

Management Plan

Capricornia Cays National Park and adjoining State waters



Prepared by: Planning Services, Queensland Parks and Wildlife Service, Department of National Parks, Recreation, Sport and Racing

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This management plan has been prepared in accordance with the *Nature Conservation Act 1992* and the *Marine Parks Act 2004*.

This management plan does not intend to affect, diminish or extinguish Native Title and associated rights.

Note that implementing some management strategies might need to be phased in according to availability of resources.

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Vision statement

Capricornia Cays provide critical habitat for species including globally significant populations of seabirds and marine turtles.

The parks support world-leading research into coral cays, their wildlife, and their associated ecosystems. Conservation management enhances the cays' natural biological resilience, protects them from non-native plant and animal introductions, and restores degraded habitats. Capricornia Cays National Park will continue to provide valuable scientific research opportunities in locations that are in a largely natural and unaltered state.

The outstanding natural beauty of the Capricornia Cays offers a spectrum of ecotourism ventures and self-exploration opportunities for visitors to experience up close and personal encounters with abundant and globally significant wildlife. The remote island experience of the Capricornia Cays continues to attract both international and domestic visitors and offers an array of recreational opportunities to explore the area.

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1. Management intent

This management plan outlines the future management direction for the following areas managed by the Queensland Parks and Wildlife Service (Appendix A, Map 1):

- Capricornia Cays National Park
- Great Barrier Reef Coast Marine Park (State) areas adjoining the above protected areas and extending to the drying reef edge.

The management aims will be to:

- protect plant and animal species of global conservation significance, such as pisonia forests, green and loggerhead turtles, and seabirds
- manage sites of Indigenous and shared-history cultural significance in accordance with relevant legislation
- support a spectrum of ecotourism opportunities for international and domestic visitors through guided and group activities including diving, snorkelling, scenic flights, reef walks, day visits to secluded beaches and more, while also catering for self-exploration activities, all of which provide visitors with their own appreciation of the Capricornia Cays
- support eco-tourism and enhance cooperative systems and partnerships with tourism operators to achieve outcomes that benefit park users and visitors while continuing to protect the cays and associated ecosystems
- provide diverse opportunities for scientific research and teaching, particularly in the fields of marine turtles, coral cay ecosystems and coastal birds
- continue to maintain strong collaborative relationships with the Great Barrier Reef Marine Park Authority, University of Queensland's Heron Island Research Station and the University of Sydney's One Tree Island Research Station.

2. Basis for management

The Queensland Parks and Wildlife Service (QPWS) is responsible for managing Capricornia Cays National Park and the surrounding tidal lands and waters of the Great Barrier Reef Coast Marine Park. The park is managed in accordance with the *Nature Conservation Act 1992* and associated regulations and the Great Barrier Reef Coast Marine Park is managed under the *Marine Parks Act 2004* and associated regulations. The Great Barrier Reef Marine Park (Commonwealth) is adjacent to the management area and is managed by the Commonwealth's Great Barrier Reef Marine Park Authority (GBRMPA) in conjunction with QPWS. The tidal lands extending to the drying reef edge around the cays of the parks are included in the management area to provide a consistent approach to the management of the parks and the adjoining marine parks.

Management of the Capricornia Cays National Park has been in accordance with the Capricornia Cays National Park and Capricornia Cays National Park (Scientific) Management Plan 2000, which provided for conservation of the values of the two parks along with guidance on commercial use, access, facilities and site management. This plan recognises the previous plan and builds on the management actions and guidelines to manage the Capricornia Cays National Park and the adjoining Great Barrier Reef Coast Marine Park. This plan recognises the amalgamation of Capricornia Cays National Park (Scientific) with Capricornia Cays National Park and the creation of the Special Management Area (Scientific) over the former scientific area.

The Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004 and the Great Barrier Reef Zoning Plan 2003 (Commonwealth) establish the objectives of the management zones, the activities that are prohibited, those that can occur as-of-right and those that require approval. The adjoining two marine park require approvals to be issued under both State and Commonwealth legislation.

Similarly, site-specific management arrangements developed for Lady Musgrave Island Reef, are enacted in the State waters by the Lady Musgrave Island Reef site-specific management arrangement 2005.

As the management area is part of the Great Barrier Reef World Heritage Area, management will be consistent with the key management principles derived from the World Heritage Convention. In addition, the parks support migratory and marine species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. Therefore provisions of that act also apply.

Native Title claim number QC01/029, lodged on behalf of the Port Curtis Coral Coast Indigenous group, includes all estate managed by QPWS in this plan. A Memorandum of Understanding between Gidjarjil Development Corporation (on behalf of the Gurang and Gooreng Gooreng people) and QPWS exists. In 2001 the Port Curtis Coral Coast Regional Traditional Use of Marine Resources Agreement (TUMRA) was enacted. The TUMRA extends over both Commonwealth and State marine park waters. The management area is an important part of Gooreng Gooreng, Gurang and Tarebilang Bunda Traditional Owners' sea country. Traditional Owners will maintain an input into the management and protection of cultural heritage places of significance. This management plan is not intended to erode or extinguish any native title rights. Indigenous cultural heritage places are a custodial responsibility of Traditional Owners. All Indigenous places of significance, whether or not previously known or assessed, are protected under the provisions of the *Aboriginal Cultural Heritage Act 2003*.

Cultural resource management is in accordance with the Burra Charter which provides guidelines for managing cultural heritage places. The *Queensland Heritage Act 1992* and the *Aboriginal Cultural Heritage Act 2003* provide the legislative framework for managing cultural heritage places and historic shipwrecks on areas covered by this plan.

The precautionary principle will apply to all aspects of protected area management.

3. Location and regional context

The islands protected by the Capricornia Cays National Park together with the Commonwealth's Lady Elliot Island and North Reef, are known as the Capricorn and Bunker groups of islands and are located between 45km and 75km from Gladstone. The parks protect 14 coral cays and are significant on both the national and international scale. The beauty and natural integrity of the Capricorn–Bunker group of islands were among the reasons for the declaration of the Great Barrier Reef World Heritage Area in 1981.

The cays developed during the Holocene period and are about 5,000 years old. Unlike many of the Great Barrier Reef World Heritage Area's islands, the cays are not continental islands and their formative process was markedly different. During the last Ice Age, the sea level was much lower and the coastal plain was completely exposed. As sea levels rose the reef flats expanded and the low-lying cays were formed from those planar reefs (QPWS 2000).

The management area's cays and associated reefs are particularly important scientific benchmark sites with a long history of scientific investigation, monitoring and discovery. Their distance from the mainland has served to protect the cays and reefs from human influence such as introduced pests, weeds and sedimentation, thereby creating important refugia for many species.

The cays' high quality fringing reefs, endangered wildlife and remoteness provide a unique and significant visitor attraction.

4. Protecting and presenting the area's values

4.1 Landscape

The Capricornia Cays National Park and Capricornia Cays National Park (Scientific), and their associated reefs, are part of a distinct geomorphic province at the southern end of the Great Barrier Reef (Hopley 1982). Most of the management area's cays are heavily vegetated, and the contrast between blue reef waters, white coral sands and lush green vegetation is visually impressive (QPWS 2000). The management area's landscape is inextricably entwined with the surrounding marine environment.

The parks, cays and adjoining reefs have international landscape values with a dominance of natural and coastal scenery. There is little evidence of human influences on the parks' cays. The exceptions are Heron Island, which has been substantially modified (QPWS 2000) and Wilson Island to a lesser extent. The resort facilities on Heron and Wilson islands, along with the research stations on Heron and One Tree islands, have the potential to visually intrude on the parks' natural landscape and reduce 'remote island' experiences. It is desirable to minimise visual intrusions on the parks, particularly on the less impacted cays to ensure they retain their remote and isolated settings.

The coastlines of the islands in the management area are a highly dynamic system. Natural forces shape the coastlines through a combination of erosion and accretion. The cays occur on planar reefs of various sizes and with various levels of exposure to the prevailing winds and currents. These factors have largely determined cay size and composition, which consists either of shingle, sand, or a mixture of both.

Cay stability is profoundly affected by cyclonic disturbance and all except the shingle cays are located towards the leeward margin of the reef top. They vary in size from about 4ha to 107.3ha with elevation ranging from 3 metres to 9 metres and cover from one to 12% of the reef top surface area (Batianoff *et al* 2012; Mather & Bennett 1993).

The beaches and waters surrounding the Capricornia Cays add significantly to the scenic amenity of the area.

Activities by vessels accessing the islands have the potential to accelerate erosion of the sand cays through groundings, prop wash and wake. These actions on the fragile cay environment can negatively impact natural values including turtle nest sites through changes to sand movement.

Desired outcomes	Actions and guidelines
<p>The cays' visually impressive natural landscape is not compromised by the impression of park management, visitor use or research activities.</p>	<p>A1. Construct and maintain infrastructure in the existing disturbed areas and below each island's tree height to retain remote and isolated settings.</p> <p>A2. Develop a code of practice with relevant vessel operators to minimise impacts on amenity when accessing the cays.</p> <p>A3. Survey the management area to accurately identify the management area's boundaries.</p> <p>A4. Gather baseline data for monitoring future environmental changes particularly those caused by human activities.</p>

4.2 Native plants and animals

4.2.1 Native plants

The conservation status of the cays is well documented and is identified to be bio-geographically related to the coral atoll vegetation of the tropical Indo-Pacific region, and partly to the coastal dune plant communities of Central Queensland (Batianoff & McDonald 1980).

Pisonia grandis is a woody tree found almost exclusively on small Indo-Pacific islands between the tropics of Cancer and Capricorn. Globally, pisonia forests have largely been cleared for guano mining and plantation agriculture. About 80% of Australia's *Pisonia grandis* forests occur on the Capricornia Cays, an internationally significant area for the species (Olds 2006). In addition, *Pisonia grandis* is a priority species for conservation management in Queensland (DERM 2010a; 2010b). The management area's pisonia forests exceed heights of 20 metres and are some of the best examples of this community type in Australia (Batianoff *et al* 2009).

The distribution of jack-in-a-box tree *Hernandia nymphaeifolia* is at its southern limit on North West Island. Tryon Island's *Ximenesia americana* closed-scrub is the only representation of this vegetation type on Queensland's coral cays (Batianoff *et al* 2009).

Outbreaks of scale insect *Pulvinaria urbicola* have been threatening pisonia forests throughout its global range since the early 1990s. The insect is widespread and has been recorded on numerous plant species; however, it does not usually dramatically affect its host plant. The cause of scale outbreaks in pisonia forests is not fully understood, although ants exacerbate outbreaks as they transport the scale insects and defend them from predators and parasitoids (Olds 2006).

From 1993 to 2000, a scale outbreak destroyed over 90% of Tryon Island's pisonia forest. The introduced African big-head ant (also known as the coastal brown ant) *Pheidole megacephala* is widespread in the Capricornia Cays and is always associated with scale insect outbreaks. The lessons learnt in controlling introduced scale insects and African big-head ants were applied during smaller scale outbreaks on Heron and Wilson islands in 2006. Subsequently, those outbreaks were quickly contained and the resultant damage to pisonia was not as great as that experienced on Tryon Island.

Pollutants from the mainland such as nutrients from eroded soil and chemical runoff are likely to flow from the catchment and into the marine environment of the management area. Toilet waste or chemicals used for pest control on the islands can also have adverse impacts on the quality of marine waters surrounding the cays by contributing to algal blooms or damaging seagrass and coral reefs.

4.2.2 Native animals

The management area is rich in native animal species, with six species of conservation significance having been recorded (Appendix C, Table 1). The management area is particularly important for migratory birds with 38 species listed on various international migratory bird treaties (Appendix C, Table 2) and many more listed as marine species. The Capricornia Cays contains 73–75% of all seabird biomass in the Great Barrier Reef World Heritage Area (Stokes *et al* 1997). This primarily arises from the abundance of wedge-tailed shearwaters *Ardenna pacifica* and black noddies *Anous minutus* breeding on North West, Mast Head and Heron islands (Hulsman *et al* 1997). More than 70% of the total breeding population of wedge-tailed shearwaters on the east coast of Australia nests on North West Island (Hulsman & Walker 1996).

All the cays, except Broomfield Cay, are significant seabird breeding islands (Stokes *et al* 1997). However, a colony of lesser crested terns *Thalasseus bengalensis* has used Broomfield Cay for breeding. Up to eight seabird species breed on Mast Head, One Tree and Wreck islands and seven species are recorded from Tryon, Erskine and West Fairfax islands.

Apart from wedge-tailed shearwaters and black noddies, the cays support breeding populations of silver gull *Chroicocephalus novaehollandiae* and significant colonies of roseate terns *Sterna dougallii*, black-naped terns *Sterna sumatrana* and bridled tern *Onychoprion anaethetus*. East Fairfax, West Fairfax and East Hoskyn islands support the second largest breeding colony of brown boobies *Sula leucogaster* on the Great Barrier Reef (QPWS 2000). Vulnerable beach stone-curlews *Esacus magnirostris* also occur in the management area and are a priority species for conservation management in Queensland (DERM 2010a; 2010b).

The majority of seabird nesting in the management area occurs in summer, between the months of October and March. However, white-bellied sea-eagles *Haliaeetus leucogaster* breed on the islands during winter months. Ground nesting tern species, such as roseate, black-naped and crested terns *Thalasseus bergii*, generally nest in locations that make them particularly vulnerable to disturbance. Nesting and roosting seabirds are particularly vulnerable to aircraft and vessels disturbances, and such disturbances must be minimised.

A subspecies of silvereve *Zosterops lateralis chlorocephala* is endemic to the cays (Garnett 1992) and many other species of birds, such as buff-banded rails *Gallirallus philippensis* also use these cays. Although not always used for breeding, the management area provides important roosting and feeding habitat for other bird species, including endangered little terns *Sternula albifrons*, near-threatened sooty oystercatchers *Haematopus fuliginosus* and migratory shorebirds, such as whimbrels *Numenius phaeopus* and ruddy turnstones *Arenaria interpres*. Little terns are a priority species for conservation management in Queensland where they are listed as endangered. Little terns breed on sandy beaches just above the high-tide mark and are easily disturbed by people landing on beaches from boats fishing near breeding areas (DERM 2010a).

The management area is also of major international significance to the conservation of vulnerable green turtles *Chelonia mydas* and endangered loggerhead turtles *Caretta caretta* providing important nesting habitat. Green and loggerhead turtles are priority species for conservation management in Queensland (DERM 2010a; 2010b). Wreck Island is the most important offshore turtle rookery for endangered loggerhead turtles on Australia's east coast (DERM 2008).

The Capricornia Cays and the adjacent mainland coast support almost the entire breeding population of loggerhead turtles in the South Pacific Ocean basin. Wreck, Tryon and Erskine islands support the most important nesting sites in the management area. The eastern Australian loggerhead turtle breeding population has suffered significant declines (DERM 2008). The green turtle breeding population of the cays is one of the few remaining large green turtle breeding populations worldwide. North West, West Hoskyn and Wreck islands support the most important breeding sites for this species. Turtles lay their eggs on the top of cay beaches from late October until the end of February and hatchlings emerge from their nests to make their way to the sea from late December to the end of April.

Maintaining and improving the value of the management area to marine turtles requires limiting impacts at nesting sites. Reduction in the availability and quality of nesting habitat, disturbance of nesting females by humans and pest animals, interference with hatchling emergence such as the inappropriate use of lighting, and the effects of harbour maintenance are all potential threatening processes. At Heron Island nesting habitat is being lost from sand erosion into the Heron Island Harbour. Harbour maintenance dredging is required to return sand to the cay and for vessel safety. Returning dredged sand to the cay has the potential to impact on turtle nesting habitat (eg. smothering eggs), if not appropriately managed and will only be permitted outside turtle nesting periods.

In addition, maintaining pest control programs and the prohibition of domestic animals in the management area reduces the risk of predation on turtles and the introduction and establishment of pests and pathogens that could reduce nesting habitat quality, such as feral animals and invasive weeds.

The annual camping closures have assisted in addressing camper light impacts, particularly on turtle hatchlings and this impact is also addressed on nesting females through the ongoing adaptive management of campgrounds. In addition, QPWS continues to working closely with Heron and Wilson island resorts and the Heron and One Tree islands research station to minimise light impacts on the cays. Lights from vessels anchored within one kilometre of the cays however, continue to impact turtle hatchlings (e.g. large flood lights from trawlers or other arrays of lighting from salons and decks) (Limpus *et al* 1992; QPWS 2005).

The management area is south-east of Port Curtis and east of Gladstone Harbour. Increasing industrial development at these ports with associated illuminated work areas, dredged channels and increased shipping traffic has the potential to increase negative impacts on the marine life of the management area, particularly the green turtle population that migrates annually to breed at the cays. Likely impacts include; changed light horizons, this can discourage adult turtles from nesting and cause hatchling disorientation with associated hatchling mortality; increase incidences of boat strike and associated mortality of marine life, particularly turtles in the inter-nesting habitat offshore from the nesting beaches while they are preparing eggs for laying; increased pollution of the beaches and adjacent waters, and impacts on seagrass beds from dredging activities.

The Capricornia Cays National Park is highly valued for its close wildlife viewing opportunities for visitors. It is important to ensure the quality of that interaction is not compromised, and the area's natural values are not negatively impacted by such interactions. Modified wildlife behaviour through human interaction and use of the management area is a concern, particularly at islands with high visitor use.

Rubbish left by visitors can impact marine animals – entanglement of turtles and ingestion of floating debris such as plastic bags and cigarette butts causing choking are examples of potential impacts. Effective waste management is necessary at high visitor use islands to prevent human induced elevation of native animal populations, such as silver gulls and the consequent impacts of such elevated populations on other native species including nesting seabirds and marine turtles.

4.2.3 Erskine Island

Projects carried out in conjunction with the Queensland Museum and Queensland Herbarium found that in terms of introduced plants and animals, Erskine Island was the most ecologically intact island in the management area. Due to the island's size and history of use it has a relatively limited number of native and very few introduced plant species compared to the other cays of the management area. In addition, no introduced invertebrates, such as pest ants or cockroach species have been recorded, suggesting the island has little human disturbance. It is therefore important to maintain the status of island's relatively undisturbed ecology.

Desired outcomes	Actions and guidelines
Native plant species and community assemblages of the management area are retained at natural levels and fluctuations.	<p>A5. Develop and implement biosecurity and preventative pest introduction and spread measures including improved public education and engagement with neighbours, leases, commercial operators, visitors and staff.</p> <p>A6. Protect <i>Pisonia grandis</i> forests from pests including the potentially devastating effects of scale insect outbreaks, by where necessary utilising biological control techniques and removing introduced species such as pest ants.</p> <p>A7. Improve knowledge of plant communities and assemblages by identifying and mapping the management area's regional ecosystems.</p>
<p>The Capricornia Cays continue to be global strongholds for internationally significant species.</p> <p>Disturbance to coastal birds and turtles is minimised, particularly during the breeding season.</p> <p>Visitor interactions with wildlife are monitored and managed to enhance positive visitor experiences.</p>	<p>A8. Monitor cay vegetation and, where possible, address any significant changes caused by human activity.</p> <p>A9. Monitor coastal birds and marine turtles, other animal species of conservation significance and priority species for conservation management and, where possible, address any significant changes caused by human activity.</p> <p>A10. Implement seasonal access closures as per Appendix C, Table 4, to protect nesting seabirds and turtles through regulatory notice.</p>

Desired outcomes	Actions and guidelines
	<p>A11. Remove or modify all light sources such as camp lights and torches during turtle hatchling season through education and appropriate regulation including the Lady Musgrave Island Reef site specific management arrangements.</p> <p>A12. Allow Heron Island harbour maintenance dredging sand to be returned to the island but only outside turtle nesting season.</p> <p>A13. Develop an integrated waste management program to prevent human induced elevation of populations of native species and potential pest incursions.</p>

4.3 Cultural heritage and shared-history

The Great Barrier Reef including the management area has long been known to be used by the Aboriginal Australian and Torres Strait Islander peoples, and is an important part of local groups' cultures and spirituality.

The Traditional Owners of the management area were sea country specialists, using the rich marine resources of the intertidal zones, reefs and surrounding seas to support their community. Traditional Owners play an important part in effectively managing the area with continued involvement in its cultural use and heritage.

A Native Title Claim has been lodged over the area on behalf of the Gurang Gurang, Gooreng Gooreng, Gurang, Bailai and Tarebilang Bunda people, and the Port Curtis Coral Coast (QC01/029). A memorandum of understanding exists between Gidjarjil Development Corporation (on behalf of the Gurang and Gooreng Gooreng people) and QPWS. This memorandum of understanding was established in 2010 to foster a coordinated and cooperative partnership in the use and management of QPWS managed lands that are within the Port Curtis Coral Coast Native Title Claim Area. In 2011 the Port Curtis Coral Coast Regional Traditional Use of Marine Resources Agreement (TUMRA) and common law agreement for non-marine park waters was signed. The TUMRA extends over both Commonwealth and State marine park waters, and is the fifth and largest agreement of its kind. It covers an area almost ten times the size of the Australian Capital Territory or 26,386km². The TUMRA area extends from Burrum Heads, south of Bundaberg, to just north of and including Curtis Island off Gladstone. Under the agreement Port Curtis Coral Coast Traditional Owner groups, which include Gooreng Gooreng, Gurang, Bailai and Tarebilang Bunda people, are committed to initiating management strategies that will positively impact their sea country (GBRMPA 2012). The TUMRA and common law agreement are for five years.

The management area has a long shared-history. Historic shipwrecks are located near Lady Musgrave Reef and Heron Island. The wreck at Lady Musgrave Island is thought to be the *Jane Lockhart*, a wooden schooner that sank in 1868. During the 1890s, guano was mined on Lady Musgrave, Fairfax and North West islands and some evidence of these operations remain (QPWS 2000). The grave of the infant daughter of a guano ship's captain is on North West Island. Turtle soup canneries operated on North West and Heron islands in the early part of the 1900s. Remnants of these operations are still present on these islands. Lady Musgrave hosted a resort during the 1930s and a concrete slab remains.

Australian defence forces used East and West Fairfax islands as a bombing range, although this ceased over 30 years ago. In addition, oil exploration was once conducted at Wreck Island and a capped drill-hole remains.

Desired outcomes	Actions and guidelines
<p>Cultural sites of Indigenous and shared-history significance are identified and protected.</p>	<p>A14. Develop and maintain working relationships with identified Traditional Owners and relevant historical associations to manage and protect cultural heritage sites.</p> <p>A15. Conduct cultural heritage assessments for new infrastructure proposals and operational works</p>

4.4 Tourism and visitor opportunities

4.4.1 Current and future visitor trends

The Capricornia Cays lie between 45 and 75km from Yeppoon, Gladstone, Town of 1770 and Bundaberg. These urban centres are the main gateways for local, regional, interstate and international visitors to explore the management area by private or charter vessels. The major tourist attractions are the small, relatively untouched cays with their white beaches and world renowned outstanding coral reefs (QPWS 2000). The limited facilities and restricted accessibility of these islands provide opportunities for visitors seeking a remote, semi-secluded island experience.

The Capricornia Cays are a popular recreation and eco-tourism destination. The area's cays, natural vegetation, coral reefs and surrounding waters create extensive opportunities for recreation. The Capricornia Cays provides a broad spectrum of ecotourism opportunities from commercially operated day visits and resorts with overnight accommodation; to opportunities for visitors that prefer to escape development at remote islands, some of which have self-reliant campsites and little or no commercial use.

The central Queensland coast is undergoing a process of development, mainly associated with the expanding resources sector and the Gladstone area's industrial and port developments. The population for Gladstone Regional Council is 62,319 permanent residents, Bundaberg Regional Council has 97,762 permanent residents and Rockhampton Regional Council has 116,722 permanent residents (Australian Bureau of Statistics 2006). These regional councils have experienced a 1% increase in population over the past few years.

In Central Queensland the tourism industry is growing, and will continue to be an important contributor to the local economy with the greatest concentration of activity occurring along the coastline (Queensland Tourism 2009). The long-term forecast is for an increase in eco-tourism in Central Queensland of 1.7% to 2017, with a projected 2.2% increase in day trippers (Queensland Tourism 2009). This trend may translate into an increase in visits to the Capricornia Cays National Park.

4.4.2 Visitor sites

Recreation and tourism opportunities are supported in Capricornia Cays National Park (Broomfield, Erskine, Fairfax, Heron, Lady Musgrave, Mast Head, North West Tyron and Wilson island's). Recreation and tourism is not allowed in the Special Management Area (Wreck, One Tree, Hoskyn and Fairfax islands), where access is only supported for scientific research purposes approved under the Nature Conservation Act.

Capricornia Cays National Park has three camping areas located on North West, Lady Musgrave and Mast Head Island's. Storing of large amounts of fuel to run dive compressors and outboard motors poses a risk to visitors and the environment. Therefore, at North West and Lady Musgrave islands, storage of fuel and oil is only permitted in the fuel storage areas provided.

4.4.2.1 Broomfield Island

Broomfield Island is located north of Wilson Island and is completely surrounded by a Marine Conservation Park (yellow) Zone which allows for recreational boating, diving, fishing and opportunities for guided tours to operate under a permit (Appendix A, Map 2). The island is accessible via vessel for day-use all year round. The island is undeveloped. Visitors come to Broomfield to enjoy activities including relaxing, beach and reef walks, hiking, fishing, diving and snorkelling (Appendix C, Table 3).

4.4.2.2 Erskine Island

Erskine Island, located east of Mast Head Island and west of Heron Island (Appendix A, Map 1) has a current estimated area of 5.02ha with 1.8ha being vegetated (Batianoff *et al* 2012). Erskine Island is surrounded by Marine National Park (green) Zone (Appendix A, Map 2), a 'no-take' zone which allows for non-extractive opportunities such as recreational boating, diving and guided tours with a permit. All extractive use including recreational or commercial collecting and fishing is prohibited. Erskine Island is the most ecologically intact island in the management area and supports one of the most important nesting sites for loggerhead turtles within the Capricornia Cays. The island is undeveloped and open for day visitors from the commencement of Queensland Easter school holidays to the 14 October, outside seabird and turtle nesting seasons. Visitors come to Erskine Island to enjoy activities including relaxing, beach and reef walks, diving and snorkelling (Appendix C, Table 3).

4.4.2.3 Heron Island

Heron Island is located north-east of Gladstone (Appendix A, Map 1) at the western end of Heron Reef, a large platform reef (i.e. greater than 25 km²). The island's area has been estimated at between 12 and 29ha (Heatwole 1984) and 17ha (QPWS 2000); the current estimate is 22.07ha with a vegetated area of 9.89ha (Batianoff *et al* 2012). The reef and surrounding waters immediately adjoining Heron Island are Marine National Park (MNPZ or green) and Scientific Research (SRZ or orange) zones (Appendix A, Map 2) which only allow non-extractive opportunities such as boating and diving. Scientific research always requires approval and is primarily conducted in the SRZ however it is also allowed along with approved guided tours in the MNPZ. All extractive use including recreational or commercial collecting and fishing are prohibited in these zones, however the remainder of Heron Reef and surrounding waters are Conservation Park Zone which allows for some extractive use such as limited line and spear fishing. The Heron Island Resort lease adjoins the park, which provides overnight resort accommodation and a range of recreation activities such as guided tours, scenic flights, boat cruises and diving to their guests (Appendix C, Table 5). Adjacent to the Resort is the University of Queensland's Heron Island Research Station (see 4.5.2). Heron Island is accessible all year round, however overnight accommodation is only provided to guests of the Resort or Research Station.

4.4.2.4 Lady Musgrave Island

Lady Musgrave Island is located 96km north-east of Bundaberg and is the south most island of the Capricornia Cays National Park (Appendix A, Map 1). The island's current estimated size is 19.47ha with 15.10ha vegetated (Batianoff *et al* 2012). The reef and waters surrounding Lady Musgrave Island, including a large lagoon are mainly Habitat Protection (HPZ or dark blue) Zone, with a small area of Marine National Park Zone (MNPZ or green) in the north-east (Appendix A, Map 2). The MNPZ is a 'no-take' zone which only allows non-extractive uses such as recreation boating, diving and opportunities for guided tours to operate under a permit. The HPZ provides for extractive use including commercial and recreational line fishing. The joint QPWS and GBRMPA site management arrangements for Lady Musgrave Island Reef, which manage anchoring, lighting impacts on turtle hatchlings and visitor safety will continue (Appendix A, Map 3). Lady Musgrave Island is accessible all year round for day-visitors. Visitors to this island can go bird watching, snorkel, swim, fish, dive or stroll along the beaches (Appendix C, Table 3). Two walking tracks (Australian Standard Class 5) provide visitors an opportunity to explore the island. Facilities on the island include an information shelter and navigation light.

Camping is available between the commencement of Queensland Easter school holidays and the end of Australia Day weekend. The camping area facilities include toilets, information shelter emergency radio, dive compressor bunker and fuel storage facilities. The campground is accessible by a ferry service and supports 40 campers per night (Appendix C, table's 3 and 4).

Vessels can anchor in Lady Musgrave Island lagoon. A No Anchoring Area has been designated along the lagoons north-eastern wall. This area contains popular snorkelling sites and ensures that vessels can navigate to the Cay Access Channel. Anchoring is available adjacent to the No Anchoring Area (Appendix A, Map 3) (GBRMPA 2012).

A Cay Access Channel and Vessel Loading Area have been designated to facilitate access to the island. The Vessel Loading Area is a 'no standing' area where vessels cannot be anchored; however, tenders may be anchored adjacent to this area (Appendix A, Map 3) (GBRMPA 2012).

In accordance with the Lady Musgrave Island site specific management arrangements, 18 moorings are permitted. Of these 18 moorings, 10 moorings are reserved as ancillary moorings in conjunction with the permitted regular day trip operations. When an application is received for further moorings, it will trigger a review of the site-specific management arrangements.

4.4.2.5 Mast Head Island

Mast Head Island lies approximately 60km north-east of Gladstone, it is the closest island to the mainland (Appendix A, Map 1) and is the second largest island in the management area. The island's current estimated size is 44.25ha in total with 35.5ha vegetated (Batianoff *et al* 2012). Mast Head Island provides an isolate island experience and is undeveloped. It is surrounded by a Marine Conservation Park (yellow) Zone (Appendix A, Map 2), which allows recreation boating, diving, line fishing and opportunities for guided tours to operate under a permit. Mast Head Island supports one of the most important nesting sites for loggerhead turtles within the Capricornia Cays. The island is undeveloped and open for day visitors and bush camping outside seabird and turtle nesting seasons from the commencement of Queensland Easter school holidays to the 14 October and supports 50 campers per night (Appendix C, table's 3 and 4). Visitors come to Mast Head Island to enjoy activities including bird watching, relaxing, beach and reef walks, fishing, diving and snorkelling (Appendix C, Table 3).

4.4.2.6 North West Island

North West Island is located 75km north-east of Gladstone (Appendix A, Map 1). The island is mostly surrounded by the Marine Conservation Park (yellow) Zone, with the southern part of the island zoned Marine National Park (green) (Appendix A, Map 2). The zoning allows for recreation boating, diving and opportunity for guided tours to operate under a permit. Line fishing and crabbing is permitted in the Conservation Park (Yellow) Zone. North West Island is accessible all year round for day-visitors. Visitors to this island can go bird watching, snorkel, swim, fish, dive or stroll along the beaches (Appendix C, Table 3). Two walking tracks (Australian Standard Class 5) provide visitors with an opportunity to explore the island's natural features.

Camping is available between the commencement of Queensland Easter school holidays and the end of Australia Day weekend. Basic facilities including toilets, information shelter, walking tracks and dive compressor bunker and fuel storage areas are provided. The island supports 150 campers per night (Appendix C, tables 3 & 4).

4.4.2.7 Tryon Island

Tryon Island is located north-east of North West Island (Appendix A, Map 1) and is surrounded by Marine National Park (Green) Zone allowing recreational boating and diving and opportunity for guided tours to operate under a permit. Tryon Island's pisonia forests were destroyed by an outbreak of soft scale insects and African big-head ant (see 5.1.1 Tryon Island). Access to the island is temporarily closed. The island may reopen, for up to 30 campers per night, from the commencement of Queensland Easter school holidays to the 14 October once the island's vegetation has been satisfactorily rehabilitated.

4.4.2.8 Wilson Island

Wilson Island, located north of Heron Island, currently has an authorised lease under the Lands Act to provide luxury tent-style camping for a maximum of 25 overnight guests and 40 day visitors on the national park and a diversity of recreation activities, guided tours and scenic flights to their guests (Appendix C, Table 3). Wilson Island is surrounded by Marine National Park (Green) Zone allowing recreational boating and diving and opportunity for guided tours to operate under a permit. Wilson Island is accessible all year round via resort ferry or by private vessel for day-visitors.

4.4.3 Visitor zones

Visitor and tourism opportunities in the Capricornia Cays will continue to provide for recreation opportunities in varied locations from developed sites for specific activities, to the solitary natural experience of remote beaches.

A visitor zoning plan across the management area will be used to ensure this diversity of recreation opportunities is maintained, visitor use has minimal impact on the natural and cultural values and guide appropriate levels of maintenance and development of visitor sites. Monitoring visitor numbers and impacts at visitor sites such as beaches, campgrounds, day-use areas and walking tracks in the management area will provide baseline information on visitor use to inform management of visitor use and impacts. Adaptive management actions, such as temporary closures of areas, will be used to protect and aid the recovery of important sites (e.g. seabird or turtle breeding sites) following natural or human impacts (e.g. cyclones or pest introductions).

The Capricornia Cays has been providing visitors with a diversity of visitor opportunities since the early 1980s. Appropriate visitor numbers have been assigned and supported with rigorous impact monitoring including the Reef Health and Impact Survey program, Turtle Management Marine Monitoring and the Coastal Bird Monitoring and Information Strategy (partnership programs between QPWS, GBRMPA and research institutions). Impact monitoring programs like these will continue to be used to guide decision-making for future recreation and site based planning.

To ensure visitor use to the management area is managed strategically, visitor zones and marine settings have been established to guide management decisions in the Capricornia Cays National Park (Appendix A: Map 4: Appendix D: Tables 1 & 2). Visitor zones extend to mean low water springs, whereas marine settings encompass State waters below mean low water springs.

4.4.4 Visitor information

Detailed information about the Capricornia Cays National Park is available via the NPRSR website, visitor guides and through tourist information centres and commercial operators. Significant and contemporary interpretive material consistent with the area's setting and iconic status has been installed at Heron Island Interpretation Centre, Lady Musgrave Island and North West Islands. Informing visitors is most effective when implemented as a combination of both pre-visit and on-site information using a variety of methods. Information relating to the sensitive breeding and roosting periods for seabirds and turtles and visitor accessibility to the islands is available through the various means of pre-visit information as well as by regulatory signs on site.

4.4.5 Aircraft

The Capricornia Cays may attract additional aircraft-based tourism and recreation in the future. Aircraft activities can adversely impact on the cays' amenity and disturb local and international feeding and roosting coastal birds in the cays.

Beach landings can only be undertaken on some beaches during low tides and because of this there are limited opportunities for safe landings during daylight hours. By regulation flying heights over Capricornia Cays National Park is restricted to 1,500 feet above sea level, unless for the purposes of taking off and landing under permit.

Commercial aircraft can land and take-off at Lady Musgrave Island lagoon with permission. The Lady Musgrave site-specific management arrangement allows 12 commercial aircraft to land and take off per day. Heron Island Resort operates a helipad and departing helicopters overfly the national park. Float planes also operate to Heron Island from Gladstone.

4.4.6 Camping

Capricornia Cays provides a range of camping opportunities from the high-end camping available at Wilson Island to the more isolated, self-reliant island camping experience available at Mast Head Island. QPWS provides volunteer campground hosts for some campgrounds in the cays. Campground hosts provide a point of contact for visitors to the cays. Hosts provide information to visitors such as access and sites of interest and answer general inquiries about the cays. In addition, the hosts collect visitor, plant and animal information to assist management of the cays.

Seasonal closures and camping limits are applied and are sympathetic to the seabird and turtle breeding and hatching seasons and recognise the area's remoteness and the possible vulnerability of campers, with limited access provisions during the height of the cyclone season.

To maintain the remote and natural visitor experience and ensure the long-term sustainability of these camping areas camper numbers will continue to be capped (section 4.2.2) and, the length of stay will remain at a maximum of 21 nights. In maintaining the management area's sought after sense of solitude and remoteness, 240 volt power leads and generators will not be permitted in the management area. These provisions have been applied during the period of the previous management plan and have been successful in maintaining the ecosystem integrity and self-reliant island experience for visitors.

Camping facilities in the cays will be maintained according to the visitor zones identified in Appendix E. The parks camping areas are particularly popular and are typically booked in advanced over peak times (school holidays and long weekends).

During these periods, education groups will be informed and encouraged to camp at alternative sites to accommodate the tourism peak period on North West and Lady Musgrave islands

Visitors to the Capricornia Cays have used alternative fuels when camping due to the significant impact on turtle nesting and hatchlings from light and embers, and eliminate the threats posed by pest species potentially harboured in introduced firewood. The management areas isolation and small size means they are remarkably fragile and sensitive to introduced pest species. Acknowledging this risk, the hygiene of imported materials will be key consideration in the implementation of many management action and visitor communication messages. Visitors will continue to be encouraged to bring alternative fuel sources into the area for cooking.

4.4.8 Domestic animals

The small remote islands of the Capricornia Cays have finely balanced ecosystems, unaccustomed to the pressures present on the mainland. Therefore introduced plants and animals can have devastating effects including disturbance to nesting birds and turtles and other animals and predation on turtle hatchling.

Domestic animals are permitted onboard vessels but are not permitted on any national park or intertidal areas and beaches within the management area.

4.4.8 Water-based activities

Diving and snorkelling amongst the islands' fringing reefs is an integral recreation opportunity associated with the area. In catering for this opportunity dive compressors are permitted on North West and Lady Musgrave islands. However, to mitigate the impacts upon the environment (fuel leaks) and visitors (noise) the operation of dive compressors will only be permitted within designated areas and for designated operating hours. These dive compressor bunkers are located in a manner to maximise noise suppression and ensure operator safety.

Diving and snorkelling

The Capricornia Cays National Park is an extremely popular boating and diving destination of international renown. High-speed water activities have the potential to significantly affect these values and the safety of visitors engaged in snorkelling, diving and swimming. Boat strike on turtles and noise impacts on migratory coastal birds is of particular concern. To address these concerns the management areas reef flats will have a go slow zone established from the mean high water boundary of the Great Barrier Reef Coast Marine Park to either the low water of the drying reef edge or 500m, whichever is the lesser distance from the beach.

4.4.9 Tourism opportunities

The Capricorn/Bunker group is a major tourist attraction and supports a significant eco-tourism industry and is a drawcard for international visitors who seek to experience the park's outstanding natural values and recreation opportunities. A range of private commercial accommodation options exists at Lady Elliot, Heron and Wilson islands, which appeal to domestic and international visitors alike. The Heron Island Research Station is utilised by commercial education providers that bring international and domestic students to the research station.

Specialised island resorts adjacent to the area's natural setting occur at Lady Elliot and Heron islands. Lady Elliot Island is outside the management area and is under a GBRMPA lease agreement. Similarly, Heron Island Resort's lease is outside the management area and exists via a perpetual lease (*Land Act 1994*) agreement with the State of Queensland. As neighbours QPWS will continue to work closely with the lessee to support ecotourism opportunities that stem from the attraction of the national park and work with the lessee's to cooperatively protect the natural values on the island.

On the national park, Wilson Island hosts a low number, highly supported camping experience. This safari hut camping provides a different visitor experience to that offered on Heron Island. While visitors to this part of the management area are significantly lower, it fulfils an important niche along the spectrum of visitor accommodation opportunities available in or adjacent to the management area. Acknowledging this, this plan will provide for the continuation of this style of operation beyond the term of the existing lease. Future opportunities on Wilson Island will be authorised through the Nature Conservation Act and provide for a similar size and style of commercial operation to which currently exists.

Lady Musgrave Island and reef is a popular tourism destination and a large number of visitors are brought to the location by commercial tour operators. There is also an opportunity for commercial day visits and camping tours to be conducted at North West Island. It is desirable to continue to cater for diverse commercial tourism opportunities in the management area. No commercial tour operators are accessing Erskine Island.

Desired outcomes	Actions and guidelines
<p>The management area offers a spectrum of outdoor recreation and tourism opportunities that meet the needs of visitors seeking remote island experience.</p>	<p>A16. Manage visitor sites in accordance with Appendix E.</p> <p>A17. Provide for camping in designated camping areas on North West, Mast Head and Lady Musgrave islands to the following capacities:</p> <ul style="list-style-type: none"> • North West Island 150 campers at one time • Mast Head Island 50 campers at one time • Lady Musgrave Island 40 campers at one time • Tryon Island 30 campers at one time (when island is reopened) • Occasionally temporary limits may be applied to protect the cays' significant natural values. <p>• Maintain the length of camping nights to a maximum of 21 nights.</p> <p>A18. Implement an aircraft strategy to:</p> <ul style="list-style-type: none"> • maintain opportunities for aircraft to land and take off at designated landing areas and at Lady Musgrave Island and reef, and North West Island under authority • prohibit aircraft flying below 1500 feet except for landing and take-offs in approved areas noted above

Desired outcomes	Actions and guidelines
	<ul style="list-style-type: none"> • aircraft activity shall not cause disturbance at campgrounds and is to occur outside of bird and turtle nesting times. <p>A19. Provide for the use of 240-volt power leads and generators for management or approved research purposes only.</p> <p>A20. Provide for the operation of dive compressors within designated dive compressor bunkers and during designated times only.</p> <p>A21. Support the intent of the Lady Musgrave Island Reef site-specific management arrangement to guide permitted activities that:</p> <ul style="list-style-type: none"> • encourage safe and responsible water activities • maintain the area's natural values, ecosystem integrity • maintain high quality visitor experiences. <p>A22. Develop in consultation with interest groups and implement go-slow zones on the management area's reef flats from the mean high water boundary of the Great Barrier Reef Coast Marine Park to either the low water of the drying reef edge or 500m, whichever is the lesser distance from the beach to minimise impacts on the area's significant natural values and ensure visitor safety.</p>
<p>Demonstrated efficient and innovative visitor management using best practice and available resources.</p>	<p>A23. Establish a visitor monitoring program and continue to regularly assess visitor trends, numbers and impacts to inform management decisions about outdoor recreation and tourism opportunities.</p> <p>A24. Improve visitor use and appreciation of the cays global significance by continuing to conduct education and enforcement programs.</p> <p>A25. Liaise with relevant lessees, local councils, tourism organisations, commercial operators and local businesses to promote the area's values and recreation opportunities, and ensure visitors have access to accurate information.</p> <p>A26. The sensitivity of the area's natural values to pest introductions along with the importance of adopting appropriate bio-security and hygiene measures will be promoted to all visitors.</p>
<p>Strong community partnerships that support outdoor recreation and tourism opportunities help manage visitor impacts and the community benefits from the area's visitor use.</p>	<p>A27. Work with appropriate interested persons to investigate, develop and implement a public contact program to enhance, inform and promote the management area's values to visitors, resort and research station staff and the broader community.</p> <p>A28. Continue volunteer initiatives including campground host program on North West and Lady Musgrave Islands.</p> <p>A29. Maintain a community partnership program in consultation with lessees, local councils, tourism organisations, commercial operators, local businesses and the local community to:</p> <ul style="list-style-type: none"> • manage and promote the areas values • manage and promote the recreation and tourism opportunities • participate and support, where possible, tourism plans and outdoor regional plans to ensure consistency with the area's management intent. • complement and share information relating to recreation and tourism standards and visitor infrastructure • encourage and promote campground host and Tyron Island restoration programs

Desired outcomes	Actions and guidelines
	<ul style="list-style-type: none"> • encourage volunteer participation.
<p>Multiple commercial tourism operators offer setting appropriate, diverse nature-based activities in the management area with minimal impacts on the area's natural and cultural values.</p>	<p>A30. Provide for tourism operations at:</p> <p>a) Lady Musgrave and North West islands and adjoining beach:</p> <ul style="list-style-type: none"> • daily operations to each island and adjoining beach with a maximum of 460 persons per day, with a maximum of 130 persons on the island and adjoining beach at one time and a maximum group size of 50 • Roving operators to each island and adjoining beach managed via a booking system with a maximum of 20 persons per day. • All tourism operations undertaking turtle watching or night activities during turtle nesting season (15 October to Easter) to have a maximum group size of 10. <p>b) Heron Island and adjoining beach:</p> <ul style="list-style-type: none"> • tours affiliated with Heron Island resort or research station only <p>A31. Continue to support the high-end camping on Wilson Island.</p> <p>A32. Provide for supported commercial camping opportunities on North West Island's with the following:</p> <ul style="list-style-type: none"> • a maximum of up to 50 persons at one time (including staff) • camping must only occur in the designated campsite • commercial camping not to be conducted during the Queensland or New South Wales school holiday periods • maximum stay of 21 nights per tour • all equipment to be removed from the island at the end of each tour • no motorised vehicle may be used to tow or carry equipment over the reef flat, beach or island. <p>A33. Review of current commercial arrangements and transition these arrangements to commercial activity agreements for the Heron and Wilson islands resorts. The commercial activity agreements are to be consistent with the visitor zones (Appendix D).</p>
<p>Marine infrastructure installed in the management area are consistent with the requirements identified in the Lady Musgrave site-specific arrangements, visitor zones and State marine park zones and do not impact on the area's natural, cultural or scenic values.</p>	<p>A34. The installation of marine infrastructure in State waters surrounding Tryon, Broomfield, Wilson, Wreck, Mast Head, Erskine, Heron, North West and One Tree islands will be subject to the following conditions:</p> <ul style="list-style-type: none"> • the environmental impacts from marine infrastructure failure in cyclonic conditions can be adequately addressed • pontoons are not installed within 1000 m of North West Island and are visually sympathetic to island campers.

4.5 Education and science

4.5.1 Education

Capricornia Cays National Park and adjoining State waters provides an ideal natural and cultural resource for formal and informal education. Use of the cays by education groups, including schools (especially schools in Gladstone, Bundaberg and tertiary institutions), Landcare groups, field naturalists, bird watching, reef watch and other special interest groups, will be encouraged.

The One Tree Island and Heron Island research stations offer tertiary education facilities with associated supporting infrastructure such as teaching rooms, built accommodation for students and vessels. Due to these facilities these research stations provide all year round coral cay ecology education opportunities. In addition, to use by tertiary institutions, schools access Heron Island Research Station to conduct their coral cay ecology education programs.

Beyond the formal education and research opportunities provided by the tertiary institutions at their research facilities, numerous primary and secondary schools camp at Lady Musgrave and North West islands and conduct introductory coral cay and reef ecology programs. Demand from schools to camp at Lady Musgrave and North West islands is high and has the potential to significantly displace other camper types without some coordination (e.g. families or community groups). In this regard, school groups will be limited to the use of campgrounds to during school terms only.

QPWS will work with education departments to refine school group schedules and maximise number of school group opportunities. Additionally, QPWS will assist in the formation of associated education curriculums to maximise learning outcomes and minimise site impacts when camping.

Desired outcomes	Actions and guidelines
The cays' globally significant values are integrated into education programs conducted on the islands.	A35. Work with the education department to roster school visits with priority to schools with coral cay ecology educational programs.
Education programs enhance community understanding and appreciation of the cays.	<p>A36. Provide for coral cay ecology education programs in the management area at Heron, Lady Musgrave, and North West islands and reefs, and One Tree Island Research Station and adjoining reef.</p> <p>A37. Provide for camp based coral cay ecology education programs outside of Queensland and New South Wales school holiday only.</p> <p>A38. Work with institutions conducting coral cay ecology education programs in the management area to enhance student understanding and appreciation of the cays' globally significant values and the threats they face.</p> <p>A39. Ensure coral cay ecology education programs are conducted with minimal impact to the cays' natural and social values through:</p> <ul style="list-style-type: none"> • ensure a supervisor to student ratio of 15:1 for Heron Island and 8:1 for Lady Musgrave and North West islands. • maximum educational group size at any one time will be 25 for Lady Musgrave Island and 60 for North West Island.

4.5.2 Science

The Capricornia Cays National Park Special Management Area provides opportunities for research of global significance to be conducted in a situation as free as possible from human impacts. There is a long history of research in the management area, beginning with the Great Barrier Reef Expedition in 1928 and the Heron Island Research Station was established in 1951. The University of Queensland acquired the research station in 1970 and currently it accommodates approximately 150 people. This research station is currently a leading site for research into changes in the environmental impacts on coral cays and reefs, such as coral bleaching and ocean acidification. Heron Island Research Station is located on the national park and operates within authorities granted under the Nature Conservation Act.

The intertidal area and waters immediately adjacent to the research station are zoned for scientific research under the marine park zoning plans.

The University of Sydney runs a small research station on One Tree Island, which was established in 1976 and accommodates up to 35 people. The island and reef are valued as a scientific benchmark for reef and cay environments, with particular relevance to research being the relative absence of human impacts. The research station operates under a Nature Conservation Act authority. Visitors are not to access the Capricornia Cays National Park Special Management Area outside the Research Station leased area without the relevant authority. The intertidal area and waters surrounding the island are zoned restricted access for scientific research under the marine park zoning plans. This allows an excellent opportunity to conduct research on a wide range of reef and cay related topics.

When compared to over sections of the Great Barrier Reef World Heritage Area, notable is the amount and extended history of ecologically related research and monitoring projects which has and is occurring in the management area. The management area is regarded, both nationally and internationally, as one of the foremost places to study reef and coral cay ecology and plays a central role in strengthening the understanding and predicting trend within such fragile communities. As an example, turtle research and monitoring at Heron Island has accumulated one of the few long-term, continuous data sets for green turtles globally (QPWS 2000). Additionally the Heron Island reef, one of the first protected reefs on the Great Barrier Reef, has been the subject of coral reef research since the 1950s.

Desired outcomes	Actions and guidelines
QPWS works closely with research partners to diversify and investigate management priorities and the results enhance the area's management.	<p>A40. Work with research partners to participate and guide research into priority management areas and use results to enhance the cays' natural resilience and management.</p> <p>A41. Investigate feasibility of QPWS-sponsored research to help develop management needs research.</p> <p>A42. Continue to support and participate in strategic long-term monitoring programs for the area's key values, for example, turtle and coastal bird monitoring.</p> <p>A43. Explore citizen science and community group partnerships to enhance monitoring programs.</p> <p>A44. Provide for the continuation of existing research facilities on the national park.</p>

4.6 Partnerships

Central to the effective management of the area is a cooperative partnership with the Great Barrier Reef Marine Park Authority. With adjoining, and at times overlapping jurisdictions, QPWS and Great Barrier Reef Marine Park Authority work cooperatively on developing and implementing complementary management actions for the area. This close partnership has been formalised through an intergovernmental agreement and delegates the daily field management activities for the area to QPWS.

Beyond this partnership it is important that QPWS maintains communications with other government agencies and research organisations. Partnerships requiring further development include partnerships which tackle strategic priorities (e.g. bio-security protection and migratory species research) and foster community participation and stewardship in the area (e.g. volunteer and school groups).

Beyond these, partnerships will also aim to strengthen the relationships and communication channels between QPWS and local government, tourism operators, volunteer and community groups.

In particular, re-establishing a Heron Island landholders group to cooperatively manage the common interests of the resort, research station and national park is highly desirable. The group's goal will be to resolve island-specific issues, ensure the differing interests of each party are considered, minimise environmental and social impacts and deliver outcomes that benefit all parties.

A strong working relationship with the Port Curtis Coral Coast Traditional Owners is essential so that their views and aspirations of the land can be included in planning and management. Traditional Owners have a role to protect cultural heritage in the management area and role to educate QPWS staff and visitors on cultural heritage management.

Desired outcomes	Actions and guidelines
Strong working relationships with research institutions, commercial tourism operators, Traditional Owners, neighbours, tourism organisations, natural resource management groups, and other state and local government agencies are maintained.	<p>A45. Continue to participate, support and encourage strategic and holistic management through partnerships with GBRMPA, research institutions, commercial tourism operators, community groups, volunteer interest groups, local government and other government departments where appropriate.</p> <p>A46. Re-establish a Heron Island management group for cooperatively managing Heron Island.</p>

4.7 Site-specific management

4.7.1 Access to Capricornia Cays National Park Special Management Area (Scientific) and adjoining State waters

Public access is restricted to Capricornia Cays National Park Special Management Area (Scientific) under the provisions of the Nature Conservation Act. Similarly the surrounding marine park zoning at Wreck Island Reef is zoned a Preservation (Pink) Zone and One Tree Island is zoned for scientific research which both restrict public access. One of the key management objectives for these areas is to provide locations/opportunities for scientific research where minimal human influences natural processes are evident. Knowledge gained from this research is useful for the conservation and management of the remainder of cays throughout the management area. It is also internationally significant to the conservation of certain species as research conducted in the park frequently provides the only available information on such species in situations as free as possible from human impact (QPWS 2000). It is important to manage the cays in the Special Management Area (Scientific) to continue to remain as free as possible from human impacts and therefore access to the intertidal area surrounding each island will be restricted.

Filming and photography of approved scientific programs has been conducted in the Special Management Area (Scientific). It is important to continue this to promote the parks' scientific and natural values.

Desired outcomes	Actions and guidelines
Human influences are minimised as far as practicable on Capricornia Cays National Park Special Management Area (Scientific).	<p>A47. Restrict public access to the intertidal areas of the Special Management Area (Scientific) islands; East and West Fairfax and East and West Hoskyn islands, including the intertidal reefs surrounding these islands. Access to the park and intertidal areas is only by persons engaged in approved scientific research, monitoring, management projects or authorised under the Nature Conservation Act or Marine Park Act.</p> <p>A48. An annual permit will be issued to the One Tree Island Research Station for access to the site and facility for education and research.</p> <p>A49. Only permit scientific research in the Capricornia Cays National Park Special Management Area (Scientific) which cannot be conducted elsewhere.</p> <p>A50. Only permit scientific research of a low impact and non-destructive nature.</p>

5. Other key issues and responses

5.1 Pest management

Controlling and preventing the spread of potential pest plant and animal species is particularly important in the management area. The cays' small size, and limited connectivity to neighbouring cays and the mainland, means the cays lack an inherent robustness to withstand pest plant and animal introductions. Despite this, the cays' small size and limited connectivity also enhances pest management activities by preventing introductions and making eradication a viable option.

Many pest species have been successfully eradicated from the management area, including black rats *Rattus rattus* from Fairfax and Heron islands, chickens *Gallus gallus domesticus* and cats *Felis catus* from North West Island, dwarf poinsettia *Euphorbia cyathophora* from Heron Island and goats *Capra hircus* from Lady Musgrave Island.

The plants and animals present on the cays can vary widely, depending on the season and the cays environment is naturally dynamic. However, human movement has been identified as the most important introduced plant dispersal mechanism in the management area (Chaloupka & Domm 1986; Batianoff 2000). On high human impact cays, such as Lady Elliot Island, naturalised plant species can represent a large proportion of the total plant species (Batianoff 1998). Islands where there has been little human presence, such as Erskine, East Hoskyn and West Hoskyn islands, have fewer introduced plants. Developing and implementing appropriate quarantine measures to prevent the introduction and spread of pest species is highly desirable. To achieve this, coupled with any quarantine measures is a requirement for a heightened level monitoring to ensure early detection and successful control of new incursions of exotic species (Batianoff *et al* 2009).

Mice *Mus musculus* are present on North West and Heron islands and introduced house sparrows *Passer domesticus* are also present on some islands. Both species will be the focus of future eradication efforts. Effort continues to be directed at eradicating weed species such as Mossman River grass *Cenchrus echinatus* and prickly pear *Opuntia* spp. from islands which host campers.

5.1.1 Tryon Island

From 1993 to 2000, an outbreak of introduced scale insect *Pulvinaria urbicola* destroyed over 90% of Tryon Island's pisonia forests. During those same years, the forest on Coringa Island (in the Coringa–Herald cays, approximately 400km east of Cairns) was devastated by a similar outbreak (Olds 2006). Pisonia forests in the Seychelles and Hawaii have also been affected by such outbreaks. The cause of these outbreaks is unknown, but it is suspected they have been due to the natural depletion of predators of scale insects.

Since the devastating outbreak, the dynamics between scale insects, pisonia forests, introduced ants and natural predators on Tryon Island have been extensively investigated. As a result of these investigations, QPWS has implemented a significant rehabilitation project, which involved eradicating introduced ants and revegetating the island. Rehabilitation of the island's pisonia forests is continuing, and the results are being used to inform management and restoration of cay ecosystems. With significant effort, introduced African big-head ants *Pheidole megacephala* have been eradicated from the island. Given the high risk visitors pose as vectors for reintroduction of this pest and potential forest devastation, while the ecosystem is recovering the island will not be re-opened to the public for camping.

Desired outcomes	Actions and guidelines
<p>Sustained and strategic pest plant and animal control maintains the integrity of the management area's ecosystems.</p> <p>The introduction of non-native species via human vectors is minimised.</p>	<p>A51. Develop and implement QPWS Level 1 and Level 2 pest management strategies to manage priority pests.</p> <p>A52. Develop and implement an appropriate quarantine strategy to prevent introductions of potential pest plant and animal species.</p>
<p>Tryon Island's <i>Pisonia grandis</i> forests have been restored.</p> <p>Tryon Island research continues to inform management about scale, ant and pisonia relationships and how to rehabilitate such ecosystems after catastrophic impacts</p>	<p>A53. Continue <i>Pisonia grandis</i> forest rehabilitation efforts, using adaptive management techniques, such as baiting introduced ants, planting pisonia cuttings and monitoring potential scale outbreaks.</p> <p>A54. Share the findings of scientific investigations with scientific peers, other protected area management agencies and the broader community.</p> <p>A55. Maintain the camping closure on Tryon Island until rehabilitation make it safe for visitors.</p>

5.2 Fire management

As the management area's vegetation is largely comprised of rainforest-type species, which are sensitive to the impacts of fire, it is inappropriate to conduct planned burns in the management area. In addition to minimise the threat of wildfire to the environment or property, fires will continue to not be permitted in the management area.

5.3 Authorities and leases

Authorities may be issued under the Nature Conservation Act and Marine Park Act to allow certain types of infrastructure and activities. These authorities can be used for service facilities and they are most commonly used to enable privately owned infrastructure to be built or remain on a QPWS estate.

There are a number of authorities for specific activities occurring on the management area. In particular, the Australian Maritime Safety Authority (AMSA) has a section 35 authority under the Nature Conservation Act to maintain a marine navigation light on Lady Musgrave Island (Appendix A, Map 1). AMSA maintains the infrastructure via helicopter landing on the helipad in the lease area or amphibious vessel from the beach. Marine navigation light operations and maintenance must not significantly impact on the management area's natural and cultural values. Navigation light operations and maintenance activities are to be conducted outside peak nesting seasons of seabirds and turtles.

The Wilson Island lease (Appendix A, Map 1) is located on the national park and is currently leased under a Land Act Special Lease 19/51121 until 31/12/2019. The current lease indicates that a maximum of 40 day visitors and 25 overnight guests is permitted. Upon expiry of this lease QPWS will provide for this use under the Nature Conservation Act. QPWS will work with the lease owner to ensure the activities have minimal impact on the national park and surrounding Great Barrier Reef Coast Marine Park.

One Tree Island is located in Capricornia Cays National Park Special Management Area. In accordance with the Nature Conservation Act, access can only be permitted for research and management purposes. A research station existed on One Tree Island prior to the area being declared a national park. Sydney University has a section 34 authority and access permit under the Nature Conservation Act to operate and maintain a research facility on One Tree Island, Capricornia Cays National Park.

Desired outcomes	Actions and guidelines
Impacts of existing and future developments in the management area are minimised, particularly the intrusion of transmission lines and telecommunications facilities.	<p>A56. All third party interests in the management area must have the appropriate approval under the relevant Acts and provide clear guidance on access routes and points, means of access and conditions for traversing intertidal areas.</p> <p>A57. Continue to support the low-key safari tent camping opportunities on Wilson Island. On expiration of the current Land Act lease, authorise the supported camping opportunity under the Nature Conservation Act.</p>
<p>Maintaining the management area's navigation aids does not significantly affect the area's natural and cultural values.</p> <p>Park management actions do not compromise the operation of navigation aids.</p>	<p>A58. Monitor navigation aid operations and maintenance activities as to not compromise the area's natural or cultural values. In particular:</p> <ul style="list-style-type: none"> • clearing will be permitted to maintain access to the structure and limited to within the lease area only • as far as practicable, inspections and maintenance activities are to be conducted outside peak nesting seasons of seabirds and turtles. • permanent concrete helipads will not be permitted in the management area.

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7. Appendixes

Appendix A – Maps

Appendix B – Definitions

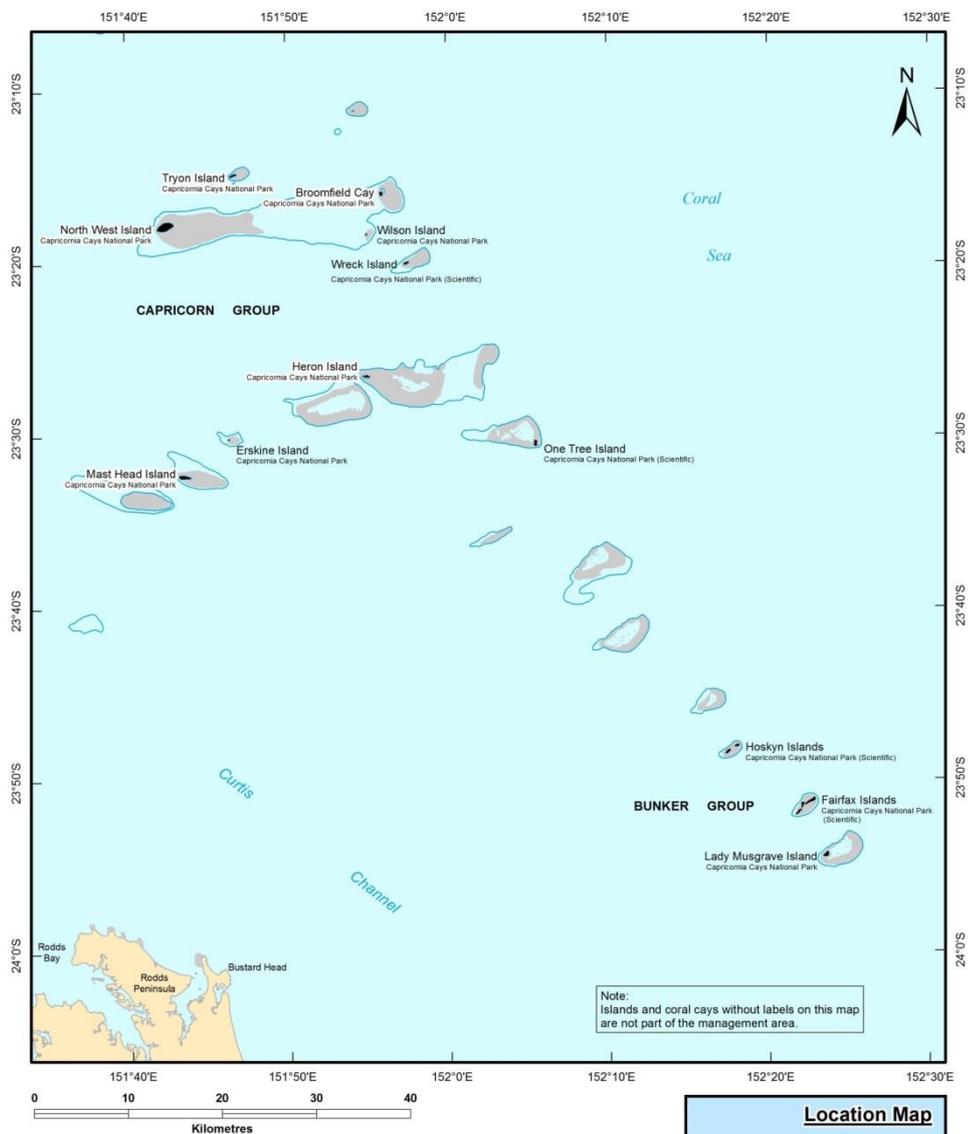
Appendix C – Animals and plants of conservation significance

Appendix D – Bird species of international significance

Appendix E – Visitor zones

Appendix A – Maps

Map 1 Location



Note:
Islands and coral cays without labels on this map
are not part of the management area.

Map Projection:
Unprojected - Geographics
Horizontal Datum:
Geocentric Datum of Australia 1994 (GDA94)

Map Production:
Spatial Services Group, Rockhampton,
Queensland Parks and Wildlife Service,
Department of National Parks, Recreation, Sport and Racing (NPRSR),
31 August 2012

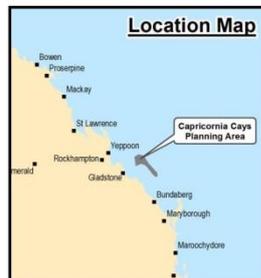
Disclaimer:
This map has been produced for the purposes
of discussion and comment. While the map
has been prepared with care, neither the
Queensland Government nor the Department
of National Parks, Recreation, Sport and Racing,
accepts any liability for any decisions or actions
taken by individuals or organisations on the
basis of this map.

Accuracy statement:
Due to varying source, accuracy or currency
of data layers used in this map, the spatial locations
of features may not coincide when overlaid.

Legend

- Island or coral cay
- Drying reef
- Coral reef boundary
- Planning area

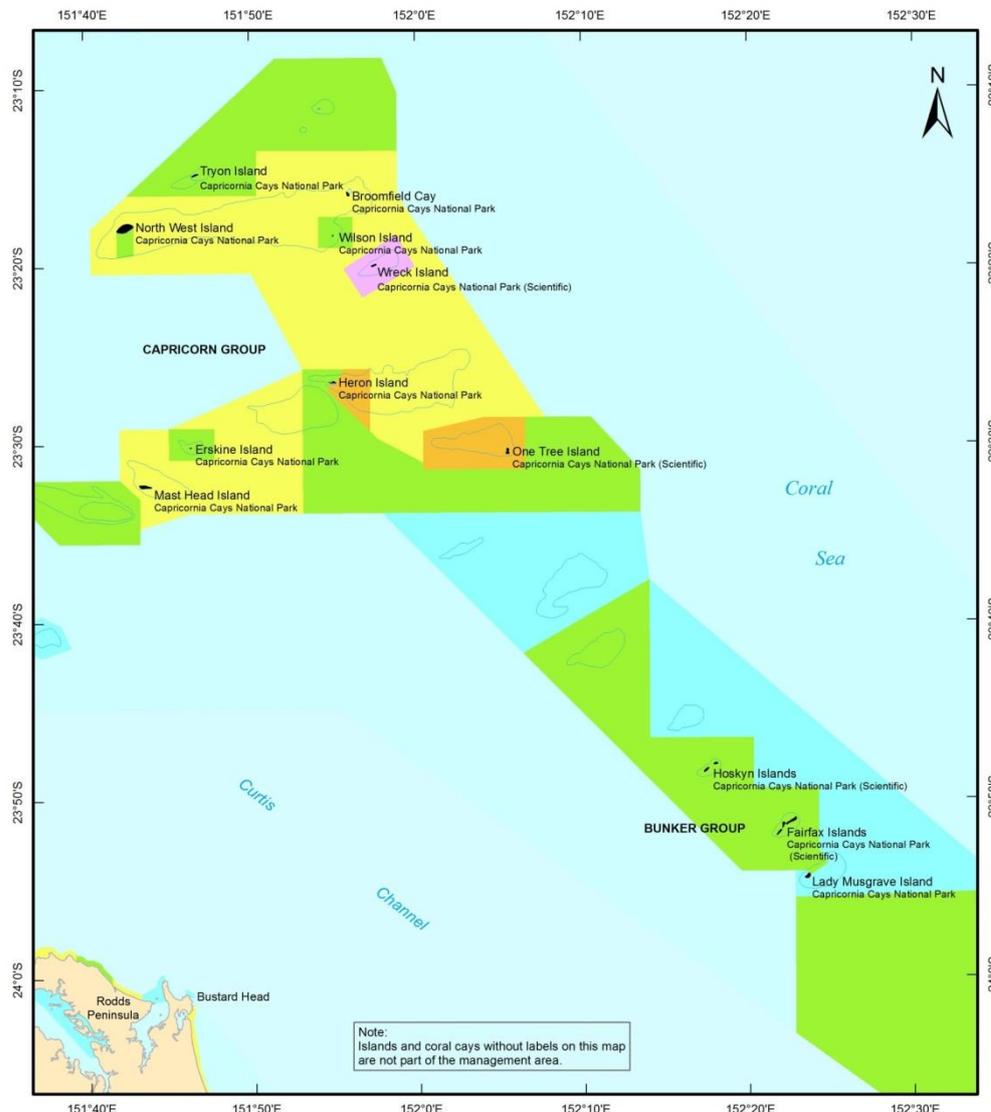
Source Material:
NPRSR - Protected Estates of Queensland; 2012
NPRSR - State Marine Parks (QLD)
GBRMPA - Reefs and cays
Geoscience Australia (GA) - Roads and towns; Current to date



2100: Working Area Units: International System of Units (SI) (meters)



Map 2 Great Barrier Coast Marine Park zones



0 10 20 30
Kilometres

Map Projection:
Unprojected - Geographics
Horizontal Datum:
Geocentric Datum of Australia 1994 (GDA94)

Map Production:
Spatial Services Group, Rockhampton,
Queensland Parks and Wildlife Service,
Department of National Parks, Recreation, Sport and Racing (NPRSR),
31 August 2012

Disclaimer:
This map has been produced for the purposes
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taken by individuals or organisations on the
basis of this map.

Accuracy statement:
Due to varying source, accuracy or currency
of data layers used in this map, the spatial locations
of features may not coincide when overlaid.

- Planning area
- Coral reef boundary
- Great Barrier Reef Coast Marine Park Zones (State)
- General use zone
- Habitat protection zone
- Conservation park zone
- Scientific research zone
- Marine national park zone
- Preservation zone

Source Material:
NPRSR - Protected Estates of Queensland; 2012
NPRSR - State Marine Parks (QLD)
Geoscience Australia (GA) - Roads and towns; Current to date

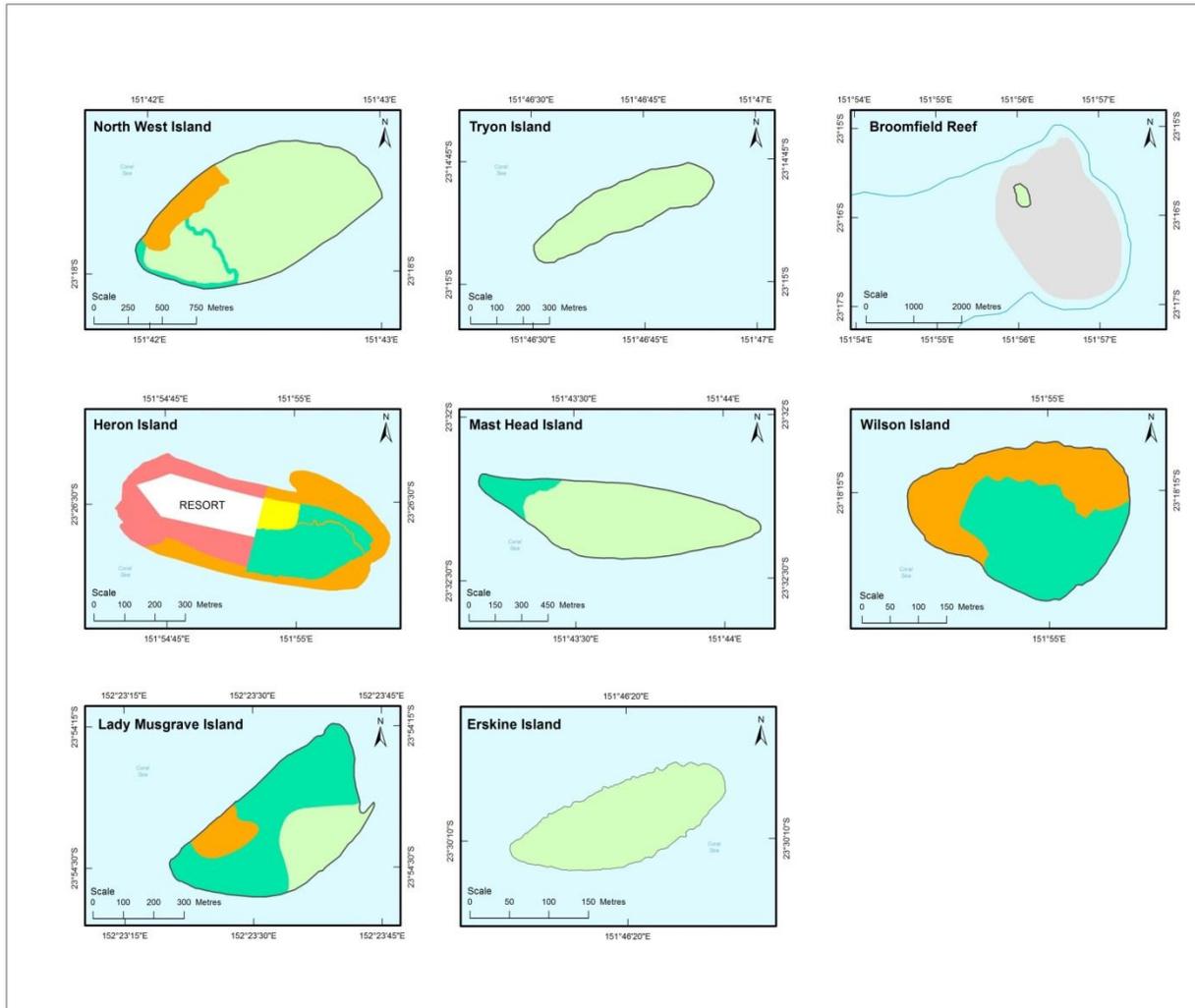


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Ref: ...Gis_Work\Ari_Vibe1_Planning_Strategy\Cap_Bunkers_MangPlan\Map2.mxd, AJPV

Map 4 Visitor zones



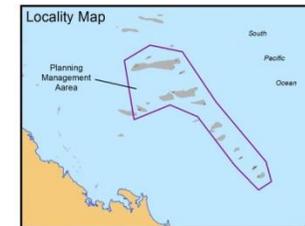
Map Projection:
GDA94 geographic
Horizontal Datum:
Geocentric Datum of Australia 1994 (GDA94)
Map Production:
Spatial Services Group, Rockhampton,
Queensland Parks and Wildlife Service,
Department of National Parks, Recreation, Sport and Racing,
6 September 2012.

Accuracy statement:
Due to varying source, accuracy or currency
of data layers used in this map, the spatial locations
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Queensland Government nor the Department of
National Parks, Recreation, Sport and Racing (NPRSR),
accepts any liability for any decisions or actions
taken by individuals or organisations on the basis of this map.

Source Material:
NPRSR - Queensland Protected Estates - March 2012
GBRMPA - Drying reefs and cays
Geoscience Australia - Topographical information

- Drying reef
- Coral reef boundary
- Visitor management areas**
- Visitor zone 1
- Visitor zone 2
- Visitor zone 3
- Visitor zone 4
- Visitor zone 5



Ref: 201102027; May 2012; AV

Appendix B – Definitions

Aircraft

Any machine supported for flight in the air by buoyancy or by dynamic action of air on its surfaces, including aeroplanes, seaplanes and gliders.

Beach

The area of the Great Barrier Reef Coast Marine Park between low water or reef flat and the landward boundaries of the Great Barrier Reef Coast Marine Park (Highest Astronomical Tide).

Commercial activity

Any activity that is conducted for gain is considered a commercial activity and can be conducted only under a permit or agreement. Examples of commercial activities include: the hire or sale of goods or services; supplying services or facilities; commercial photography and filming; undertaking a guided tour, safari, scenic flight, cruise or excursion; advertising or promoting the use of a protected area or recreation area as part of a tour, safari, scenic flight, cruise or excursion; and advertising or promoting the use of a protected area or recreation area as a feature associated with a resort or tourist facility.

Cultural heritage

The values which people place on the landscape and their experience of it including their knowledge and traditions, stories, songs, dances and relationships, as well as specific places, structures, and objects.

Endangered (species)

At the state level, endangered species are those species listed as endangered under schedule 2 of Queensland's Nature Conservation (Wildlife) Regulation 2006. At the national level, endangered species are those species listed as endangered under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*.

Intertidal area

The area of the Great Barrier Reef Coast Marine Park between low water and the landward boundaries of the Great Barrier Reef Marine Park.

Landscape Classification Settings (LCS)

A setting is a term used to describe the character of a place, which takes into account its physical, social and managerial features. Settings on parks range from high-volume areas with signs, toilets and car parks to wild, remote locations (EPA 2001)

A Landscape Classification Setting is a system, which is used to describe the natural, social and managerial characteristics of a site. Settings range from 1 (most natural) to 9 (most urbanised). See QPWS Operational Policy Landscape Classification System for Visitor Management.

Management principles of national parks

Under Section 17 of the *Nature Conservation Act 1992*, a national park is to be managed to:

- (a) provide, to the greatest possible extent, for the permanent preservation of the area's natural condition and the protection of the area's cultural resources and values; and
- (b) present the area's cultural and natural resources and their values; and
- (c) ensure that the only use of the area is nature-based and ecologically sustainable; and
- (d) provide opportunities for educational and recreational activities in a way consistent with the area's natural and cultural resources and values; and
- (e) provide opportunities for ecotourism in a way consistent with the area's natural and cultural resources and values.

The management principle mentioned in (a) is the cardinal principle for the management of national parks.

Motorised access

Any method of access which uses a vehicle either partly or fully powered by a motor. Includes four-wheel-drive, conventional and amphibious vehicles. It does not include aircraft.

Near threatened wildlife

Near threatened species are those species listed as near threatened under schedule 5 of Queensland's Nature Conservation (Wildlife) Regulation 2006.

Pest plants and animals

Any species, strain or biotype of plant, animal or pathogenic agent injurious to endemic biota or ecosystems.

Precautionary principle

Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

- careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and
- an assessment of the risk-weighted consequences of various options.

Protected area

An area of land or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

Regional ecosystems

The Queensland Herbarium has developed a program for explicitly mapping regional ecosystems across Queensland. This has resulted, and will continue to result, in updates to the descriptions and status of regional ecosystems. Therefore updated regional ecosystem descriptions are maintained in the Regional Ecosystem Description Database. The Queensland Herbarium assigns a biodiversity threat value to each regional ecosystem.

Special management area

Under Section 17 of the *Nature Conservation Act 1992*, the management principles for a national park are defined. Further to this a special management area can be created.

(1A) However if the whole or part of a national park is declared as a special management area, the management of the park or part may include –

- (a) for a special management area (controlled action), either or both of the following
 - i. the manipulation of the area's natural and cultural resources to protect or restore the area's natural or cultural values;
 - ii. the continuation of an existing use of the area consistent with maintaining the area's natural and cultural values; and
- (b) for a special management area (scientific), the following-
 - i. activities or measures to protect the area's exceptional scientific values;
 - ii. controlled scientific study and monitoring of the area's natural resources;
 - iii. the control of threatening processes relating to threatened wildlife, including threatening processes caused by other wildlife and controlling threatening processes by manipulating the threatened wildlife's habitat.

Vessel

A boat, hovercraft, personal water craft, ferry, barge, water taxi or other thing capable of carrying people or goods through water but does not include aircraft.

Visitor

Is anybody who visits a park or forest for recreational and education purposes rather than employment.

Vulnerable

At the state level, vulnerable species are those species listed as vulnerable under schedule 3 of Queensland's Nature Conservation (Wildlife) Regulation 2006. At the national level, vulnerable species are those species listed as vulnerable under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*.

Appendix C – Tables

Table 1: Vulnerable, endangered or near threatened native animals and plants for the management area.

Scientific name	Common name	<i>Nature Conservation Act 1992</i> status	<i>Environment Protection and Biodiversity Conservation Act 1999</i> status	Back on Track species prioritisation framework
Plants				
<i>Pisonia grandis</i>	pisonia	Least concern	—	High
Animals				
<i>Caretta caretta</i>	loggerhead turtle	Endangered	Endangered	Critical
<i>Chelonia mydas</i>	green turtle	Vulnerable	Vulnerable	Critical
<i>Esacus magnirostris</i>	beach stone-curlew	Vulnerable	—	High
<i>Haematopus fuliginosus</i>	sooty oystercatcher	Near threatened	—	Low
<i>Numenius madagascariensis</i>	eastern curlew	Near threatened	—	Not assessed
<i>Phaethon rubricauda</i>	red-tailed tropicbird	Vulnerable	—	Low
<i>Sternula albifrons</i>	little tern	Endangered	—	High
<i>Sternula nereis exsul</i>	fairy tern	New discovery	New discovery	Unknown

Table 2: Species listed in international agreements for the management area.

Scientific name	Common name	BONN	JAMBA	ROKAMBA	CAMBA
<i>Anous stolidus</i>	common noddy	—	✓	✓	—
<i>Ardea modesta</i>	eastern great egret	—	✓	✓	—
<i>Ardenna pacifica</i>	wedge-tailed shearwater	—	—	✓	—
<i>Arenaria interpres</i>	ruddy turnstone	✓	✓	✓	✓
<i>Calidris acuminata</i>	sharp-tailed sandpiper	✓	✓	✓	✓
<i>Calidris alba</i>	sanderling	✓	✓	✓	✓
<i>Calidris canutus</i>	red knot	✓	✓	✓	✓
<i>Calidris ferruginea</i>	curlew sandpiper	✓	✓	✓	✓
<i>Calidris ruficollis</i>	red-necked stint	✓	✓	✓	✓
<i>Caretta caretta</i>	loggerhead turtle	✓	—	—	—
<i>Charadrius bicinctus</i>	double-banded plover	✓	—	—	—
<i>Charadrius leschenaultii</i>	greater sand plover	✓	✓	✓	✓
<i>Charadrius mongolus</i>	lesser sand plover	✓	✓	✓	✓
<i>Chelonia mydas</i>	green turtle	✓	—	—	—
<i>Cuculus optatus</i>	oriental cuckoo	—	✓	✓	✓
<i>Egretta sacra</i>	eastern reef egret	—	✓	—	—
<i>Fregata ariel</i>	lesser frigatebird	—	✓	✓	✓
<i>Fregata minor</i>	great frigatebird	—	✓	✓	—
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	—	✓	—	—
<i>Hirundapus caudacutus</i>	white-throated needletail	—	✓	✓	✓
<i>Hydroprogne caspia</i>	Caspian tern	—	✓	✓	—
<i>Limosa lapponica</i>	bar-tailed godwit	✓	✓	✓	✓
<i>Limosa limosa</i>	black-tailed godwit	✓	✓	✓	✓
<i>Oceanites oceanicus</i>	Wilson's storm-petrel	—	—	✓	—
<i>Onychoprion anaethetus</i>	bridled tern	—	✓	✓	—
<i>Numenius madagascariensis</i>	eastern curlew	✓	✓	✓	✓
<i>Numenius phaeopus</i>	whimbrel	✓	✓	✓	✓

Scientific name	Common name	BONN	JAMBA	ROKAMBA	CAMBA
<i>Pandion cristatus</i>	eastern osprey	✓	—	—	—
<i>Pluvialis fulva</i>	Pacific golden plover	✓	✓	✓	✓
<i>Pluvialis squatarola</i>	grey plover	✓	✓	✓	✓
<i>Sterna dougallii</i>	roseate tern	—	✓	✓	—
<i>Sterna sumatrana</i>	black-naped tern	—	✓	✓	—
<i>Sternula albifrons</i>	little tern	✓	✓	✓	✓
<i>Sula dactylatra</i>	masked booby	—	—	✓	✓
<i>Sula leucogaster</i>	brown booby	—	✓	✓	✓
<i>Thalasseus bengalensis</i>	lesser crested tern	—	✓	—	—
<i>Tringa brevipes</i>	grey-tailed tattler	✓	✓	✓	✓
<i>Tringa incana</i>	wandering tattler	✓	✓	✓	—
<i>Tringa nebularia</i>	common greenshank	✓	✓	✓	✓
<i>Tringa stagnatilis</i>	Marsh sandpiper	✓	✓	✓	✓
<i>Xenus cinereus</i>	Terek sandpiper	✓	✓	✓	✓

Table 3: Recreation opportunities in the Capricornia Cays management area

Location	Information centre / shelter	Camping	Walking	Hiking	Toilets	Picnic area	Water supply	Boating	Canoeing	Diving / snorkelling	Fishing	Scenic flights	Guided tours	Resort / Private accommodation
Broomfield Island	-	-	* ₁	* ₁	-	* ₁	-	*	*	*	*	+	+	-
Erskine Island	-	-	* ₃	* ₃	-	* ₃	-	*	*	*	-	+	+	-
Fairfax Island	<i>Within Special Management Area(Scientific) – no public access</i>													
Heron Island	*	-	*	*	*	*	*	*	*	*	-	*	*	*
Hoskyn Island	<i>Within Special Management Area(Scientific) – no public access</i>													
Lady Musgrave Island	*	* ₂	*	*	*	*	-	*	*	*	*	*	*	-
Mast Head Island	-	* ₃	* ₃	* ₃	-	* ₃	-	*	*	*	*	+	+	-
North West Island	*	* ₂	*	*	*	*	-	*	*	*	*	+	+	-
One Tree Island	<i>Within Special Management Area(Scientific) – no public access</i>													
Tyron Island	<i>Temporarily closed due to biosecurity issue</i>													
Wilson Island	-	-	* ₁	* ₁	-	* ₁	-	* ₁	-	-	-	*	*	*
Wreck Island	<i>Within Special Management Area (Scientific) – no public access</i>													
Great Barrier Reef Coast Marine Park (adjoining Capricornia Cays)	-	-	-	-	-	-	-	*	*	*	*	*	+	-

+ = activities that may be permitted but may not be occurring at time plan was approved.

1 = no QPWS facilities provided.

2 = Open Easter (first day of Qld Easter school holidays) – Australia Day (day after Australia Day long weekend or day after Australia Day public holiday (if holidays falls mid-week)).

3. Open Easter (first day of Qld Easter school holidays) – 14 October.

Note – This table outlines recreation activities currently occurring and potential activities and opportunities that may be permitted. These activities may include activities that are not managed or provided by QPWS. This table was accurate at the time the plan was approved and is not meant to be exclusive of activities that may be identified in the future.

Table 4: Island and visitor site access and desired land classification setting (LCS)

Site	Access	Desired (LCS)	Description
North West Island – camping area	Open for campers between the commencement of Queensland Easter school holidays and end of Australia Day weekend. Closed for camping from the weekend after the Australia Day long weekend to the first day of the Queensland Easter school holiday period.	4	A very natural appearing site with some small permanent modifications. 5-10% of visual landscape modified. Ecosystem is substantially intact. Any structures are small but apparent. Moderate visitor impacts are evident. Sense of isolation is moderate to low with frequent opportunities for solitude. Some management presence. Regulatory and directional signs located at key points.
North West Island – walking track	Accessible to day-visitors year-round.	3	A very natural site with some small or minor semi-permanent modifications 1-5% of visual landscape modified. Ecosystem is substantially intact. Structures are inconspicuous if any. Temporary and minor visitor impacts may be evident. Sense of isolation is moderate with frequent opportunities for solitude. Dependency on outdoor skills and self-reliance is high. A minimum management presence. Signs are constructed where no other alternative can be found.
Lady Musgrave Island – camping area	Open for campers between the commencement of Queensland Easter school holidays and end of Australia Day weekend Closed for camping from the weekend after the Australia Day long weekend to the first day of the Queensland Easter school holiday period.	5	A somewhat natural appearing site. Modifications are permanent, moderately large and obvious. 10-25% of visual landscape modified. Structures are apparent, can be large but blend into their surrounds. Apparent evidence of use pervades nodes. Sense of isolation is low with infrequent opportunity for solitude. An occasional management presence. Interpretation, regulatory notices, boundary and directional signs sufficient to inform visitors.
Lady Musgrave Island – walking tracks	Accessible to day-visitors year-round.	4	A very natural appearing site with some small permanent modifications. 5-10% of visual landscape modified. Ecosystem is substantially intact. Any structures are small but apparent. Moderate visitor impacts are evident. Sense of isolation is moderate to low with frequent opportunities for solitude. Some management presence. Regulatory and directional signs located at key points.
Erskine Island and beach	Open from Easter to 14 October Closed 15 October to the first day of the Queensland Easter school holiday period.	2	An almost totally natural site. Minimal evidence of visitor impacts. <1% of visual landscape modified. 97-100% of natural vegetation intact. Short-term and insignificant visitor impacts. Sense of isolation is high and unlikely to share locations with others. A minimum management presence. Signs are constructed where no other alternative can be found.
Mast Head Island and beach	Open from Easter to 14 October Closed 15 October to the first day of the Queensland Easter school holiday period.	3	A very natural site with some small or minor semi-permanent modifications 1-5% of visual landscape modified. Ecosystem is substantially intact. Structures are inconspicuous if any. Temporary and minor visitor impacts may be evident. Sense of isolation is moderate with frequent opportunities for solitude. Dependency on outdoor skills and self-reliance is high. A minimum management presence. Signs are constructed where no other alternative can be found.
Heron Island – walking tracks	Accessible to visitors year-round.	5	A somewhat natural appearing site. Modifications are permanent, moderately large and obvious. 10-25% of visual landscape modified. Structures are apparent, can be large but blend into their surrounds. Apparent evidence of use pervades nodes. Sense of isolation is

Site	Access	Desired (LCS)	Description
			low with infrequent opportunity for solitude. An occasional management presence. Interpretation, regulatory notices, boundary and directional signs sufficient to inform visitors.
Tryon Island	Closed for rehabilitation. Island will be reopened for camping once the island's condition has been satisfactorily rehabilitated.	3	A very natural site with some small or minor semi-permanent modifications 1-5% of visual landscape modified. Ecosystem is substantially intact. Structures are inconspicuous if any. Temporary and minor visitor impacts may be evident. Sense of isolation is moderate with frequent opportunities for solitude. Dependency on outdoor skills and self-reliance is high. A minimum management presence. Signs are constructed where no other alternative can be found.
Broomfield Cay	Accessible to visitors year-round.	2	An almost totally natural site. Minimal evidence of visitor impacts. <1% of visual landscape modified. 97-100% of natural vegetation intact. Short-term and insignificant visitor impacts. Sense of isolation is high and unlikely to share locations with others. A minimum management presence. Signs are constructed where no other alternative can be found.
Wilson Island resort	Open for overnight visitors from March 2 to Australia Day weekend. (Excluding a maximum of two caretakers).	6	A somewhat natural appearing site. Physical changes as a result of visitor use are obvious. Modification of natural condition is evident with 25-50% of visual landscape modified. Apparent evidence of use pervades nodes. Very low sense of isolation with a very high or almost no opportunity for solitude. People visiting this site need little preparation to ensure their safety. A regular visible management presence. Comprehensive interpretation, regulatory notices and boundary and directional signs.
Wilson Island – remainder of island	Accessible to day-visitors year-round.	2	An almost totally natural site. Minimal evidence of visitor impacts. <1% of visual landscape modified. 97-100% of natural vegetation intact. Short-term and insignificant visitor impacts. Sense of isolation is high and unlikely to share locations with others. A minimum management presence. Signs are constructed where no other alternative can be found.

Appendix D – Visitor zones

The management characteristics and principles below provide guidance; however, activities and structures remain subject to the provisions of the managing legislation and the management principles for forests, protected areas and intertidal areas. Traditional use and emergency situations may override the setting characteristics and will be assessed on a case-by-case basis. NPRSR site and impact assessments may indicate that more or less visitors may be acceptable within particular zones.

Table 1: Visitor zones characteristics and principles.

Management criteria	Visitor zone 1	Visitor zone 2	Visitor zone 3	Visitor zone 4	Visitor zone 5
Description	Remote-Natural Pristine natural areas with minimal evidence of modern human activity. Usually large remote areas.	Natural Predominantly natural areas, with only slight disturbance. Inconspicuous evidence of modern human activity in small limited areas	Natural-Recreation Predominantly natural areas, with some disturbance and modern human activity apparent at specific sites	Recreation Mostly natural areas, but with disturbance and modern human activity apparent at some sites	Developed Modified immediate environment but with natural, rural or semiurban/urban background. Human activity conspicuous. Small areas usually near edge of a protected area.
Landscape	A totally, or almost totally, natural landscape LCS 1–2	A very natural landscape LCS 3	A natural landscape LCS 4	A somewhat natural landscape LCS 5–6	Managed parkland with some natural elements LCS 7–8
Visitor experience	Primitive recreation experiences Opportunity to be remote and isolated Encounters with other groups very unlikely Very high level outdoor skills required Environment with a very high degree of challenge	Semi primitive recreation experiences - non-motorised Frequent opportunities for solitude Encounters with other groups unlikely High level outdoor skills required Environment with a high degree of challenge	Semi primitive recreation experiences - motorised Less frequent opportunities for solitude Encounters with other groups likely - Some crowding/ traffic congestion at peak times. Moderate to low level outdoor skills required Environment with a moderate degree of challenge	Developed recreation experience Infrequent opportunities for solitude Encounters with other groups frequent - Some crowding/ traffic congestion at peak times. Low level outdoor skills required Environment with a low degree of challenge	Semi-urban/urban recreation experience No opportunities for solitude Encounters with other groups constant - Often crowded / traffic congested at peak times. No outdoor skills required Environment with no challenge

Management criteria	Visitor zone 1	Visitor zone 2	Visitor zone 3	Visitor zone 4	Visitor zone 5
Visitor facilities	No facilities or structures provided	No day-use areas. Undeveloped camping areas, and walking tracks may be present with no other facilities.	Basic campgrounds, day-use areas, walking tracks and facilities such as toilets, vehicle/vessel infrastructure, camp sites and lookouts.	Developed and hardened campgrounds, day-use areas, walking tracks and facilities such as toilets, vehicle/vessel infrastructure, camp sites and lookouts	Highly developed facilities such as major camp grounds, day-use areas, visitor centres and associated infrastructure
Signs, information and interpretation	Signs not permitted unless essential management signs required for resource protection but must be few and dispersed. Information and interpretation provided off-site only.	Minimal on-site orientation and enforceable management signs may be present. Information and interpretation provided off-site only.	Enforceable management, orientation and safety signs located at key points. Interpretive signs are rare and discreet. Information and interpretation provided on-site and off-site.	All sign types permitted and signs are common. Orientation signs are provided at all intersections and along roads and tracks. Information and interpretation provided on-site and off-site.	All sign types permitted and signs are common. Orientation signs are provided at all intersections and along roads and tracks. Advertising signs may be present but should not be large or obtrusive. Information and interpretation provided on-site and off-site.
Visitor access type	Walk-in, non-motorised vehicles and vessels only.	Walk-in, non-motorised vehicles and vessels only.	Motorised vehicles and vessels	Motorised vehicles and vessels	Motorised vehicles and vessels
Road access	No roads or vehicle tracks	Minimal roads/vehicle tracks present, restricted to authorised/management vehicles only <i>QPWS class UU and UN</i>	Unsealed roads suitable for 4WD vehicles only <i>QPWS class FN, UU and UN</i>	Unsealed or sealed roads suitable for conventional vehicles <i>QPWS class FU and FN</i>	Sealed roads suitable for conventional vehicles <i>QPWS classes FU and FN</i>
Track access	Map routes and unmarked trails <i>Walking track grades 5-6 No bike or horse tracks</i>	Unmarked trails and narrow formed tracks <i>Walking track grade 4-5 Mountain bike class 2-3 Horse trail class 3</i>	Narrow to wide formed tracks that may have hardened or compacted surfaces <i>Walking track grade 3-4 Mountain bike class 2-4 Horse trail class 1-2</i>	Wide, formed, hardened or compacted tracks <i>Walking track grade 1-3 Mountain bike class 1-5 Horse trail class 1-2</i>	Very wide, formed, hardened tracks <i>Walking track grade 1-2 Mountain bike class 1-2 Horse trail class 1-2</i>
Visitor Impacts	No evidence of visitor impacts	Inconspicuous evidence of visitor impacts.	Obvious and semi-permanent evidence of visitor impacts	Obvious and permanent evidence of visitor impacts	Obvious and permanent evidence of visitor impacts
<i>Visitor Sites in each zone must meet any QPWS standards for visitor site impacts and /or levels of service within the landscape setting range for that zone.</i>					

Table 2: Marine setting and principles in accordance with the Great Barrier Reef Marine Parks Act.

Setting	Description
Setting 1 (Developed)	Areas in this setting are immediately adjacent to urban areas and resorts. They are the access points to the management area and a focus for intensive tourism and recreation. The areas are heavily used by a wide range of craft, and contain permanent facilities (for example, marinas, jetties and boat ramps).
Setting 2 (High use)	This is a natural setting that may have high levels of visitation. The areas in this setting are easily accessed, and appropriate facilities (for example, pontoons, moorings, markers) may be required to manage impacts and assist in visitor appreciation of the area. The areas are regularly visited by larger vessels and aircraft.
Setting 3 (Moderate use)	This is a natural setting that may have moderate levels of visitation, with appropriate moorings and management facilities to manage impacts. The areas in this setting are occasionally visited by larger vessels and aircraft.
Setting 4 (Natural)	This is a natural setting that has low levels of visitation. The areas in this setting are generally free from facilities, larger vessels and aircraft.
Setting 5 (Protected)	This is a protected natural setting that has areas of outstanding or unique conservation value and areas of special management concern. Operations conducted in these areas are limited and managed according to individual site plans.