



Lalang-garram / Camden Sound Marine Park

management plan 73

2013–2023



Department of
Parks and Wildlife



dambimangari
Aboriginal Corporation

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Front cover photos

Main An aerial photo of Montgomery Reef. Photo – Kimberley Media

Top left Humpback whale. Photo – Kimberley Media

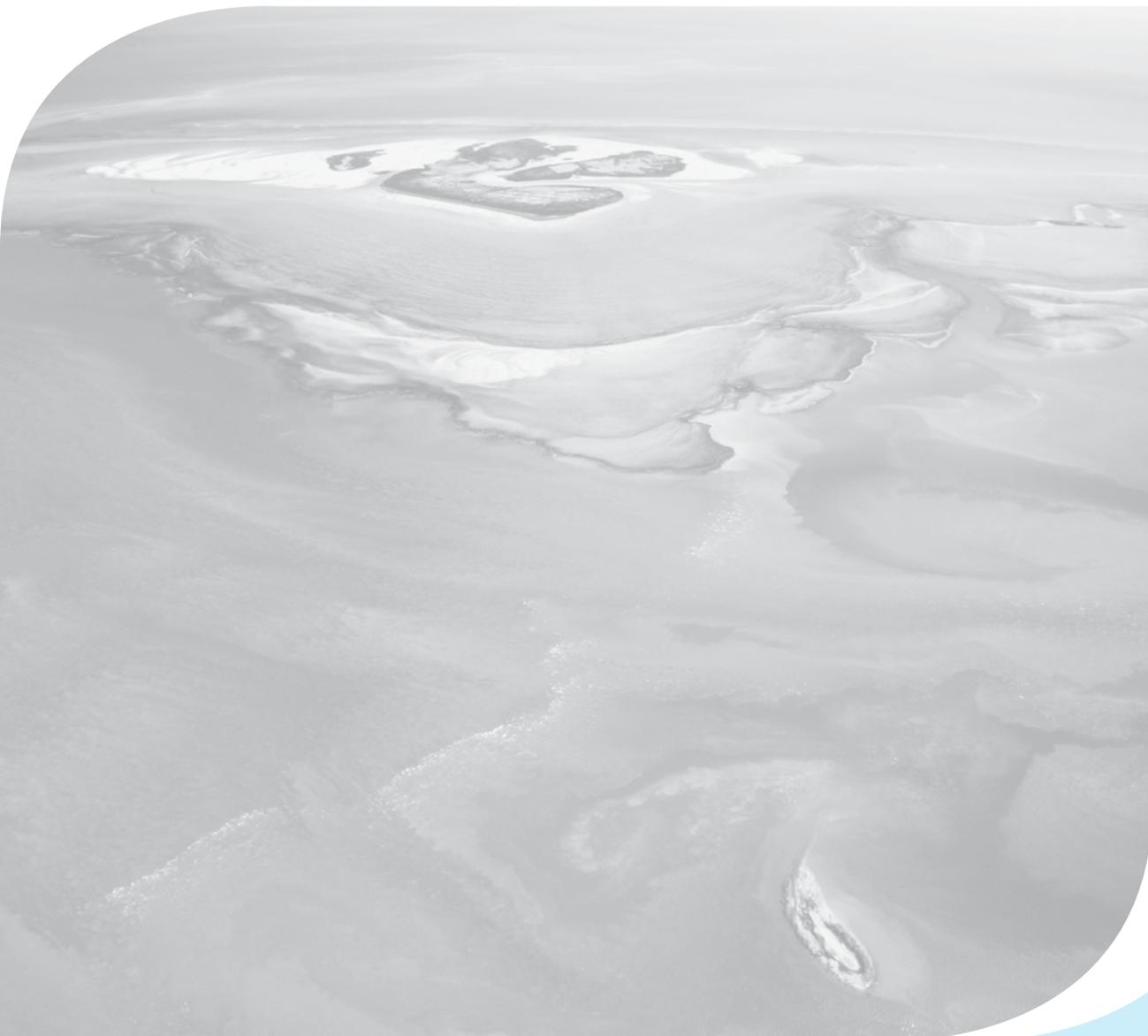
Top right Dambimangari Rangers undertaking dugong surveys. Photo – Todd Quartermaine

Header photo Langawurru (Hall Point) created by the Mother and Father Whales. Photo – Dr Kim Doohan



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Executive summary

The Kimberley region of Australia is one of the most biologically significant regions of the world, as well as the traditional homeland of numerous Aboriginal groups who have occupied their countries for countless generations. On 22 October 2010, the Western Australian Government announced a commitment to the Kimberley Wilderness Parks initiative under the Kimberley Science and Conservation Strategy. The initiative will result in Western Australia's largest interconnected system of marine and terrestrial reserves covering more than five million hectares. A key component of this initiative was the commitment to establish four marine parks: at North Kimberley, Camden Sound, Roebuck Bay and Eighty Mile Beach. On 28 January 2013 the government announced the intention to create an additional fifth park, the Horizontal Falls Marine Park.

The Camden Sound Marine Park was created on 19 June 2012 under section 13 of the *Conservation and Land Management Act 1984* (CALM Act). The marine park falls within the west Kimberley, which was recently added to the Australian National Heritage List because of its natural, Indigenous and historic values to the nation. The establishment of this marine park is a major step toward building a representative system of marine parks and reserves in Western Australia.

The subtidal portion of the marine park has been proclaimed and covers an area of approximately 673,000 hectares. The intent is to also include the intertidal area within the marine park which will extend the marine park to approximately 705,000 hectares. The marine park is located about 150 kilometres north of Derby (or 300 kilometres north of Broome) and lies within the traditional country of three Aboriginal native title groups. The Dambimangari people's determination overlies the majority of the marine park. A section of the Wunambal Gaambera people's Uunguu determination includes a small portion of St George Basin, while a small section of the Mayala people's claim (native title not determined at the time of writing) overlies the south-west corner of the marine park.

The marine park will be jointly managed with Traditional Owners, through a joint management body(s), where joint management agreements have been discussed and finalised with Traditional Owners. As part of a complex Indigenous culture-scape (derived from the Dreaming) that includes ocean waters, the seabed, reefs and land, the marine park is of ongoing cultural, economic and spiritual significance to its Traditional Owners. It is an area where they have long-standing connections, rights and interests, as has been recognised through the Dambimangari and Uunguu native title determinations (Map 3).

Name of the marine park

In order to reflect the significance of the marine park to its Traditional Owners, the senior Dambimangari woman, Mrs Janet Oobagooma, has suggested that the marine park be named 'Lalang-garram' which evokes the saltwater as a spiritual place as well as a place of natural abundance. Lalang-garram is the word in Worrorra (one of the Dambimangari native title group languages) that evokes 'the ocean' in its most general sense. The Dambimangari Traditional Owners chose this word to name the marine park for cultural reasons that respect the idea of 'saltwater', without meaning just one place or one part of their traditional country (DAC 2012, pers. comm.). In accordance with this advice, Camden Sound Marine Park has now been re-named as the Lalang-garram / Camden Sound Marine Park.

The quality and biological diversity of the marine environment in Lalang-garram / Camden Sound Marine Park is significantly due to the traditional care it has received over thousands of years from its Traditional Owners. The joint management of the marine park by Dambimangari (and other Traditional Owners where appropriate) and the state government will ensure that the quality and condition of the marine environment is maintained, and its cultural significance to Aboriginal people is both recognised and protected.

Joint management with Traditional Owners

The CALM Act was amended on 14 March 2012 to enable joint management of lands and waters by Department of Parks and Wildlife (DPaW) and other parties. A key focus of those amendments was to provide for joint management of conservation estate with Traditional Owners. The amendments to the CALM Act also introduced a new management objective to protect and conserve the value of the land (and sea) to the culture and heritage of Aboriginal persons. Other amendments to the CALM Act and the *Wildlife Conservation Act 1950* (WC Act), which were passed by Parliament in 2011, enable Aboriginal people to continue to carry out customary activities including fishing and hunting on lands and waters managed by DPaW, including the Lalang-garram / Camden Sound Marine Park.

This management plan and joint management arrangements take into account the values, aspirations and management objectives articulated in a number of Traditional Owner documents, including the North Kimberley Saltwater Country and Healthy Country plans (for example, *Dambimangari Healthy Country Plan 2012–2022* and *Wunambal Gaambera Healthy Country Plan 2010–2020*) and allow the determined native title rights and interests to be exercised without restriction, save to the extent otherwise agreed by the native title holders. Determined native title rights within the marine park include the right to enter, travel and remain on the waters; the right to hunt, fish, gather and use resources for personal, domestic and communal needs; the right to undertake cultural activities; and the right to take and use water.

The Western Australian Government has welcomed the initiative of the Dambimangari native title holders through their representative organisation, Dambimangari Aboriginal Corporation (DAC), in engaging in negotiations with the state towards an Indigenous Land Use Agreement (ILUA) and joint management arrangements. An ILUA with DAC will enable the intertidal areas to be formally reserved as part of the marine park and the execution of the Joint Management Agreement (JMA) attached to this management plan will allow formal joint management to commence over the subtidal portion of the marine park. While the marine park is currently reserved seaward of the low water mark, this management plan and attached DPaW-Dambimangari JMA will only apply over the subtidal area of the Dambimangari native title determination until an ILUA is registered and the intertidal area reserved as marine park. Following reservation of the intertidal area as marine park, this management plan and the attached JMA will apply over both the subtidal and intertidal areas of the Dambimangari native title determination within the marine park.

At the time of publication, the Western Australian Government and the Wunambal Gaambera (Unguu) native title holders were looking forward to commencing discussions to establish joint management arrangements over Wunambal Gaambera (Unguu) native title lands and waters.

Ecological and social values

The Lalang-garram / Camden Sound Marine Park provides protection for a large, biologically diverse and spectacular part of the Kimberley, while providing for sustainable use and enjoyment. The marine park recognises and provides special management arrangements for this remarkable place, which is a principal calving habitat of the humpback whale (*Megaptera novaeangliae*) population that migrates annually along Western Australia's coast. The marine park will help support the recovery of this species through implementation of protection and management mechanisms. The marine park also conserves a range of other marine ecological values in the Kimberley Marine Bioregion. It contains a range of species listed as having special conservation status including marine turtles, snubfin and Indo-Pacific humpback dolphins, dugong, saltwater crocodiles, and several species of sawfish. The park also includes a wide range of marine habitats and associated marine life, such as coral reef communities, rocky shoals, and the extensive mangrove forests and marine life of the St George Basin and Prince Regent River. The magnificent intertidal areas, including those of Montgomery Reef, will also be included in the marine park, subject to finalisation of an ILUA with Traditional Owners.

Reflecting the current state of knowledge, the key ecological values of the marine park are presented within this management plan within two broad themes:

- **habitat**—including both geomorphic habitat (such as rocky shores and platforms) and biological habitat (such as seagrass beds)
- **species of special conservation interest**—including species that are listed as having special conservation status (such as humpback whales), as well as species which are extracted for human use (such as targeted finfish).

The majority of visitors to the marine park arrive on cruise ships. The Kimberley commercial expedition cruise industry consists of more than 30 vessels operating multi-day cruises between Broome, Wyndham, Darwin and Cairns, and currently forms the largest component of the area's coastal tourism activities. There has been a significant increase in the number of operators over the past five to ten years. Cruise passengers participate in activities such as fishing, sightseeing and appreciation of Aboriginal cultural sites. The marine park will help to ensure that tourism is conducted in a culturally sensitive and ecologically sustainable manner that pays due respect to the Traditional Owners and their land and sea country.

Commercial fishing is an important economic activity in the marine park and in 2013 ten commercial fisheries were authorised to operate there, although a number of these do not regularly use the area. Recreational and commercial fisheries will continue to be managed by the Department of Fisheries (DoF) under an ecosystem-based fisheries management system. Fishing opportunities remain available in the majority of the marine park but are not permitted in the two sanctuary zones. In addition, trawling will be excluded from the special purpose zone (whale conservation) to reduce potential disturbance to humpback whales. Western Australia is the largest pearl producer in Australia, and the industry is one of Australia's most valuable aquaculture sectors. A large special purpose zone (pearling) has been established in the north of the marine park, located around Augustus Island.

Management arrangements in Lalang-garram / Camden Sound Marine Park

Marine park zoning

Sanctuary zones

'No-take' sanctuary zones have been established in the areas around the Champagne Islands and Montgomery Reef; they contain representative examples of a range of coral reef systems with abundant and diverse marine life. These zones cover about 135,300 hectares (approximately 19 per cent) of the marine park.

Special purpose zone (whale conservation)

A special purpose zone (whale conservation) with specific management arrangements has been established to enhance protection of humpback cows and calves in an important humpback whale calving area of Camden Sound. This zone covers about 168,000 hectares (approximately 24 per cent) of the marine park.

Special purpose zone (wilderness¹ conservation)

A special purpose zone (wilderness conservation) has been established for the conservation of representative examples of marine biodiversity to preserve, as closely as possible, the near-natural condition of the habitats, species and natural processes of this area. No extractive uses are permitted other than highly restricted recreational fishing. Special fishing rules apply that allow a personal possession

¹ 'Wilderness' refers to an area which is remote from and undisturbed by the influence of modern technological society. It is important to recognise that wilderness has, to some extent, been shaped by human hands through millennia of land management practices by Indigenous Australians (Department of Conservation and Land Management, 2004)

limit of one fish, or two fillets of fish (baitfish excepted), to maintain as closely as possible the natural abundance and population structure of fish communities. The zone covers about 24,600 hectares (approximately three per cent) of the marine park.

Special purpose zone (pearling)

A special purpose zone (pearling) in the Augustus Island area has been established in recognition of Western Australia's longest operating and largest cluster of pearling operations at Kuri Bay. The zone, which also provides for conservation outcomes, covers about 56,200 hectares (approximately eight per cent) of the marine park.

General use zone

Extensive general use zones have been established at St George Basin, the western offshore waters; the nearshore waters south of Hall Point; and the channel at Montgomery Reef. The general use zones cover about 320,900 hectares (approximately 46 per cent) of the marine park and provide for a wide range of uses.

Special measures for humpback whale conservation

The following management arrangements have been established to provide additional protection for, and reduce disturbance to, humpback whales and their newborn calves at their most vulnerable stage of life. Through the relevant joint management body(s), traditional ecological knowledge (TEK) held by the Traditional Owners of the park will be incorporated in the monitoring and adaptive management of these arrangements through:

- gazettal of a special purpose zone (whale conservation) covering approximately 168,000 hectares of the marine park
- increased vessel minimum approach distance from humpback cows and calves to 500 metres in the special purpose zone (whale conservation) and sanctuary zones, rather than the 100-metre minimum approach distance currently in place throughout the rest of Western Australia's coastal waters for humpback whales and cetaceans. Increased aircraft minimum approach distance will ensure helicopters and fixed wing aircraft do not fly below 500 metres (1,650 feet) above a humpback mother and calf
- exclusion of trawling from the special purpose zone (whale conservation)
- further research in collaboration with the relevant Traditional Owners to improve knowledge about the habitats of the marine park; the use of Camden Sound by humpback whales; and potential interactions or impacts of human activities with whales in the marine park
- consideration of the need and options for temporary access closures during the main calving season (approximately mid-July to early October) in the special purpose zone (whale conservation).

An outcome-based approach

The plan forms part of an outcome-based and auditable system of marine park management put in place by DPaW and the Marine Parks and Reserves Authority (MPRA). This means that there is a strong focus on whether or not the specific management targets are being achieved. The condition of key park values and the pressures acting on them will be monitored, and management responses applied in an adaptive management approach to achieve the desired outcomes.

Five-year review

A five-year review of the adequacy of the management plan will be undertaken by the MPRA supported by DPaW, joint management bodies and other agencies. The review will consider the adequacy of:

- the park's arrangements and delivery of programs to protect the value of the area in relation to the culture and heritage of Traditional Owners
- the management plan and delivery of programs in achieving biodiversity conservation and other objectives listed in the plan
- the management plan and delivery of programs in achieving enhanced protection of humpback cows and calves, particularly within the special purpose zone (whale conservation)
- the park's zoning scheme and delivery of programs for habitat representativeness and protection, including St George Basin
- the management arrangements for key ecological values in addition to humpback whales.

The state government has committed funding to the Western Australian Marine Sciences Institution (WAMSI) of \$12 million over five years to undertake research in the Kimberley region, including waters inside and outside of the five Kimberley marine parks. This research will assist in filling fundamental knowledge gaps for the management review. The five-year review of the management plan will provide robust information on progress and recommended actions to achieve the desired outcomes for the marine park.



Part A

1. Introduction

1.1 Marine parks and reserves: special marine places

Marine parks and reserves have been progressively established in Western Australia since 1987. Marine parks and reserves help to conserve marine biodiversity and provide special places for people to learn about, enjoy and appreciate the spectacular marine life of Western Australia.

Under the CALM Act, marine parks and reserves are vested in the Marine Parks and Reserves Authority (MPRA). The MPRA has a statutory function under the CALM Act to prepare marine park and reserve management plans through DPaW and to assess the implementation of management plans. The MPRA also provides independent advice to the Minister for Environment in relation to marine parks and reserves, and prepares policies to guide management.

DPaW will manage the Lalang-garram / Camden Sound Marine Park in partnership with Traditional Owners where a Joint Management Agreement has been agreed and attached to this management plan.

Both the Western Australian Government and the future Traditional Owner partners of the marine park are committed to enhancing the conservation of biodiversity and protection of Aboriginal cultural heritage values within the Lalang-garram / Camden Sound Marine Park. Within this management plan, there is a particular emphasis on providing special management arrangements for humpback whales and their newborn calves at their most vulnerable stage of life. The management arrangements also recognise the value of the marine park for a range of recreational and commercial uses. The conservation objective of the Lalang-garram / Camden Sound Marine Park is also consistent with Traditional Owner aspirations for ensuring that their saltwater country remains healthy, and for ensuring that no plants or animals are lost. ‘Traditional Owners have a strong commitment to manage biodiversity and look after many species and ecosystems in the lands and seas because of their cultural significance.’ (North Kimberley Saltwater Country Steering Committee 2012).

“For us, caring for our Saltwater Country is a matter of survival. Our marine resources, such as turtle, dugong, shellfish and fish have sustained us for thousands of years. Our future depends on how our Saltwater Country is used and managed by us and by others whose lives and livelihoods have come to depend on this region in recent times.”

(North Kimberley Saltwater Country Steering Committee 2012)

A set of overarching strategic objectives has been adopted for Western Australia’s marine parks and reserves:

- **Conservation** – Maintain and enhance marine biodiversity and ecological integrity.
- **Aboriginal culture** – Provide for the protection and conservation of the value of the area to the culture and heritage of Aboriginal people.
- **Science and education** – Encourage and promote scientific research and education.
- **Public participation** – Encourage and promote community involvement in and support for marine parks and reserves.



Figure 1: Dambimangari Aboriginal Corporation directors at Ngumbirri (Raft Point) (Alan Byrne)

- **Recreation** – Provide equitable and sustainable opportunities for recreational use and enjoyment, where appropriate.
- **Commercial** – Provide equitable and sustainable opportunities for commercial use and benefits, where appropriate.

1.2 Description of the Lalang-garram Camden Sound Marine Park

The Lalang-garram / Camden Sound Marine Park is located in Western Australia about 150 kilometres north of Derby (Map 1). It lies adjacent to the Shire of Wyndham East Kimberley.

The Lalang-garram / Camden Sound Marine Park, once extended to the high water mark, will cover an area of approximately 705,000 hectares. The northern boundary of the marine park meets the mainland coast at Brunswick Bay just south of Cape Wellington at approximately 15°10'51.6"S, 124°50'06"E, then extends south-westerly to 15°12'00"S, 124°48'45"E, then extends west along latitude 15°12'00"S to the limit of WA coastal waters. The southern boundary meets the mainland coast north-east of Montgomery Reef at approximately 15°52'36"S, 124°25'00"E, then extends south along longitude 124°25'00"E to latitude 16°03'00"S, then west along that latitude south of Montgomery Reef to longitude 123°45'00"E, then north along that longitude to latitude 15°55'00"S, then west along that latitude to the limit of Western Australian coastal waters.

The marine park encompasses a large marine embayment bordered by the Kimberley mainland to the east; Augustus Island (the largest island in the Kimberley) in the north; an elaborate arrangement of islands and reefs to the north-west and west; and a complex bathymetry of shoals, rock platforms and soft sediments in its south—including the waters surrounding Montgomery Reef (Yowjab), which is of cultural significance to the Dambimangari people. The marine park also includes St George Basin, a large tide and flood-influenced estuarine inlet containing a complex arrangement of habitat types.

1.3 Saltwater country

For the Traditional Owners their country is more than a simple geographic location with particular topography, flora, fauna and aesthetic qualities. The lives of the Traditional Owners of the marine park are characterised by richly constructed, deeply embedded, complex reciprocal relationships between themselves, their country and Lalai (the Dreaming).

For the Aboriginal Traditional Owners this park is a life-affirming entity, part of their ‘country.’ Country, both land and sea, is a rich tapestry of tangible and intangible elements derived from the actions of Creator Beings who are located in the ever-changing constant of the past–present–future continuum of Lalai.

Lalai is also called Dreaming, Dreamtime or Aboriginal Law in Kimberley Kriol. The term encompasses the rich body of Indigenous narratives about the era when the land, the sea, the heavens and all within them were created and named. It is the time when rules for social behaviour and caring for country were also formed. Evidence of these creative acts are found throughout the marine park in the form of natural and man-made formations including mountains, rivers, waterfalls, islands, mangroves, vine thickets, rock art, camping areas and stone arrangements. The histories or stories associated with them are found in song, narrative and art.

According to the traditions of the Dambimangari, Wunambal Gaambera (Uunguu) people and others of the Wanjina Wunggurr Community, the world was once soft and formless. Then, following actions by the many Creator Beings such as the Wanjina (as people and at the same time as creatures) and Wunggurr (the Snake), the world became a meaningful and bountiful place. According to the Traditional Owners, these beings created the ecologies and rules of the world, and populated the land and waters with the many different kinds of plants and animals, as well as people.

According to the Traditional Owners, some of the Creator Snakes came from inland and as they travelled towards the coast they created features of the natural world such as the Prince Regent River. Others came from and still live in the sea, and portions of their bodies remain as evidence of their continuing presence—their heads, their tails and their backbones form islands. Their potentially fatal powers are evident in the massive tidal movements of the region and the threatening whirlpools.

Wanjina appear as both male and female, and are understood to be the ancestors of people living today. They have a strong association with water, annual rains and cyclones; they are also seen as the cumulo-nimbus clouds of the wet season ‘build up’ when they are often called Aaja by Dambimangari people or Gulingii by the Wunambal Gaambera (Uunguu) people. There are Wanjina who belong to the mainland and others who belong to the coastal and saltwater realm. These saltwater Wanjina are associated with the creation and replenishment of marine ecologies and species. Their painted images can be seen in coastal and island caves.

Thus, for the Traditional Owners of this marine park, their saltwater country is a living and enlivened place. The term ‘saltwater country’ is used to demonstrate to others that their country—the salt and fresh water, reefs, islands, beaches, hard ground of the mainland or rivers, and the Lalai that made them—is singularly meaningful and spiritually important.

Aboriginal people see their responsibilities to their country and to those who visit it as very real and serious obligations under their Law and culture. There are rules for appropriate behaviour when in saltwater country and when visiting important cultural places. Under these rules and obligations the Traditional Owners are responsible for the safety and wellbeing of visitors to their country. The Traditional Owners themselves can be punished by the spiritual power in the country if they do not protect visitors. For this reason, visitors need to be properly welcomed to country and to be granted permission to access certain sensitive and culturally dangerous places (DAC 2012, pers. comm., WGAC 2012, pers. comm.).

1.4 European history

Phillip Parker King, one of Australia's greatest maritime explorers, anchored in Camden Sound in 1821 after threading through shoaling reefs and extreme tidal conditions, which occasionally caused his ship to run backwards or be caught in tidal whirlpools. Some of the maps prepared by King during his voyage are still in use today. While navigation charts are easily available to the modern mariner for most coastal areas, many areas in the Kimberley remain uncharted.

King named Camden Sound for the first Marquess of Camden, John Jeffrey Pratt, an English nobleman and politician who was a generous patron of the New South Wales colony in the early 1800s. Many of the names in the area were bestowed by King in recognition of friends, family and important people of the time. Montgomery Reef was named for Andrew Montgomery, the surgeon on King's 1821 voyage. St George Basin and other features named after a saint were named by King in appreciation of finding refuge and fresh water after a harrowing leg of his Kimberley journey. Other names of French origin, such as Champagny, were bestowed by the French explorer Nicholas Baudin who passed by the area in 1802.

1.5 Reserve tenure and native title

The land area of the Kimberley in the most part consists of Crown reserves including national parks and nature reserves, with many Crown reserves held in trust for Aboriginal people under the Aboriginal Affairs Planning Authority Act 1972 (Map 2). Aboriginal people with traditional and familial connection to the Camden Sound area are custodians of place, knowledge and culture. Three Aboriginal groups have native title determinations or claims in the area of the marine park. The Dambimangari determination overlies the majority of the marine park, with a section of the Wunambal Gaambera's Unguu determination overlying a small portion of St George Basin. A small section of the Mayala claim overlies the south-west corner of the marine park (Map 3). The Dambimangari and Unguu determinations include areas of both exclusive and non-exclusive native title (Map 3). Exclusive native title occurs in some areas adjacent to the marine park, such as coastal land and islands. Where exclusive native title exists, Traditional Owners have the right to possess, occupy, use and enjoy land to the exclusion of all others. Visitors accessing coastal lands and islands through the marine park should be cognisant of native title and may need to seek permission from Traditional Owners prior to visiting exclusive native title areas.

There are a variety of existing tenures in and adjacent to the Lalang-garram / Camden Sound Marine Park (Map 2). Reserve 23079 and Reserve 15530 are vested in the Aboriginal Affairs Planning Authority and administered by the Aboriginal Lands Trust. Reserve 23079 extends to the low water mark on the mainland but to the high water mark on islands including Montgomery Reef. Reserve 15530 extends to the high water mark.

Reserve 27164 is vested in the Conservation Commission of Western Australia and managed by DPaW as the Prince Regent National Park for the purpose of 'conservation of flora and fauna'. The national park currently extends to the low water mark. The intertidal portion may be included within the marine park in the future. Prince Regent National Park is listed as a World Biosphere Reserve under the United Nations Educational, Scientific and Cultural Organisations (UNESCO) Man and the Biosphere Program (United Nations Environment Program 1994). The proximity of the marine park to this important area provides opportunities for integrated management at the landscape and seascape scale.

Reserve 45499 is located on Degerando Island, at the southern point of the Champagny Island group. This reserve is for the purpose of 'navigation, communication, meteorology and survey'. It is located within Reserve 23079.

A number of small islands in the area remain unallocated Crown land; that is, they are not vested in a management body. Unallocated Crown land is administered under the *Land Administration Act 1997*.

Reservation of mainland and island intertidal areas between the low water mark and high water mark is a 'future act' under the Commonwealth *Native Title Act 1993* as intertidal areas are identified as an 'onshore

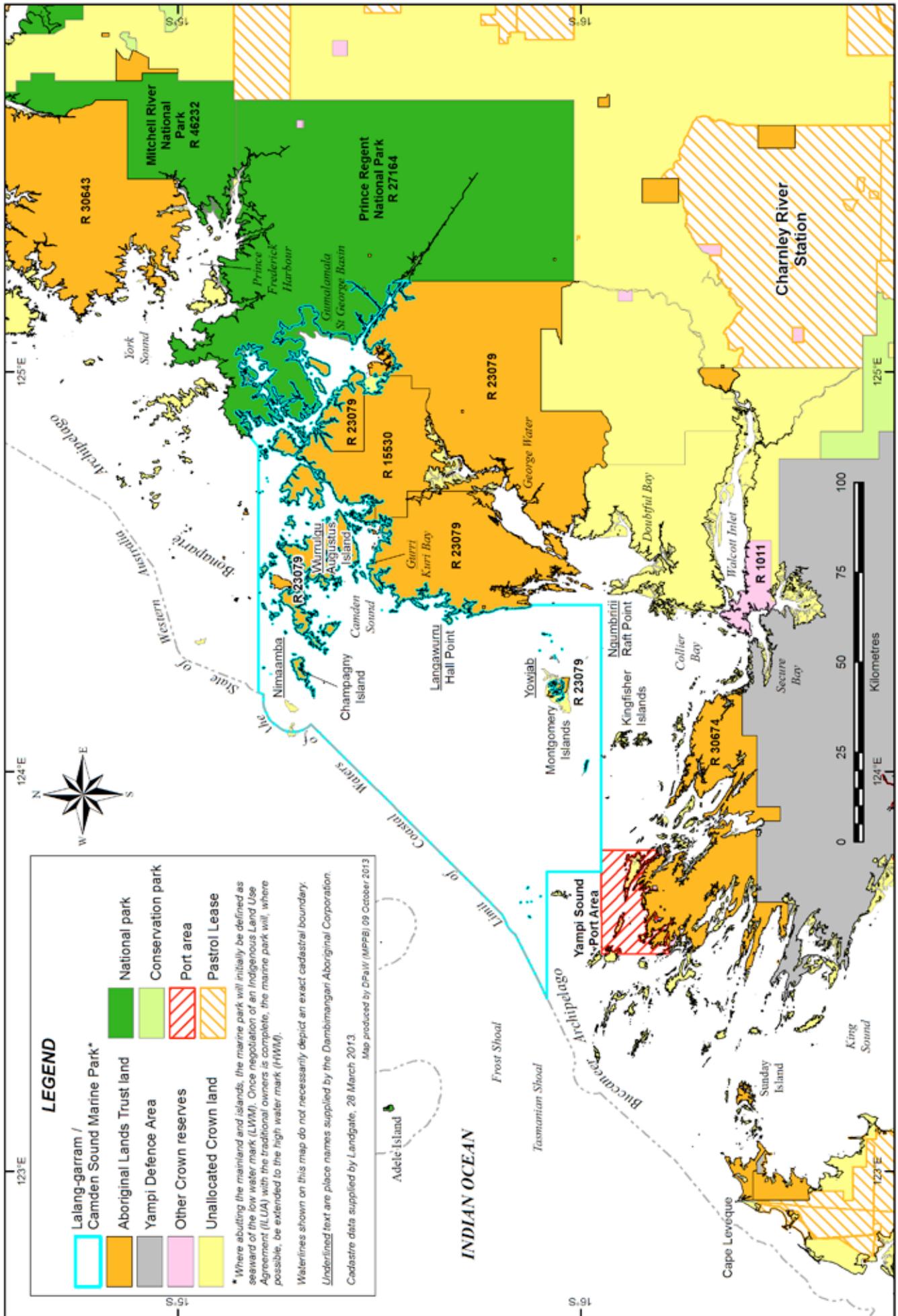
place'. The intertidal areas of the Lalang-garram / Camden Sound Marine Park are of important cultural significance to native title holders and claimants. The Dambimangari people, whose sea country extends over approximately 1,317,800 hectares (of which approximately 695,000 hectares occurs within Lalang-garram / Camden Sound Marine Park), are saltwater people who have been living along the coast for many thousands of years (Dambimangari Aboriginal Corporation 2012).² The extensive intertidal areas of the marine park also contain habitat and species of considerable marine conservation value. If these areas are not included the conservation value of the park is significantly diminished.

This management plan sets the framework for Lalang-garram / Camden Sound Marine Park to extend to the high water mark wherever possible. However the initial reservation action (on 19 June 2012) was to gazette the marine park boundary from seaward of the low water mark, pending finalisation of Indigenous Land Use Agreements (ILUAs) with native title holders. Once ILUAs have been agreed with Traditional Owners and registered with the National Native Title Tribunal, the second reservation action will be to reserve the park to the high water mark. The zoning and management arrangements outlined in this plan (including any attached Joint Management Agreements) will initially apply to only the subtidal portion of the marine park. Once the intertidal area is reserved, the zoning and management arrangements will apply to both the subtidal and intertidal areas of the marine park.

1.6 Security of tenure

Lalang-garram / Camden Sound Marine Park is a Class A reserve, which means that any changes to boundaries of the park require the tabling of a reservation order in both Houses of Parliament. Class A vesting provides high security to marine park tenure. By contrast, the zoning scheme and management plan can be amended after a public consultation period with the approval of the Minister for Environment, Minister for Fisheries, and Minister for Mines and Petroleum. This allows for adaptive management to be applied where necessary.

²NB: The figures quoted for area of Traditional Owner sea country may be slightly different to those quoted in the relevant Healthy Country Plans. The figures were calculated using the Native Title Determinations and Registered Claims datasets from the National Native Title Tribunal (October 2012), the WA coastline dataset from Landgate (August 2006), and the Lalang-garram / Camden Sound Marine Park dataset from DEC (January 2012).



MAP 2: Tenure within and adjacent to Lalang-garram / Camden Sound Marine Park.

Part B

2. Values

2.1 A vision for a special place

A jointly managed place for whales and other marine life to breed and thrive, and a place of coexistence and shared use between Traditional Owners and other visitors to the marine park.



Figure 2: Breaching whale, Lulim Island, Wilson Point (©Kimberley Media)

2.2 Aboriginal cultural connection

Three Aboriginal groups, the Dambimangari, Wunambal Gaambera (Unguu), and Mayala, have traditional country in the area of the Lalang-garram / Camden Sound Marine Park. Traditional Owners have determined native title rights and interests based on strong and ongoing cultural connections to the broader Camden Sound area. According to the Dambimangari and the Wunambal Gaambera (Unguu) Traditional Owners, they are the descendants of ancestors who were living in, benefiting from and caring for this country since the dawn of time. They believe that the record of this occupation is contained in their oral traditions and the galleries and stone arrangements in their country. Contemporary western archaeological research in the Kimberley region, including on Ngalaan-ngurru (High Clifty Island), shows that Aboriginal people have lived in the region for at least 30,000 years (O'Connor 1999).

Of the three Traditional Owner groups, the Dambimangari determination overlies the majority of the marine park and covers about 695,000 hectares of the park (almost 99 per cent of the area below high water mark). The Unguu determination covers about 7,000 hectares (approximately one per cent) of St George Basin; and the Mayala claim overlies about 2,600 hectares (approximately 0.4 per cent³) of the sea country in the south-west corner of the marine park.

³NB: The figures quoted for area of Traditional Owner sea country may be slightly different to those quoted in the relevant Healthy Country Plans. The figures were calculated using the Native Title Determinations and Registered Claims datasets from the National Native Title Tribunal (October 2012), the WA coastline dataset from Landgate (August 2006), and the Lalang-garram / Camden Sound Marine Park dataset from DPaw (January 2012).

The name for the Dambimangari Traditional Owners comes from Dambima meaning ‘homelands’ and Ngari meaning ‘belong to’. Uunguu is a term in Wunambal and Gaambera language that means ‘our living home’, and Mayala refers to the one tide that connects all of the Traditional Owners of the Buccaneer Archipelago (North Kimberley Saltwater Country Steering Committee 2010). Both the Dambimangari and the Wunambal Gaambera (Uunguu) people are Wanjina Wunggurr people, following the same beliefs of the Wunggurr (the Creator Snake) and Wanjina (Creator Ancestors) (Dambimangari Aboriginal Corporation 2012).

“We believe all the land, sea, heaven and all living things in our country were put there by Wanjina and Wunggurr. They made the law and rules by which we live. They set out the way we must look after Dambimangari culture, plants, animals, people and country to keep them healthy.”

(Dambimangari Aboriginal Corporation 2012)

“Our Wanjina Wunggurr culture is strong when mums and dads are using language and teaching their children language and cultural stories. Wanjina Wunggurr culture is strong when we are on country, in our living home, our Uunguu, learning about country, passing on knowledge about how to burn country, hunt, fish, collect, prepare and cook bush tucker the right way.”

(Wunambal Gaambera Aboriginal Corporation 2010)

The Dambimangari, Wunambal Gaambera (Uunguu) and Mayala are saltwater country people who use both bush and sea resources (North Kimberley Saltwater Country Steering Committee 2010). The Camden Sound seascape contains many places of cultural and spiritual importance to the Traditional Owners. The majority of these places and their associated meaning are poorly known to wider Australian society. Most occur on land, but many are sea-related. Registered sites include those with artefacts, ceremonial and mythological paintings, fish traps, burial grounds, quarrying, man-made structures and middens. Many sites are traditional camping grounds and are associated with fresh water, or have ceremonial or other types of cultural relevance. There are likely to be many sites that are not currently registered. All Aboriginal heritage sites, registered and unregistered, are protected under the *Aboriginal Heritage Act 1972*.

A range of customary activities, including use of marine resources, has occurred in the area for thousands of years. In the past, Aboriginal people living in the area travelled by mangrove raft and dugout canoe to the offshore islands to collect food from man-made fish traps and natural reefs. Saltwater fish, turtle, dugong, crocodile, crabs and oysters are important food sources for many Aboriginal people.



Figure 3: Family in a dugout canoe. Photo taken in 1926 by D S Wylie on an expedition to north-west Australia near Montgomery Islands (Held in National Library, Canberra)

The CALM Act and the WC Act have been amended to enable Aboriginal people to continue to carry out customary activities in areas managed under the CALM Act, including the hunting of dugong, turtle and crocodile, in keeping with traditional and cultural practice.

Both the Dambimangari and Wunambal Gaambera (Uunguu) people have developed Healthy Country plans which are an important source of guidance and aspirations for much of the marine park area.

The *Dambimangari Healthy Country Plan 2012–2022* indicates that there are many important cultural sites within and adjoining the marine park. Some of these are Yowjab (Montgomery Reef); Ngalaan-ngurru (High Clifty Island); Wurrulgu (Augustus Island) and its associated Wurroolgu Agungalangalangarri ('watering place'); Wijingarri Bard Bard (Freshwater Cove); the area around and adjoining Hall Point (Langawurru); Ngumbirri (Raft Point); Gumalamala (St George Basin); and many of the islands of the area. Cultural protocols mean that the Traditional Owners bear a responsibility for their sites of significance.

“Going to culturally significant places without a culturally appropriate guide brings up bad feelings and is against our law and culture. Going to a site without the right Traditional Owner makes these places unhealthy. Tourists visit sites on their boats and with helicopters without permission and without respecting cultural protocols. We as the Traditional Owners carry the responsibility for these sites from our ancestors. We are punished when our cultural protocols are not followed. When we invite visitors to our country with proper ceremony, visitors come with a free spirit. The smoke from the smoking ceremony acts as a shield that covers visitors so the spirit of the land accepts them.”

(Dambimangari Aboriginal Corporation 2012)

It is recognised that the marine park contains a number of Aboriginal heritage and cultural sites that are visited as tourist attractions. It will be particularly important for licensed commercial tour operators to build sustainable relationships with Traditional Owners, to obtain consent to visit such sites when required, and to operate in a culturally sensitive manner.

The management arrangements for the marine park will also complement the management objectives contained in a number of Traditional Owner documents, including the North Kimberley Saltwater Country and Healthy Country plans (for example, *Wunambal Gaambera Healthy Country Plan 2010–2020* and *Dambimangari Healthy Country Plan 2012–2022*). Many of the conservation targets relating to saltwater country in the Healthy Country plans are also consistent with the ecological values identified in the Lalang-garram / Camden Sound Marine Park. The guidance of such documents can greatly inform collaborative management efforts, including those that may be established through the registration of ILUAs and joint management agreements during the life of this management plan. As future joint management partners, DPaW will work with the Traditional Owners to use traditional ecological knowledge in developing and applying management targets for the ecological, social and cultural values of the marine park.

2.3 Ecological values

The key ecological values of the marine park are presented within this management plan in two broad themes:

- **species of special conservation interest**—including those species that are listed as having special conservation significance (such as the humpback whale), as well as species that are extracted for human use (such as targeted finfish)
- **habitat**—including both geomorphic habitat (such as rocky shores and platforms) and biological habitat (such as mangroves and seagrass).

Specified management targets have been set for the marine park’s ecological values. For all ecological

values, the intent is the maintenance of the natural diversity and abundance of native species and restoring of populations where feasible. Particular emphasis will be placed on the conservation of all ecological values (including whale calving habitat) within sanctuary zones and the special purpose zone (wilderness conservation), and the protection of humpback whale cows and calves in the special purpose zone (whale conservation).

2.3.1 Species of special conservation interest

Whales

The waters in the vicinity of Hall Point and extending north and south of it are part of a sacred Dambimangari whale (munumbanany) Dreaming song linked to the creation of reefs, rock formations, coastlines and tidal and current movements. The area is central to the pilgrimage of humpback whales to the Dambimangari country and is known to Traditional Owners as birthing and rearing grounds for humpbacks. A number of art sites and other culturally important sites are registered in the vicinity of Hall Point (Langawurru) as indicated in the *Dambimangari Healthy Country Plan 2012–2022*.

Whale species recorded in the marine park include the humpback whale (*Megaptera novaeangliae*), which is a threatened species declared to be rare or likely to become extinct under the WC Act; the minke whale (*Balaenoptera acutorostrata*); and the false killer whale (*Pseudorca crassidens*) (Jenner 2009, pers. comm.)—indicating that the marine park includes habitat for both baleen and toothed whales. Additionally, a small number of other specially protected whale species occurring in the Kimberley marine bioregion are sometimes seen in the marine park. It is unlikely these whales are resident for long periods as their preferred breeding and feeding areas are thought to be located outside the marine park.

Senior Traditional Owners Donny Woolagoodja and Janet Oobagooma explain how their ancestors have always known how important their saltwater country is to whales and other marine species. Their ancestors told them how Langawurru (Hall Point) is the whales ‘Dreaming place’. They know that whales come to this area to breed. They know—and it is enshrined in one of their creation narratives—that people and whales in close proximity can cause problems for both the whales and the humans (DAC 2012, pers. comm.).



Figure 4: Whales at Langawurru (Hall Point) (Joh Bornman)

“This is a story about the people who killed the Baby Whale in Lalai. When they killed the Baby Whale the Mother and Father Whales were so upset that they wanted to punish the people and so they made a big tunnel to break the country in half. They busted it with their arm (flipper); the Mother used her arm and the Father used his tail. They busted it and killed all the people because they were really upset that their Baby was killed. The Whale split the rock, hit it with his tail to kill the people.”

(Janet Oobagooma)

The Traditional Owners have always maintained a healthy respect for these magnificent creatures. There is also a ceremonial song and dance for this event. Senior Traditional Owners recall that when living at the Kunmunya mission their old people made a large whale-like figure out of spinifex grass and bush-vine twine and were dancing with it (DAC 2012, pers. comm.). Mrs Janet Oobagooma also explained that whales are more active when there is a lot of wind and that younger whales learn about sexual activity by observing their mother’s mating. Images of whales and dugong are also found in cave galleries in coastal regions (DAC 2012, pers. comm.).



Figure 5: According to Dambimangari tradition, Langawurru (Hall Point) was created by the Mother and Father Whales (Dr Kim Doohan)

Traditional Owners knew that travelling on a raft or canoe where there are whales could be dangerous. The old people instructed that ‘you have to hit the side of it (the canoe) to make the whale go away’ and also ‘to send a message to the whale so they know you are coming’.

(DAC 2012, pers. comm.)



Figure 6: A close bond exists between mother and calf (Micheline Jenner)

Humpback whales are known to inhabit the marine park in large numbers between June and November each year (Jenner *et al.* 2001) with peak occurrence from mid-July to early October. The Western Australian humpback whale population (known as Breeding Group D) is the largest humpback whale population in the world. This group migrates from Antarctic feeding grounds to breeding grounds along the Western Australian coast. Research in the Kimberley since the early 1990s has identified the Camden Sound area as a principal calving habitat for this population (Jenner *et al.* 2001). In 2008, the Western Australian humpback whale population was estimated to be approximately 21,750 (Hedley *et al.* 2009), with most of these whales likely to visit calving grounds along the Western Australian coast each season (Jenner 2009, pers. comm.). Humpback whales are provided special protection at state and national levels. The humpback whale population is estimated to have increased by 10 per cent since the 1990s and is still recovering to a pre-whaling population.

The marine park is the principal nursery area in the Kimberley marine bioregion for newborn humpback whales. Here, water temperatures during the calving season can reach 28 degrees Celsius, which is approximately two degrees warmer than the surrounding areas. Newborn humpbacks are four to five metres long at birth but almost completely lacking in insulating blubber. Humpback cows use the Camden Sound area to quickly build up their calf's protective blubber layer so that the metabolic strain for this warm-blooded mammal living in water is minimal during their first few critical weeks of life (Jenner 2009, pers. comm.).

The complex shoreline, depth and seafloor profile of the marine park is thought to provide numerous hiding places for humpback cows and calves as they seek protection from predators and aggressive bull humpback whales intent on mating. The warm, shallow water and complex shoreline makes this region an ideal calving and nursery area for this protected species. The principal calving area is thought to include the shallow waters of the eastern shorelines of the marine park (Jenner 2009, pers. comm.).

Two other known areas of importance for humpback whale aggregation in the Kimberley are the Frost and Tasmanian shoals to the north of King Sound, and an area to the north-west of the Lacepede Islands along the Dampier Peninsula. These areas are known to be high-density staging and resting stations on the humpback whale migration route (Jenner 2009, pers. comm.). Calves can also be born in these areas but preliminary research suggests that newborn calf numbers appear to be lower in these areas than in the Camden Sound area (Jenner 2009, pers. comm.). The Tasmanian and Frost shoals lie outside Western Australia's coastal waters but within the Commonwealth *Australian Whale Sanctuary* (EPBC Act s225, Australian Government 2005) and whales in the vicinity of the Lacepede Islands can be found both in state and Commonwealth waters.

The world's first whale 'sanctuary' was established in Western Australia's coastal waters in 1914 from Norwegian Bay north of Coral Bay to Point Cloates. This 'sanctuary' was established to protect a humpback whale calving region from land-based whaling operators. The management plan for the region, which was essentially a fisheries management plan, included provisions for licensing whalers working in the waters, limitations on the number of whaling vessels, and prohibitions on the killing of humpback cows and calves. Unfortunately, over time the intent of the 'sanctuary' was supplanted by an increase in sea-based whaling vessels (factory vessels), which were not subject to the management arrangements put in place for land-based operations (Holt 1983).

Humpback whales were first protected in the southern hemisphere by International Whaling Commission regulations. The internationally recognised Indian Ocean Whale Sanctuary in 1979 and the Southern Ocean Whale Sanctuary in 1994 provided humpback whales with some level of protection from whaling during their migration through the Southern and Indian oceans (Holt 1983, Bannister *et al.* 1996). All whales around Australia's coast are now totally protected from whaling under national and state legislation and policy.

Lalang-garram / Camden Sound Marine Park is a complementary measure for humpback whale protection and will contribute significantly to the continued recovery of this species.



Figure 7: Australian snubfin dolphin (Dr Deborah Thiele)

Humpback numbers were reduced to the brink of extinction in the 1800s and 1900s when they were hunted extensively throughout the world's oceans, resulting in elimination of an estimated 95 per cent of the world population. In Australia it is estimated that by the 1960s humpback whales were reduced to around only 3.5–5 per cent of their pre-whaling population. Research in the 1990s indicated that humpback whales increased in number by approximately 10 per cent in that decade. The number of humpback whales continues to increase although the population is still in recovery. Humpback whales require continued protection at state and federal levels to maintain their recovery. Special protection measures are not unique to Western Australia but are occurring worldwide in a concerted effort to protect this giant of the sea. As a major contribution to this effort, the state government is committed to the management of Lalang-garram / Camden Sound Marine Park to recognise and provide special management arrangements for this important place as a principal calving habitat of the humpback whale population (known globally as Group D), which migrates annually along Western Australia's coast.

Dolphins

Mangrove-lined shores are feeding habitat for the recently identified Australian snubfin dolphin; the Indo-Pacific humpback dolphin (both declared to be priority fauna under the WC Act); and the bottlenose dolphin (*Tursiops truncatus*). Dolphins also appear to favour areas where a greater complexity of habitat is found (Dr Deborah Thiele 2009, pers. comm.).

A study undertaken by an independent researcher has found that Deception Bay, the inlets of Augustus Island, Kuri Bay, and Prince Regent River are particularly important to these species (Dr Deborah Thiele 2009, pers. comm.). It is expected that spinner dolphins (*Stenella longirostris*) also occur in the area but may be more transient. Dambimangari rangers are contributing their traditional ecological knowledge of the tides, currents and seas to assist WWF and marine scientists to conduct research on the snubfin dolphin, in particular to determine population numbers and whether the species is likely to be threatened (Dambimangari Aboriginal Corporation 2012).

“All year round we see many different jigeedany (dolphins) hunting for fish and playing around. Often there are common dolphin and humpback dolphins in the blue open water. Closer to shore, in murky water near inlets and jirndim (mangroves), you will find the shy snubfin dolphins foraging.”

(Dambimangari Aboriginal Corporation 2012)

Dugongs

The dugong has a distribution that spans at least 37 countries. While most populations have declined and become fragmented, Australia is considered to be the core of the world's population. Dugongs are a

threatened species declared to be ‘specially protected’ under the WC Act. Dugongs are important to the Dambimangari and Wunambal Gaambera (Uunguu) people as important foods in their traditional diets. Both the Wunambal Gaambera (Uunguu) and Dambimangari people have identified dugongs as one of their key management targets in their Healthy Country plans.



Figure 8: A dugong up for breath (Dave Holley)

DPaW coordinates and implements a dugong management program to ensure that human activities are not detrimental to the long-term conservation and viability of the dugong throughout its range in Western Australian waters. Within Lalang-garram / Camden Sound Marine Park, Traditional Owners, through relevant JMB(s), will work in partnership with DPaW on strategies to sustainably manage dugong populations. Dugongs are known to be numerous around Montgomery Reef and are likely to occur in other parts of the marine park.



Figure 9: A marine turtle searching for prey near mangroves (DPaW)

Marine turtles

Of the world’s seven recognised species of marine turtle, four are known to breed on the coast and islands of northern Western Australia: the flatback (*Natator depressus*); green (*Chelonia mydas*); hawksbill (*Eretmochelys imbricata*); and loggerhead (*Caretta caretta*). The olive ridley (*Lepidochelys olivacea*) and leatherback (*Dermochelys coriacea*) turtles forage in and migrate through Western Australian waters. All these are listed under the WC Act as threatened species declared to be rare or likely to become extinct.

Marine turtles are important to the Dambimangari and Wunambal Gaambera (Unguu) people as an important food source. Both the Wunambal Gaambera (Unguu) and Dambimangari people have identified marine turtles as one of their key management targets in their Healthy Country plans. Marine turtles are numerous in the marine park. However, it is not known if or to what extent nesting occurs on island or mainland beaches.

DPaW coordinates and implements a turtle recovery plan to help prevent further decline of marine turtle populations and to facilitate their recovery throughout their range in Western Australia. This plan complements the *Recovery Plan for Marine Turtles in Australia* prepared under the EPBC Act (Environment Australia 2003). Within Lalang-garram / Camden Sound Marine Park, Traditional Owners, through relevant JMB(s), will work in partnership with DPaW on strategies to sustainably manage turtle populations.

“Jurluwarra (saltwater turtle) and warliny (dugong) are important to Dambimangari people as an important food source...they move along our coastline and through our neighbours’ country. Healthy saltwater country is important for them and we must work together to make sure that jurluwarra and warliny are plentiful for many generations to come.”

(Dambimangari Aboriginal Corporation 2012)

“Mangguru (marine turtles) and balguja (dugong) are important in our saltwater culture and traditional stories. Mangguru and balguja are important foods in our traditional diets...a healthy and clean saltwater country is important for mangguru and balguja.”

(Wunambal Gaambera Aboriginal Corporation 2010)

Saltwater crocodiles

Saltwater crocodiles hold a special significance for the Dambimangari people. Saltwater crocodiles breed in the mangroves and tributaries of St George Basin and Prince Regent River. Saltwater crocodiles were commercially hunted to near extinction for their skins and as a food source in the late 1800s and 1900s. Saltwater crocodiles are now recognised as a threatened species and are ‘specially protected’ under the WC Act.

Finfish

Two hundred and twenty-eight species of finfish were recorded during a survey of the central Kimberley coast in 1997, with 23 species being new records for the Kimberley (Walker 1997b). Gobies, damsel fish, and wrasses were found to have the highest species diversity. The diversity of finfish in the Kimberley was found to increase in relation to water clarity, water depth, and diversity of habitat (Morrison and Hutchins 1997). Studies on the diversity, abundance and composition of finfish communities associated with Kimberley reefs and soft substrata have also been undertaken by DoF and Murdoch University (Travers *et al.* 2006, 2010, 2012).

The significance of finfish in this region is well known by the Dambimangari Traditional Owners whose ancestors have recorded this value in the form of rock art, oral traditions, and stone arrangements. As indicated earlier, there are Wanjina who are specifically identified with the ocean and ocean species and phenomena including finfish. At a major gallery finfish are painted on the cave wall alongside one of the Saltwater Wanjina.

One of the epic narratives of the Dambimangari concerns the Rock Cod who, among many other things, is said to have created the complex of creeks and tributaries of the St George Basin in the Prince Regent region that form part of the diverse breeding habitat of the marine park.



Figure 10: Wanjina and the Fish at Ngumbirri (Raft Point) (Joh Bornman)



Figure 11: The Rock Cod is said to have created the complex drainage system of St George Basin (Landgate)

Many finfish have a planktonic life stage which synchronises with tides and seasonal water circulations and conditions. Some rely on both estuarine and marine waters to complete their life cycle, while others rely on the protective structure of habitats such as algae, seagrass and mangroves. Many components of marine ecosystems are therefore important for finfish reproduction and development.

Most research on marine finfish in the Kimberley has been undertaken by DoF and focuses on species of commercial and recreational fishing interest (DoF 2010).

At present there is limited information about finfish diversity and assemblages in the marine park. However, the diversity of habitat within the marine park is likely to result in a high diversity of finfish species. Several finfish species likely to be found in the marine park are afforded protection under the *Fish Resources Management Act 1994* (FRM Act).

Sharks and rays

Sharks and rays are known to be common in the Lalang-garram / Camden Sound Marine Park. The largest of all rays, the manta ray (*Manta birostris*) frequents the area indicating that plankton is abundant. Sharks are important high order predators, with species such as the hammerhead shark (*Sphyrna* spp.), tiger shark (*Galeocerdo cuvier*), blacktip shark (*Carcharhinus* spp.) and lemon shark (*Negaprion acutidens*) likely to be common. Ninety-four species, representing approximately 19 per cent of the world's known shark species, occur in northern Australia and a high proportion of these are likely to be found in the marine park.

Of the seven known species of sawfish found in the world, four are found in the north of Western Australia and are likely to occur in the marine park. Sawfish have slow rates of growth and low numbers of offspring, which means they may become threatened if not appropriately managed. Sawfish in Western Australia are vulnerable to gillnet fishing and trawling in upper reaches of estuaries and in rivers (Morgan *et al.* 2011). The DoF has declared all species of sawfish as protected under the FRM Act, meaning that they cannot be taken by recreational or commercial fishers. If caught as bycatch they are to be released alive when possible.

The cookie-cutter shark (*Isistius brasiliensis*) is found throughout Western Australian waters, and migrates from deep water to near the surface at night. Bite marks from cookie-cutter sharks can sometimes be seen on the skin of humpback whales. The northern river shark (*Glyphis garricki*) was described in 2008 and has recently been found in the Kimberley (Morgan *et al.* 2011).

Several shark and ray species likely to be found in the marine park are afforded protection under the FRM Act and WC Act.

The *National Plan of Action for the Conservation and Management of Sharks* provides nationally endorsed advice and guidance as to how the conservation and management of sharks can be integrated into management arrangements for target and non-target fisheries by the jurisdictions responsible for those fisheries (Australian Government 2004).

Seabirds and shorebirds

The Kimberley region is important on an international scale for seabirds, and migratory and resident shorebirds, but the significance of the marine park for these species is largely unknown. Some bird species are important to the Dambimangari and Wunambal Gaambera (Uunguu) people for cultural reasons and as a food source. Phillip Parker King recorded oyster catchers and sandpipers in 1821 (King 1827) but the Kimberley region has not been extensively surveyed. Waterbirds, including black-necked stork or 'jabiru' (*Ephippiorhynchus asiaticus*) and magpie goose (*Anseranas semipalmata*), are also seen in the tidal flats of St George Basin.

Mangroves and their associated invertebrate-rich mudflats are an important habitat for migratory shorebirds from the northern hemisphere. Up to 35 species of migratory shorebirds potentially occur in the marine park. These species are subject to the migratory bird agreements between Australia and Japan, China, and the Republic of Korea (JAMBA, CAMBA and ROKAMBA respectively); and, as listed migratory species under the EPBC Act, are matters of National Environmental Significance. Many other bird species may also be found in mangrove habitat including mangrove grey fantail (*Rhipidura phasiana*), broad-billed flycatcher (*Myiagra ruficollis*) and red-headed honeyeater (*Myzomela erythrocephala*). Striated herons (*Butorides striata*), black-necked storks and brahminy kites (*Milvus indus*) nest in the dense mangrove foliage and seek prey around the roots of mangrove trees.

It is likely that seabirds and shorebirds listed as threatened under the WC Act or EPBC Act, or listed on the IUCN Red List of Threatened Species (2009), occur within the marine park.

Molluscs

In 1997, a survey of the central Kimberley coast recorded 292 species of molluscs (Walker *et al.* 1996). This survey did not include mangrove habitat. Molluscs are believed to be less diverse in inshore habitat because of tidal scouring, potential for desiccation and seasonal freshwater inundation during the wet

season. Oysters may be common in some areas of rocky intertidal habitat. Oysters and other molluscs are important to the Dambimangari and Wunambal Gaambera people for cultural reasons and also as a food source.

Crustaceans

A survey of the central Kimberley coast recorded 89 species of crab, 80 species of shrimp and 19 species of barnacle (Walker 1997b). A number of species had limited range with one species recorded only in northern Australia (Hewitt 1997). Turbid inshore waters limit the presence of crustaceans and species diversity was highest at places with greater habitat diversity (Hewitt 1997). Mud crabs (*Scylla serrata*) are common throughout the marine park, mainly associated with mangrove habitat.

St George Basin is a known nursery area for banana and king prawns. This area is closed to commercial trawl fishing to protect juvenile stock (DoF 2010). Additional known nursery areas for prawns within the marine park include parts of Brunswick Bay, York Sound and Collier Bay. Tiger prawns occur in inshore areas of structured habitats such as seagrass and algal communities. During the wet season, the prawns move offshore into mud habitat where they are targeted by fishers. To reduce the potential for disturbance of humpback whales and calves from trawling vessels, trawling will not be permitted in the special purpose zone (whale conservation).

Echinoderms

There is little information available on echinoderms in the marine park. However, sea cucumbers (trepan) are found in sand areas throughout the Kimberley and form the basis of a small commercial fishery.

Sponges

Sponge-dominated areas have been recorded as occurring on and below reef edges between the mainland and small nearshore islands (Blakeway 1997, Heyward 2009, pers. comm.). Preliminary assessment indicates that many sponges may be undescribed and hence are likely to be new to science.

Table 1: Traditional owner names for ecological and cultural values of Camden Sound

Ecological values	Dambimangari	Wunambal (Uungu)
Whales	Ngununbany	Wuliji
• Humpback whale	Munumbanany/wuliji	
Dolphins	Jigidany	Yingarl
• Snubfin dolphin	Jigidan	Munumba
Dugong	Warlinya	Balguja
Sea turtles	Juluwarra	Mangguru/many
• Flatback turtle	Galagarri/kalakalari	Mardumal
• Loggerhead turtle	Mungidi/mowingrim	Lawarra
• Hawksbill turtle	Nowurralya	Maral
• Green turtle	Warli	Juluwarra
Turtle eggs	Ambirra	Amiya
Mangrove	Jirndim	Darrngarla
• Kapok mangrove	Lajinama	Wurndala
Oysters	Marlinja	Marlinju
Barramundi	Irleera	Munungjyunga
Saltwater crocodile	Goyoya	Balngga

Adapted from Dambimangari Aboriginal Corporation (2012) Karada *et al.* (2011) and Wunambal Gaambera Aboriginal Corporation (2010)

NB: The spelling for some Traditional Owner names for ecological values may have multiple versions which are not reflected in the table. Some marine animals, such as turtles, may have different names based on their life stage (babies vs adults).

2.3.2 Geology and geomorphology

The Kimberley is an area of global geo-heritage significance and the West Kimberley has recently been added to the Australian National Heritage List for its natural as well as Indigenous values. It is part of the saltwater country of the relevant Traditional Owners. Understanding this unique region and appreciating the values of the marine park requires taking into account both the western scientific as well as local Indigenous bodies of knowledge. Both are included below.

The region has extensive, intricately indented, rocky shores; numerous islands; unique coastal sediments; (Brocx & Semeniuk 2011) and extensive coral reefs (Wilson *et al.* 2011). Geology, sedimentary and volcanic rocks of the Kimberley Basin formed in the Palaeoproterozoic 2,500 to 1,600 million years ago now comprise most of the Kimberley mainland and islands. In the Camden Sound area the geology consists mainly of sandstone (Warton and Pentecost sandstones) and basalt of the Carson Volcanics. These formations were deposited in shallow seas and were later intruded by the 1,790-million-year-old dolerite.

According to the ancient oral accounts of the Traditional Owners of this region the formation of these significant features derived from particular events that occurred in the Lalai. Evidence of those events is now seen in the rocky (predominantly sandstone) coast featuring a diverse range of land and seascapes including majestic waterfalls, groups of islands and huge tides. For example, the rocky shores are the tangible evidence of a major battle between many Wanjina, some from the mainland and others from the sea. The standing eroded sandstone pillars are the final transformation of those Wanjina (DAC 2012, pers. comm.).



Figure 12: According to Dambimangari tradition, the sandstone pillars represent Wanjina standing during the battle at Garndirrim (Joh Bornman)

According to the Dambimangari, some of the islands are the exposed portions of the Creator Snake, his backbone or head. The whirlpools are the Wunggurr (Snake), the waves and the tides are all imbued with its power (DAC 2012, pers. comm.).



Figure 13: The Dambimangari believe the islands are part of the Creator Snake (Joh Bornman)



Figure 14: The Wungurr in its whirlpool form (Dambimangari Aboriginal Corporation)(Dr Kim Doohan)

St George Basin, like all the sounds and gulfs of the Kimberley, is a ‘ria’ or drowned river valley between the MacDonald Range, Marigui Promontory, Mount Trafalgar and Mount Waterloo. It is a marine and estuarine environment heavily influenced by freshwater flow from the Prince Regent River, which runs almost entirely straight along a fault through the King Leopold Sandstone. The basin and river contain some of Australia’s most spectacular coastal scenery, with sandstone cliffs falling directly to the sea. The Prince Regent River is influenced by tidal movements for much of its length.

“The Wungurr Snake created the Prince Regent River, travelling from the mainland to the sea – the head is at the ocean and the tail on the land.”

(Janet Oobagooma)



Figure 15: According to Dambimangari tradition, the snake’s creative path forms the Prince Regent River (Landgate)

“The actions of the Rock Cod and the Baler Shell created the St George Basin. The Baler Shell, in making her final resting place, forced the relocation of Ngayang-garnanya (Mt Trafalgar) to its current location. The mountain had to move to give the Baler Shell room for her new home. All the ‘Flat Head Fish’ (various species) assisted in the lift and moved the mountain from the basin to where it is today. Once they helped the mountain to move they held a corroboree.”

(Janet Oobagooma)



Figure 16: According to Dambimangari tradition, Mt Trafalgar was lifted to make room for the Baler Shell (Joh Bornman)

Camden Sound is a ria on the western section of the MacDonal Range. The small and large islands occurring in Camden Sound are remnant features formed by ancient sandstone and basalt rock formations with subtidal features offering a complex arrangement of habitat throughout the area. The coastal terrain is constantly eroding due to coastal processes and flood run-off down gullies and rivers, which comprise the most deeply eroded portions of the terrestrial landscape.

For the Dambimangari Traditional Owners Yowjab (the Montgomery Islands and reef) continues to be a very special and vital part of their country. The ecological complexity and fecundity of this living system is reflected in the traditional narratives that explain how the reef and islands were created and named. According to the Dambimangari, they were created by the actions of Wanjina in their human and non-human forms, such as marine creatures, coastal birds and the Wunggurr (Snake). In one account, all the Lalai Crabs and some of the Sea Birds moved rocks from the mainland and created Ngalaan-ngurru (High Cliffy Island). Another of the islands, one that supported Traditional Owners' ancestors as a homeland, has permanent freshwater and is named Wilijjarlu, which means 'the lung' (of the reef). Once completing their creations the Wanjina, in all their forms, went back to their caves where they can be seen today as painted images (DAC 2012, pers. comm.).



Figure 17: According to Dambimangari tradition, the island and the reef were created by Wanjina (Dr Kim Doohan)

According to Dambimangari tradition, the tidal movement of water in the reef system is associated with the tears of a Wanjina Woman and 'the eyes' of the Creator Snake. The Wunggurr's eyes were 'poked' by the Woman who was waiting for her son to return from hunting in the reef; he did not return. The people were living on the islands and hunting turtle. The Woman was sad and crying, which is why the saltwater rushes into and off the reef complex (DAC 2012, pers. comm.).



Figure 18: The islands and the reef with the tears of the Woman rushing (Dambimangari Aboriginal Corporation) (Joh Bornman)

“Her son went with the raft to hunt. At Montgomery Island, that is where they lived. Next day she cried, cried, and still he never came back. So she took her raft and went out into the sea looking for her son. She got angry with the saltwater and she said ‘you can have this’. The whirlpool was going around and she poked it in the eyes and it sucked her in and she died. The eyes are the Wunggurr, one eye is the whirlpool created by the neap tide and the other eye is the flood tide.”

(Donny Woolagoodja)

Montgomery Reef, a huge submerged rock platform (approximately 400 square kilometres in size), is a unique geomorphic feature of the Kimberley. Montgomery Reef consists of relatively young sediments of Quaternary to Recent age including calcareous coral and shell material overlying what is currently thought to be an ancient Pentecost Sandstone mesa overlaid with a dolomite formation and preserved stromatolites (Wilson & Blake 2011). Fossil conical stromatolite structures at Montgomery Reef and in the High Clifty Island group are estimated to be between 500 million and 1,800 million years old. The stromatolites in the High Clifty Island group belong to the taxon *Conophyton* and possibly represent a new species not yet known anywhere else in the western Kimberley (Grey 2009, pers. comm.).



Figure 19: High Clifty Islands on the rim of Montgomery Islands reef (Steve Blake)

The Montgomery Islands, lying on the Montgomery Reef platform, are host to mangrove forests. The deeper subtidal habitats are likely to be dominated by mud and sand. The edges of the reef and surrounding waters host a remarkable diversity of both sessile and mobile marine life. This marine life feeds on the reef top and is adapted to a wide variety of sea level fluctuation ranging from daily tidal movement to interannual variations in sea level, as well as flow of warmed water. Tides in the marine park can exceed 10 metres in amplitude. The reef platform drains continually on the low tide, but rarely empties, resulting in a shallow lagoon lying between the platform rim and the central islands. The rim of the reef is comprised primarily of rhodoliths rather than coral (Wilson and Blake 2011). The spectacle of massive structures emerging from the sea and the water cascading off the reef top as the tide rushes out makes Montgomery Reef a significant tourism attraction of the Kimberley.

In the north of the marine park are a series of islands, rocky shoals and coral reefs, including those around Augustus and Jungulu islands, as well as offshore reefs more than 50 kilometres from the mainland.

2.3.3 Habitats

The Indonesian throughflow is a warm, low nutrient, low salinity system of currents that carries water westward from the Pacific to the Indian Ocean through the deep passages and straits of the Indonesian Archipelago. This warm tropical water influences the character of the inshore and southward flowing Leeuwin Current along the Western Australian coast, which in turn facilitates the movement of tropical species southward along the coast into sub-tropical and temperate waters. Distribution of marine life in the marine park, and the Kimberley as a whole, is influenced by a range of factors including geomorphology, habitat types, tides and currents.

The intertidal area of the Kimberley is globally unique and has significant conservation value as there is nowhere else in the world where hypertidal seashores extend over such a large, complex and relatively untouched area of the tropics. The intertidal areas and their associated species and communities are influenced by the strong tidal movements. The monsoonal influxes of freshwater and land-derived nutrients are likely to have created distinctive tropical marine ecosystems.

The complex shorelines and embayments of the marine park provide a wide range of habitats and biodiversity, as well as resting and calving areas for humpback whales, and feeding areas for dolphins and other marine species.

High seawater quality is a key requirement of marine life and habitats, and provides for strong ecological connectivity. The salinity of seawater can be influenced by rainwater run-off from rivers and gullies with sediment-rich run-off affecting water clarity, nutrient levels, ecological function and bathymetry. Cyclones and storms also have a major influence on the seawater characteristics of the area.

Phytoplankton (microscopic plants) and zooplankton (microscopic animals) form the base of the marine food chain. Seawater facilitates transport of these and many larger organisms. Many marine species are dependent on the currents and tidal movements of seawater and its characteristics for the distribution of seed, eggs, larvae and juveniles. Even the large humpback whale is known to wait for beneficial tidal conditions before moving into or out of Camden Sound (Jenner *et al.* 2001).

The tidal movements and currents of the Camden Sound area are expected to be complex given the diverse seafloor bathymetry (depth profile), rocky shoals, islands and other emergent features. Understanding of the bathymetry, currents and other aspects of the oceanography of the area is incomplete. Water quality in the area is very high.

The following description of habitats represents an overview of current western scientific knowledge. However, and as noted earlier, the Traditional Owners of this saltwater country understand the complex and integrated nature of this unique region in a somewhat different way. They recognise that habitat health is both tangible and measurable, as well as something that is intangible and sometimes not easy to measure in western scientific terms. One example relates to mangrove communities being an indication of

a healthy habitat. Dambimangari Traditional Owners consider that when mangrove communities expand and intrude into areas that were once used as occupation sites or access routes then the habitat health is diminished. This observation is based on a very detailed local knowledge of coastal areas and not one that ‘scientists’, as visitors to the region, can easily record. The detailed local knowledge of Traditional Owners will be an important asset in the joint management of Lalang-garram / Camden Sound Marine Park.

2.3.3.1 Benthic habitats

Soft substrate – mud

Mud provides habitat for benthic in-fauna such as burrowing invertebrates and fish. Mud hosts an abundance of microalgae and bacteria that contribute to the productivity of burrowing, demersal and pelagic marine animals, including the commercially caught banana and tiger prawns. It is believed that soft substrate – mud is a widely distributed benthic habitat within the marine park.

Humpback whales are known to cover themselves in the sticky mud of Camden Sound, possibly to assist in the healing of wounds gained during mating battles.

(Jenner 2009, pers. comm.)

Soft substrate – sand

Sand habitat within the marine park is mainly associated with shorelines and inlets. Sand may consist of a variety of sediment coarseness, and may be littered with dead shell, rock and/or coral material. Sea cucumbers may be found in abundance ingesting sand to filter out microscopic food.

Small, isolated pocket beaches occur throughout the marine park on both mainland and island shores. Beach deposits examined on some islands in the Kimberley are composed of skeletal carbonate sand (Brooke 1997) but may also consist of sediments from inland areas carried to the sea by rivers and gullies. Generally, sand habitat is backed by dense mangrove stands or rocky cliffs.

Beaches may be highly influenced by tide and weather conditions and may overlie rock, which may result in beaches being ephemeral in nature. Some beaches may be used by turtles for nesting.

Hard substrate – rocky shores, platforms and shoals

A large portion of the marine park consists of intertidal and subtidal bare rock as an extension of the rocky mainland. Bare rock may be swept clean of marine life by strong tidal movements and regular sand inundation. Tidal movement of water may result in rock ‘islands’ forming between sand and/or mud bottom, and provide substrate for a diversity of marine life such as sponges and corals.

Rock may offer crevices and protective shelter for mobile species unable to resist strong tidal movements, or those seeking shelter from predators. Intertidal shoaling rock is common in the waterways of the marine park and may be difficult to detect at high tide. Intertidal rock habitats may host a variety of molluscs such as oysters, limpets, periwinkles and chitons, as well as crustaceans such as rock crabs and barnacles. Intertidal rock habitats can be exposed for many hours during low tides, subjecting sessile fauna and flora to desiccation (drying out), rainfall, and high levels of solar radiation.

The intertidal and subtidal reef platforms of Champagne Islands and Wild Cat Reef are expected to reveal many coral and sponge species that may be new to science, and may host species not found in other areas of the marine park due to their distance from shore.

2.3.3.2 Biological communities

Macroalgal assemblages

Various types of macroalgae occur on rock platforms intermingled with coral and sponge. There is a lack of information regarding the marine benthic flora of north-west Western Australia and no comprehensive marine flora list for the region (Huisman 2004). However, about 70 algae species were collected during a survey of intertidal reefs on the central Kimberley coast in 1997 (Walker 1997a) and they are important primary producers in these areas.

Algae in the Kimberley marine bioregion survive exposure (high temperatures and desiccation) during low tides by colonising rock pools. Algae is an important habitat on exposed reef as it provides a canopy that reduces exposure for intertidal organisms, including species trapped in rock pools when the reef top is exposed during low tides.

The diversity and abundance of algae may be low in the Kimberley, due to extreme tidal exposure and highly turbid waters reducing light penetration and resulting in deposition of fine sediments (Walker 1997a). However, the role of algae appears crucial to the growth of reefs in the highly turbid waters of the Kimberley coast and islands (Brooke 1997). *Sargassum* spp. and coralline algae may be dominant.

Seagrass communities

Western Australia has the highest diversity of seagrass in the world with 12 known species from the tropics, including one endemic, *Cymodocea angustata*. Seagrass is a direct source of food for species such as green turtles and dugongs. Seagrass may also act as a nursery for crustaceans such as prawns and juvenile finfish including the commercially important barramundi and threadfin salmon.

Surveys of the intertidal areas of the Kimberley have shown that seagrass is present in the region (Prince 1986, Walker and Prince 1987, Walker 1995 and 1997, Walker *et al.* 1996) but there is little information specific to the marine park. Seagrass was found to be well developed in areas where sediments are relatively fine and stable, such as inter-reef areas, during a recent survey undertaken off Broome (Fry *et al.* 2008).

Coral reef communities

In recent years it has become clear that the Kimberley contains a fringing coral reef province that is much larger than previously thought to exist there, and which rivals some of the largest reef systems (Masini *et al.* 2009). Maximum coral cover and diversity in the Kimberley occurs in the fringing reefs and sheltered bays, and in rock pools on more exposed intertidal rock habitats (Blakeway 1997).

Corals, including gorgonians and whips, are present on rocky substrate throughout the marine park, varying in size and depth and probably in a constant state of growth. Corals occur in the subtidal area around Montgomery Reef, and in the many rock pools on the platform where it is shaded from the sun by algae or rock ledges.

A large reef lying between Jungulu and Augustus islands has extensive corals on its edges (Dr Ray Masini 2009, pers. comm.). An initial survey of this reef by the Australian Institute for Marine Science in 2009 indicates moderate coral diversity and cover, particularly around the outer edges of the reef, with few corals across the intertidal reef top which is dominated by algae and sand (Heyward 2009). The large size of the reef suggests it provides significant habitat and feeding value for coral-associated organisms. A large fringing intertidal reef also occurs at the Champagne Islands across a variable depth range on both the seaward and lee side of the islands. Coral reef found in the northern part of the marine park is likely to be influenced by hydrological and tidal processes unique to the adjacent St George Basin and the Prince Regent River system.

Mangrove communities

Mangroves provide habitat for a wide range of birds, invertebrates and fish such as mud skippers, gobies and larger finfish species such as barramundi and mangrove jack (*Lutjanus argentimaculatus*). Mangrove communities are rich and diverse primary producers. Decomposing leaves provide food for microscopic organisms, which in turn provide for a variety of other animals. Mangrove forests also act as a nursery for many marine species and provide a rich source of food.

Mud crabs favour soft muddy bottoms where sediments remain wet amongst mangroves. Stilt-rooted mangroves are important roosting areas for black flying-foxes (*Pteropus alecto*) and other bat species in the Kimberley. Saltwater crocodiles, while being found throughout the area, often associate with mangrove habitat. Mangroves are often important high tide roost areas for migratory shorebird species such as whimbrel (*Numenius phaeopus*), grey-tailed tattler (*Tringa brevipes*) and terek sandpiper (*Xenus cinereus*).

2.4 Human values and uses

The joint management of this marine park will ensure the continuing connections and use by the Traditional Owners of the park, the conservation and restoration of the natural environment, the protection of indigenous flora and fauna, and the preservation of any feature of continuing cultural, archaeological, historic or scientific interest while providing opportunities for nature-based recreation, tourism and commercial uses where appropriate. Within this setting a range of human values and uses are recognised and will continue, consistent with management targets set for habitats and species of conservation interest in the marine park.

It is recognised that conservation estate, such as a marine park, has the capacity to satisfy an important portion of public demand for outdoor recreation and nature-based tourism, and in so doing contributes significantly to the social, psychological, physical and economic wellbeing of the community (DEC 2006). Management of use and visitation in the marine park is guided principally by the zoning scheme and permitted uses (sections 3.3 and 3.4), the management programs and actions (Section 3.5), the specified management targets (Section 3.6), as well as by the provisions of the CALM Act and *Wildlife Conservation Act 1950* (WC Act) in association with other government legislation relating to marine management (Appendix 2). DPaW's policy No. 18 *Recreation, Tourism and Visitor Services* provides specific guidance for recreation, tourism and visitor services within CALM Act reserves (DEC 2006).

Existing use and visitation within the marine park is generally seasonal, with the greatest use occurring during the northern dry season, between April and October.

2.4.1 Nature-based recreation and tourism

Rapid growth in tourism in the Kimberley has occurred in recent years resulting in some concern by government agencies, tourism operators, Aboriginal people and community about the lack of appropriate tourism and environmental management processes in the area (Scherrer *et al.* 2008).

Large luxury cruising vessels occasionally anchor in the Montgomery Reef area and offer a tour of the reef to passengers. These tours may involve over 40 people at a time accessing the reef at low tide. Montgomery Reef (Yowjab) is an important cultural site to the Dambimangari people. Through the implementation of this management plan, new arrangements will be developed for managing visitor access to culturally significant sites, including considering restrictions on walking on Montgomery Reef. Luxury cruise liners do not currently enter other parts of the marine park and are restricted by water depth.

The majority of smaller commercial cruise vessels passing through the marine park stop primarily at Montgomery Reef, Camden Harbour, St George Basin and the Prince Regent River (King Cascade). Overnight anchoring occasionally occurs in Camden Harbour, St George Basin and Prince Regent River.

Montgomery Reef and King Cascade were two of the most popular sites for visits by commercial expedition cruises in 2006 (TNS Social Research 2006). Passengers participate in activities such as fishing, sightseeing and on-land exploring, including appreciation of Aboriginal cultural sites. They also undertake whale watching activities in the area.

Under the *Fish Resources Management Act 1994* (FRM Act), all aquatic tourism (extractive, non-extractive boat and non-boat based operations) is required to be licensed. However, in a marine park non-extractive aquatic tourism operators must be licensed by DPaW under the CALM Act and do not require a licence under the FRM Act.

Recreational fishing licences are required for a number of recreational fishing activities including fishing from a powered vessel, catching rock lobster and the use of nets. Only throw nets are permitted in the Kimberley and no recreational set or haul netting is permitted.

Kimberley land and seascapes provide unique opportunities for recreational fishers. A small scale commercial aquatic tourism fishing business is based at Wijingarri Bard Bard (Freshwater Cove) on the mainland adjacent to Montgomery Reef. This fishing venture provides safari-type accommodation. Freshwater Cove is accessible only by seaplane, helicopter and boat. The business is managed in partnership with Dambimangari people and fishing activity is undertaken within a 15-kilometre radius of Freshwater Cove, including occasional visits to Montgomery Reef. Fishing is a popular activity for visitors to the area with anglers targeting a range of species including barramundi, mackerel, trevally, grouper and shark.

Visitation to the marine park is expected to increase over time as the Kimberley region's reputation as a premier nature-based tourism destination grows. DPaW will work in partnership with the relevant JMB(s) to ensure that the granting and renewal of commercial tour vessel licences are consistent with the permitted uses and management targets for the marine park. Use and visitation will require careful management to ensure that the ecological, cultural and social values of the marine park are conserved, and that visitor experiences are maintained. In addition, DPaW will work with Traditional Owners through joint management bodies to develop education and interpretation programs to raise visitor awareness of areas of cultural and ecological significance within the marine park.

2.4.2 Maritime heritage

Sites of significant maritime heritage are of general interest to many people visiting the Kimberley as the area has a rich history of exploration and use.

The three distinct overlapping phases of maritime cultural activity identified in the Camden Sound area are:

- Aboriginal activities
- Macassan seafaring activity and trepang (sea cucumber) harvesting (c. 17th–20th century)
- European exploration and activities (pre and post colonisation of Western Australia) (Souter 2009, pers. comm.).

Two shipwrecks are known to have occurred in the marine park: the *Calliance* and the *Enchantress*. There may be other unrecorded shipwrecks and underwater maritime heritage in this area, including pearling luggers and colonial coastal vessels (Souter 2009, pers. comm.). Camden Harbour is a favoured destination for commercial expedition cruises because of its heritage interest. It is also a relatively safe anchorage for visiting vessels.

2.4.3 Commercial fishing

Several commercial fisheries are licensed to operate within the waters of the marine park: Marine Aquarium Fishery, Specimen Shell Fishery, Beche de mer Fishery, Mud Crab Fishery, Kimberley

Prawn Managed Fishery, Mackerel Managed Fishery, Kimberley Gill Net and Barramundi Managed Fishery, Northern Demersal Scalefish Managed Fishery, Western Australian North Coast Shark, and Joint Authority Northern Shark Fisheries. The northern shark fisheries are currently inactive. In addition, the Commonwealth-managed Western Tuna and Billfish Fishery is entitled to operate in these waters. While these fisheries are authorised to operate in the waters of the marine park, many do not regularly fish this area.

Commercial fishing is permitted in the marine park in general use zones and in the special purpose zone (pearling) if it is compatible with the specified purpose of that zone. Commercial fishing is not permitted in sanctuary and special purpose (wilderness conservation) zones. To reduce the potential for trawling to disturb humpback whales and their calves, trawling is not permitted in the special purpose zone (whale conservation). However, other types of commercial fishing are permitted. DoF will continue to manage fisheries in the marine park and all commercial fishing activity remains subject to any restrictions applied under the FRM Act. Further information about commercial fisheries operating in the marine park is provided at Appendix 3.

2.4.4 Pearling

Long before the arrival of Europeans, Aboriginal people along the west Kimberley coast collected the large pearl shell (*Pinctada maxima*) for use in rituals and ceremonies. It is the most widely distributed item in Aboriginal Australia, traded across two-thirds of the continent (SEWPC 2012).

Western Australia is the largest pearl producer in Australia and the industry is one of Australia's most valuable aquaculture sectors. The industry is also a major contributor to the regional economy through wages, gear, fuel and other provisions that are required for its operation. As at 2013, there are 13 pearling leases operating within the marine park (Map 4).

Successful pearling requires high water quality as it involves hanging the pearl oysters in panels in the water column to keep them flushed with nutrients and to remove wastes. Research undertaken by the University of Newcastle concluded through multiple lines of evidence that benthic conditions beneath pearling operations in the Kimberley coast are within the bounds of natural variability compared with areas not used for pearling (Jelbart *et al.* 2009). Pearling operators liaise closely with DoF in evaluating the potential risk of marine-borne disease and introduced marine pests being transported into areas of operation.

The Minister for Fisheries has issued a pearl transport exemption area notice for the pearling group operating in the marine park, which allows pearl oysters and gear to be transferred between leases to maximise the growth of pearls. The 'transport exemption zone' allows the industry to moor boats and process pearl oysters outside lease areas, and provides for other activities that support pearling operations.

Pearling leases are not exclusive-use areas. Other users can move through the lease area provided they do not interfere with pearling gear or pearl oysters. Navigation markers must be placed around the working area of the lease to enable safe navigation (DoF 2010).

Both the CALM Act and *Pearling Act 1990* provide for pearling in marine parks and reserves. The Acts specify that pearling is permitted in a marine park general use zone and special purpose zone if it is compatible with the specified purpose of the zone. Pearling leases that exist prior to the establishment of a marine park have a right of renewal and cannot be displaced by the creation of a marine park. New proposals for pearling leases will be assessed on a case-by-case basis by DoF in liaison with DPaW, the MPRA and other stakeholders. The Minister for Environment's approval is required before the Minister for Fisheries grants a new pearl lease area within a marine park. In addition, the pearling industry adheres to ministerial policy guidelines issued under the *Pearling Act 1990* and other non-statutory arrangements such as the Pearling Industry Code of Conduct.

2.4.5 Mineral resources

Mining has not occurred within the marine park and there are no petroleum tenements within the area of the marine park. As at early 2013, there is one granted (live) exploration licence issued within the marine park. This exploration licence allows exploration for iron ore and other minerals. Iron-rich sandstone has been reported in the Pentecost Sandstone, south-west of Deception Bay, which is a possible continuation of the iron-bearing beds at Yampi. There are a number of copper and copper-silver mineral occurrences in the Heywood Islands, Augustus Island and adjoining mainland region, and a gold occurrence south of Camden Harbour, indicating potential for base and precious metal mineralisation.

Seismic surveys may be permitted in a marine park subject to environmental impact assessment processes. Management of seismic surveys to avoid or minimise potential risks to cetaceans involves using precautionary measures aimed at preventing injury and minimising the risk of behavioural changes. These are generally required under state and federal government approvals processes (Australian Government 2008a).

In Class A marine parks mining activities require concurrence from the Minister for the Environment and parliamentary approval. The Minister for Fisheries must also be consulted and provide recommendations. The CALM Act specifies that mining and petroleum exploration and production is permitted in a marine park general use zone or special purpose zone if it is compatible with the specified purpose of a special purpose zone. Mining and petroleum exploration or production proposals within or adjacent to the marine park would require assessment of the environmental and cultural impacts. This may include assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

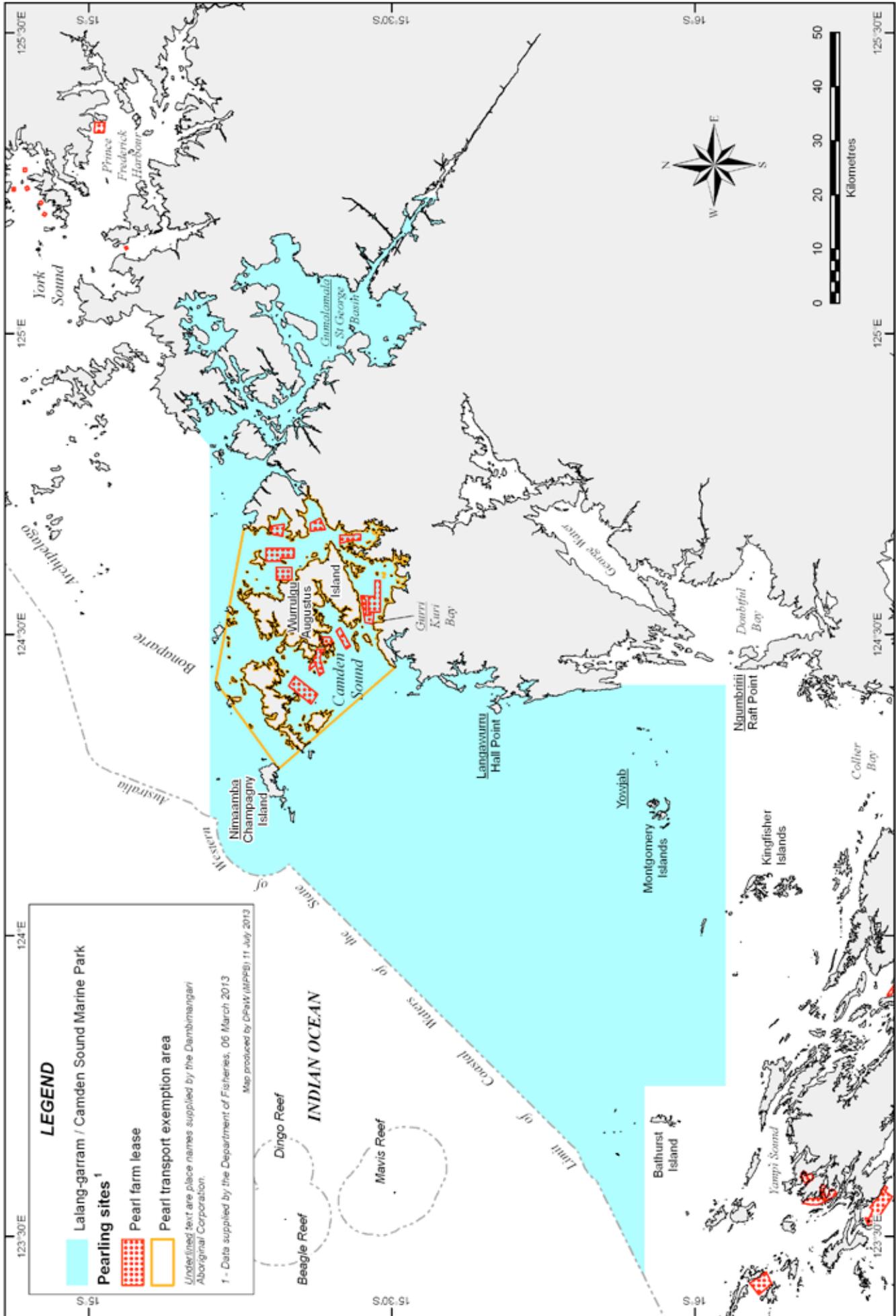
2.4.6 Research opportunity

New and exciting information is revealed almost every time a scientific survey is undertaken in the Kimberley region with new fish, sponges, coral reef species and other marine wildlife being recorded in recent years. In August 2011 the West Kimberley region was added to the National Heritage List for its rich and dynamic Aboriginal culture, inspirational landscapes, ancient geology, biological richness, early European exploration, rich pastoral history, and traditional and European pearling history (SEWPC 2012). The values identified in the National Heritage Listing Assessment provide extensive opportunities for research within the Lalang-garram / Camden Sound Marine Park. Understanding of the extent, diversity and nature of the Kimberley's cultural and ecological systems has increased in recent years but knowledge of these systems is still limited.

The Lalang-garram / Camden Sound Marine Park contains a range of species of special conservation status, including the humpback whale, Australian snubfin (*Orcaella heinsohni*) and Indo-Pacific humpback (*Sousa chinensis*) dolphins, marine turtles and dugong. There is a wide range of research opportunities and gaps in knowledge that need to be addressed. These include gaining a better understanding of habitats and species of the marine park (particularly use by humpback whales for calving), and potential interactions and impacts with recreational and commercial activities. Specific research will be undertaken over the first five years of the plan to support a review of the adequacy of management arrangements, particularly protection of humpback whales and their calves (see section 3.5).

“Collaborative projects are not merely annexing traditional systems of knowledge, but rather, interacting with them, and thus the outcomes are neither absolutely the result of scientific thought nor that of Aboriginal thought. Rather each is a source of understanding the very difficult issues that are posed by the natural world of this continent.”

(Langton1998:8)



MAP 4: Pearling sites within and adjacent to Lalang-garram / Camden Sound Marine Park.

Traditional Owners of the Lalang-garram / Camden Sound Marine Park hold traditional knowledge of the ecological and cultural values of the Camden Sound area. There are many opportunities for integrating western scientific research with the traditional ecological knowledge of Traditional Owners. Collaborative research projects have been, and will continue to be, undertaken between Traditional Owners and biological and social scientists.

The recording of tangible and intangible traditional knowledge, traditional owner understanding of the natural environment, and the location of sites of significance, provide ongoing research opportunities. Valuable local Indigenous information about ecological systems and change over time will benefit long-term planning and adaptive strategies for the management of the marine park.



Part C

3. Management framework and actions

“Saltwater tribes have a responsibility to care for the country of their ancestors. They are linked to the land and their ancestors through their belief systems and have a collective system of land ownership.”

(North Kimberley Saltwater Country Steering Committee 2010)

3.1 Joint management with Aboriginal people

For the purposes of the Lalang-garram / Camden Sound Marine Park, joint management will be given effect under the CALM Act through section 56A joint management agreements developed in partnership between Traditional Owners and the state.

This management plan requires the CEO to jointly manage portions of the marine park that are within the Dambimangari native title determination area with Dambimangari people. A draft section 56A JMA between DAC and the CEO of DPaW has been agreed and is attached to this management plan. It will be signed as soon as practicable following approval of this management plan. Once the joint management agreement is signed, formal joint management with Dambimangari people over the subtidal portion of the marine park that is within the Dambimangari native title determination area will commence. Once an ILUA with DAC has been agreed and registered with the National Native Title Tribunal the intertidal area of the marine park that falls within the Dambimangari native title determination area will be reserved and this management plan and the attached DPaW-Dambimangari JMA will then also apply over that intertidal portion.

Discussions with Wunambal Gaambera Aboriginal Corporation have commenced with a view to establishing a similar arrangement over the portion of the marine park that extends into the Wunambal Gaambera people’s Uunguu native title determination area and portions of the proposed North Kimberley Marine Park.

Where possible, the management of the marine park will be integrated with management programs initiated by Traditional Owners, such as the *Dambimangari Healthy Country Plan 2012–2022*, the *Wunambal Gaambera Healthy Country Plan 2010–2020*, the *North Kimberley Saltwater Country Plan*, Indigenous Protected Areas, guidelines for culturally appropriate behaviour, and Indigenous ranger programs.

3.2 Outcome-based approach

The legislative basis for management of the marine park, led by DPaW in collaboration with other government agencies, is outlined in Appendix 2.

With use and visitation likely to increase in the marine park over the next decade and beyond, the establishment of zoning and the setting of management objectives, management actions, performance measures and management targets will guide a collaborative and outcome-based management approach that provides for sustainable use of the marine park. This will also be supported by a five-year review of the management plan.

3.2.1 Five-year review

Further to the standard annual, periodic and 10-year assessment of management plan implementation by the MPRA under its Audit Policy (MPRA 2008), this management plan provides an explicit commitment for the MPRA, supported by DPaW, relevant joint management body(s) and other agencies as necessary, to assess the implementation of the management plan after five years in operation under section 26B of the CALM Act. Through the joint management body(s) the review will use traditional ecological knowledge held by Traditional Owners of the Lalang-garram / Camden Sound Marine Park. The review will provide the basis to revise the management plan and arrangements if necessary. This review will determine the adequacy of:

- the park’s arrangements and delivery of programs to protect the value of the area in relation to the culture and heritage of Traditional Owners
- the management plan and delivery of programs in achieving biodiversity conservation and other objectives listed in the plan
- the management plan and delivery of programs in achieving enhanced protection of humpback cows and calves, particularly within the special purpose zone (whale conservation)
- the park’s zoning scheme and delivery of programs for habitat representativeness and protection, including St George Basin
- the management arrangements for key ecological values in addition to humpback whales.

3.3 Marine park zoning

The implementation of an appropriate zoning scheme is an important tool for both the conservation of marine biodiversity and the management of human use in marine parks. The joint management of the marine park will provide for the rights and interests of the Traditional Owners to use the marine resources of the park.

The partial or total restriction of extractive activities in representative habitats is a key strategy in the long-term maintenance of biodiversity values. Specifically, the establishment of zones in which extractive activity is not permitted plays a key role in the protection of representative areas of important habitats such as coral reef, macroalgae and seagrass communities. As well as providing a measure of management ‘insurance’, these zones provide areas where natural processes can be studied relatively free of significant human influence. These zones also provide the opportunity to improve the understanding of key ecological processes of marine parks and to obtain critical baseline data to compare with areas where extractive activities are permitted or where environmental impacts may be occurring. The zoning scheme assists in separating conflicting uses, and provides for specific activities such as for commercial and recreational activities, scientific study, and nature appreciation. Zoning is a flexible management tool that can accommodate evolving use of the marine park for the duration of the management plan. The nature and extent of zoning should be considered within the context of the other management programs (Section 3.5).

Section 13B of the CALM Act requires marine parks to be zoned as one or a combination of specific management zones (sanctuary, recreation, special purpose or general use zones), which are formally established as classified areas under section 62 of the CALM Act. Changes to the zoning of a marine park during the life of the management plan can occur only after meeting the statutory public consultation requirements and acquiring relevant ministerial approvals. The Lalang-garram / Camden Sound Marine Park is comprised of sanctuary zones, special purpose zones and general use zones.

Sanctuary zones are ‘look but don’t take’ areas that are used to provide the highest level of protection for vulnerable or specially protected species, and to protect representative habitats and communities from human disturbance so that marine life can be seen, appreciated and studied in an undisturbed or largely undisturbed state. Passive recreational activities, which do not compromise the maintenance of

environmental values, may be permitted but extractive activities are not. Commercial tourism operations (such as nature-based, non-extractive tours) are permitted where they do not conflict with other uses and will be regulated under the CALM Act and/or the FRM Act. Sanctuary zones also provide areas for education and scientific study.

Special purpose zones are managed for a particular priority purpose such as wildlife breeding, or give enhanced recognition to a particular type of activity. Uses that are incompatible with the specified priority purpose are not permitted in these zones.

General use zones are all areas in a marine park not included in sanctuary, recreation or special purpose zones. Conservation of natural values is still the priority in general use zones but activities (such as sustainable commercial and recreational fishing, aquaculture, pearling and petroleum exploration and production) are permitted provided they do not compromise the ecological values of the marine park.

The marine park encompasses an area calculated to the high water mark of approximately 705,000 hectares and includes five zone types (Map 5) as described in the tables below.

Table 2: Sanctuary zone description

Montgomery Reef Sanctuary Zone	
Approximate area	76,100 hectares (approximate area to high water mark)
Special features, habitats and species associations	Montgomery Reef Sanctuary Zone is located in the south of the marine park. The sanctuary zone has been designated to protect one of the most outstanding geological marine features of the Kimberley Bioregion, and the abundant and diverse marine life supported by its coral and rhodolith reef system. This enormous intertidal reef is fundamentally linked with the ecological function of the surrounding waters which are rich in coral, sponge, algae, seagrass, turtles, finfish, sharks, dugongs, saltwater crocodiles and seabirds. Seabirds nesting on Montgomery Reef, including white breasted sea eagles, forage on the reef top and surrounding waters. Yowjab (Montgomery Reef) is one of many areas of high cultural significance to the Dambimangari Traditional Owners who are ‘saltwater country’ people who used both the land and sea. The intertidal areas of Montgomery Reef will be included in the marine park, subject to the consent and registration of an ILUA with the Traditional Owners. This zoning provides a high level of protection for representative examples of the reef and associated species and assemblages, free of extractive disturbance. The zone provides for passive recreation and tourism.
Champagny Sanctuary Zone	
Approximate area	59,200 hectares (approximate area to high water mark)
Special features, habitats and species associations	Champagny Sanctuary Zone is located in the north of the marine park and surrounds a number of islands in the vicinity of Champagny Island. Champagny Sanctuary Zone is located more than 50 kilometres (approximately 30 nautical miles) from the mainland and provides a rare opportunity for the rich biodiversity of tropical offshore island and reef systems to be included in the state’s marine parks and reserve system. It includes a series of offshore reefs more than 50 kilometres from the mainland on the westernmost extent of the marine park. Marine life in the northern part of the marine park is considered to be of outstanding diversity and in good condition. Many coral and sponge species surveyed in this area are expected to be new to science. This zoning aims to provide a high level of protection for representative examples of complex habitats and associated species and communities in an area free of extractive disturbance. The zone provides for passive recreation and tourism.
Approximate total area of sanctuary zones	135,300 hectares

Table 3: Special purpose zone (whale conservation) description

Camden Sound Special Purpose Zone (whale conservation)	
Approximate area	168,000 hectares (approximate area to high water mark)
Special features, habitats and species associations	Camden Sound Special Purpose Zone (whale conservation) provides management measures that enhance protection in a large portion of the Camden Sound area that is used by humpback whales for calving, nursing and resting. It also allows for enhanced biodiversity conservation for a diverse range of marine habitats and wildlife including coral reefs, mangroves, rocky shores, dolphins, dugongs, saltwater crocodiles and turtles.
Approximate total area of special purpose zone (whale conservation)	168,000 hectares

Table 4: Special purpose zone (wilderness conservation) description

Jungulu Special Purpose Zone (wilderness conservation)	
Approximate area	24,600 hectares (approximate area to high water mark)
Special features, habitats and species associations	Jungulu Special Purpose Zone (wilderness conservation) lies in water north of Jungulu and Augustus islands and includes a series of smaller islands, rocky shoals and coral reefs found in this area. Marine life in the northern part of the marine park is considered to be of outstanding diversity and in good condition. Many coral and sponge species surveyed in this area are expected to be new to science. This zone provides for the conservation of representative examples of marine biodiversity to preserve, as closely as possible, the near-natural condition of the habitats, species and natural processes of this remote area. No extractive uses are permitted other than highly restricted recreational fishing where special fishing rules apply that allow a personal possession limit of one fish, or two fillets of fish (baitfish excepted).
Approximate total area of special purpose zone (wilderness conservation)	24,600 hectares

Table 5: Special purpose zone (pearling) description

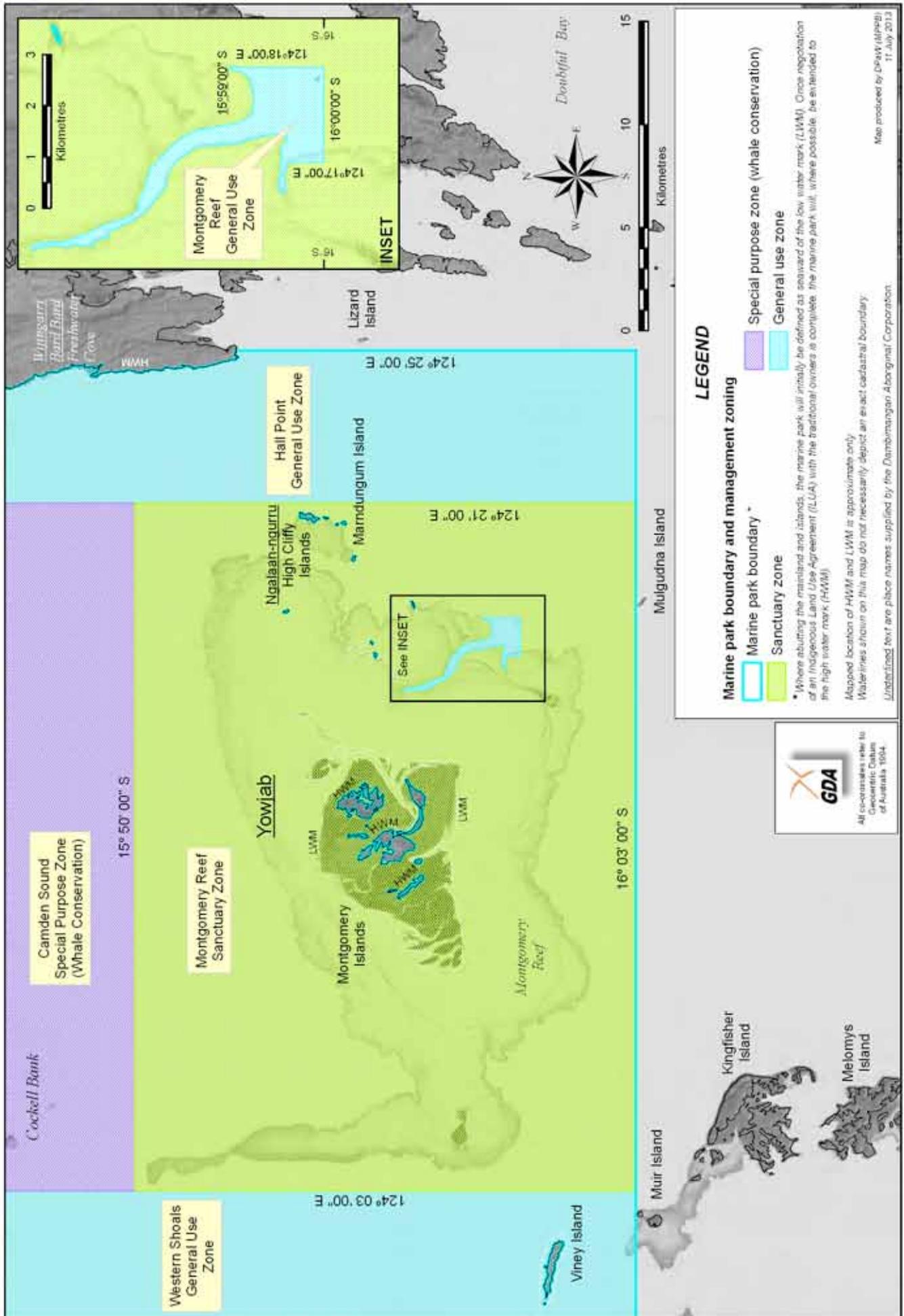
Kuri Bay Special Purpose Zone (pearling)	
Approximate area	56,200 hectares (approximate area to high water mark)
Special features, habitats and species associations	Kuri Bay Special Purpose Zone (pearling), located around Augustus Island, has been established to recognise the longest operating and largest cluster of pearling leases in Western Australia. It also provides a significant contribution to the conservation of representative examples of marine biodiversity, including reef systems, as well as a suite of other habitats, species and natural processes. This zone provides management focus to the Kuri Bay area used by pearling operators under authority from DoF. This zone supports about 68 square kilometres of pearling leases. It experiences significant tidal flow in the narrow straits between islands making it ideal for pearl production using Western Australia's oyster shell <i>Pinctada maxima</i> . Australian snubfin dolphins, Indo-Pacific humpback dolphins, humpback whales, turtles and sawfish have been recorded in this zone and extensive mangrove and subtidal reef is associated with the islands and mainland. The area provides for biodiversity conservation while recognising the importance of the area for pearling. It remains accessible for other users of the park for appropriate activities.
Approximate total area of special purpose zone (pearling)	56,200 hectares

Table 6: General use zone description

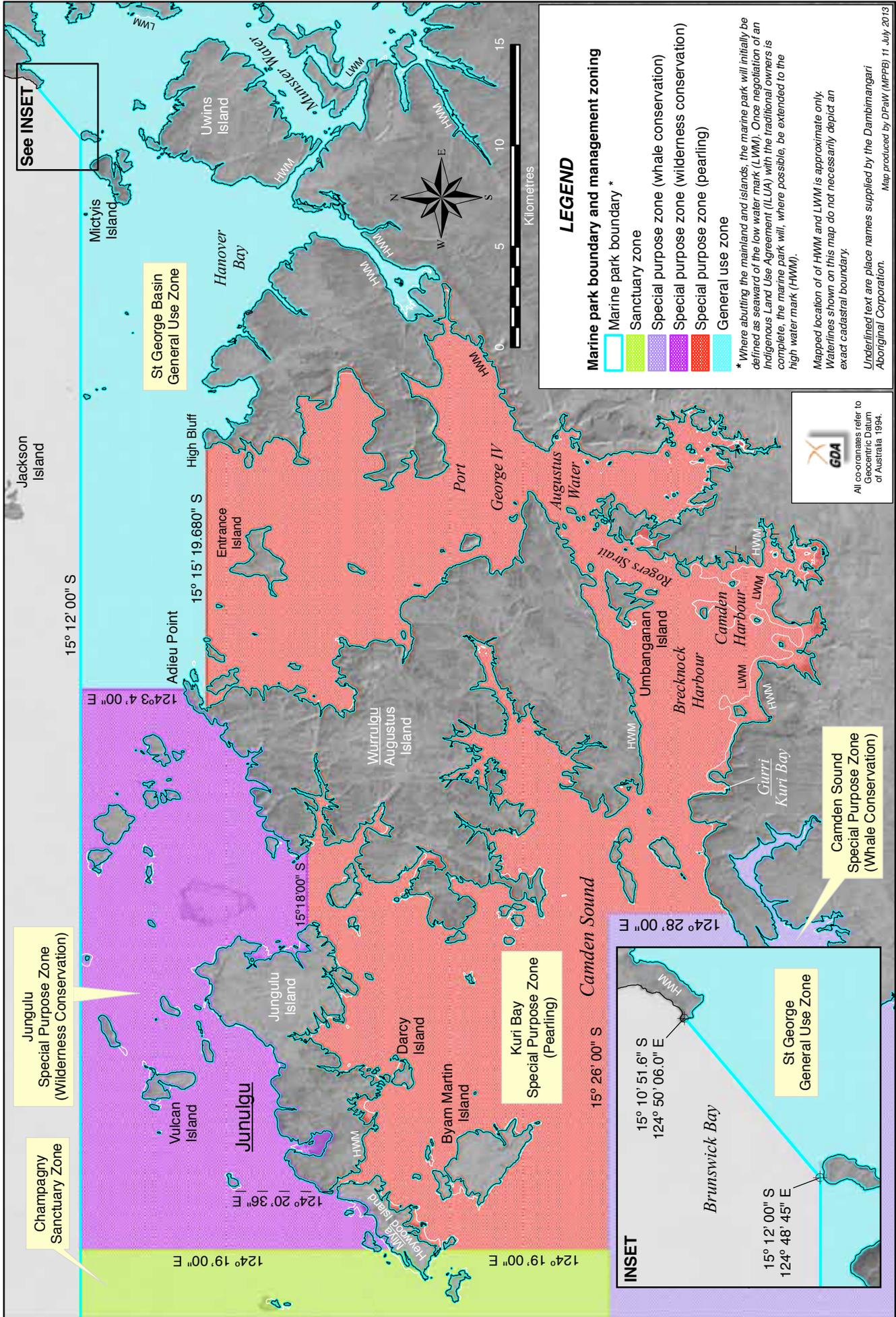
Hall Point General Use Zone	
Approximate area	28,300 hectares (approximate area to high water mark)
Special features, habitats and species associations	Hall Point General Use Zone contains tidal mud flats, mangroves, extensive intertidal fringing reef backing on to rocky cliffs and sandy beaches. This area of general use zone provides for biodiversity conservation, while also providing opportunities for recreation and commercial uses. These include existing commercial fishing and mining exploration licences.
Western Shoals General Use Zone	
Approximate area	211,800 hectares (approximate area to high water mark)
Special features, habitats and species associations	Western Shoals General Use Zone recognises the transit route used by humpback whales on their journey into and out of the Camden Sound area. This route links to an important staging and resting area for humpback whales at the Frost and Tasmanian shoals, which are located mostly in Commonwealth-managed waters. Rocky shoals and complex bathymetry in this general use zone are important habitats for marine life seeking shelter from predators or from the extreme daily tidal movement. The area provides for biodiversity conservation while allowing for a range of recreational and commercial uses, including large vessel transit to and from Yampi Sound Port.
St George Basin General Use Zone	
Approximate area	80,400 hectares (approximate area to high water mark)
Special features, habitats and species associations	St George Basin General Use Zone includes many island and reef habitats within St George Basin, one of the most ecologically significant estuarine environments in the Kimberley. The zone also includes the tidally influenced waters of the relatively undisturbed Prince Regent River system. This zone is adjacent to the Prince Regent National Park and provides for integrated conservation management of the coast and sea. This zone includes areas of cultural and healthy country significance to both the Dambimangari and Wunambal Gaambera (Uunguu) people. The entire area of the St George Basin General Use Zone supports the complex feeding habitat preferred by the Australian snubfin and Indo-Pacific humpback dolphins, which are being monitored in relation to their conservation status. St George Basin includes two large mangal areas on the northern and southern sides of the Basin, which are two of the largest blocks of mangals in Australia, with each comprising more than 70 square kilometres of forest. The area provides for biodiversity conservation while allowing for a range of recreational and commercial uses.
Montgomery Reef General Use Zone	
Approximate Area	400 hectares (approximate area to high water mark)
Special features, habitats and species associations	Montgomery Reef General Use Zone is a 400-hectare area located within the Montgomery Reef Sanctuary Zone. The general use zone recognises a frequently visited area of Montgomery Reef and provides for a wider range of uses. Montgomery Reef (Yowjab) is of particular cultural significance to the Dambimangari people and it is important that this zone be monitored and considered during the five-year review. The area is also a valuable place for education about the significance of the reef to the conservation of marine biodiversity in the Kimberley bioregion. The area is often referred to as 'The River', which is a channel that allows vessels to navigate up to five kilometres into the reef to an area where warmed seawater gushes over the rock edge as the tide falls. Finfish, sharks and turtles can be seen feeding in this zone during the changing tide.
Approximate total area of general use zones	320,900 hectares



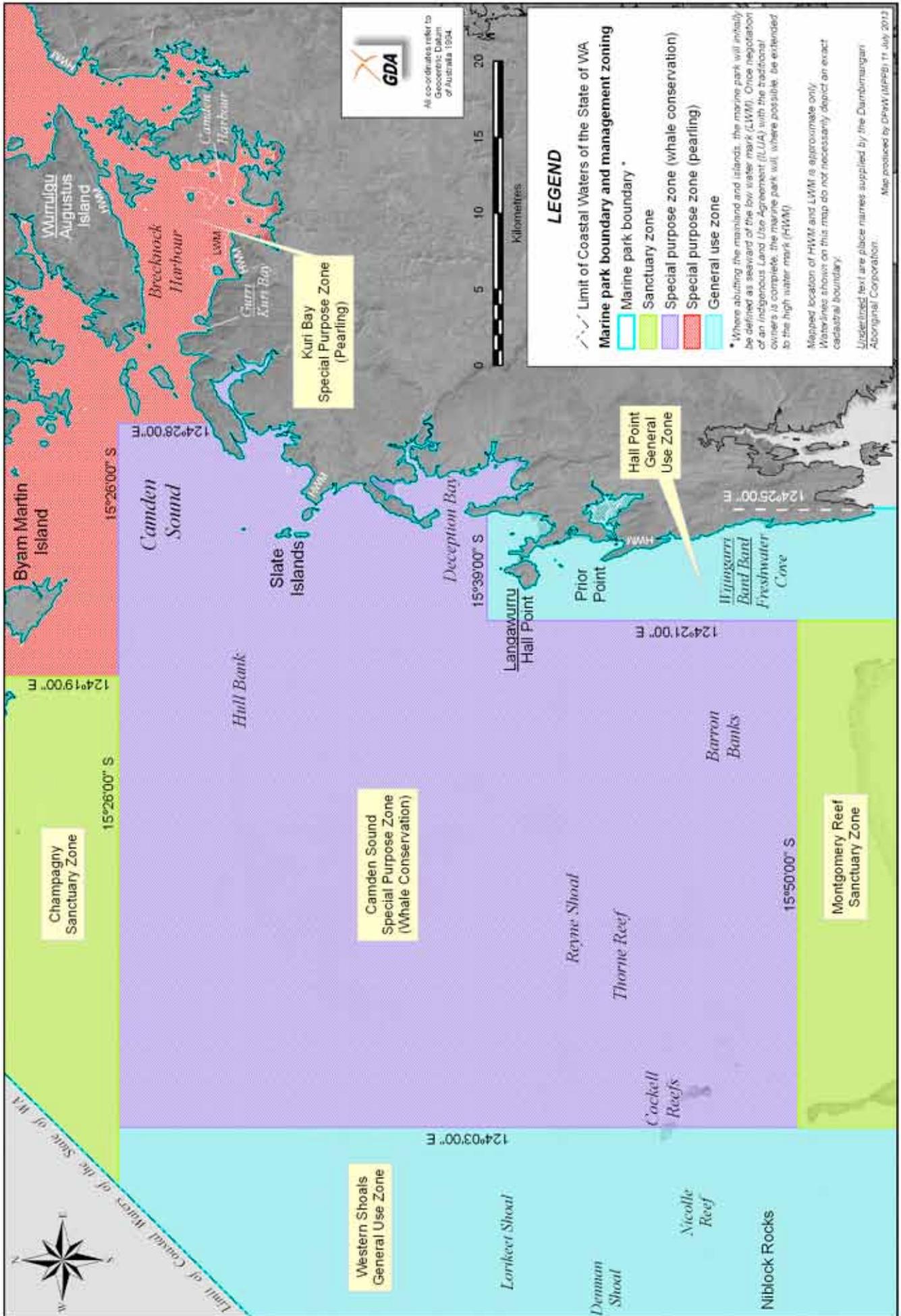
MAP 6: Management zoning for Lalang-garram / Camden Sound Marine Park - Champagny Islands area.



MAP 7: Management zoning for Lalang-garram / Camden Sound Marine Park - Montgomery Reef area.



MAP 8: Management zoning for Lalang-garram / Camden Sound Marine Park - Augustus Island area.



MAP 9: Management zoning for Lalang-garram / Camden Sound Marine Park - Camden Sound area.

3.4 Permitted uses

Table 7 below provides supporting information specifying the permitted uses within each zone of the marine park subject to the relevant legislation and the applicable statutory approval processes. A use listed with ‘assess’ means that the use will be assessed in accordance with relevant legislation in the context of the objectives and management targets specified for the Lalang-garram / Camden Sound Marine Park. Accompanying provisions to each permitted use (identified in brackets after each activity) are detailed in the table below.

Table 7: Permitted uses in the marine park

Permitted use	General use zone	Special purpose zone (pearling)	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Sanctuary zone
Important: Ensure cross-referencing with permitted use provisions below					
Commercial use [A]					
Commercial fishing [a,b,c,d,g,h,j]	Yes	Yes	Yes (except trawling)	No	No
Fly-over charters [g]	Yes	Yes	Yes	Yes	Yes
Pearling [a,b,c,d,g,h]	Yes	Yes	No	No	No
Aquaculture [a,b,c,d,e,g,h]	Yes	Yes	No	No	No
Seismic survey [a,b,e,f,g,j]	Yes	Assess	No	No	No
Mineral or petroleum exploration, drilling and production [a,b,c,d,e,f,g,h,j]	Yes	Assess	No	No	No
Cabling or pipelines [a,b,e,g,j]	Yes*	Assess*	No	No	No
Dredging and dredge spoil dumping [a,b,e,g,j]	Yes	Assess	No	No	No
Groynes, jetties or revetment [a,b,e,g,j]	Yes*	Yes*	No	No	No
Artificial structures [a,e,g,j]	Yes*	Assess*	No	No	No
Bioprospecting [a,b,c,e,f,g,j]	Yes	Yes	Yes	No	No
Coral, live rock and sand collection [a,b,c,f,g,j]	Yes	No	No	No	No
Specimen shell collecting [a,b,c,f,g,j]	Yes	Yes	Yes	No	No
Crocodile hunting	No	No	No	No	No
Recreational use [A]					
Boating (motorised and non-motorised) [a,b,d,g,h]	Yes	Yes	Yes	Yes	Yes
Swimming, snorkelling and diving [b,g]	Yes	Yes	Yes	Yes	Yes
Shore and boat fishing (line, net and crab) [c,g,h]	Yes	Yes	Yes	Yes [k]	No
Charter boat fishing [a,b,c,d,g,h]	Yes	Yes	Yes	Yes [k]	No
Spearfishing [a,b,c,g,j]	Yes	Yes	Yes	Yes [k]	No
Coral and live rock collection [a,b,c,f,g,j]	No	No	No	No	No

Permitted use					
Important: Ensure cross-referencing with permitted use provisions below	General use zone	Special purpose zone (pearling)	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Sanctuary zone
Customary activities					
Customary Aboriginal hunting and fishing [a,b,c,g,j,l]	Yes[n]	Yes[n]	Yes[n]	Yes[n]	Yes[n]
Other use [A]					
Navigation aids [d]	Yes	Yes	Yes	Yes	Yes
Vessel transit [d,g]	Yes	Yes	Yes	Yes	Yes
Research and monitoring [a,b,c,g,j]	Yes	Yes	Yes	Yes	Yes
Anchoring (soft-bottom only) [g,h]	Yes	Yes	Yes	Yes	Yes
Mooring [a,d,g,h]	Yes	Yes	No	Yes	Yes
Wildlife watching/interaction [a,b,g,j]	Yes	Yes	Yes	Yes	Yes
Sea plane landing [a,b,d,g,h,j]	Yes	Yes	No	No	No
Vessel sewage discharge [g,i]	Yes	Yes	No	No	No
Wildlife feeding	No	No	No	No	No

Permitted use provisions	
Important: Ensure cross-referencing of provisions against permitted use above	
[A]	Use is permitted subject to management targets (Section 3.6, Table 8)
a	Subject to the CALM Act and Conservation and Land Management Regulations 2002 (CALM Regulations)
b	Subject to the WC Act and Wildlife Conservation Regulations 1970 (WC Regulations) and Notices
c	Subject to the FRM Act, Fish Resources Management Regulations and the Pearling Act
d	Subject to the <i>Western Australian Marine Act 1982</i> and Navigable Waters Regulations 1958
e	Subject to the Environmental Protection Act and Environmental Protection Regulations
f	Subject to the <i>Mining Act 1978</i> and/or <i>Offshore Minerals Act 2003</i>
g	Use may be restricted if shown to be incompatible with the management targets of the marine park
h	Anchoring and mooring may be restricted
i	Not within 500m of shore, or within marinas, harbours or boat launching areas. Discharge not permitted in Sampson Inlet, Kuri Bay, the 'River' at Montgomery Reef, Camden Harbour and Prince Regent River/ Cascades. The discharge of untreated sewage is prohibited within the marine park.
j	Subject to the EPBC Act and other relevant Commonwealth legislation and policy
k	Special fishing rules apply. Personal possession limit of one fish, or two fillets of fish (baitfish excepted).
l	Subject to the Native Title Act
m	Recreational coral and live rock collecting is prohibited statewide under the <i>Fish Resources Management Act 1994</i>
n	Customary take is confined to Traditional Owners, subject to the rights and interests provided by the <i>Native Title Act 1993</i> and/or Indigenous Land Use Agreements (ILUAs), or where Traditional Owners have provided consent to another Aboriginal person or group.
Assess	Use will be assessed by relevant agencies in accordance with legislation

3.5 Management programs and actions

Management of the marine park will occur across seven marine park management programs:

- management frameworks
- management intervention and visitor services
- education and interpretation
- public participation
- patrol and enforcement
- research
- monitoring.

Formal joint management arrangements with Traditional Owners will commence on the signing of a joint management agreement/s that will establish a Joint Management Body (JMB), or Bodies, to manage the park in accordance with that Agreement and the CALM Act.

The JMB(s) will oversee the management of the marine park, make management decisions and provide strategic input into how management actions are implemented over their land and sea country in the marine park. The JMB(s) will also strategically monitor management plan implementation. Where a JMB has a responsibility in guiding the implementation of specific actions these are indicated in the management actions. For further information on the Joint Management Body established with the Dambimangari people, please refer to the attached DPaW-DAC Joint Management Agreement.

Generally JMB(s) will not be involved in the day-to-day management of the marine park. Operational responsibility will be coordinated by DPaW's West Kimberley District Office under the guidance of the JMB(s). Operational activities to give effect to this plan will include those undertaken by Aboriginal Rangers who are either employed directly by DPaW or contracted to provide services. Management of the marine park will also be supported by relevant state government agencies and the community.

Management program actions aim to support the achievement of management objectives and the management targets of the marine park. The organisational body with primary responsibility for implementation of a management action appears first in the bracketed list following the strategy. Other agencies listed provide support, as necessary, to implement the action within the scope of their statutory roles and responsibilities (see Appendix 2). Management actions within the management plan are prioritised as high (**H**), medium (**M**), or low (**L**). Management actions considered to be critical to achieving a management objective are presented as high priority key management strategies (**H-KMS**).

3.5.1 Management frameworks

This management program includes: legal, administrative, financial and human resource management requirements; the provision of policy, technical and operational advice; and support services to the MPRA and government.

Management framework objective	
To ensure the marine park has the appropriate legal, administrative, financial and human resource frameworks in place so that it is appropriately managed in partnership with Traditional Owners and in a collaborative setting with other agencies.	
Management actions	
1.	Implement all legal provisions necessary to establish and jointly manage the marine park, including registration of ILUAs; execution of Joint Management Agreements; reservation of intertidal areas within the marine park; gazettal of a CALM Act classified waters notice; and FRM Act fisheries management orders. [DPaW, DPC, JMB(s), DoF, Department of Transport (DoT), Department of Mines and Petroleum (DMP)] (H-KMS).
2.	Develop and implement joint collaborative operational plans [DPaW, relevant JMB(s) DoF] (H-KMS).
3.	Develop and apply management targets for Aboriginal culture and heritage values within one year of management plan implementation [DPaW, relevant JMB(s)] (H-KMS).
4.	Undertake a five-year review of the adequacy of management arrangements in the marine park with a particular focus on humpback whales and the special purpose zone (whale conservation). The review will also include the adequacy of management arrangements for other ecological values, including the adequacy of the zoning scheme and protection of the value of the area for the culture and heritage of Aboriginal people [MPRA, DPaW, relevant JMB(s)] (H-KMS).
5.	Ensure the provision of necessary information and support for assessments of the implementation of the management plan by the MPRA [DPaW, relevant JMB(s), DoF] (H).
6.	Take into account the guidance and aspirations of Traditional Owners, which are contained in a number of Traditional Owner documents including the North Kimberley Saltwater Country and Healthy Country Plans (e.g. <i>Wunambal Gaambera Healthy Country Plan 2010-2020</i> and <i>Dambimangari Healthy Country Plan 2012-2022</i>), in protecting and conserving the value of the land and sea to the culture and heritage of Aboriginal people [DPaW, relevant JMB(s), Traditional Owners] (H).
7.	Ensure the setting of conditions for new developments and operations are consistent with management program objectives and management targets for ecological values [DPaW, relevant JMB(s), MPRA, Office of the Environmental Protection Authority (OEPA)] (H).
8.	Develop a maritime incident response plan, specific to the marine park that complements the state's marine oil spill response plan [DoT, DPaW, relevant JMB(s)] (H).
9.	Undertake a review of shipping activity in the marine park to determine the need for navigational measures such as compulsory pilotage and/or designation of shipping routes [DoT, DPaW, relevant JMB(s)] (M).
10.	Ensure any boundary revision of the pearling 'transport exempt area' is consistent with the special purpose zone (pearling) [DoF, DPaW, relevant JMB(s)] (M).
11.	Develop and implement a plan for detection and mitigation response to marine pest incursion/outbreak in the marine park, including vessel risk assessments [DoF, DPaW, relevant JMB(s)] (M).
12.	Through the relevant JMB(s), assist Traditional Owners to develop a sustainable management strategy for turtle and dugong [relevant JMB(s), DPaW] (H).
13.	Develop a cultural awareness training program approved by the relevant Aboriginal Corporation(s) for government employees and/or contractors working on the ground or in the management of the proposed park [relevant JMB(s), DPaW] (H).
Performance measure	Management target
Implement management actions	Within the life of the management plan

3.5.2 Management intervention and visitor services

This program comprises direct management actions required to achieve conservation outcomes (including providing for recreational and commercial services and infrastructure), and includes the cultural obligations of JMB(s) to care for visitors to their country. The management actions may be proactive (preventative) or reactive (restorative) and include providing visitor facilities to reduce site disturbance and environmental impacts, rehabilitating degraded areas, and risk management.

Visitor risk management

DPaW is concerned for visitor welfare and has a moral and legal responsibility to consider the personal safety and welfare of visitors to the lands and waters for which it has responsibility. DPaW's policy on visitor risk management (Policy No. 53) provides guidance to minimise the likelihood of misadventure or injury through the implementation of management measures.

Through their laws and customs, Traditional Owners also have a responsibility for the safety of visitors to their country. The *North Kimberley Saltwater Country Plan* for the Balangarra, Wunambal Gaambera (Unguu), Dambimangari and Mayala people states that Traditional Owners have a responsibility to ensure the safety of people on country and that they bear the consequences of accidents and disturbances of sacred places (North Kimberley Saltwater Country Steering Committee 2010).

“Dambimangari country sees many visitors each year. A visitor is anyone who is not a Dambimangari Traditional Owner. Visitors may be tourists, locals fishing along the coastline, mining people, government workers and many more. Dambimangari Traditional Owners often don't know them and the country does not know them either. We are responsible for the safety of visitors and bear the consequences of accidents and disturbance of our cultural sites. When visitors come, we talk to country to introduce them and smoke them to keep bad spirits away.”

(Dambimangari Aboriginal Corporation 2012)

“We have frequently voiced our concerns about the safety of tourists going through the Horizontal Waterfalls. This is an important cultural site and a dangerous place. They go on speed boats when the tides are pumping in full force. Accidents have happened in the past and we don't want people to get hurt on our country. In the old days we travelled the sea when the currents and tides were small, not when they were most dangerous. We are happy for visitors to come to Dambimangari country if it is done the right way.”

(Dambimangari Aboriginal Corporation 2012)

The remote nature of the marine park and the many navigational hazards that exist within the area pose a significant risk to the unwary visitor. Animals such as sharks and crocodiles also pose a significant risk if visitors are unaware of their presence. While many hazards exist naturally, DPaW in partnership with relevant JMB(s) will undertake a periodic assessment of visitor risk associated with the marine park and mitigate identified risk wherever possible.

Culturally appropriate visitation

In addition to managing visitor risk, culturally appropriate visitation by tourists and other marine park users will be managed. Mechanisms include managing access to culturally important sites; the development of education and interpretive information; patrol and enforcement programs; and through conditions set on commercial tour operator licences. The Dambimangari and Wunambal Gaambera (Unguu) people have identified the management of visitors as key issues in their Healthy Country Plans.

“When people visit our country they need to have permission from the Traditional Owners to be on that graa (traditional part of country). They should respect Wunambal Gaambera country, we Traditional Owners and our Law, just like they would expect of a visitor to their house.”

(Wunambal Gaambera Aboriginal Corporation 2010)

“Dambimangari people do not go to other people’s country without permission or without being introduced the right way. Visitors nowadays should respect the law and culture of the traditional custodians.”

(Dambimangari Aboriginal Corporation 2012)

Some of the concerns raised by Dambimangari people include visitors accessing and walking on the culturally significant Montgomery Reef, and helicopters impacting on rock art sites by blowing dust and debris around.

“We worry that some of our cultural places are being damaged by people who shouldn’t be there. We worry because rubbish such as nets and buoys are washed up on islands. Some burial sites have been disturbed and our ancestors’ bones removed. This is not respectful, as the spirits of people buried there might not know where to go. We could be punished by our ancestors for not looking after our country properly.”

(Wunambal Gaambera Aboriginal Corporation 2010)

Visitors should also be aware that some coastal areas accessible through the marine park, such as islands (Map 3), have been determined as exclusive native title areas. Visitors may need to seek permission from Traditional Owners prior to visiting areas where exclusive native title rights exist. The Wunambal Gaambera (Uunguu) people have put together an Uunguu Visitor Management Plan to help manage visitors to Uunguu country (Wunambal Gaambera Aboriginal Corporation 2010). The Dambimangari people are also developing a visitor management plan. The Uunguu Visitor Management Plan’s key objective is to implement a one-stop visitor permission or permit system for visitors entering Wunambal Gaambera country. The Uunguu visitor management arrangements are designed to provide for the development of authentic cultural tour products.

Through their Healthy Country Plans and the *North Kimberley Saltwater Country Plan*, all three Traditional Owner groups in the Lalang-garram / Camden Sound Marine Park have identified the need to establish protocols so that Traditional Owners know who is visiting their country, and to ensure that access to sensitive cultural sites can be managed. DPaW will work in partnership with Traditional Owners to develop visitor management and access arrangements that are culturally appropriate, integrated across marine and terrestrial areas and native title claims of the north Kimberley and consistent as far as possible with management strategies identified in relevant sea country, healthy country, and visitor management plans. In particular, the preparation of management plans and joint management arrangements with traditional owners for terrestrial conservation estate adjoining the marine park provides an opportunity to align marine and terrestrial management approaches.

Licences, leases and permits

An ever-increasing number of visitors to Western Australia experience marine parks and reserves using the services of commercial operators. The CALM Act and WC Regulations require commercial businesses operating within marine parks and reserves to be issued with a commercial operations licence by DPaW specifying conditions and the payment of a licence charge. Commercial licences are granted where the activity is of a transient nature or usually involves no permanent infrastructure within a marine park or reserve. Most commercial licences are related to tourism. Commercial licensing may be a new requirement for some commercial businesses operating within the marine park for both on-water cruising and fly-over tours.

Leases or licences may be granted under the CALM Act for the use of a specific area of a marine park or reserve for a specific purpose. Applications for a lease to be issued under the CALM Act will be carefully considered by the relevant JMB(s). Licences or leases may only be granted for commercial activities consistent with this management plan and with the approval of the Minister for Environment. The relevant JMB(s) will also consider any potential impacts on native title rights. DPaW's *Commercial Operator Handbook – marine* provides specific information for commercial businesses operating in a marine park or reserve.

See www.dec.wa.gov.au/commercial_licensing for more information on commercial licensing and leases.

Under the CALM Act and WC Act, a licence is required to take flora or fauna in a marine park or reserve for scientific or other prescribed purposes. A licence can be issued to an individual, and any authorised persons listed can take fauna (for the same purpose) under the supervision of the licensee. Applications are processed by DPaW's Nature Protection Branch in consultation with DPaW's Species and Communities Branch, Marine Science Program, and the relevant DPaW district office.

Commercial tour operators are required to hold a wildlife interaction licence in order to interact with whales, whale sharks, dolphins or dugongs. Licences are issued by DPaW under the WC Regulations and strict conditions apply to each type of licence.

Licences must also be issued by DoF under the FRM Act or the Pearling Act for commercial fishing, aquatic tourism (see Section 2.3.1), pearling, and some forms of recreational fishing including fishing from a powered vessel, rock lobster fishing, and the use of throw nets.

Mooring and anchoring

Moorings can play an important role in protecting areas such as coral and seagrass habitat by minimising the need for anchoring, thereby reducing indiscriminate anchor damage. Moorings can also facilitate better access to locations of interest, focus activity in areas that can be more readily managed, and provide an improved level of security and safety for vessels.

A mooring and anchoring plan will be prepared for the marine park that identifies areas where moorings are acceptable, or necessary from an environmental, cultural, equity and safety perspective; the number of moorings allowable; and the types of moorings permitted. There are a number of existing moorings in the marine park, all of which are associated with pearling operations. Pearl lines are 'moored' to the seafloor within pearl leases, generally into mud substrate.

Vessel management

Vessel management in the marine park will remain the statutory responsibility of the Department of Transport (DoT). Access and speed restrictions apply to vessels when in the vicinity of whales, as specified under Wildlife Conservation (close season) Notices as discussed below. DoT may assist DPaW to implement other access and speed restrictions where these are determined to be necessary for conservation of cultural and/or ecological values. This would be done with due regard to vessel safety. DoF is responsible for managing the potential spread of marine pests occurring through biofouling and ballast water.

Wildlife Conservation (close season) Notices

A *Wildlife Conservation (close season for marine mammals) Notice* was gazetted in 1998 to provide for the management of human interactions with marine mammals including whales, dugongs and dolphins. This notice will remain in force in the general use zone, special purpose zone (pearling) and special purpose zone (wilderness conservation) of the marine park. The close season for marine mammals notice specifies that a vessel may approach a whale to a distance of 100 metres outside an arc of 30 degrees to the whale's direction of travel both in front and behind. In addition, aircraft may approach a whale (or any other marine mammal) to a distance of 300 metres but no closer. If a whale approaches a vessel, the vessel's master must switch off the vessel's motor or put it into neutral and, when able, move the vessel away from the whale at a speed of less than five knots.

In recognition of the marine park’s importance for humpback whale calving, a close season notice specifying special management arrangements in regard to vessel and aircraft interactions with humpback cows and calves will be introduced in the special purpose zone (whale conservation) and the sanctuary zones of the marine park. The provisions of this notice will provide some of the most stringent management arrangements for humpback whale interaction in Australia (see Figure 20 and Figure 21). The management of vessel interaction with whales has also been highlighted as an important issue by the Dambimangari in their Healthy Country Plan:

During the life of the management plan, consideration will be given to the need and options for temporal closures to vessels during the core whale visitation period (approximately mid-July to early October) in the Camden Sound Special Purpose Zone (whale conservation).

“Our whales are on a long journey. Some of the threats to whales happen outside our sea country. We want to help whales travel to our waters undisturbed. While they are in Camden Sound we need to make sure that tourist boats and fishing trawlers do not come too close to them. Munumbanany (humpback whales) are looking after their little ones and stress from the noise of the boat traffic can make the young ones less healthy.”

(Dambimangari Aboriginal Corporation 2012)

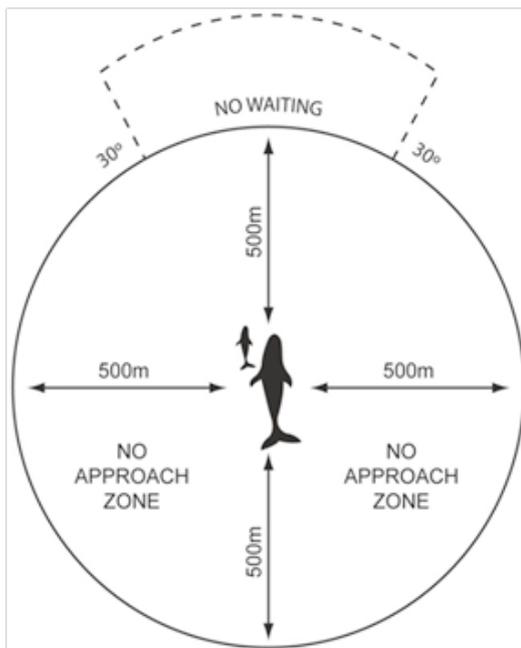


Figure 20: Minimum vessel approach distances in the special purpose zone (whale conservation) and sanctuary zones in the marine park

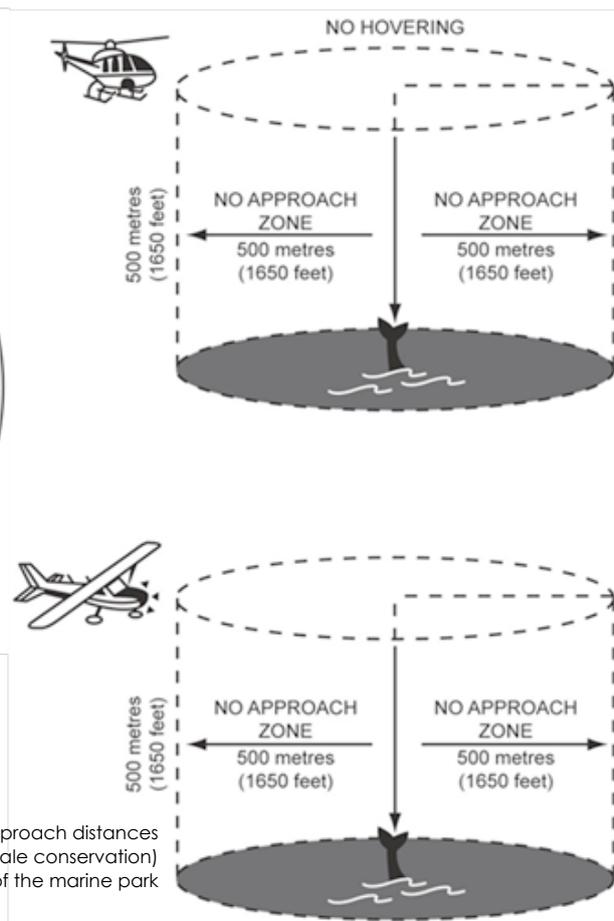


Figure 21: Minimum aircraft approach distances in the special purpose zone (whale conservation) and sanctuary zones of the marine park

Management intervention and visitor services objective

To provide world-class commercial and recreational opportunities for users and visitors to the marine park while conserving Aboriginal cultural heritage and marine biodiversity, with a particular emphasis on the protection of humpback whale cows and calves.

Management actions

1. Gazette a Wildlife Conservation (close season for humpback cows and calves) Notice under the provisions of the WC Act applicable to the special purpose zone (whale conservation) and sanctuary zones specifying provisions such as:
 - 1.1 A person in control of a vessel must not move it closer than 500 metres to humpback cows and calves and should maintain that distance.
 - 1.2 A vessel within 500 metres of a humpback cow and calf should manoeuvre at a speed that creates minimal wake in a direct line to a distance greater than 500 metres from the cow and calf as soon as practicable.
 - 1.3 If a humpback cow and calf approach in close proximity of a vessel, that vessel must be operated in neutral gear and with due consideration to navigation and vessel safety, move the vessel away to a distance greater than 500 metres from the cow and calf initially at a speed less than 5 knots for the first 100 metres.
 - 1.4 No in-water interaction is permitted with humpback cows and calves.
 - 1.5 Helicopters may not hover above humpback cows and calves.
 - 1.6 Helicopters and fixed wing aircraft must remain at an altitude above 1,650 feet (500 metres) and a horizontal distance of 500 metres from humpback cows and calves.
 - 1.7 A person may not make, or cause to be made, a noise that is likely to frighten or otherwise cause distress to a whale because of its loudness or suddenness or for any other reason.
 - 1.8 A person may not play a recording of sounds made under water in a manner that is likely to be heard by a whale [DPaW, relevant JMB(s)] (H-KMS)⁴
2. During the life of the management plan, consider the need and options for temporal closures to vessels during the core whale visitation period in the special purpose zone (whale conservation) [DPaW, relevant JMB(s)] (H).
3. If necessary, and taking into account vessel safety issues, gazette speed restriction notice in special purpose zones (whale conservation) and sanctuary zones to reduce the risk of vessel collision with humpback whales [DoT, DPaW, relevant JMB(s)] (H).
4. Consider commercially licensed operators that may be exempt from some conditions of the Wildlife Conservation (close season for humpback cows and calves) Notice if engaged in endorsed research and monitoring programs for humpback whale cows and calves [DPaW, relevant JMB(s)] (H).
5. Ensure that the granting and renewal of commercial operations licences and leases in relation to marine park access and wildlife interaction is consistent with the management plan permitted use table, management targets, Wildlife Conservation (close season) Notices and any other conditions developed for Lalang-garram / Camden Sound Marine Park [DPaW, relevant JMB(s), MPRA] (H).
6. Control access to sites that Traditional Owners consider unsuitable for visitation through the commercial tour operator licence system in collaboration with Traditional Owners [DPaW, relevant JMB(s), relevant Aboriginal Corporation] (H).
7. Apply strict commercial tour operator conditions to ensure culturally sensitive and appropriate visitation to approved cultural heritage sites and traditional country in collaboration with Traditional Owners [DPaW, relevant JMB(s)] (H).

Management actions

8. Ensure licence conditions for commercial tour vessels engaged in whale watching consistently include a requirement for operators to collect basic information on whale position and behaviour to assist humpback whale research and monitoring [DPaW, relevant JMB(s), DoF] (H).

⁴ Wording used in the proposed *Wildlife Conservation (close season for humpback cows and calves) Notice* will be finalised by the state's Parliamentary Counsel's Office, and may differ to text presented here.

9.	Consider the restriction of access to localised high-use humpback whale calving and nursing areas by vessel or aircraft if humpbacks are found to be sensitive to these activities [DPaW, relevant JMB(s), DoT] (H).
10.	Restrict access to seaplane landings in the special purpose zone (whale conservation) between June and November unless absolutely necessary for safety reasons [DPaW, DoT, Civil Aviation Safety Authority] (H).
11.	Develop and implement new management arrangements for visitor access, which will include considering restriction of foot access to Montgomery Reef [DPaW, relevant JMB(s)] (H).
12.	Develop information to ensure that visitors are aware of the cultural values of the marine park and are aware of cultural laws and protocols regarding visitor risk and safety [relevant JMB(s), DPaW] (H).
13.	Ensure the granting and renewals of licences and leases relating to pearling operations within the marine park is consistent with the management plan permitted use table and management targets [DoF, DPaW, relevant JMB(s), MPRA] (H).
14.	Ensure the granting and renewal of authorisations for commercial fishing operations within the marine park is consistent with the management plan permitted use table and management targets [DoF, DPaW, relevant JMB(s), MPRA] (H).
15.	Ensure the authorisation of maritime developments within the marine park is consistent with the management plan permitted use table and management targets [EPA, DPaW, relevant JMB(s), MPRA, DMP, Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPAC)] (H).
16.	Consult as necessary in regard to the issuing and renewal of licences, leases and permits under the WC Act, CALM Regulations, FRM Act and Pearling Act [DPaW, relevant JMB(s), DoF, MPRA] (H).
17.	Advise commercial tour operators that it is prohibited to disturb sites protected under the <i>Maritime Archaeological Act 1973</i> , <i>Historic Shipwrecks Act 1976</i> and <i>Aboriginal Heritage Act 1976</i> [DPaW, relevant JMB(s), DIA, WAM] (H).
18.	Establish and maintain a quantitative and qualitative spatial database of human use within the marine park [DPaW, JMB(s), relevant Aboriginal Corporations, DoF] (M).
19.	Ensure the implementation of EPBC Act Policy Statement 2.1 – <i>Interaction between offshore seismic exploration and whales</i> (Australian Government 2008a) within and adjacent to the marine park [DPaW, relevant JMB(s), SEWPAC, DMP, OEPA, MPRA] (M).
20.	Prepare a mooring and anchoring plan [DPaW, relevant JMB(s), DoT, MPRA, Pearl Producers Association] (M).
21.	Implement and administer the mooring and anchoring plan [DPaW, DoT, Pearl Producers Association] (M).
22.	Conduct periodic visitor risk assessments in the marine park as required and mitigate identified issues [DPaW relevant JMB(s)] (M).
23.	Facilitate training that enhances knowledge of maritime and terrestrial heritage site management [DPaW, relevant JMB(s), DIA, WAM, Heritage Council of WA] (M).
24.	Ensure appropriate liaison regarding the introduction or maintenance of navigation infrastructure within the marine park [DoT, DPaW] (L).
25.	Develop and implement codes of practice as necessary to ensure responsible use of the marine park [DPaW, relevant JMB(s)] (L).
Performance measures	
Management target	
Implement management actions	Within the life of the management plan

3.5.3 Education and interpretation

The provision of interpretive material and delivery of education is critical to ensuring an increased understanding of the values of the marine park and will help to develop a sense of community

stewardship.

Education and interpretation objective	
To foster a high level of community understanding and appreciation of the marine park's values, as well as support for management.	
Management actions	
1.	Develop an education and interpretation plan designed to raise awareness and stewardship of the importance of ecological, cultural and social values (especially those identified with management targets that form the key performance indicators), with emphasis on humpback whales; appropriate behaviours within zones to reduce human impacts and ensure public safety [DPaW, relevant JMB(s), relevant Aboriginal Corporation, DoF, DoT, DMP] (H-KMS).
2.	Implement the education and interpretation plan, including delivery of interpretive materials and presentations to the community, commercial tour operators and businesses with an interest in the marine park [DPaW, relevant JMB(s), DoF] (H-KMS).
3.	Collaboratively develop and implement education and interpretation programs, where culturally appropriate, to raise awareness and knowledge of visitors to the marine park about Aboriginal connections with the marine and coastal environment and areas of cultural significance [DPaW, relevant JMB(s)] (M).
4.	Provide education and interpretive information about the marine park's values and management arrangements to fishing, boat and yacht clubs operating in Broome, Derby, Wyndham and Darwin [DPaW, DoF] (M).
Performance measures	Management target
Implement management actions	Within the life of the management plan

3.5.4 Public participation

It is clear that the public has a strong interest in the conservation of the area, particularly in ensuring the protection of the place as a globally important area for humpback whale calving. The marine park also has important cultural resources, with three Traditional Owner groups having native title determinations or claims in the area. It is important that the public is presented with opportunities to further understand these values and to contribute to the management of Lalang-garram / Camden Sound Marine Park.

In 2009, a community-initiated festival was held for the first time in Broome to celebrate the arrival of the humpback whale to coastal waters. The festival provided an opportunity for the public to share information about whales and contribute to the conservation management of the species. This is an example of how the public can participate in promoting the ecological values and sustainable use of the marine park.

Public participation objective	
To have meaningful public participation in the management of the marine park.	
Management actions	
1.	Prepare and implement a public participation plan that encourages involvement in management through a range of opportunities [DPaW, relevant JMB(s)] (H-KMS).
2.	Facilitate public participation in the management of the marine park through appropriate engagement mechanisms [DPaW, relevant JMB(s)] (M).
3.	Maintain a database of public participation [DPaW] (M).
Performance measures	Management target
Implement management actions	Within the life of the management plan

3.5.5 Patrol and enforcement

Overall, the majority of users visiting the Kimberley coast display a strong commitment to ensuring their

use does not have a significant negative impact on the values of the marine park. This is particularly the case for commercial cruise operators whose businesses rely on the outstanding natural and cultural values and features of the region.

DPaW in partnership with relevant JMB(s), and through liaison with DoF, will implement a collaborative patrol and enforcement program. DPaW will also encourage commercial tour operators and visitors



Figure 22: Dambimangari rangers near Wirijjarlu at Yowjab (Montgomery Reef Complex) (Todd Quartermaine)

to the marine park to self-regulate in accordance with the management plan and voluntarily report any inappropriate or unlawful activity.

Patrol and enforcement objective	
To have a high level of compliance with management arrangements specified for the marine park.	
Management actions	
1. Develop and implement a collaborative patrol and enforcement plan [DPaW, relevant JMB(s), DoF] (H-KMS).	
a.	Facilitate cross-authorisation of enforcement officers as appropriate [DPaW, relevant JMB(s), relevant Aboriginal Corporation(s), DoF] (H).
b.	Monitor compliance with the Wildlife Conservation (close season for humpback cows and calves) Notice within the special purpose zone (whale conservation) and sanctuary zones [DPaW, relevant JMB(s), DoF] (H-KMS).
c.	Ensure the implementation of the <i>Strategy for the Management of Sewage Discharge from Vessels into the Marine Environment</i> (Department for Planning and Infrastructure 2004) and thereby prohibit the discharge of sewage from vessels in the sanctuary zone, in all areas within 500 metres of the shore and in Kuri Bay, Camden Harbour, Sampson Inlet, St George Basin, Prince Regent River, and ‘The River’ at Montgomery Reef. [DoT, DPaW, relevant JMB(s)] (H).
d.	Promote the management plan among commercial tour operators and visitors to inform them about their responsibilities and encourage them to voluntarily report any inappropriate or unlawful activity [DPaW, relevant JMB(s)] (H).
e.	Ensure marine park visitors obtain and comply with appropriate regulations, licences and permits [DPaW, relevant JMB(s), DoF] (H).
f.	Maintain a database of compliance statistics and issues for management assessment [DPaW, relevant JMB(s), DoF] (M).
g.	Patrol the shoreline and waters of the marine park for marine debris and remove as necessary [DPaW, DoF] (M).
Performance measures	Management target
Implement management actions	Within the life of the management plan

3.5.6 Research

Understanding the marine ecosystems and human use of the marine park is critical to ensuring the maintenance of its habitats and species. The 2011 listing of the values of the West Kimberley Region on the National Heritage Register has further highlighted the extensive research opportunities that exist in the region and within Lalang-garram / Camden Sound Marine Park.

Research undertaken by independent cetacean scientists has identified the marine park as a place of major significance for humpback whale calving and breeding (Jenner *et al.* 2001). This finding has been complemented by voluntary community-based research coordinated by a whale watching business operating out of Broome. This research has helped to confirm the importance of the area as a significant place for humpback whale calving and has helped raise the level of community interest in the area. The Australian Institute of Marine Science visited Camden Sound and Montgomery Reef in 2008 and 2009 to collect scientific information. Surveys conducted to date have identified 280 species of coral across 55 genera. Many species yet to be identified are expected to be new to science (Heyward 2009, pers. comm.). In recent years, Dambimangari and Wunambal Gaambera (Uunguu) Traditional Owners have been involved in turtle and dugong research with the North Australian Indigenous Land and Sea Management Alliance (NAILSMA). Many further opportunities exist for research partnerships between Traditional Owners and scientists.

“Our rangers have done some trial survey work on mangguru (marine turtles) and balguja (dugong) with the North Australian Indigenous Land and Sea Management Alliance (NAILSMA). We need to find out more about mangguru, balguja and other saltwater animals including diigu (birds). We need to know more about where they travel, their habitats in our country and how to look after them. Working together with other saltwater Traditional Owner groups across northern Australia using our traditional knowledge, doing surveys, tagging and looking after saltwater animals, fish, diigu and their habitats will help us keep these animals healthy in our country as well as keeping our saltwater traditions strong.”

(Wunambal Gaambera Aboriginal Corporation 2010)

Some opportunities may relate to further identifying and better understanding the cultural values of the Camden Sound area, further exploring the traditional ecological knowledge held by Traditional Owners, and integrating western scientific research with traditional ecological knowledge and cultural values. The development of research partnerships and agreements between western scientists and Traditional Owners requires the development of protocols relating to the culturally appropriate use of information shared by Traditional Owners.

“Many aalmara (European people) have given our sacred rock art other names, like calling our Gwion ‘Bradshaw figures’. Some aalmara have done studies of our rock art and put pictures of it in books without our permission. We are happy to share our cultural knowledge as long as it is done in the proper way.”

(Wunambal Gaambera Aboriginal Corporation 2010)

Consistent with the outcome-based approach, further research will be undertaken to support a review of the adequacy of management arrangements in the marine park particularly with regard to humpback whales and the special purpose zone (whale conservation). This will inform the five-year review of the implementation of the management plan by the MPRA supported by DPaW, its joint management partners and other agencies.

DPaW's Marine Science Program is primarily responsible for facilitating research in the state's marine parks and reserves to provide information necessary to support appropriate management. DPaW will work in liaison with relevant JMB(s) to ensure that cultural values and traditional ecological knowledge is used in the development of collaborative research plans. DoF's Research Division undertakes research into the status of fish stocks over large spatial scales and contributes valuable information regarding the status of species targeted by the commercial and recreational fishing sector. DoF undertakes research into ecosystem and habitat characteristics to inform broader ecosystem-based fisheries management within the Kimberley region, including the marine parks that lie within it. The state government has committed funding to the WAMSI of \$12 million over five years to undertake research in the Kimberley region, including within marine parks. This research will assist to fill fundamental knowledge gaps and so assist in adaptive management.

Research objective	
To implement a collaborative and cost-effective research program to improve knowledge and understanding of humpback whales, other important ecological values, cultural heritage and human use in the marine park.	
Management actions	
1.	In consultation with Traditional Owners prepare a collaborative marine research plan. Ensure the research plan utilises existing traditional ecological knowledge and cultural values, includes further research on indigenous cultural values and integrates research on TEK and cultural values with Western science programs [DPaW, relevant JMB(s), DoF] (H-KMS).
2.	Ensure that all research projects undertaken by or on behalf of DPaW comply with DPaW's Science Policy (No. 78) and associated guidelines [DPaW] (H-KMS).
3.	Establish habitat mapping and characterisation for the marine park to support management and the five-year review [DPaW] (H-KMS).
4.	Ensure the marine research plan addresses key gaps in knowledge for threatened species and species of special conservation significance with management targets that form key performance indicators [DPaW, relevant JMB(s), DoF] (H-KMS).
5.	In consultation with Traditional Owners, develop protocols to ensure the research plan and any research undertaken in the marine park is culturally appropriate and that information shared by Traditional Owners is used in a culturally appropriate manner. Research partnerships between research scientists and Traditional Owners should be accompanied by a research agreement [relevant JMB(s), DPaW, relevant Aboriginal Corporation(s)] (H).
6.	Ensure the granting and renewal of permits relating to scientific research is consistent with the management plan permitted use table, management targets, cultural protocols and Wildlife Conservation (close season) Notices as appropriate [DPaW, relevant JMB(s)] (H).
7.	Undertake further research to assist with a five-year review of the adequacy of management arrangements in the marine park, particularly with regard to humpback whales and the special purpose zone (whale conservation) and the adequacy of the zoning scheme for habitat and species representativeness and protection, including St George Basin [DPaW, relevant JMB(s), DoF—in relation to fisheries] (H-KMS).
8.	Spatially and qualitatively characterise the use of the marine park by humpback whales, including the identification of high-use humpback whale calving and nursing areas [DPaW, relevant JMB(s)] (H-KMS).
9.	Consider and use information from cultural mapping projects initiated by Traditional Owners and use it to help inform management actions and responses in relation to Aboriginal cultural and heritage values [Relevant Aboriginal Corporation, relevant JMB(s), DPaW] (M).
10.	Spatially and qualitatively characterise human use of the marine park by recreational and commercial users [DPaW, relevant JMB(s), DoF] (H-KMS).
11.	Investigate the extent and significance of interactions between commercial fishing and humpback whales and other specially protected species [DPaW, relevant JMB(s), DoF] (H-KMS).

12.	Ensure outcomes from the research program are incorporated into adaptive marine park management, as well as planning and policy programs [DPaW, relevant JMB(s), DoF] (H-KMS).
13.	Implement research components of the <i>Humpback whale recovery plan</i> (Australian Government 2005) and other relevant species conservation plans/strategies with respect to the marine park [DPaW, relevant JMB(s)] (H).
14.	Maintain a database of ecological and socio-economic research relevant to management [DPaW, relevant JMB(s)] (M).
15.	Provide logistical and financial support to researchers where possible [DPaW, relevant JMB(s)] (M).
Performance measures	
Implement management actions	Management target
	Within the life of the management plan

3.5.7 Monitoring

Monitoring against management targets is essential in evaluating management effectiveness and informing an adaptive management response. Monitoring within the marine park will focus on the condition of key ecological values with management targets identified as key performance indicators. Traditional ecological knowledge will also be used in monitoring and adaptive management of the marine park. It will also be important to monitor human-use patterns, trends and interactions in the marine park, and the conservation of cultural values.

DPaW's Marine Science Program is primarily responsible for delivering monitoring in the state's marine parks and reserves, and will work in liaison with relevant JMB(s), DPaW's West Kimberley District office and other science providers. DoF's Research Division monitors the status of species targeted by the commercial and recreational sector to ensure stocks are maintained at sustainable levels. It reports on the state of Western Australia's commercial and recreational fisheries annually, and also monitors biosecurity issues such as introduced marine pests and diseases.

It has been reported that by the end of the century, climate-induced change may be the dominant driver of biodiversity loss and changes in ecosystem services globally (Millennium Ecosystem Assessment 2005). It is currently unknown what range of species will be most affected by climate-induced change, and when this may occur. It is also not clear what management approaches are possible to protect species affected by climate change.

Monitoring objective	
To implement a collaborative and cost-effective marine monitoring program to provide for adaptive management and to inform assessment of management effectiveness within the marine park.	
Management actions	
1.	Prepare a collaborative and cost-effective marine monitoring plan. Ensure the marine monitoring plan uses existing traditional ecological knowledge [DPaW, DoF, relevant JMB(s)] (H-KMS).
2.	Ensure that all monitoring activities undertaken by or on behalf of DPaW comply with DPaW's Science Policy (No. 78) and associated guidelines [DPaW] (H-KMS).
3.	Progressively implement the marine monitoring plan with a primary focus on determining if management targets have been achieved for key performance indicators [DPaW, relevant JMB(s), DoF—for monitoring of targeted 'fish'] (H-KMS).
4.	Implement monitoring components of the <i>Humpback whale recovery plan</i> (Australian Government 2005), and other relevant species conservation plans/strategies with respect to the marine park [DPaW, relevant JMB(s)] (H).
5.	Ensure an appropriate level of monitoring is undertaken by developers operating with approval in or adjacent to the marine park [OEPA, DPaW, MPRA, DoT, DMP] (H).
6.	Consider the potential implications of climate change when developing a marine monitoring program [DPaW, relevant JMB(s), DoF] (M).

7.	Develop and apply management targets to ecological values identified through the research program [DPaW, relevant JMB(s), MPRA] (M).
8.	In partnership with Traditional Owner rangers, develop and implement an ongoing turtle and dugong monitoring program [DPaW, relevant JMB(s)] (M).
9.	Develop and apply management targets for human values and uses [DPaW, relevant JMB(s), MPRA] (H).
10.	Ensure biosecurity issues are considered during the development of the marine monitoring plan [DoF, DPaW] (M).
Performance measures	
Implement management actions.	
Management target	
Within the life of the management plan	

3.6 Measuring management effectiveness

Table 8 provides the generic performance measures, management targets and key performance indicators (KPI) by which the Lalang-garram / Camden Sound Marine Park will be managed and assessed in relation to the strategic objectives of the reserves. Performance measures are variables or components that will be routinely assessed to evaluate management effectiveness. Such evaluations may draw on qualitative and/or quantitative monitoring information. Management targets represent the intent of the management for the marine park and a desired condition or status to be achieved for each performance measure. Specific management targets associated with key values will be used as KPIs of overall management effectiveness. This provides the basis for adaptive management, whereby management is altered if necessary to meet desired outcomes.

Table 8 outlines key values and associated performance measures and targets. However, more detailed and specific measures of performance and/or management targets will be used to give effect to the broader targets or measures where necessary. The achievement of management targets indicated in the table may in some cases be influenced by activities outside the marine park, therefore management will remain cognisant of off-reserve activities that may influence the outcomes for the park.

Table 8: Performance measures, management targets and key performance indicators

Aboriginal cultural and heritage values		
Aboriginal culture and heritage (KPI)	Performance measures	Management targets
	To be developed in consultation with Traditional Owners	Management targets for Aboriginal culture and heritage values will be developed across all marine park values identified as a priority by Traditional Owners. Management targets for Aboriginal culture and heritage values will be developed by relevant joint management body(s) within one year of the management plan being implemented.

SPECIES OF SPECIAL CONSERVATION INTEREST						
Whales (KPI)	Performance measures	Management targets				General use zone
		Sanctuary zone	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Special purpose zone (pearling)	
	Abundance of humpback whales	No loss of whale abundance as a result of human activity within the marine park.				
	Humpback whale calving success	Maintained at, or increased from, 2013 levels: no reduction in calving success as a result of human activity within the marine park.				
Dolphins (KPI)	Performance measures	Management targets				General use zone
		Sanctuary zone	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Special purpose zone (pearling)	
	Abundance of key species	Maintained at, or increased from, 2013 levels: no reduction in abundance of key species as a result of human activity within the marine park.				
	Diversity of species	Maintained at 2013 levels: no reduction in diversity as a result of human activity within the marine park.				
Finfish (KPI)	Performance measures	Management targets				General use zone
		Sanctuary zone	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Special purpose zone (pearling)	
	Abundance of key species	Abundance to be at 'natural levels' ⁵			To be determined in consultation with DoF.	
	Size composition of key species	Composition to be at 'natural levels' ⁵			To be determined in consultation with DoF.	
	Abundance of protected species	Maintained at, or increased from, 2013 levels: no reduction in the abundance of protected species as a result of human activity within the marine park.				
Diversity of native species	Maintained at 2013 levels: no reduction in the diversity of native species as a result of human activity within the marine park.					

⁵ Natural levels refer to the level of species composition or abundance that is undisturbed or unexploited by human activities.

Sharks and rays	Performance measures	Management targets				
		Sanctuary zone	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Special purpose zone (pearling)	General use zone
	Abundance of key species	Abundance to be at 'natural levels' ⁵			To be determined in consultation with DoF.	
	Size composition of key species	Composition to be at 'natural levels' ⁵			To be determined in consultation with DoF.	
	Abundance of totally protected and commercially protected sharks	Maintained at, or increased from, 2013 levels: no reduction in the abundance of totally protected and commercially protected species as a result of human activity within the marine park.				
	Diversity of species	Maintained at, or increased from, 2013 levels: no reduction in the diversity of native species as a result of human activity within the marine park.				
<ul style="list-style-type: none"> • Dugongs • Turtles • Saltwater crocodiles • Seabirds and shorebirds 	Performance measures	Management targets				
		Sanctuary zone	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Special purpose zone (pearling)	General use zone
	Abundance of key species	Maintained at, or increased from, 2013 levels: no reduction in abundance of key species as a result of human activity within the marine park.				
	Diversity of species	Maintained at 2013 levels: no reduction in the diversity of native species as a result of human activity within the marine park.				
Geomorphic habitat						
<ul style="list-style-type: none"> • Mud • Sand • Rocky shores, platforms and shoals 	Performance measure	Management targets				
		Sanctuary zone	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Special purpose zone (pearling)	General use zone
	Areal extent of habitat	No disturbance, except for essential marine park infrastructure (such as moorings) approved by the appropriate regulatory authority.			No disturbance, except in designated areas approved by the appropriate regulatory authority. Where approved, the cumulative disturbance is not to exceed 1% of the total area of habitat type within each of these zones.	

Biological habitat						
Seawater (KPI)	Performance measure	Management targets				General use zone
		Sanctuary zone	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Special purpose zone (pearling)	
	Water quality: bacterial concentration in seawater	Present at no higher than natural levels.				Below recommended levels (ANZECC 1999, ARMCANZ 2000) 500m from shore but present at no higher than natural levels in Kuri Bay, Camden Harbour, Sampson Inlet and 'The River'.
Coral (KPI)	Performance measures	Management targets				General use zone
		Sanctuary zone	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Special purpose zone (pearling)	
	Distribution and biomass	Maintained at 2013 levels: no reduction in distribution and biomass as a result of human activity within the marine park .				No disturbance, except in designated areas approved by the appropriate regulatory authority. Where approved, the cumulative disturbance is not to exceed 1% of the total area of coral habitat within each of these zones.
	Diversity of native species	Maintained at 2013 levels: no reduction in the diversity of native species as a result of human activity within the marine park.				

Mangroves (KPI)	Performance measures	Management targets				
		Sanctuary zone	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Special purpose zone (pearling)	General use zone
	Distribution and biomass	Maintained at 2013 levels: no reduction in distribution and biomass as a result of human activity within the marine park.			No disturbance, except in designated areas approved by the appropriate regulatory authority. Where approved, the cumulative disturbance is not to exceed 1% of the total area of mangrove habitat within each of these zones.	
	Diversity of native species	Maintained at 2013 levels: no reduction in the diversity of native species as a result of human activity within the marine park.				
<ul style="list-style-type: none"> • Macroalgae • Seagrass 	Performance measures	Management targets				
		Sanctuary zone	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Special purpose zone (pearling)	General use zone
	Distribution and biomass	Maintained at 2013 levels: no reduction in distribution and biomass as a result of human activity within the marine park.			No disturbance, except in designated areas approved by the appropriate regulatory authority. Where approved, the cumulative disturbance is not to exceed 1% of the total area of the habitat type within each of these zones.	
	Diversity of native species	Maintained at 2013 levels: no reduction in the diversity of native species as a result of human activity within the marine park.				
Human values and uses						
Nature-based recreation and tourism	Performance measures	Management targets				
		Sanctuary zone	Special purpose zone (whale conservation)	Special purpose zone (wilderness conservation)	Special purpose zone (pearling)	General use zone
	Range of visitor opportunities	Maintained and consistent with permitted uses, zoning and management targets.				
	Visitor awareness of marine park	<ul style="list-style-type: none"> • 50% awareness of the marine park among tourists within 10 years • 70% awareness of the marine park among the Broome and Derby communities within 10 years • 50% awareness of the marine park's values among tourists within 10 years • 50% awareness of the marine park's values among the Broome and Derby communities within 10 years. 				
	Visitor satisfaction of experiences in the marine park	A high level of visitor satisfaction.				



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Part D

4. Appendices

4.1 Appendix 1 – Acronyms and commonly used terms

ANZECC	Australia and New Zealand Environment and Conservation Council
CALM Act	<i>Conservation and Land Management Act 1984</i>
CALM Regulations	Conservation and Land Management Regulations 2002
CAMBA	China – Australia Migratory Bird Agreement
DAC	Dambimangari Aboriginal Corporation
DPaW	Department of Parks and Wildlife
DIA	Department of Indigenous Affairs
DoF	Department of Fisheries
DoT	Department of Transport
DMP	Department of Mines and Petroleum
OEPA	Office of the Environmental Protection Authority
EPBC Act	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>
FRM Act	<i>Fish Resources Management Act 1994</i>
H	High priority
H-KMS	High – key management strategy
ILUA	Indigenous Land Use Agreement
IUCN	International Union for the Conservation of Nature
JAMBA	Japan–Australia Migratory Bird Agreement
JMB	Joint management body
KPI	Key performance indicator
L	Low priority
M	Medium priority
MPRA	Marine Parks and Reserves Authority
ROKAMBA	Republic of Korea–Australia Migratory Bird Agreement
SEWPAC	Commonwealth Department of Sustainability, Environment,

	Water, Population and Communities
TEK	Traditional ecological knowledge
Traditional Owners	Aboriginal people who belong to, have the right to speak for, and have spiritual responsibilities for the care of a certain place or places based on their own laws and customs. Traditional Owners may be directly descended from the original Aboriginal inhabitants of the land and may also be the common law holders of native title for the country being discussed.
WAM	Western Australian Museum
WAMSI	Western Australian Marine Science Institution
WC Act	<i>Wildlife Conservation Act 1950</i>
WC Regulations	<i>Wildlife Conservation Regulations 1970</i>
WGAC	Wunambal Gaambera Aboriginal Corporation

4.2 Appendix 2 – Other agency functions

Management of the marine park will be implemented through a collaborative management approach led and coordinated by the Department of Parks and Wildlife (DPaW). The aim of collaborative management is to ensure integration and cohesion of the specific statutory responsibilities held by a number of government agencies.

The **Department of Parks and Wildlife**, under the Minister for Environment, is responsible for the implementation of the CALM Act, Conservation and Land Management Regulations 2002 (CALM Regulations), *Wildlife Conservation Act 1950* (WC Act) and Wildlife Conservation Regulations 1970 (WC Regulations). The WC Act and WC Regulations provide for the conservation and protection of all wildlife. DPaW, under the Minister for Environment, has primary responsibility for facilitating the preparation and implementation of management plans for Western Australia’s marine parks and reserves under the CALM Act on behalf of the MPRA.

Marine parks and reserves are managed primarily by DPaW under the CALM Act and Regulations, on behalf of the MPRA, through the implementation of seven management programs as outlined in Section 3.5. Under the CALM Act, the MPRA is required to audit the implementation of management plans and provide ongoing advice to DPaW and the Minister for Environment regarding development of the state’s marine parks and reserves system. DPaW and the MPRA also develop and implement necessary strategic policy to guide management of Western Australia’s marine parks and reserves.

The **Department of Fisheries**, under the Minister for Fisheries, is responsible for managing and regulating aquaculture, pearling, and commercial and recreational fishing in all state waters including marine parks and reserves under the *Fish Resources Management Act*, Fish Resources Management Regulations and the *Pearling Act*. This includes temporal and spatial fishing closures, quota systems, licensing, and bag and size limits to maintain the state’s targeted fish stocks at sustainable levels. The Department of Fisheries also administers the *Fishing and Related Industries Compensation (Marine Reserves) Act 1997*, which provides the mechanism by which the holder of an existing authorisation for commercial fishing, aquaculture or fish processing may seek compensation if the commercial value of the authorisation is diminished through the establishment of a marine park or reserve.

The **Department of Transport**, under the Minister for Transport, manages and regulates boating including licensing of vessels and operators; setting of safety standards and navigation requirement; licensing of jetties and maritime structures; and providing strategic coordination of marine incidents such as shipwrecks and pollution at sea. The Department of Transport’s responsibilities are carried out in accordance with the Navigable Waters Regulations 1958, Shipping and Pilotage (Mooring Control

Areas) Regulations 1983, *Western Australian Marine Act 1982*, *Marine and Harbours Act 1981*, *Western Australian Marine (Sea Dumping) Act 1981*, *Marine Navigational Aids Act 1973*, *Shipping and Pilotage Act 1967*, *Lights (Navigation Protection) Act 1938* and the *Jetties Act 1926*.

The **Department of Mines and Petroleum**, under the Minister for Mines and Petroleum, is the state's lead agency in attracting private investment for resource exploration and development through providing geoscientific information on minerals and energy resources, and through managing an equitable and secure titles system for the mining, petroleum and geothermal industries under the *Mining Act 1978 and Petroleum (Submerged Lands) Act 1982*. It also carries primary responsibility for regulating these extractive industries and dangerous goods in Western Australia, including the collection of royalties, and ensuring that safety, health and environmental standards are consistent with relevant state and Commonwealth legislation, regulations and policies.

The **Office of the Environmental Protection Authority**, under the Minister for Environment, has responsibility for parts of the *Environmental Protection Act 1986* dealing with environmental impact assessments, policy development and compliance monitoring of Ministerial conditions. The OEDA's responsibilities include providing advice to the Minister on the environmental acceptability of development proposals and management plans, formulating environmental protection policies to protect specific parts of the environment, and providing public statements about matters of environmental importance.

The **Department of Indigenous Affairs**, under the Minister for Indigenous Affairs, facilitates the protection of Aboriginal heritage and culture, provides policy direction on issues affecting Aboriginal people, holds and protects cultural information on behalf of Aboriginal people and facilitates engagement of Aboriginal people in discussions and information sharing in accordance with the *Aboriginal Heritage Act 1972*. Under the *Aboriginal Affairs Planning Authority Act 1972* the Aboriginal Affairs Planning Authority and Aboriginal Affairs Advisory Council provide consultative and other services for the economic, social and cultural advancement of persons of Aboriginal descent in Western Australia. Under this Act the Aboriginal Lands Trust administers the management of reserves vested to the Aboriginal Affairs Planning Authority, supported by the Department of Indigenous Affairs.

The **Western Australian Museum**, under the Minister for Culture and the Arts, facilitates the protection of pre-1900 shipwrecks and maritime artefacts in Western Australia's state coastal waters, inclusive of those within marine parks and reserves in accordance with the *Maritime Archaeology Act 1973*. The WAM also undertakes, or participates in, surveys of marine biodiversity; and manages, administers and maintains the state's collection of marine biological reference material.

The **Department of Water**, under the Minister for Water, provides scientific advice and technical data to industry and government on the status of water, usage, conservation, technology and the viability of new source development. The DoW responsibilities include providing advice regarding catchment management practices which may improve the quality of water entering marine parks and reserves, and other marine, estuarine and freshwater environments. The DoW operates in accordance with a number of acts including the *Waterways Conservation Act 1976* and the *Land Drainage Act 1925*.

The **Department of Planning**, under the Minister for Planning, has statewide responsibility for planning for future communities through planning for cities and towns and the transport routes that connect people and places. The Department of Planning also facilitates non-statutory and statutory planning for coastal areas throughout the state in consultation with local governments and community.

Tourism Western Australia, under the Minister for Tourism, is responsible for promoting Western Australia nationally and overseas as an attractive holiday, event, convention and incentive travel destination; and for enhancing the tourism industry, infrastructure and product base. Tourism Western Australia works closely with DPaW in promoting marine parks and reserves as a tourism product. Tourism's direct contribution to Western Australia's gross state product is estimated at \$3.7 billion per annum (Scherrer 2008).

The **Department of Premier and Cabinet of Western Australia**, provides advice and seeks clarification on native title issues. The Native Title Act provides guidance in regard to the establishment of marine parks and reserves in relation to the interests of native title claimants or holders.

The **Commonwealth Department of Sustainability, Environment, Water, Population and Communities**, under the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities, administers the requirements of the EPBC Act, which aims to provide for the protection of matters of national environmental significance—namely the ecological character of internationally important wetlands, nationally listed threatened species and ecological communities, listed migratory species, the value of world and national heritage places and Commonwealth marine waters extending from three to 200 nautical miles from shore. The department also administers the *Historic Shipwrecks Act 1976*, which protects historic wrecks and associated relics that are more than 75 years old.

The **Commonwealth Department of Agriculture, Fisheries and Forestry**, under the Commonwealth Minister for Agriculture, Fisheries and Forestry, develops and implements policies and programs to ensure Australia’s fisheries are competitive, profitable and sustainable. It supports Australia’s domestic fisheries and aquaculture through research, quarantine, fish health and food safety programs, market access and trade negotiations, business development, management assistance and policy development. The Australian Fisheries Management Authority operates under Department of Agriculture, Fisheries and Forestry and implements the reporting framework for Commonwealth licensed fisheries including assessment of their sustainability.

The **Shire of Wyndham East Kimberley** is the local government responsible for community planning for 121,000 square kilometres of the Kimberley region, including the towns of Kununurra and Wyndham. The shire is primarily guided by its Local Planning Strategy, which provides support for the conservation of the marine environment and the establishment of multiple-use marine parks and reserves (Shire of Wyndham East Kimberley 2006).

4.3 Appendix 3 – Overview of authorised commercial fisheries in the Lalang-garram Camden Sound Marine Park

Beche de mer Fishery

The Beche de mer Fishery has been operating since the mid 1990s, principally from vessels operating from Darwin. The area of the marine park is fished intermittently every two years. Effort is particularly concentrated around Augustus Island and the Montgomery Reef. The fishery targets ‘sandfish’ (*Holothuria scabra*) and ‘red fish’ (*Actinopyga echinites*).

Mud Crab Fishery

There appears to be minimal commercial mud crab fishing in the area of the marine park, with only six years of fishing recorded between 1991 and 2009. Catches have averaged between 28 and 664 kilograms with the last known catch of 140 kilograms in 2004. The majority of recent commercial mud crab fishing has occurred in York Sound, King Sound, Admiralty Gulf and Cambridge Gulf outside the waters of the marine park.

Kimberley Prawn Managed Fishery

Less than 10 per cent of the total Kimberley Prawn fishing activity operates in the waters of the marine park. However, the marine park includes approximately 40 per cent of the favoured fishing grounds. These main prawn fishing grounds overlap with the high priority calving grounds on the eastern side of Camden Sound. Bycatch reduction devices (grids and secondary devices to assist turtles and fish

escaping) are compulsory in the Kimberley Prawn Managed Fishery and reduce the catch of protected and other species. Trawling is primarily focused on muddy habitats, and this reduces the impacts of this fishery on structurally complex habitats. Non-retained bycatch, such as turtles, sawfish, sea snakes and syngnathids can be caught by trawlers (Evans 2009). However, the DoF, the Australian Fisheries Management Authority and commercial fishers continue to develop management arrangements to reduce bycatch under an ecosystem-based management framework. To reduce the potential for trawling activity to disturb humpback whales and calves, trawling will not be permitted in the special purpose zone (whale conservation). Trawling is also not permitted in the marine park's sanctuary zones and special purpose zone (wilderness conservation).

Mackerel Managed Fishery

In 2011–12, three vessels were undertaking surface trolling for mackerel (*Scomberomorus spp.*) primarily Spanish mackerel (*S. commerson*), in nearshore waters around island and reef systems in the Kimberley region. This fishery is highly targeted with virtually no bycatch. Some effort is expended within the marine park to the north and north-east of Champagny Island.

Kimberley Gillnet and Barramundi Managed Fishery

This fishery operates in nearshore waters around creek and river systems, and around coastal headlands. The fishery uses gillnets to target barramundi in the marine park and threadfin salmon (*Eleutheronema tetradactylum* and *Polydactylus macrochir*) in the waters to the south. There are currently seven licences in the fishery: two operate from Broome, one from Derby, and four more generally along the Kimberley coast. The fishery is managed through a limited number of licences, and operates in accordance with an agreement with the vessel-based commercial tourism industry to minimise interaction, which ensures commercial fishers do not operate in areas regularly visited by tourism operators.

Northern Demersal Scalefish Managed Fishery

This fishery targets snapper, emperor and grouper species through the use of hand lines. Four fishers are currently licensed to operate within the marine park, but minimal effort is expended within the marine park.

Joint Authority Northern Shark Fishery

This fishery is under the jurisdiction of the Western Australian Fisheries Joint Authority (Commonwealth and state Ministers responsible for fisheries management) but is managed under state law by DoF. The fishery uses long lines and pelagic and demersal gillnets. Gill netting in this fishery could be a potential risk to whales and other marine species such as turtles. In the recent past the fishery has operated primarily with long lines that target large shark species. However, due to sustainability issues with the take of large shark species, consideration has been given to migrating the fishery to gillnets to enable the targeting of smaller sharks that occur in higher numbers.

Western Australian North Coast Shark Fishery

The North Coast Shark Fishery is managed in conjunction with the Joint Authority Northern Shark Fishery with most operators having authorisations for both fisheries. This fishery operates in the area between North West Cape and Koolan Island. While the majority of the fishery was closed some years ago, a number of fishers are authorised to fish under an exemption in the area between Broome and Koolan Island and may not occur within the marine park. In 2013, both northern shark fisheries were inactive.

Marine Aquarium Fish Managed Fishery

The Marine Aquarium Fish Managed Fishery targets more than 250 species of fish but fishers also take coral, live rock, algae, seagrass and invertebrates. It is primarily a dive-based fishery that uses hand-held nets to capture the desired target species, from boats up to eight metres long. While the fishery operates throughout all Western Australian waters, catches are relatively low in volume due to the special handling requirements of live fish. Fishing operations are heavily weather-dependent due to the small vessels used and the potentially hazardous conditions (for example, waves, swell) encountered. In addition, human constraints (that is, physiological effects of decompression) limit the amount of effort exerted in the fishery, the depth of water and the offshore extent where collections can occur (DoF 2010).

Specimen Shell Managed Fishery

The Specimen Shell Managed Fishery is based on the collection of individual shells for the purposes of display, collection, cataloguing, classification and sale. Up to 550 different shellfish species are collected by hand by divers operating from small boats in shallow coastal waters. The fishery operates in Western Australian waters between the high water mark and the 200-metre isobath along the entire coastline.

This is a limited entry fishery with 32 licences in the fishery (not all of which are active). In 2008, the total number of specimen shells collected was 13,355, distributed over a wide range of species. In the past five years, more than 535 separate species of molluscs have been collected, with an average of more than 200 species per year – the majority in very low numbers (DoF 2010).

Pearl Oyster Managed Fishery

The Western Australian Pearl Oyster Fishery is the only remaining significant wild-stock fishery for pearl oysters in the world. It is a quota-based dive fishery operating in shallow coastal waters along the North-West Shelf and is one of Australia's most valuable aquaculture sectors. The Lalang-garram / Camden Sound Marine Park is overlain by Pearl Oyster Zone 3, in which up to 11 operators are licensed by the DoF to collect pearl oysters.

Pearl oyster fishing vessels operate between March and June each year from the Lacepede Islands north of Broome to Exmouth Gulf in the south. The number of vessels in the fishing fleet has been slowly reducing since 1997. This is due mostly to increased fleet efficiency and increased reliance on hatchery-produced shells. In 2009, with the negative impact of the global financial crisis on the industry, only two vessels fished (compared to 16 in 1997). The number of vessels fishing increased to four in 2010 with the global financial crisis abating. In 2011, most vessels operated with 10–14 crew.

The harvest method is drift diving, in which six to eight divers are attached to large outrigger booms on a vessel and towed slowly over the pearl oyster beds, harvesting legal-sized oysters by hand as they are seen. The species targeted is the Indo-Pacific, silver-lipped pearl oyster (*Pinctada maxima*) which are collected mainly for use in the culture of pearls. Divers have the ability to target pearl oysters of choice (species, sizes and quality of *P. maxima*). Pearl oysters brought to the vessel after hand collection are young and have relatively little epiphytic growth (fouling organisms). A small number of over-sized or under-sized oysters are returned to the substrate.

4.4 Appendix 4 – Operational schedule for implementation of management actions

This operational schedule details the timeframe in which management actions will be implemented. Management actions are presented for each of the seven management programs. Timeframes assist in the assessment of management plan implementation.

Management action to be completed within this timeframe
Management action to be completed on an ongoing basis

Objective	Management actions	Year												
		1	2	3	4	5	6	7	8	9	10			
Management frameworks														
To ensure the marine park has the appropriate legal, administrative, financial and human resource frameworks in place so that it is appropriately managed in partnership with Traditional Owners and in a collaborative setting with other agencies.	Implement all legal provisions necessary to establish and jointly manage the marine park, including registration of ILUAs; execution of Joint Management Agreements; reservation of intertidal areas within the marine park; gazettal of a CALM Act classified waters notice; and FRM Act fisheries management orders. Where amendments are required, a form of zoning may be used for these areas in the interim that does not restrict classes of fishing [DPaW, DPC, JMB(s), DoF, Department of Transport (DoT), Department of Mines and Petroleum (DMP)] (H-KMS). Develop and implement joint collaborative operational plans [DPaW, relevant JMB(s), DoF] (H-KMS). Develop and apply management targets for Aboriginal culture and heritage values within one year of management plan implementation [DPaW, relevant JMB(s)] (H-KMS). Undertake a five-year review of the adequacy of management arrangements in the marine park with a particular focus on humpback whales and the special purpose zone (whale conservation). The review will also include the adequacy of management arrangements for other ecological values, including the adequacy of the zoning scheme and protection of the value of the area for the culture and heritage of Aboriginal people [MPRA, DPaW, relevant JMB(s)] (H-KMS). Ensure the provision of necessary information and support for assessments of the implementation of the management plan by the MPRA [DPaW, relevant JMB(s), DoF] (H). Take into account the guidance and aspirations of Traditional Owners, which are contained in a number of Traditional Owner documents including the North Kimberley Saltwater Country and Healthy Country Plans (e.g. Wunambal Gaambera Healthy Country Plan and Dambimangari Healthy Country Plan 2012–2022), in protecting and conserving the value of the land and sea to the culture and heritage of Aboriginal people [relevant JMB(s), DPaW, Traditional Owners] (H). Ensure the setting of conditions for new developments and operations are consistent with management program objectives and management targets for ecological values [DPaW, relevant JMB(s), MPRA, Office of the Environmental Protection Authority (OEPA)] (H).													

Objective	Management actions	Year												
		1	2	3	4	5	6	7	8	9	10			
	Develop a maritime incident response plan, specific to the marine park that complements the state's marine oil spill response plan [DoT, DPaW, relevant JMB(s)] (H).													
	Undertake a review of shipping activity in the marine park to determine the need for navigational measures such as compulsory pilotage and/or designation of shipping routes [DoT, DPaW, relevant JMB(s)] (M).													
	Revise the boundary of the pearling 'transport exempt area' to lie within the special purpose zone (pearling) if necessary [DoF, DPaW, relevant JMB(s)] (M).													
	Develop and implement a plan for detection and mitigation response to marine pest incursion/outbreak in the marine park, including vessel risk assessments [DoF, DPaW, relevant JMB(s)] (M).													
	Through the relevant JMB(s) assist Traditional Owners to develop a sustainable management strategy for turtle and dugong [DPaW, relevant JMB(s)] (H).													
	Develop a cultural awareness training program approved by the relevant Aboriginal Corporation(s) for government employees and/or contractors working on the ground or in the management of the proposed park [relevant JMB(s), DPaW] (H).													
Management intervention and visitor services														
To provide world-class commercial and recreational opportunities for users and visitors to the marine park while conserving Aboriginal cultural heritage and marine biodiversity, with a particular emphasis on the protection of humpback whale cows and calves.	Gazette a Wildlife Conservation (close season for humpback cows and calves) Notice under the provisions of the WC Act applicable to the special purpose zone (whale conservation) and sanctuary zones with specified provisions (see Section 3.5.2) [DPaW, relevant JMB(s)] (H-KMS).													
	During the life of the management plan, consider the need and options for temporal closures to vessels during the core whale visitation period in the special purpose zone (whale conservation) [DPaW, relevant JMB(s)] (H).													
	Where necessary, and taking into account vessel safety issues, gazette speed restriction notice in special purpose zone (whale conservation) and sanctuary zones to reduce the risk of vessel collision with humpback whales [DoT, DPaW, relevant JMB(s)] (H).													
	Consider commercially licensed tourism vessels that may be exempt from some conditions of the Wildlife Conservation (close season for humpback cows and calves) Notice if engaged in endorsed research and monitoring programs for humpback whale cows and calves [DPaW, relevant JMB(s)] (H).													

Objective	Management actions	Year									
		1	2	3	4	5	6	7	8	9	10
	<p>Ensure that the granting and renewal of commercial operations licences in relation to marine park access and wildlife interaction is consistent with the management plan permitted use table, management targets, Wildlife Conservation (close season) Notices and any other conditions developed for Lalang-garram / Camden Sound Marine Park [DPaW, relevant JMB(s), MPRA] (H).</p> <p>Control access to sites that Traditional Owners consider unsuitable for visitation through the commercial tour operator licence system in collaboration with Traditional Owners [DPaW, relevant JMB(s), relevant Aboriginal Corporation] (H).</p> <p>Apply strict commercial tour operator conditions to ensure culturally sensitive and appropriate visitation to approved cultural heritage sites and traditional country in collaboration with Traditional Owners [DPaW, relevant JMB(s)] (H).</p> <p>Ensure licence conditions for commercial tour vessels engaged in whale watching consistently include a requirement for operators to collect basic information on whale position and behaviour to assist humpback whale research and monitoring [DPaW, relevant JMB(s), DoF] (H).</p> <p>Consider the restriction of access to localised high-use humpback whale calving and nursing areas by vessel or aircraft if these areas are found to be sensitive to these activities [DPaW, relevant JMB(s), DoT] (H).</p> <p>Restrict access to seaplane landings in the special purpose zone (whale conservation) between June and November unless absolutely necessary for safety reasons [DPaW, DoT, Civil Aviation Safety Authority] (H).</p> <p>Develop and implement new management arrangements for visitor access, which will include the consideration of restricting foot access to Montgomery Reef [DPaW, relevant JMB(s)] (H).</p> <p>Develop information to ensure that visitors are aware of the cultural values of the marine park and are aware of cultural laws and protocols regarding visitor risk and safety [DPaW, relevant JMB(s)] (H).</p> <p>Ensure the granting and renewals of licences and leases relating to pearling operations within the marine park is consistent with the management plan permitted use table and management targets [DoF, DPaW, relevant JMB(s), MPRA] (H).</p> <p>Ensure the granting and renewal of authorisations for commercial fishing operations within the marine park is consistent with the management plan permitted use table and management targets [DoF, DPaW, relevant JMB(s), MPRA] (H).</p> <p>Ensure the authorisation of maritime developments within the marine park is consistent with the management plan permitted use table and management targets [EPA, DPaW, relevant JMB(s), MPRA, DMP, Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPAC)] (H).</p> <p>Consult as necessary in regard to the issuing and renewal of licences, leases and permits under the WC Act, CALM Regulations, FRM Act and Pearling Act [DPaW, relevant JMB(s), DoF, MPRA] (H).</p> <p>Advise commercial tour operators that it is prohibited to disturb sites protected under the <i>Maritime Archaeological Act 1973</i>, <i>Historic Shipwrecks Act 1976</i> and <i>Aboriginal Heritage Act 1976</i> [DPaW, relevant JMB(s), DIA, WAM] (H).</p>										

Objective	Management actions	Year									
		1	2	3	4	5	6	7	8	9	10
	<p>Establish and maintain a quantitative and qualitative spatial database of human use within the marine park [DPaW, JMB(s), relevant Aboriginal Corporations, DoF] (M).</p> <p>Ensure the implementation of EPBC Act Policy Statement 2.1 – <i>Interaction between offshore seismic exploration and whales</i> (Australian Government 2008a) within and adjacent to the marine park [DPaW, relevant JMB(s), SEWPAC, DMP, OEPA, MPRA] (M).</p> <p>Prepare a mooring and anchoring plan [DPaW, relevant JMB(s), DoT, MPRA, Pearl Producers Association] (M).</p> <p>Implement and administer the mooring and anchoring plan [DPaW, DoT, Pearl Producers Association] (M).</p> <p>Conduct periodic visitor risk assessments in the marine park as required and mitigate identified issues [DPaW, relevant JMB(s)] (M).</p> <p>Facilitate training that enhances knowledge of maritime and terrestrial heritage site management [DPaW, relevant JMB(s), DIA, WAM, Heritage Council of WA] (M).</p> <p>Ensure appropriate liaison regarding the introduction or maintenance of navigation infrastructure within the marine park [DoT, DPaW] (L).</p> <p>Develop and implement codes of practice as necessary to ensure responsible use of the marine park [DPaW, relevant JMB(s)] (L).</p>										
	Education and interpretation										
	To foster a high level of community understanding and appreciation of the marine park's values, as well as support for management.	<p>Develop an education and interpretation plan designed to raise awareness and stewardship of the importance of ecological values (especially those identified with management targets that form the key performance indicators), with emphasis on humpback whales; appropriate behaviours within zones to reduce human impacts and ensure public safety [DPaW, relevant JMB(s), DoF, DoT, DMP] (H-KMS).</p> <p>Implement the education and interpretation plan, including delivery of interpretive materials and presentations to the community, commercial tour operators and businesses with an interest in the marine park [DPaW, relevant JMB(s), DoF] (H-KMS).</p> <p>Collaboratively develop and implement education and interpretation programs, where culturally appropriate, to raise awareness and knowledge of visitors to the marine park about Aboriginal connections with the marine and coastal environment and areas of cultural significance [DPaW, relevant JMB(s)] (M).</p> <p>Provide education and interpretive information about the marine park's values and management arrangements to fishing, boat and yacht clubs operating in Broome, Derby, Wyndham and Darwin [DPaW, DoF] (M).</p>									

Objective	Management actions	Year																		
		1	2	3	4	5	6	7	8	9	10									
Public participation																				
To have meaningful public participation in the management of the marine park.	Prepare and implement a public participation plan that encourages involvement in management through a range of opportunities [DPaW, relevant JMB(s)] (H-KMS). Facilitate public participation in the management of the marine park through appropriate engagement mechanisms [DPaW, relevant JMB(s), DIA] (M). Maintain a database of public participation [DPaW] (M).																			
Patrol and enforcement																				
To have a high level of compliance with management arrangements specified for the marine park.	Develop and implement a collaborative patrol and enforcement plan [DPaW, relevant JMB(s), DoF] (H-KMS). Facilitate cross-authorisation of enforcement officers as appropriate [DPaW, relevant JMB(s), relevant Aboriginal Corporation(s), DoF] (H). Monitor compliance with the Wildlife Conservation (close season for humpback cows and calves) Notice within the special purpose zone (whale conservation) and sanctuary zones [DEC, relevant JMB(s) DoF] (H-KMS). Ensure the implementation of the <i>Strategy for the Management of Sewage Discharge from Vessels into the Marine Environment</i> (Department for Planning and Infrastructure 2004) and thereby prohibit the discharge of sewage from vessels in the sanctuary zone, in all areas within 500 metres of the shore and in Kuri Bay, Camden Harbour, Sampson Inlet, St George Basin, Prince Regent River, and ‘The River’ at Montgomery Reef. [DoT, DEC, relevant JMB(s)] (H). Promote the management plan among commercial tour operators and visitors to inform them about their responsibilities and encourage them to voluntarily report any inappropriate or unlawful activity [DEC, relevant JMB(s)] (H). Ensure marine park visitors obtain and comply with appropriate regulations, licences and permits [DEC, relevant JMB(s), DoF] (H). Maintain a database of compliance statistics and issues for management assessment [DEC, relevant JMB(s), DoF] (M). Patrol the shoreline and waters of the marine park for marine debris and remove as necessary [DPaW, DoF] (M).																			
Research																				
To implement a collaborative and cost-effective research program to improve knowledge and understanding of humpback whales, other important ecological values and human use in the marine park.	In consultation with Traditional Owners prepare a collaborative marine research plan that is agreed to by relevant Aboriginal Corporation(s). Ensure the research plan utilises existing traditional ecological knowledge and cultural values, includes further research on indigenous cultural values and integrates research on TEK and cultural values with Western science programs [DPaW, relevant JMB(s), DoF] (H-KMS). Ensure that all research projects undertaken by or on behalf of DEC comply with DEC’s Science Policy (no. 78) and associated guidelines [DEC] (H-KMS). Establish habitat mapping and characterisation for the marine park to support management and the five-year review [DEC] (H-KMS).																			

Objective	Management actions	Year									
		1	2	3	4	5	6	7	8	9	10
	<p>Ensure the marine research plan addresses key gaps in knowledge for threatened species and species of special conservation significance with management targets that form key performance indicators [DEC, relevant JMB(s), DoF] (H-KMS).</p> <p>In consultation with the relevant Aboriginal Corporation(s), develop protocols to ensure the research plan and any research undertaken in the marine park is culturally appropriate and that information shared by Traditional Owners is used in a culturally appropriate manner. Research partnerships between research scientists and Traditional Owners should be accompanied by a research agreement [DEC, relevant JMB(s), relevant Aboriginal Corporation(s)] (H).</p> <p>Ensure the granting and renewal of permits relating to scientific research is consistent with the management plan permitted use table, management targets, cultural protocols and Wildlife Conservation (close season) Notices as appropriate [DEC, relevant JMB(s)] (H).</p> <p>Undertake further research to assist with a five-year review of the adequacy of management arrangements in the marine park, particularly with regard to humpback whales and the special purpose zone (whale conservation) and the adequacy of the zoning scheme for habitat and species representativeness and protection, including St George Basin [DEC, relevant JMB(s), DoF—in relation to fisheries] (H-KMS).</p> <p>Spatially and qualitatively characterise the use of the marine park by humpback whales, including the identification of high use humpback whale calving and nursing areas [DEC, relevant JMB(s)] (H-KMS).</p> <p>Consider and use information from cultural mapping project(s) initiated by Traditional Owners and use it to help inform management actions and responses in relation to Aboriginal cultural and heritage values [Relevant Aboriginal Corporation(s), relevant JMB(s), DEC] (M).</p> <p>Spatially and qualitatively characterise human use of the marine park by recreational and commercial users [DEC, relevant JMB(s), DoF] (H-KMS).</p> <p>Investigate the extent and significance of interactions between commercial fishing and humpback whales and other specially protected species [DEC, relevant JMB(s), DoF] (H-KMS).</p> <p>Ensure outcomes from the research program are incorporated into adaptive marine park management, as well as other planning and policy programs [DEC, relevant JMB(s), DoF] (H-KMS).</p> <p>Implement research components of the <i>Humpback whale recovery plan</i> (Australian Government 2005) and other relevant species conservation plans/strategies with respect to the marine park [DEC, relevant JMB(s)] (H).</p>										

Objective	Management actions	Year																		
		1	2	3	4	5	6	7	8	9	10									
	<p>Maintain a database of ecological and socio-economic research relevant to management [DEC, relevant JMB(s)] (M).</p> <p>Provide logistical and financial support to researchers where possible [DEC, relevant JMB(s)] (M).</p>																			
Monitoring																				
To implement a collaborative and cost-effective marine monitoring program to provide for adaptive management and to inform assessment of management effectiveness within the marine park.	<p>Prepare a collaborative and cost-effective marine monitoring plan. Ensure the marine monitoring plan uses existing traditional ecological knowledge [DEC, DoF, relevant JMB(s)] (H-KMS).</p> <p>Ensure that all monitoring activities undertaken by or on behalf of DEC comply with DEC's Science Policy (no. 78) and associated guidelines [DEC] (H-KMS).</p> <p>Progressively implement the marine monitoring plan with a primary focus on determining if management targets have been achieved for key performance indicators [DEC, relevant JMB(s), DoF—for monitoring of targeted 'fish'] (H-KMS).</p> <p>Implement monitoring components of the <i>Humpback whale recovery plan</i> (Australian Government 2005), and other relevant species conservation plans/strategies with respect to the marine park [DEC, relevant JMB(s)] (H).</p> <p>Ensure an appropriate level of monitoring is undertaken by developers operating with approval in or adjacent to the marine park [OEPA, DEC, MPRA, DoT, DMP] (H).</p> <p>Consider the potential implications of climate change when developing a marine monitoring program [DEC, relevant JMB(s), DoF] (M).</p> <p>Develop and apply management targets to ecological values identified through the research program [DEC, relevant JMB(s), MPRA] (M).</p> <p>In partnership with Traditional Owner rangers, develop and implement an ongoing turtle and dugong monitoring program [DEC, relevant JMB(s)] (M).</p> <p>Develop and apply management targets for human values and uses [DEC, relevant JMB(s), MPRA] (H).</p> <p>Ensure biosecurity issues are considered during the development of the marine monitoring plan (DoF, DEC) (M).</p>																			

