on Commonwealth islands are Commonwealth heritage-listed under the *Environment Protection and Biodiversity Conservation Act 1999* and assessed for their social, aesthetic and scientific value. Potential impacts to other aids to navigation of historic significance would also evaluate the social, aesthetic and scientific values (refer to [Lightstations and aids to navigation assessment guidelines](#)).
65. The historic significance of World War II features and sites, and voyages and shipwrecks is determined through an assessment of social, aesthetic and scientific value (refer to [WWII features and sites, and voyages and shipwrecks assessment guidelines](#)).
66. Other places of historic significance often do not contain an artefact or tangible attributes and so the social significance is based alone on its intangible values, which is determined through the assessment of social (including aesthetic) values of the site or location (refer to [Other places of historic significance assessment guidelines](#)).
67. Increased knowledge and understanding of the historic significance of a site or location can enhance one's experience and improve their enjoyment. It may also increase the understanding of those difficult and confronting events in Australian history, such as those events associated with the mistreatment of Aboriginal and Torres Strait Islanders (refer to the Traditional Owner heritage assessment guidelines and Woppaburra heritage assessment guidelines).

Traditional Owner values

68. Traditional Owner heritage refers to the values of significance in accordance with Traditional Owner practices, observances, customs, traditions, beliefs or history. For Traditional Owners, the ability to maintain and strengthen their heritage values is essential to realising community and economic benefits.
69. Traditional Owners were severely impacted during colonisation and many Traditional Owner heritage values declined during and following that period in Australian history. Stories and sites associated with colonisation are reminders of this difficult time and link present generations to their ancestors.
70. Refer to the [Traditional Owner heritage assessment guidelines](#) for more information. The [Woppaburra heritage assessment guidelines](#) also provide location specific information about the Woppaburra Traditional Owner values and their social values in the Keppel region.
71. GBRMPA recommends proponents follow the [Australian Heritage Commission Ask First best practice framework](#) when identifying and managing Traditional Owner heritage.
72. Depending on the proposed activity and the assessment approach required, Traditional Owners may be consulted to provide advice on potential impacts to their values and identify suitable avoidance and mitigation measures that reduce the risk to their values. Refer to [Traditional Owner heritage assessment guidelines](#) for further information about Traditional Owner consultation through the Permission System.
73. The values of Aboriginal and Torres Strait Islanders who are not Traditional Owners will be considered through the assessment of potential impacts on social values from a proposed activity.

Biodiversity values

74. Social values are highly dependent on healthy habitats, species and ecological communities so it is vital to conservation of biodiversity and ecological integrity. The resilience of these natural systems is critical in maintaining ecosystem services, where a resilient system has the ability to recover from impacts and pressures and thus maintain biodiversity and ecological integrity. Refer to the individual [value assessment guidelines](#) and to [Assessment Guidelines](#) for more information.
75. Wildlife disturbance occurs from human use and seabirds and shorebirds are particularly sensitive to disturbance, particularly during nesting season. Marine mammals and marine reptiles are also known to be disturbed by human activities. Consider the different species within and adjacent to the proposed activity when identifying avoidance and mitigation strategies that protect biodiversity values.
76. Also refer to the [Great Barrier Reef underwater noise guidelines: discussion and options paper](#).

Hazards

77. The [Risk Assessment Procedure](#) lists the most common potential hazards to the values of the Marine Park, as well as permission types able to be granted under the Zoning Plan. The hazards associated with permitted activities that are most likely to impact on social value, including the flow-on effects are listed in [Table 2](#). Possible avoidance, mitigation and monitoring measures are discussed in the mitigation and monitoring section below.

Table 2: Summary of possible hazards, related permission types, possible impacts on social values

Hazard	Related permission types (generally)	Possible Impact (effect on value)
Acid sulphate soils	<ul style="list-style-type: none"> Carrying out works (dredging, dumping of spoil, harbour works, reclamation) 	<ul style="list-style-type: none"> Exposure of acid sulphate soils can have impact on biodiversity values, and ecosystem health and integrity results in impacts to social values. Impacts directly on community benefits – especially aesthetics (environmental and experiential attributes), human health, appreciation and enjoyment, personal connection, and equity (for a particular generation and/or future generations). Flow-on impacts to economic benefits such as employment and income, including those derived from tourism and fishing sectors. Also consider the ecosystem services of potentially impacted ecosystems.

Hazard	Related permission types (generally)	Possible Impact (effect on value)
		<ul style="list-style-type: none"> Impacts (perceived or not) from permitted activities may alter people's aspirations for the Reef and thus influence their engagement in stewardship actions.
Artificial light or change in natural light	<ul style="list-style-type: none"> Operating a facility Research, other than limited impact research 	<ul style="list-style-type: none"> Artificial lights impair the visibility of stars and constellations in the night sky. Changes to light may also impact on sites or artefacts. Night lighting for extended periods (including on vessels) may disorient or disrupt biodiversity values and species, for example nesting turtles and hatchlings, coral spawning. Impacts directly on community benefits – impacts on social attributes, especially aesthetics (environmental and experiential attributes), human health, appreciation and enjoyment, personal connection, and equity.
Change in current or future human use pattern	<ul style="list-style-type: none"> Operating a facility Conducting a tourist program Conducting a vessel or aircraft charter operation Conducting an education program 	<ul style="list-style-type: none"> Increase visitation and/or infrastructure at a location may impact social values at and adjacent to the location – social significance is influenced by biodiversity values (such as wildlife disturbance), Traditional Owner values (such as impact to sensitive locations, species, and intangible attributes e.g. songlines) and historic heritage values (such as historic artefacts or the intangible attributes e.g. stories of history). Change in use patterns and activities (including those involving motorised equipment) may also impact on the aesthetics and ambiance of an area and experienced through senses such as sight, sound, smell, touch and taste and at different scales such as underwater, at the land or water surface, or aerially. Impact on aesthetics may result in changes to the experiential attributes of a location, such as beauty, naturalness, solitude, tranquillity, remoteness. Increased access increases the number of people visiting and may negatively impact on personal connection to place and inspiration, and people's appreciation and enjoyment of a location. There may also be flow-on implications for human health and wellbeing, as well as use and dependency. Increased access may also result in positive impact by providing opportunities for the public to further understand, appreciate and enjoy the Marine Park and its biodiversity values, Traditional Owner values, and/or historic heritage values. There are also possible equity considerations for a particular generation and/or future generations. May also provide avenues for economic benefit through employment and income in the context of ecologically sustainable development.
Change in hydrodynamics	<ul style="list-style-type: none"> Carrying out works (dredging, dumping of spoil, harbour works, reclamation) Conducting a vessel or aircraft charter operation Navigating a managed vessel, aircraft or ship Operating a facility Operating a vessel or aircraft 	<ul style="list-style-type: none"> Change in hydrodynamics through operating a facility (such as marina or breakwater) or operating a vessel or aircraft, may cause locations (such as beaches, coral reef, seagrass habitats) to be buried or eroded and impact upon social values (such as enjoyment and appreciation, personal connection, aesthetics, equity). Impacts on biodiversity values, and ecosystem health and integrity results in impacts to social values. In some cases, changes in hydrodynamics may result in locations and habitats being buried or eroded. Also consider the ecosystem services of potentially

Hazard	Related permission types (generally)	Possible Impact (effect on value)
		<p>impacted ecosystems.</p> <ul style="list-style-type: none"> Impacts on community benefits – impacts on social attributes, especially aesthetics (environmental and experiential attributes), human health, appreciation and enjoyment, personal connection, and equity (for a particular generation and/or future generations). Flow-on impacts to economic benefits such as employment and income, including those derived from tourism and fishing sectors.
Change in ecological processes	<ul style="list-style-type: none"> Carrying out works (dredging, dumping of spoil, harbour works, reclamation) Operating a facility Research, other than limited impact research 	<ul style="list-style-type: none"> Impact on biodiversity values, and ecosystem health and integrity results in impacts to social values. Also consider the ecosystem services of potentially impacted ecosystems. Impacts on community benefits – impacts on social attributes, especially aesthetics (environmental and experiential attributes), human health, appreciation and enjoyment, personal connection, and equity (for a particular generation and/or future generations). Flow-on impacts to economic benefits such as employment and income, including those derived from tourism and fishing sectors. Impacts (perceived or not) from permitted activities may alter people's aspirations for the Reef and thus influence their engagement in stewardship actions.
Change in noise	<ul style="list-style-type: none"> Carrying out works (dredging, dumping of spoil, harbour works, reclamation) Conducting a vessel or aircraft charter operation Operating a facility Operating a vessel or aircraft 	<ul style="list-style-type: none"> Impacts on social values such as aesthetics - noise pollution can alter experiential attributes such as beauty, naturalness, solitude, tranquillity, remoteness. Noise pollution can also impact human health and wellbeing, as well as use and dependency. Impacts on other community benefits – especially aesthetics (environmental and experiential attributes), human health, appreciation and enjoyment, personal connection, and equity (for a particular generation and/or future generations). Installing facilities, use of equipment or generators, idling vessels, high-speed vessels, low-flying aircraft, create underwater noise which may interrupt the natural behaviour of wildlife. Further, large numbers of people create noise and disturbance, which may also have implications for wildlife (also refer to Great Barrier Reef underwater noise guidelines: discussion and options paper). Flow-on impacts to economic benefits such as employment and income, including those derived from tourism.
Change in nutrients	<ul style="list-style-type: none"> Carrying out works (dredging, dumping of spoil, harbour works, reclamation) Operating a facility Conducting an aquaculture operation 	<ul style="list-style-type: none"> Nutrients discharged through operating a facility can impact the health and integrity of receiving habitats and ecosystems and thus impact on social values. Also consider the ecosystem services of potentially impacted ecosystems (for example contaminants from waste discharge or land-based run-off can affect seafood abundance or quality). Change in nutrients can impact on the water quality locally and regionally and over short and long term timeframes, thus impact on social values. Impacts on other community benefits – especially aesthetics (environmental and experiential attributes), human health, appreciation and enjoyment, personal

Hazard	Related permission types (generally)	Possible Impact (effect on value)
		<p>connection, and equity (for a particular generation and/or future generations).</p> <ul style="list-style-type: none"> Flow-on impacts to economic benefits such as employment and income, including those derived from tourism and fishing sectors. Impacts (perceived or not) from permitted activities may alter people's aspirations for the Reef and thus influence their engagement in stewardship actions.
Change in salinity	<ul style="list-style-type: none"> Operating a facility 	<ul style="list-style-type: none"> Impact on biodiversity and ecosystem health and integrity results in impacts to social values. Also consider the ecosystem services of potentially impacted ecosystems. Impacts on social values, including aesthetics (environmental and experiential attributes).
Change in sea temperature	<ul style="list-style-type: none"> Operating a facility 	<ul style="list-style-type: none"> Impact on biodiversity and ecosystem health results in impacts to social values. Also consider the ecosystem services of potentially impacted ecosystems. Impacts on social values, including aesthetics (environmental and experiential attributes).
Change in sedimentation	<ul style="list-style-type: none"> Carrying out works (dredging, dumping of spoil, harbour works, reclamation) Operating a facility Conducting a vessel or aircraft charter operation Navigating a managed vessel, aircraft or ship 	<ul style="list-style-type: none"> Impact on biodiversity values, and ecosystem health and integrity results in impacts to social values. Impacts directly on community benefits – especially aesthetics (environmental and experiential attributes), human health, appreciation and enjoyment, personal connection, and equity (for a particular generation and/or future generations). Sediment moved intentionally (carrying out works or operating a facility) or unintentionally (vessel use and change in hydrodynamics) can impact the health of receiving habitats and ecosystems and thus on social values. In some cases, changes in sedimentation may result in locations and habitats being buried or eroded. Change in sedimentation can impact on the water quality locally or regionally and over short and long term timeframes (through dispersion, resuspension or consolidation of sediment), thus impact on social values, such as aesthetics (including water colour and clarity). Flow-on impacts to economic benefits such as employment and income, including those derived from tourism and fishing sectors. Impacts (perceived or not) from permitted activities may alter people's aspirations for the Reef and thus influence their engagement in stewardship actions.
Contamination of air	<ul style="list-style-type: none"> Carrying out works (dredging, dumping of spoil, harbour works, reclamation) Operating a facility 	<ul style="list-style-type: none"> Air contamination can have implications on human health, thus social wellbeing, as well as use and dependency. Contamination of air can also affect wildlife and thus impact on social values. Impacts on aesthetics from air pollution can alter experiential attributes such as beauty, naturalness, solitude, tranquillity, remoteness. Further, air contamination may trigger negative sense responses through sight, smell and taste. Air pollution can impact on other community benefits – appreciation and enjoyment, personal connection, and equity (for a particular generation and/or future generations).

Hazard	Related permission types (generally)	Possible Impact (effect on value)
Contamination of water or sediment	<ul style="list-style-type: none"> Carrying out works (dredging, dumping of spoil, harbour works, reclamation) Operating a facility Conducting an aquaculture operation Conducting a vessel or aircraft charter operation Navigating a managed vessel, aircraft or ship Operating a vessel or aircraft Research other than limited impact research 	<ul style="list-style-type: none"> Flow-on impacts to economic benefits such as employment and income, including those derived from tourism sector. Contamination of sediment or water can have implications on human health and wellbeing, as well as use and dependency. Any degradation of the ecosystem integrity, health and function will impact on social values. Also consider the ecosystem services of potentially impacted ecosystems (for example contaminants from waste discharge or disturbance of contaminated sediment can affect seafood abundance and quality including the bioaccumulation of chemicals with flow-on implications for human health). Impacts on aesthetics from water and sediment contamination can alter experiential attributes such as beauty, naturalness, solitude, tranquillity, remoteness. Further, contamination of water or sediment may trigger negative sense responses through sight, smell and taste. Impact on other community benefits – appreciation and enjoyment, personal connection, and equity (for a particular generation and/or future generations). Flow-on impacts to economic benefits such as employment and income, including those derived from tourism and fishing sectors. Impacts (perceived or not) from permitted activities may alter people's aspirations for the Reef and thus influence their engagement in stewardship actions.
Direct damage, removal or destruction of non-living things	<ul style="list-style-type: none"> Carrying out works (dredging, dumping of spoil, harbour works, reclamation) Operating a facility 	<ul style="list-style-type: none"> Some manmade structures installed in the Marine Park can pose a danger to people and the surrounding environment (particularly those structures not effectively managed and maintained). These structures can also look aesthetically unpleasant. Damage and removal of historical and cultural artefacts and features will have implications on social, historic and cultural values of the Marine Park (they are also likely to be protected under other international, national and state legislation and policies). Archaeological research may result in the handling or even the removal of artefacts and relicts, if they cannot be conserved in place. Impacts on social values may include aesthetics (environmental and experiential attributes), understanding, appreciation and enjoyment, personal connection, employment and income, and equity. Flow-on impacts to economic benefits such as employment and income, including those derived from tourism sector.
Direct death or removal of living things, including vessel strike	<ul style="list-style-type: none"> Carrying out works (dredging, dumping of spoil, harbour works, reclamation) Conducting a vessel or aircraft charter operation Fishing involving harvest fishery Navigating a managed 	<ul style="list-style-type: none"> Intentional or unintentional death or removal of living things may impact social values. Impacts on biodiversity and ecosystem health and integrity results in impacts to social values. Also consider the ecosystem services of potentially impacted ecosystems. Impacts on social values, including aesthetics (environmental and experiential attributes), human health, understanding, appreciation and enjoyment, personal connection, employment and income, and equity. Plants or non-sessile animals (such as corals or clams)

Hazard	Related permission types (generally)	Possible Impact (effect on value)
	<ul style="list-style-type: none"> vessel or aircraft charter operation • Operating a facility • Operating a vessel or aircraft • Program to take animals or plants that pose a threat • Research other than limited impact research • 	<p>are destroyed by propeller damage, trampling, or other physical disturbance by vessels, people or equipment. Handling or disturbance of wildlife may lead to the death of animals or plants.</p> <ul style="list-style-type: none"> • Impacts to living things on the seafloor at the immediate mooring site may provide longer term benefits by removing/limiting anchor damage in an area. • Impacts to living things (such as seagrass meadows, mangrove and saltmarsh habitats) removed through permitted activities (such as works) may have implications for ecosystem services of these habitats that support fish stocks and improve water quality, for example. • Flow-on impacts to economic benefits such as employment and income, including those derived from tourism and fishing sectors. • Impacts (perceived or not) from permitted activities may alter people's aspirations for the Reef and thus influence their engagement in stewardship actions.
Direct injury or disturbance of living things, including translocation	<ul style="list-style-type: none"> • Carrying out works (dredging, dumping of spoil, harbour works, reclamation) • Conducting a vessel or aircraft charter operation • Fishing involving harvest fishery • Navigating a managed vessel or aircraft charter operation • Operating a facility • Operating a vessel or aircraft • Program to take animals or plants that pose a threat • Research other than limited impact research 	<ul style="list-style-type: none"> • Impacts on biodiversity and ecosystem health and integrity results in impacts to social values. • Also consider the ecosystem services of potentially impacted ecosystems. • Intentional or unintentional injury or disturbance to wildlife. • Impacts to living things on the seafloor at the immediate mooring site may provide longer term benefits by removing/limiting anchor damage in an area. • Impacts to living things (such as seagrass meadows, mangrove and saltmarsh habitats) removed through permitted activities (such as works) may have implications for ecosystem services of these habitats that support fish stocks and improve water quality, for example. • Impacts on other community benefits – especially aesthetics (environmental and experiential attributes), human health, appreciation and enjoyment, personal connection, and equity (for a particular generation and/or future generations). • Flow-on impacts to economic benefits such as employment and income, including those derived from tourism and fishing sectors. • Impacts (perceived or not) from permitted activities may alter people's aspirations for the Reef and thus influence their engagement in stewardship actions.
Exotic species or diseases	<ul style="list-style-type: none"> • Carrying out works (dredging, dumping of spoil, harbour works, reclamation) • Conducting a tourist program • Conducting a vessel or charter operation • Operating a facility • Operating a vessel or aircraft • Program to take animals or plants that pose a threat • Research other than limited impact research 	<ul style="list-style-type: none"> • Impacts on biodiversity and ecosystem health and integrity results in impacts on social values. • Also consider the ecosystem services of potentially impacted ecosystems. • Impacts on social values, including aesthetics (environmental and experiential attributes), human health, understanding, appreciation and enjoyment, personal connection, employment and income, and equity (for a particular generation and/or future generations). • Flow-on impacts to economic benefits such as employment and income, including those derived from tourism and fishing sectors. • Impacts (perceived or not) from permitted activities may alter people's aspirations for the Reef and thus influence their engagement in stewardship actions.

Hazard	Related permission types (generally)	Possible Impact (effect on value)
Marine debris	<ul style="list-style-type: none"> • Conducting a tourist program • Conducting a vessel or charter operation • Navigating a managed vessel, aircraft or ship • Operating a facility • Research other than limited impact research 	<ul style="list-style-type: none"> • Impacts on biodiversity and ecosystem health and integrity results in impacts on social values. • Also consider the ecosystem services of potentially impacted ecosystems. • Packaging or waste released into the ocean causes marine debris in the Marine Park. • Entanglement of wildlife and ingestion of marine debris by wildlife. • Bioaccumulation of plastics and associated chemicals in the food chain having implications on human health and wellbeing, as well as use and dependency. • Impacts on social values, including aesthetics (environmental and experiential attributes), human health, understanding, appreciation and enjoyment, personal connection, employment and income, and equity (for a particular generation and/or future generations). • Flow-on impacts to economic benefits such as employment and income, including those derived from tourism and fishing sectors. • Impacts (perceived or not) from permitted activities may alter people's aspirations for the Reef and thus influence their engagement in stewardship actions.

Mitigation and monitoring

78. Mitigation measures should be appropriate to the specific social value and the community. A community reference group and/or community consultation can be used to evaluate the appropriateness, and likely effectiveness, of proposed mitigation measures.
79. The [Risk Assessment Procedure](#) is used to determine whether additional avoidance or mitigation measures are required to reduce risk to an acceptable level.
80. If applicable, the applicant is to provide an EMP, which includes a Social Management Plan (and/or Historic Heritage Management Plan, Traditional Owner Heritage Management Plan) to identify avoidance and mitigation measure and detail monitoring programs to assess effectiveness of the management measures (refer to Assessment Guidelines). An EMP may be required to be prepared by an applicant during the assessment of an application for a Marine Parks permission, or alternatively may be required to be prepared by a holder of a permission pursuant to conditions of the permission.
81. Depending on level of risk, some proposals may require a Social (and Heritage) Impact Assessment to be conducted and reported by an appropriately qualified person during the assessment of an application for a permission – this requirement generally applies to Public Environment Report and Environmental Impact Statement assessment approaches, but may also be applicable to Public Information Package. If this is required it will be specified in the Terms of Reference (refer to Assessment Guidelines). The Social Impact Assessment may also involve baseline studies of social values, as well as background monitoring, works or operational monitoring, and long-term monitoring programs (refer to Assessment Guidelines).
82. Social value monitoring standards are being established through the [Reef Integrated Monitoring and Reporting Program](#). Where GBRMPA standards have not yet been established, applicants should use best available knowledge to propose to GBRMPA how they will monitor for changes to social values.

Consequence

83. The consequences to social values are described in [Table 3](#) (also refer to the Risk Assessment Procedure). Please note although [Table 3](#) and the table in the Risk Assessment Procedure are similar, [Table 3](#) provides more detail specific to social values.
84. GBRMPA may create additional, more detailed consequence tables in the future for specific social values.

Assessment information

85. Additional information may be required from an applicant during the assessment of an application for a permission depending on the type of activity proposed to be carried out. This will depend on the assessment approach. Refer to the [Application Guidelines](#) for more information on how assessment approaches are determined.
86. Depending on the permission type, GBRMPA may require applicants to provide a social impact assessment conducted and reported by an appropriately qualified person. Other information that may be useful when assessing potential impacts on social values includes:
- Analysis of commercial and non-commercial uses that may be impacted positively or negatively from the proposed activity.
 - Identification of broad drivers (direct and indirect impacts to social values) of change relevant to the proposed activity, as defined in the [Strategic Assessment](#).
 - Identification of stakeholders and affected parties to broadly identify who may be affected (both positively and negatively) by the proposed activity and what level of public participation should occur.
87. For higher risk or more complex proposals (those requiring public comment), a Social Management Plan, as part of an EMP, may be required to be submitted at the time of application. The plan should:
- Describe existing social values within the likely zone of impact of the proposal, including the concise summary of findings and recommendations based on the Terms of Reference.
 - Explain how impacts to these social values were assessed including analysis (quantitatively where possible) of potential positive and negative impacts of the proposal on social values.
 - Explain stakeholder or public comment that was conducted and summarise the results.
 - Describe proposed avoidance, mitigation or offset measures.
 - Describe proposed monitoring and management strategies (if the proposal is approved), including ongoing roles of stakeholders (including affected communities) throughout the life of the activity (for fixed facilities from the construction phase through to decommissioning).

Table 3: Consequence scale for social values

Consequence to value	Degrees of Severity					
	Positive (Enhance)	Negligible (Maintain)	Minor	Moderate	Major	Extreme
Social values	<u>Local, regional or widespread scale:</u> The activity creates a long-term improvement in at least one aspect of community benefits.	<u>Local, regional or widespread scale:</u> The activity does not cause any noticeable decline in social values, even in the short term. AND/OR The activity creates a short-term improvement in social values which does not endure once the activity ceases.	<u>Local scale:</u> Temporary (<6 months) decline in social values for less than 10 % of a single community or stakeholder group. The affected group is able to cope with this temporary impact (for example, during construction), after which social indicators return to pre-disturbance levels within 5 years. <u>Regional or widespread scale:</u> Impacts one or several components of social values at multiple locations or one sensitive or high value location. Impacts affect less than 10% of GBR stakeholders and persist for less than 3 months, after which social indicators return to pre-disturbance levels within 5 years.	<u>Local scale:</u> Noticeable decline in social values for 10-30% of a single community or stakeholder group. The community is able to compensate for or recover from these impacts within 10 years, though this will require some effort and resources. <u>Regional or widespread scale:</u> Temporary (<6 months) decline in social values for a single vulnerable stakeholder group and/or for stakeholders at multiple locations, which overall affect less than 10% of all GBR stakeholders. Affected groups are able to cope with this temporary impact (for example, during construction), after which social indicators return to pre-disturbance levels within 5 years.	<u>Local scale</u> – Noticeable decline in social values for 30-60% of a single community or stakeholder group. The community may not be able to compensate for or recover from these impacts within 10 years, and major assistance is needed to help the community to transition through the change. <u>Regional or widespread scale:</u> Noticeable and enduring decline in social values for a single vulnerable stakeholder group and/or for stakeholders at multiple locations, affecting 10-30% of all GBR stakeholders. The community is able to compensate for or recover from these impacts within 10 years, though this will require some effort and resources.	<u>Local scale</u> –Permanent reduction in social values for more than 60% of a single community or stakeholder group. No means of compensation or adjustment appear to be available to minimise these impacts. <u>Regional or widespread scale:</u> The activity causes a noticeable decline in social values for multiple vulnerable stakeholder groups and/or for stakeholders at multiple locations, affecting 30-60% of all GBR stakeholders. Vulnerable groups may not be able to compensate for or recover from these impacts within 10 years, and major assistance is needed to help communities to transition through the change.
Access						
Aesthetics						
Appreciation, understanding and enjoyment						
Human health						
Personal connection						
Equity						
Empowerment						
Employment and income						

CAUTION: Only the electronic copy of a document sourced from either GBRMPA's internal [Master Document List](#) or external [eLibrary](#) is controlled. Check the revision number of printed copies against these lists to verify currency.

Implementation

29. These guidelines will be reviewed and updated if required at least every three (3) years.
30. The Permission System Policy and other guidelines are available which provide further detail on how the Authority assesses, decides and manages specific aspects of the permission system and the application process.
31. For actions that are wholly or partially outside the Marine Parks, the Authority will continue to liaise with the Commonwealth Department responsible for the EPBC Act. Where a bilateral agreement exists between the Australian Government and the Queensland Government, depending on the terms of the agreement the Commonwealth Department's role may be delivered by the Queensland Government. The Authority will work with both levels of government according to agreed procedures, such as a Memorandum of Understanding, to provide advice on matters that may affect the Great Barrier Reef.

Definitions

Refer to the [Permission System Policy](#) for a list of general definitions relating to the permission system.

Ecological integrity

The living and non-living parts and processes necessary to maintain an ecosystem and allow it to recover from disturbances. Integrity includes living parts (biodiversity), non-living parts (such as water and sand), and natural processes (such as waves, winds and predation).

Ecosystem services

Ecosystem services are the benefits provided to humans through the transformations of resources (or environmental assets, including land, water, vegetation and atmosphere) into a flow of essential goods and services e.g. clean air, water, and food ¹² (Ecosystem services definition cited in Department of the Environment, Water, Heritage and the Arts (2009). *Ecosystem Services: Key Concepts and Applications*, Occasional Paper No 1, Department of the Environment, Water, Heritage and the Arts, Canberra).

Supporting information

1. Burdge, R. 2004, *The concepts, process and methods of social impact assessment*, 3rd edition edn, Social Ecology Press, Wisconsin, USA.
2. Brundtland, G.H. 1987, *Report of the World Commission on environment and development: our common future*, United Nations.
3. Ecologically Sustainable Development Steering Committee 1992, *National Strategy for Ecologically Sustainable Development*, Commonwealth of Australia, Canberra.
4. Context Pty Ltd 2013, *Defining the aesthetic values of the Great Barrier Reef*, Department of Sustainability, Environment, Water, Population and Communities, Canberra.
5. Australia International Council on Monuments and Sites (ICOMOS) 2013, *Charter for Places of Cultural Significance*, The Burra Charter, 2013.
6. Speldewinde, P.C., Cook, A., Davies, P. and Weinstein, P. 2009, A relationship between environmental degradation and mental health in rural Western Australia, *Health and Place* 15: 880-887.
7. Bourque, F. and Willox, A.C. 2014, Climate change: The next challenge for public mental health? *International Review of Psychiatry* 26(4): 415-422.
8. Marshall, N., Bohensky, E., Curnock, M., Goldberg, J., Gooch, M., Nicotra, B., Tobin, R., Pert, P., Scherl, L. and Stone-Jovicich, S. 2014, *Measuring the human dimension of the Great Barrier Reef: Social and economic long term monitoring program*, CSIRO, Townsville.
9. Gooch, M., Vella, K., Marshall, N.A., Tobin, R. and Pears, R. 2012, A rapid assessment of the effects of extreme weather on two Great Barrier Reef industries, *Australian Planner* 50(3): 198-215.
10. Larson, S., Stoeckl, N., Farr, M. and Esparon, M. 2014, The role the Great Barrier Reef plays in resident wellbeing and implications for its management, *Ambio* 44(3): 166-177.
11. Deloitte Access Economics 2013, *Economic contribution of the Great Barrier Reef*, Great Barrier Reef Marine Park Authority, Townsville.
12. Costanza, R., D'Arge, R., de Groot, R., Farber, S., Grasso, M., Hannon, B., Limburg, K., Naeem, S., O'Neil, R.V., Paruelo, J., Raskin, R.G., Sutton, P. and van den Belt, M. 1997, The value of the world's ecosystem services and natural capital, *Nature* 387: 253-260.

Further information

CAUTION: Only the electronic copy of a document sourced from either GBRMPA's internal [Master Document List](#) or external [eLibrary](#) is controlled. Check the revision number of printed copies against these lists to verify currency.

Director - Environmental Assessment and Protection

Great Barrier Reef Marine Park Authority

2 - 68 Flinders Street

PO Box 1379

Townsville Qld 4810

Australia

Phone + 61 7 4750 0700

Fax + 61 7 4772 6093

Email: consultation@gbmpa.gov.au

www.gbmpa.gov.au

Document control information

<i>Approved by:</i>	General Manager, Biodiversity, Conservation and Sustainable Use	<i>Approved date:</i>	26-Sep-17
<i>Last reviewed:</i>	29-Aug-17		
<i>Next review:</i>	26-Sep-20		
<i>Created:</i>	29-Aug-17		
<i>Document custodian:</i>	Director, Environmental Assessment and Protection		
<i>Replaces:</i>	New		