Proposed North Kimberley Marine Park

Indicative joint management plan 2016

Department of Parks and Wildlife

MPRA
MARINE PARKS & RESERVES AUTHORITY

Kimberley Science and Conservation Strategy Parks

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WARNING: This plan may contain names and images of deceased Aboriginal people.

This plan was developed by the Department of Parks and Wildlife in consultation with traditional owners and on behalf of the Marine Parks and Reserves Authority. Amendments to the *Conservation and Land Management Act 1984* will establish the Conservation and Parks Commission which will replace the Marine Parks and Reserves Authority and the Conservation Commission of Western Australia. The statutory responsibilities and functions of the Marine Parks and Reserves Authority, such as those referred to in this plan, will be undertaken by the new Conservation and Parks Commission.

Questions regarding this plan should be directed to:
Planning Branch
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17 Dick Perry Avenue Kensington WA 6151
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The recommended reference for this publication is:
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This document is available in alternative formats on request.

Invitation to comment

This indicative joint management plan has been released for a three month period to provide the public with an opportunity to comment on how the proposed marine park is proposed to be managed over the next ten years.

To ensure your submission is as effective as possible:

- be clear and concise
- refer your points to the page numbers or specific sections in the plan
- say whether you agree or disagree with any or all of the management arrangements – clearly state your reasons, particularly if you disagree
- give sources of information where possible
- suggest alternatives for those aspects of the plan with which you disagree.

The indicative joint management plan will be reviewed in light of the submissions, according to the criteria outlined below. A summary of public submissions will be made available along with the final management plan.

The indicative joint management plan may be amended if a submission:

- provides additional information of direct relevance to management
- indicates a change in (or clarifies) government legislation or management policy
- proposes strategies that would better achieve management objectives
- indicates omissions, inaccuracies or a lack of clarity.

The indicative joint management plan may not be amended if a submission:

- clearly supports proposals in the plan or makes general or neutral statements
- refers to issues beyond the scope of the plan
- refers to issues that are already noted within the plan or already considered during its preparation
- is one among several widely divergent viewpoints received on the topic but the approach in the plan is still considered the best option
- contributes options that are not feasible (generally due to conflict with legislation or government policy)
- is based on unclear or factually incorrect information.

Submissions should be made online at **www.dpaw.wa.gov.au/northkimberley**

Alternatively, you can write to:
Planning Branch
Department of Parks and Wildlife
Locked Bag 104
Bentley Delivery Centre WA 6983

Above: Prince Frederick Harbour. Photo – Parks and Wildlife

Contents

1. The management plan

Purpose of the plan

The indicative joint management plan aims to conserve the values of the proposed marine park for future generations. It states objectives and targets to be met and proposes management strategies to be implemented over the 10 year life of the plan.

The final plan will guide the development of operational documents that provide more specific direction to on-ground management actions. Performance assessment processes at both the management plan and operational levels will ensure management is adaptive.

The management of the proposed marine park will be integrated with the Lalang-garram / Camden Sound Marine Park and proposed Lalang-garram / Horizontal Falls and North Lalang-garram marine parks. The plan aims to complement the management objectives and strategies outlined in the management plans for these parks.

This plan reflects the values, aspirations and management objectives articulated in a number of traditional owner documents such as the *North Kimberley Saltwater Country Plan*, Wunambal Gaambera (Uunguu), Balanggarra and Wilinggin healthy country plans and joint management guidelines.

Term of the plan

The final joint management plan will guide management of the proposed marine park for 10 years, or until a new joint management plan is prepared under the *Conservation and Land Management Act 1984* (CALM Act). If a revised plan does not occur by the end of this plan's specified lifespan, the plan will remain in force in its original form.

Above: King George Falls. Photo – Tourism WA

Structure of the plan

An outcome-based management framework has been used to develop this plan. This involves evaluating the effectiveness of management actions in achieving the stated management objectives and targets to enable ongoing adaptive management. A summary of the parts of the plan is provided in the figure below.

Vision	What are we trying to achieve in the long term?	
Strategic objectives	What are the big things we need to aim for to achieve our vision?	Chapter 4: Management direction
Values	What do we value most about the area?	
Management issues	What opportunities and challenges do we face when protecting the values?	
Management objectives	What are the desired management outcomes?	
Management strategies	How will we achieve them?	Chapter 6: Proposed management
Performance measures and targets	How are we going to track performance?	

Performance assessment

Management objectives, management strategies and key performance indicators are used to assess implementation of the plan. The key values of the planning area and the associated key performance indicators highlight management priorities. The prioritisation process for implementing the plan also occurs in the development of associated operational plans that provide more specific on-ground management direction. Performance assessment processes will also feed into adaptive management at both the strategic and operational planning level (detailed in Chapter 7: Monitoring, evaluation and reporting).

Headland near the entrance of the Hunter River. Photo – Andrew Halford/Parks and Wildlife

Naturalists Island. Photo – Anna Smith/Parks and Wildlife

2. Introduction

The north Kimberley coast is one of the last remaining unspoilt coastlines on Earth, and is recognised as one of the world's most ecologically diverse marine areas. The region is rich in Aboriginal culture, with traditional owners continuing to practise traditional law and customs in the world's oldest continuous culture (Rasmussen *et al.* 2011). Kimberley Aboriginal people have a cultural, spiritual and social connection to country that exists and adapts with time and place and is embedded in the land and seascapes. It is proposed that the North Kimberley Marine Park will be jointly managed with traditional owners through the establishment of joint management arrangements. The long-standing connections, rights and interests of traditional owners have been recognised through native title determinations for the lands and waters in and adjacent to the proposed North Kimberley Marine Park for the Wunambal Gaambera, Balanggarra, Ngarinyin and Miriuwung Gajerrong people.

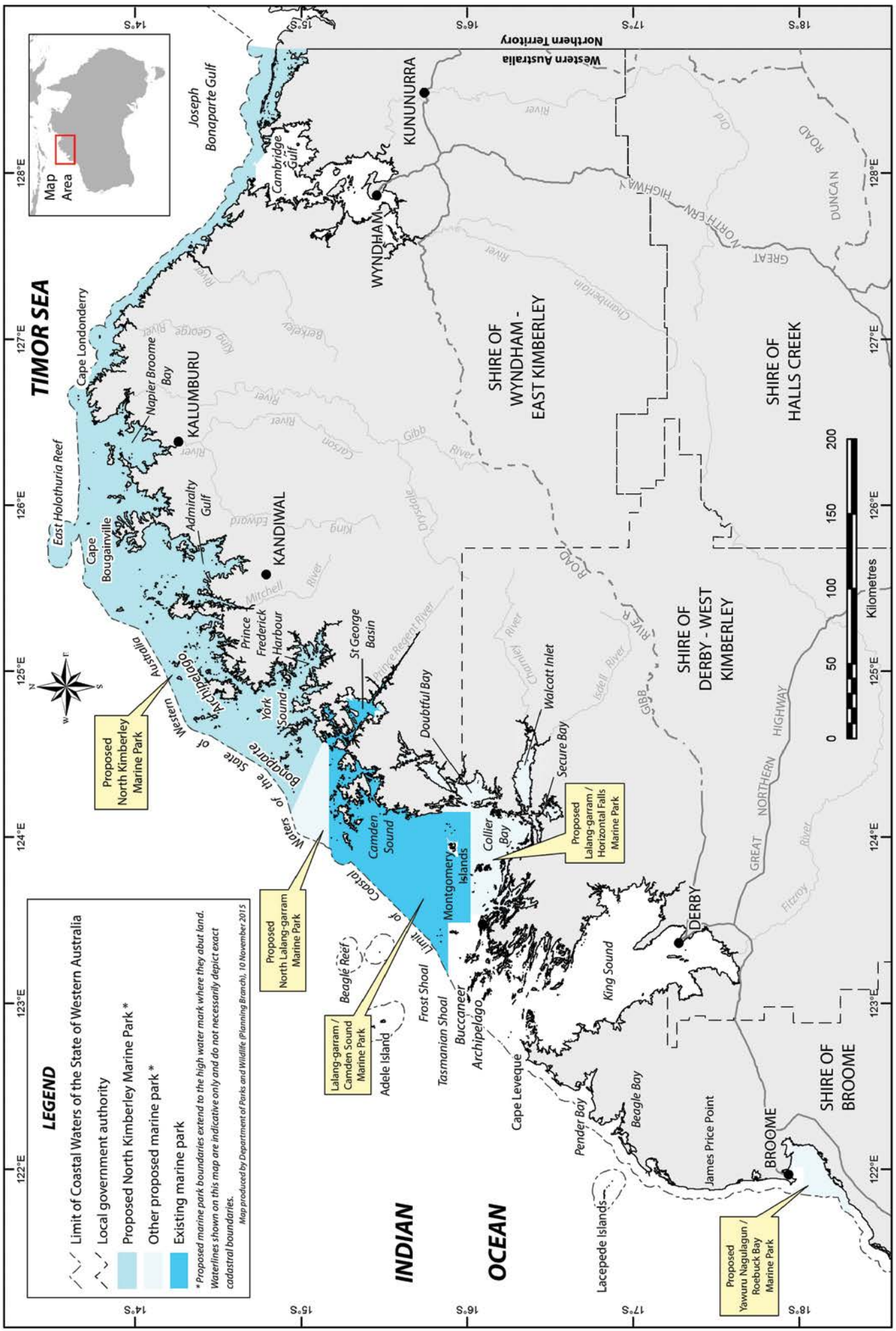
The geomorphology of the Kimberley gives rise to dramatic landscapes and a complex variety of marine habitats. There are more than 1000 islands within the boundaries of the proposed North Kimberley Marine Park, each providing an array of intertidal and subtidal habitats. The coral reefs of the north Kimberley have the greatest diversity in Western Australia and are some of the most pristine and remarkable reefs in the world (Richards *et al.* 2015, Wilkinson 2008). Large estuaries, mudflats and extensive mangrove forests support many threatened, protected and culturally important species such as dugongs, turtles and sawfish. The proposed marine park aims to conserve and enhance these values for the benefit of present and future generations.

The *Kimberley Science and Conservation Strategy* is a commitment by the State Government to recognise and conserve the globally significant natural and cultural values of the area. The strategy provides for the creation of one of the world's largest networks of interconnected marine and terrestrial reserves. The proposed Great Kimberley Marine Park will consist of the proposed North Kimberley Marine Park together with the existing Lalang-garram / Camden Sound Marine Park, the proposed North Lalang-garram and the proposed Lalang-garram / Horizontal Falls marine parks (see Map 1). The proposed North Kimberley Marine Park will span around 1,845,000ha, and comprise more than half of the proposed Great Kimberley Marine Park.

The extraordinary landscape of the north Kimberley attracts increasing numbers of tourists from around the globe. Marine and national parks, wildlife, scenic beauty and other natural attractions underpin a valuable and expanding nature-based tourism industry. The Kimberley attracts some 313,000 domestic and 35,600 international visitors annually, accounting for approximately 2.5 million visitor nights and $333M in visitor spend (Tourism WA 2014). Management of the proposed park aims to achieve important social and economic outcomes by providing increased opportunities for Aboriginal involvement and employment in land and sea management, and by promoting sensitive nature and culture based tourism while protecting park values.

The proposed marine park will be the second largest State marine park in Australia and seven times the size of Ningaloo Marine Park. The addition of the proposed marine park will increase the total area of the State's existing marine parks and reserves by more than 70%. It will enhance opportunities for recreation and tourism, research and education, and protection of the area's cultural and natural values.

Map 1 Locality of the proposed North Kimberley Marine Park



South Coronation Island. Photo – Sarah Bignell/Parks and Wildlife

3. Planning area

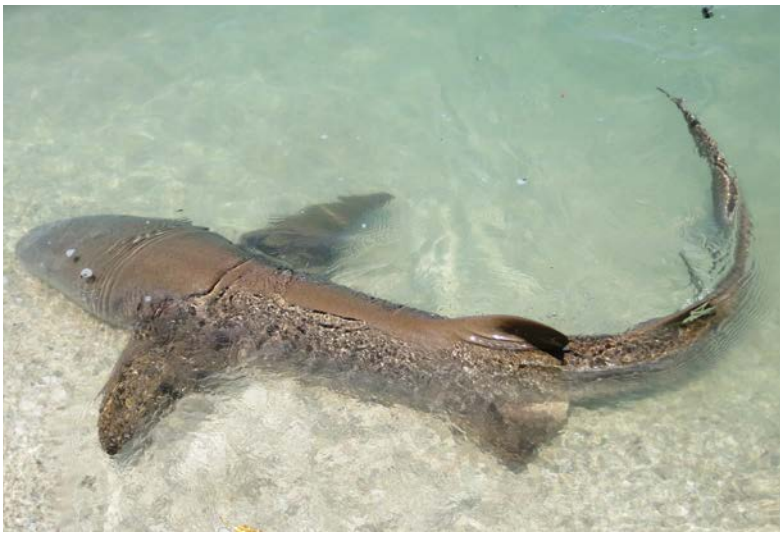
The proposed marine park is located in the Indian Ocean and the Timor Sea in the waters of Western Australia's Kimberley region. It extends north-east from York Sound, around Cape Londonderry and the Joseph Bonaparte Gulf to the Western Australian/Northern Territory border, and from the mainland high water mark to the limit of State coastal waters. The marine park covers approximately 1,845,000ha with its south-western boundary located about 270km north-east of Derby.

The north Kimberley lies within the broader North-West Marine Provincial Bioregion which is characterised by a large area of continental shelf and continental slope. The proposed marine park spans three marine bioregions: Kimberley, Bonaparte Gulf and Cambridge-Bonaparte as defined by the Integrated Marine and Coastal Regionalisation of Australia (IMCRA Version 4).

The boundaries of the proposed marine park and surrounding tenures are outlined in Maps 2 and 3. Sections of the proposed marine park are adjacent to other terrestrial conservation reserves including Prince Regent National Park, Mitchell River National Park, Mijing Conservation Park and the proposed Cape Domett, Cape Londonderry and Kimberley national parks.

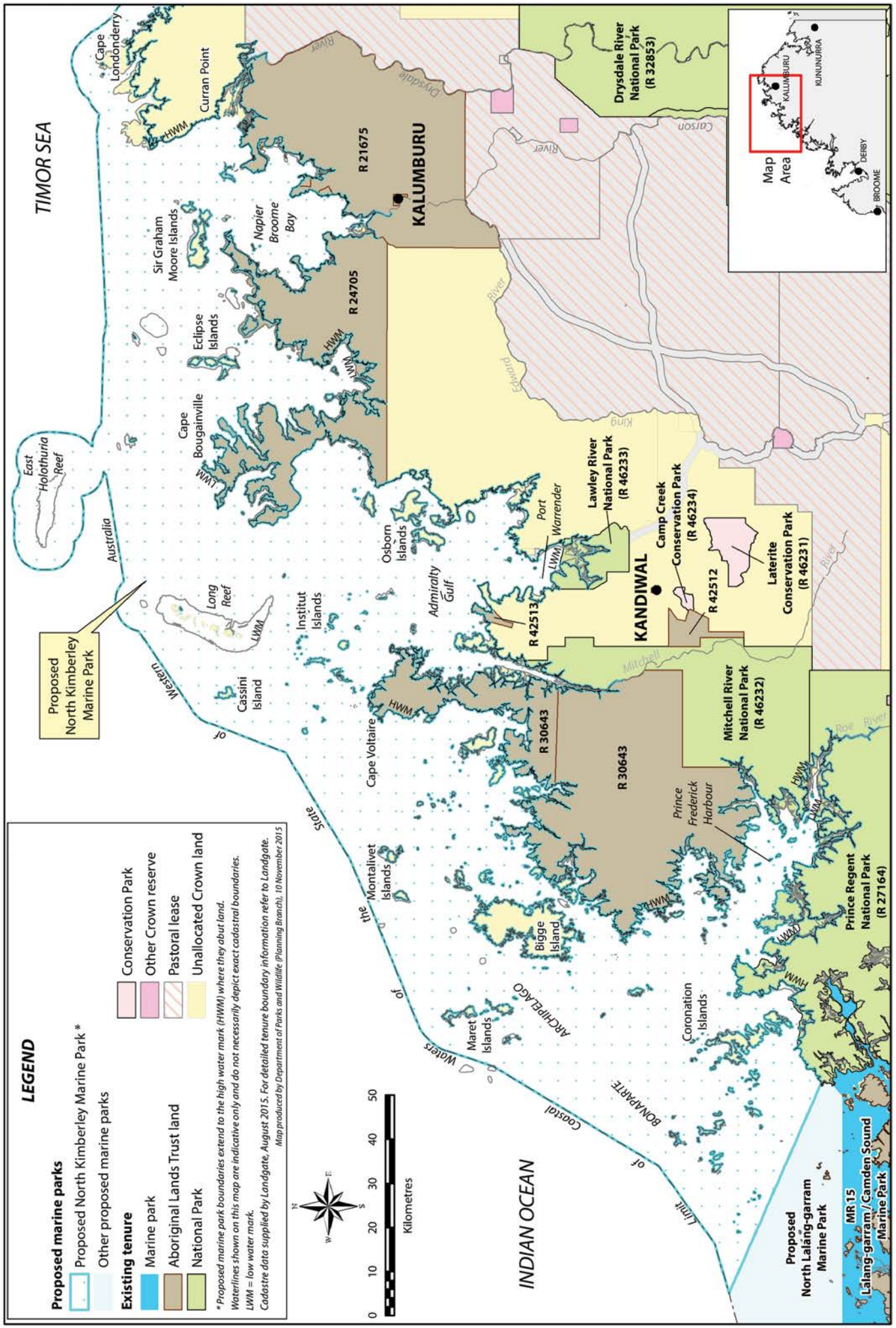
This plan outlines the intention for the proposed marine park to extend to the high water mark where possible, subject to adjacent tenure and addressing native title requirements under the *Commonwealth Native Title Act 1993* (Native Title Act). The native title determination areas are shown in Map 4.

The proposed marine park will be gazetted as a Class A marine park. Class A reservation provides the highest security of tenure.

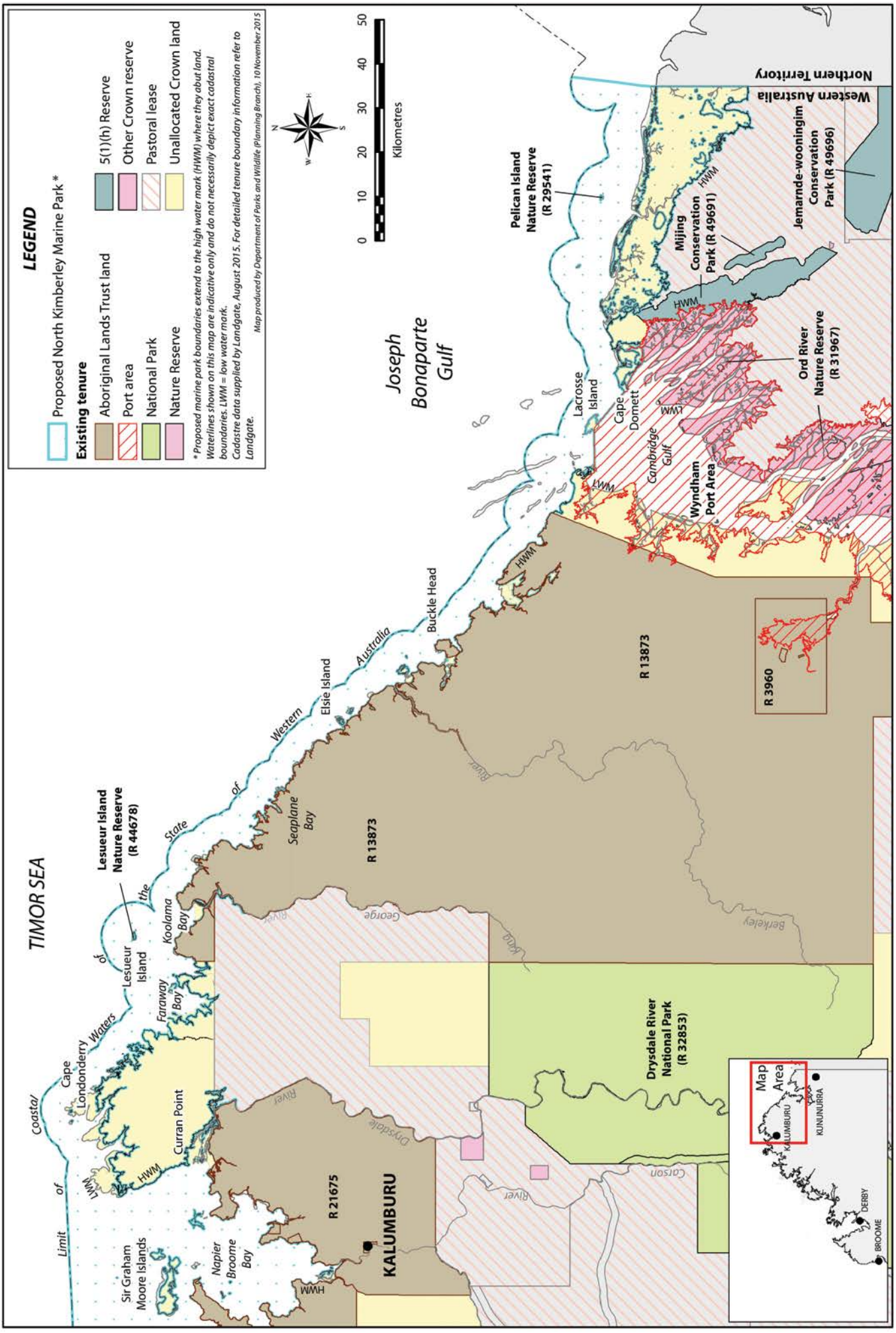


Left: Blue-green chromis and corals. Photo – John Huisman Right: Tawny nurse shark. Photo – Anna Smith/Parks and Wildlife

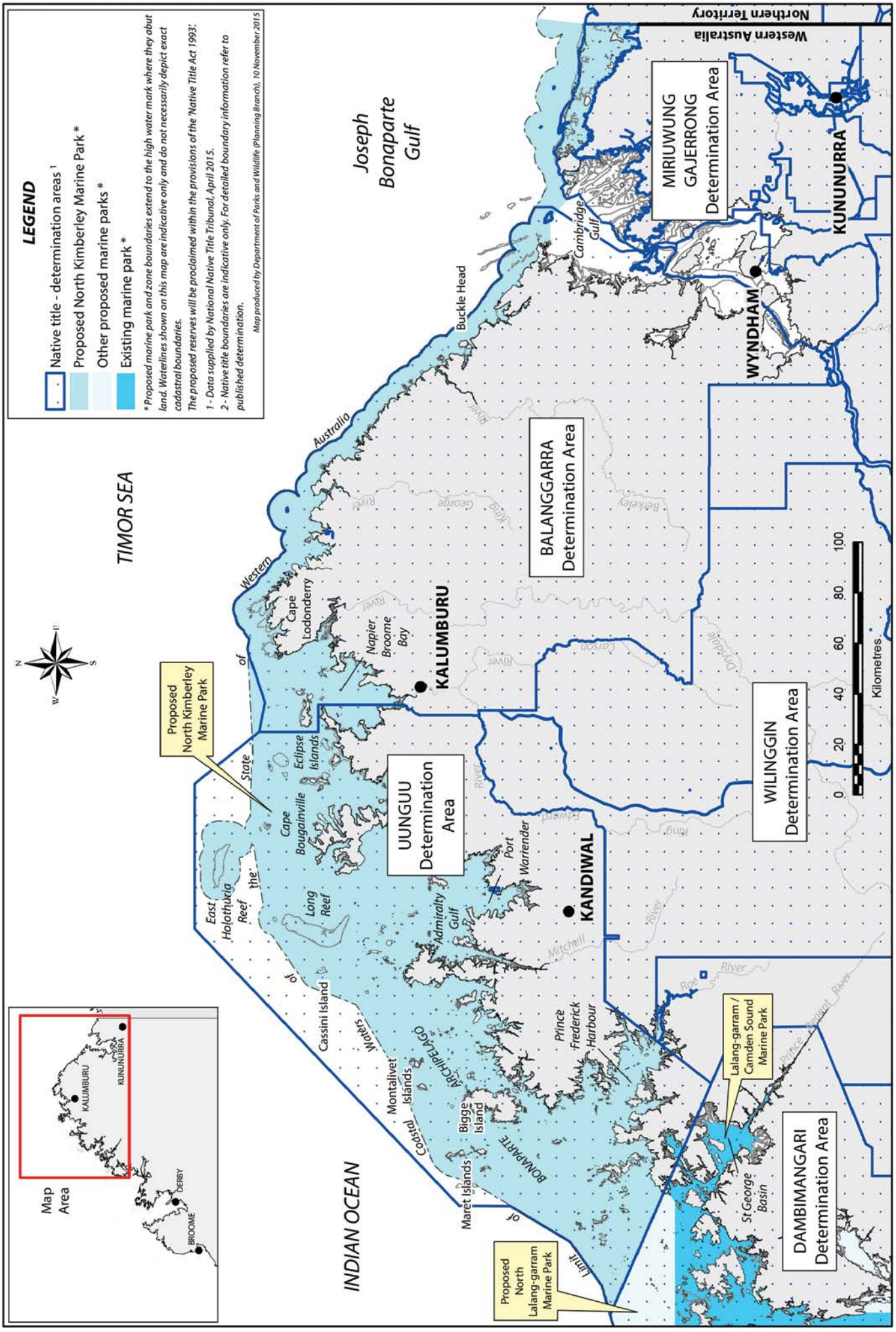
Map 2 Tenure within and adjacent to the proposed marine park – west



Map 3 Tenure within and adjacent to the proposed park – east



Map 4 Native title claim and determination areas within and adjacent to the proposed park



4. Management direction

Cape Londonderry. Photo – Anna Smith/Parks and Wildlife

4.1 Vision for the proposed North Kimberley Marine Park

A place where traditional owners and Parks and Wildlife work together with the wider community to create a park where the natural and cultural values are protected, respected and celebrated by all.

4.2 Strategic objectives

The strategic objectives provide broad direction for management. They guide the development of the management objectives, zoning and strategies.

Increase understanding of the values of the proposed parks through research and monitoring to support effective adaptive management

4.3 Values

Aboriginal cultural and heritage values

Aboriginal people have had a continuous association with the north Kimberley saltwater country for thousands of years. The saltwater people of the region continue to rely on coastal and marine environments and resources in the north Kimberley for their livelihoods, their cultural identity, health and wellbeing, and economy.

The Wunambal Gaambera, Balanggarra, Ngarinyin, and Miriuwung and Gajerrong people have traditional country in the area of the proposed marine park recognised through determined native title rights and interests based on strong and ongoing cultural connections to the north Kimberley.

Aboriginal people have a deep spiritual connection to country through their Dreaming narratives. Importantly, the events of the Dreaming resonate in the present. Ancestral creator beings continue to inhabit the country where they manifest themselves as rock art, stone arrangements and other tangible and intangible features of the land and sea (Vigilante *et al*. 2013).

Traditional owner collecting bait. Photo – Chris Nutt/Parks and Wildlife

> Wanjina Wunggurr culture is strong when we are on country, in our living home, our *Uungu*, learning about country, passing on knowledge about how to burn country, hunt, fish, collect, prepare and cook bush tucker the right way.
>
> *Wunambal Gaambera Healthy Country Plan*

Under traditional law, Aboriginal people have a cultural responsibility to care for country and ensure their culture and knowledge is passed on to future generations. They do this through customary activities which include hunting for food, visiting important cultural places, making medicines, keeping rock art fresh, managing country through fire at the right time of year and engaging in ceremonial events. These customary activities help Aboriginal people maintain their traditional relationships with their land and sea country, share knowledge and participate in traditional practices.

This plan proposes objectives and strategies to assist traditional owners achieve and sustain these values and responsibilities. Management arrangements for the cultural and natural values aim to preserve, foster, advance and monitor the health of traditional owners' living cultural landscapes, traditional knowledge, customary practices, enjoyment and use of country and being responsible for country.

Wunambal Gaambera country extends from south of Prince Frederick Harbour to Napier Broome Bay, and covers about 2.5 million hectares of land and *wundaagu* (sea). Much of Wunambal Gaambera country is included in the Uunguu Indigenous Protected Area (IPA). *Uunguu* means 'living home' – it is all the things in Wunambal Gaambera country and has been the home of their ancestors for thousands of years. For Wunambal Gaambera people, *Uunguu* is part of *Lalai*, the story of how and when their country was made. Wunambal Gaambera traditional owners follow the laws and beliefs of the *Wunggurr* (the creator snake) and *Wanjina* (the creator ancestors) (Wunambal Gaambera Aboriginal Corporation 2010).

"Some *Wunggurr* from the saltwater still live in the *wundaagu* (sea) and can be seen as waves, tides and currents. The heads, tails and backbones of *Wunggurr* are the islands we see today." (Wunambal Gaambera Aboriginal Corporation 2010).

The Wunambal Gaambera people have strong traditions for collecting and harvesting fish and other seafoods from the *wundaagu* and *warrurru* (reefs) for food, medicine and bait. These traditions from the *Lalai* are in their songs, oral traditions and paintings.

The culture of the Wanjina Wunggurr is shared across the Wunambal Gaambera people and the Ngarinyin people of Wilinggin country. Ngarinyin people believe that the *Wanjina* are their ancestors, who came and 'put themselves' in the rock when the world was soft. *Wunggurr* is the rainbow serpent, who usually lives in deepwater pools and is close to the *Wanjina*.

Wilinggin country includes a small area of the Roe River in Prince Frederick Harbour. The Ngarinyin country that makes up the Wilinggin Determined Area is divided into smaller areas of country called *dambun*, or clan estates, by anthropologists. The names of the clans are based on the *gi* or totem of a particular part of country. The area of Ngarinyin country that overlaps with the marine park is part of the Walinjaro Burri nation.

Balanggarra *gra* (land and sea country) stretches from Napier Broome Bay to Cambridge Gulf and Wyndham, covering about 2.6 million hectares. *Balanggarra* means 'one mob together for country.' The Balanggarra IPA covers a large portion of the Balanggarra people's *gra*, including some parts of sea country.

The actions of creator beings of the Dreaming narratives give Balanggarra people their law, rules and responsibilities for looking after culture, plants, animals and country. Two important Dreaming narratives are *Wungkurr* (rainbow serpent) and *Wolara* (the creator). A male and female *Wungkurr* travelled from Sir Graham Moore Island in the far west of their country to King George Falls to become the majestic twin waterfalls. *Wolara* made the saltwater as he 'poled his canoe' in the coastal regions. Some of the islands are where his pole touched the seabed (Balanggarra IPA factsheet, Balanggarra Aboriginal Corporation / Kimberley Land Council 2011).

The northern part of Balanggarra is 'blue water' country and includes Cape Londonderry, several rivers such as the lower Drysdale and King George, reefs and offshore islands, like Sir Graham Moore and the Governor islands. Fishing and sea hunting remain very important to Balanggarra people. They have many traditional stories for *abil* (dugong) and *mangkuru manya* (marine turtles), and their cultural use is interwoven with their traditional lifestyle.

Miriuwung Gajerrong country extends from Cambridge Gulf into the Northern Territory. The Miriuwung Gajerrong people have lived for thousands of years by the Law, languages and ceremonies established by their ancestral beings who were created during the *Ngarranggarni* (the Dreaming). Within their culture, Miriuwung Gajerrong people inherit specific group and personal relationships, as well as rights and responsibilities to particular tracts of country known as *Dawang*. *Dawawang* are the people within a group who can speak for that part of their country, that *Dawang*. *Dawang* groups are responsible for the upkeep of the land and protection of sites of cultural significance for community according to traditional laws and customs handed down from the *Ngarranggarni* (Miriuwung-Gajerrong Cultural Planning Framework, Hill *et al.* 2008). The *Dawang* responsible for the saltwater country included in the proposed marine park are *Wardanybeng* and *Dulbung*.

King George River in Balanggarra country. Photo – Carolyn Thomson-Dans/Parks and Wildlife

"We have to look after our country and our old people and important places in our country. Some of us are the 'blue water mob' and some of us are the 'brown water mob' but we come together as one mob, 'Balanggarra' for all our country because we all follow the same rules, our rules for country and for family."

Balanggarra Healthy Country Plan

Flatback turtle hatchlings at Cape Domett. Photo – Andrea Whiting

Natural values of land and sea country

The north Kimberley sea country is remote, with extraordinary interconnected cultural and biodiversity values. The complex geomorphology gives rise to dramatic landscapes and a complex array of marine habitats which are influenced by the macro-tidal regime (5-10m) and low wave energy of the area (Duke *et al.* 2010). The coastline is highly complex and consists of many islands, bays and estuaries with mangroves, sandy beaches, coral reefs, rocky reefs, seagrass meadows and sponge gardens.

Rivers and estuaries are important features of the Kimberley, influencing much of the coastline. The rivers are characterised by wet season floods, which create impressive waterfalls as they flow over sheer cliffs to the sea. The King George River plunges into tidal waters over sandstone cliffs 100m high to create King George Falls, the State's highest twin waterfalls. The run-off from north Kimberley rivers generally has a high, nutrient-rich, sediment load which, when combined with tidal mixing, significantly influences the low-nutrient waters of the Kimberley region (Wood and Mills 2008, Keesing 2014).

The proposed park is dotted with thousands of islands with diverse and rich habitats. Marine turtle nesting and breeding sites for sea and shorebirds have been identified on the majority of the islands in the Kimberley, and fringing reefs line the shores of almost all the islands in the Kimberley bioregion (Wilson 2013). The productive deep waters that surround the islands and open sea reefs provide foraging habitat for whales and pelagic finfish such as mackerel. The complex coastline of the mainland also creates a rich mosaic of habitats and communities. The intertidal reefs, for example, of the convoluted coastline and islands (such as Jar Island) of Vansittart Bay are noted as being extremely rich in biodiversity (Walker *et al.* 1996) and this area is known to be important for dugongs, snubfin dolphins and humpback dolphins (Wunambal Gaambera Aboriginal Corporation 2010).

The diverse habitats of the Kimberley – on the mainland, surrounding islands and offshore – are connected through a variety of ecological processes. Mangroves, for example, play a critical role in capturing sediment from run-off water, which allows other habitat types such as coral reef and seagrass beds to thrive in clearer waters. Many species also move between different habitats such as mangroves, seagrass and macroalgal beds, and coral reef at critical life stages. It has been shown in north-western Australia that targeted fish species such as spangled emperor (*Lethrinus nebulosus*) and bluebone (*Choerodon schoenleinii*), settle as juveniles on macroalgae and seagrass beds before moving to offshore habitats such as coral reefs (Wilson *et al.* 2015).

Emerging research shows that some of the most significant and extensive habitats in the Kimberley, created by hard and soft corals, sponges and other subtidal filter-feeding communities, are flourishing in environmental conditions that are often considered extreme with respect to temperature, turbidity and exposure. Understanding how these complex communities interact and persist in this hostile environment may have broader consequences for understanding responses to climate change generally.

Several natural values have been identified as performance indicators. These will guide a prioritised monitoring program to ensure management is effective. These values have been selected because of their high cultural, ecological and social value and/or because they are under the greatest threat (Simpson *et al.* 2015). These indicators have been developed to align with the 'targets' from the healthy country plans, which have been identified by traditional owner groups as the most important for keeping country healthy. Values identified as performance indicators are listed below and further information on specific measures and targets for each value are provided in Chapter 6.

Corals. Photo – Andrew Halford/Parks and Wildlife

Christmas tree worms. Photo – John Huisman

Sargassum. Photo – John Huisman

- **Coral reefs** are among the most productive and species-rich ecosystems on earth and the Kimberley has the richest coral fauna, in both species and genera, of any North West Shelf bioregion (Wilson 2013) (Map 5). An exceptional diversity of hard coral has been documented at islands in the northern Bonaparte Archipelago, including more than 210 species on the Maret Islands (Richards *et al.* 2015). Coral reefs globally are threatened by shifts in environmental regimes caused by a changing climate (Hughes *et al.* 2003) and the north Kimberley is within an area of increasing heat stress (Halpern *et al.* 2015).
- **Marine turtle species** identified in Western Australia include green turtles, flatback turtles, loggerhead turtles, hawksbill turtles, leatherback turtles and olive ridley turtles (Limpus 2009). Marine turtles are culturally important to Aboriginal saltwater people and integral to their stories, songlines, ceremonies and food (Wunambal Gaambera Aboriginal Corporation 2010, Balanggarra Aboriginal Corporation / Kimberley Land Council 2011). The flatback turtle is endemic to Australia and the Cape Domett nesting population is one of the largest, with several thousand turtles nesting annually (Whiting *et al.* 2008).
- **Dugongs** are most often found in protected shallow bays with deeper channels nearby where they can feed on their preferred diet of seagrass but still escape to deeper water if they encounter predators. Australia contains the majority of the world's population of dugongs although accurate population estimates are lacking for the Kimberley region (Marsh *et al.* 2011). Dugongs are culturally important to Aboriginal coastal communities and are a highly valued traditional food (Wunambal Gaambera Aboriginal Corporation 2010, Balanggarra Aboriginal Corporation / Kimberley Land Council 2011). Indigenous knowledge will be integral to understanding the species, their seasonal movement patterns and changes over time.
- **Seagrass and macroalgal communities** are important sources of primary productivity in the north Kimberley marine ecosystem. They provide vital habitat for juvenile fish, turtles and dugongs. Meadows of seagrass, and many turtles and dugongs, can be found around Cape Londonderry (Balanggarra Aboriginal Corporation / Kimberley Land Council 2011). No systematic surveys of seagrass or macroalgal communities have been undertaken across the Kimberley.

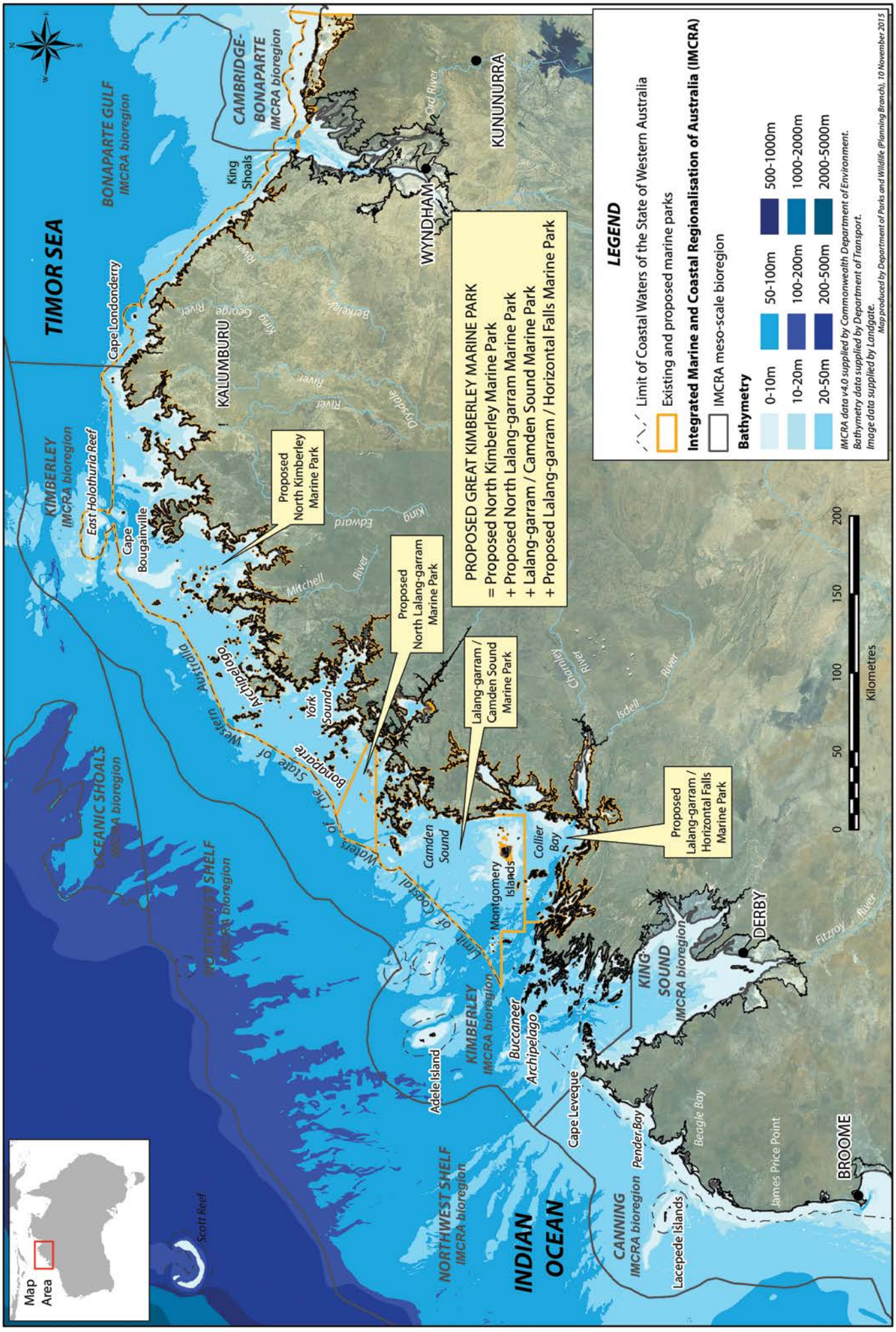
Mangrove on Maret Islands. Photo – John Huisman

Mangroves and saltmarshes. Photo – Anna Smith/Parks and Wildlife

- **Mangroves and saltmarshes** provide nutrients to surrounding waters, as well as important habitat and nursery areas for fish and invertebrates. The north Kimberley contains the most species rich system of mangroves in the world (Cresswell and Seminiuk 2011). Prince Frederick Harbour has the second greatest area of mangrove forest in the Kimberley bioregion. The mangrove and estuarine habitats of the north Kimberley support a range of threatened, protected and culturally important species including estuarine crocodiles, turtles, dolphins, sawfish, mud crabs and fish. Mangroves may be affected by changes in freshwater flow and sedimentation as well as changes in sea level. All of these processes will be influenced by climate change, which represents the greatest threat to the diverse and extensive system of mangroves along the north Kimberley coast.
- **Finfish** are diverse in the proposed marine park. Many nearshore species are targeted by commercial and recreational fishers, particularly barramundi (*Lates calcarifer*), threadfin salmon (*Polydactylus macrochir*) and mangrove jack (*Lutjanus argentimaculatus*). Fish are also an important resource for coastal Aboriginal communities. The region also represents a globally significant area for sawfish (Stevens *et al.* 2005), which are currently listed as 'vulnerable' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
- **Water and sediment quality** is essential to maintain healthy ecosystems. Rivers are considered the largest potential source of nutrients and sediment for inner shelf waters of the proposed marine park (Brodie and Mitchell 2005) and future changes in water quality conditions may reflect the nature and intensity of land use. The accumulation of plastic debris is recognised nationally as a key threatening process, even in remote areas such as the Kimberley (Wilcox *et al.* 2015). Other sources of potential water contamination exist from oil and gas developments in neighbouring Commonwealth waters (such as at the Browse Basin).

Species of special conservation interest include those that are protected under State or Commonwealth legislation and species listed as having special conservation status (e.g. threatened or vulnerable). These species include sea snakes, snubfin and humpback dolphins, and estuarine crocodiles. The Kimberley has the world's highest recorded diversity of sea snakes supporting more than one third of all known species, with at least three species found only in the region (Somaweera and Sanders 2015). Sea snakes occur in the proposed marine park, however, little is known about their populations. Snubfin and humpback dolphins are found throughout the proposed marine park, such as at Vansittart Bay (Wunambal Gaambera Aboriginal Corporation 2010), Napier Broome Bay and Berkeley River mouth (Balanggarra Aboriginal Corporation / Kimberley Land Council 2011). Estuarine crocodiles are apex predators and are important for maintaining the natural balance of wetland ecosystems. They are found throughout the proposed park in estuarine areas, nearshore waters, oceanic waters and on islands (Seminiuk *et al.* 2011).

Map 5 Marine bioregions and the proposed Great Kimberley Marine Park



Kimberley expedition cruising. Photo – Chris Nutt/Parks and Wildlife

Social values (recreation, tourism and community values)

The proposed park features spectacular scenery, diverse wildlife and cultural heritage which provide excellent opportunities for nature based and cultural recreational activities and tourism experiences (Map 6). Tourism is a significant industry for the Kimberley, generating economic, social and employment benefits for the region's communities. Tourism related infrastructure, amenities, events and services provide benefits for regional communities, adding to the social fabric of towns and making them more attractive places to live and work. It is estimated that in 2012 approximately 2500 people were directly employed and a further 1000-1500 people were indirectly employed in tourism in the Kimberley (Tourism WA 2014). The developing nature and culture-based tourism industry provides excellent opportunities to contribute to social, economic and environmental outcomes for the Kimberley.

The expedition cruise boat industry operates in the dry season (April to October) between Broome and Wyndham or Darwin, and offers multi-day tours. Vessels range from small fishing and sightseeing tour boats to large luxury cruise ships carrying around 100 passengers. A recent study estimates the Kimberley cruise tourism expenditure for 2016 will be around $63 million (Carlsen 2015). Models employed for this study estimate this expenditure would result in additional benefits to the Kimberley coast economy of up to $28 million and 220 jobs. Visitors also access the coast by road, although a four-wheel drive is required. Each year more than 1000 people visit the coast near Kalumburu[1], where tourism camps are situated. A number of remote coastal camps and lodges provide unique wilderness tourism products, allowing visitors to experience spectacular scenery, wildlife watching and excellent fishing. Scenic flights and heli-fishing expeditions offer a spectacular way to enjoy the Kimberley coast and operate in connection with coastal accommodation or cruise boats, as well as from Broome, Derby, Kununurra and the Mitchell Plateau. Mungalalu-Truscott airbase provides logistics to offshore oil and gas operations and has the potential to be a tourism access hub. The Wunambal Gaambera Aboriginal Corporation Garmbemirri Ranger Camp near the airfield provides a base for ranger operations and visiting researchers.

Remote towns and communities close to the park are strongly connected to the saltwater and depend on the area for fishing, hunting and recreational activities. The largest settlement is the Aboriginal community of Kalumburu, situated on the banks of the King Edward River. The community of approximately 400 residents relies on King Edward River and Napier Broome Bay to provide

Coastal area around the King George River mouth. Photo – Chris Nutt/Parks and Wildlife

[1] Entry permits are required for transit through Aboriginal Reserves, including Kalumburu, and can be obtained from the Department of Aboriginal Affairs.

a source of fresh food. The area holds significant cultural and recreational values for the community. The Aboriginal community of Kandiwal is located in a remote part of the Kimberley some 250km north of the Gibb River Road (Map 6). Community members regularly fish and hunt in the area around Port Warrender, which is one of only four coastal areas accessible by vehicle in the north Kimberley.

The nearest towns to the proposed park are Wyndham and Kununurra, with populations of approximately 800 and 7000 people respectively. Residents of these towns travel by boat to the east Kimberley coast to enjoy excellent fishing, relax in the spectacular scenery and visit popular camping spots. Map 6 provides a general overview of key destinations and attractions within the proposed park.

East Montalivet Island. Photo – John Huisman

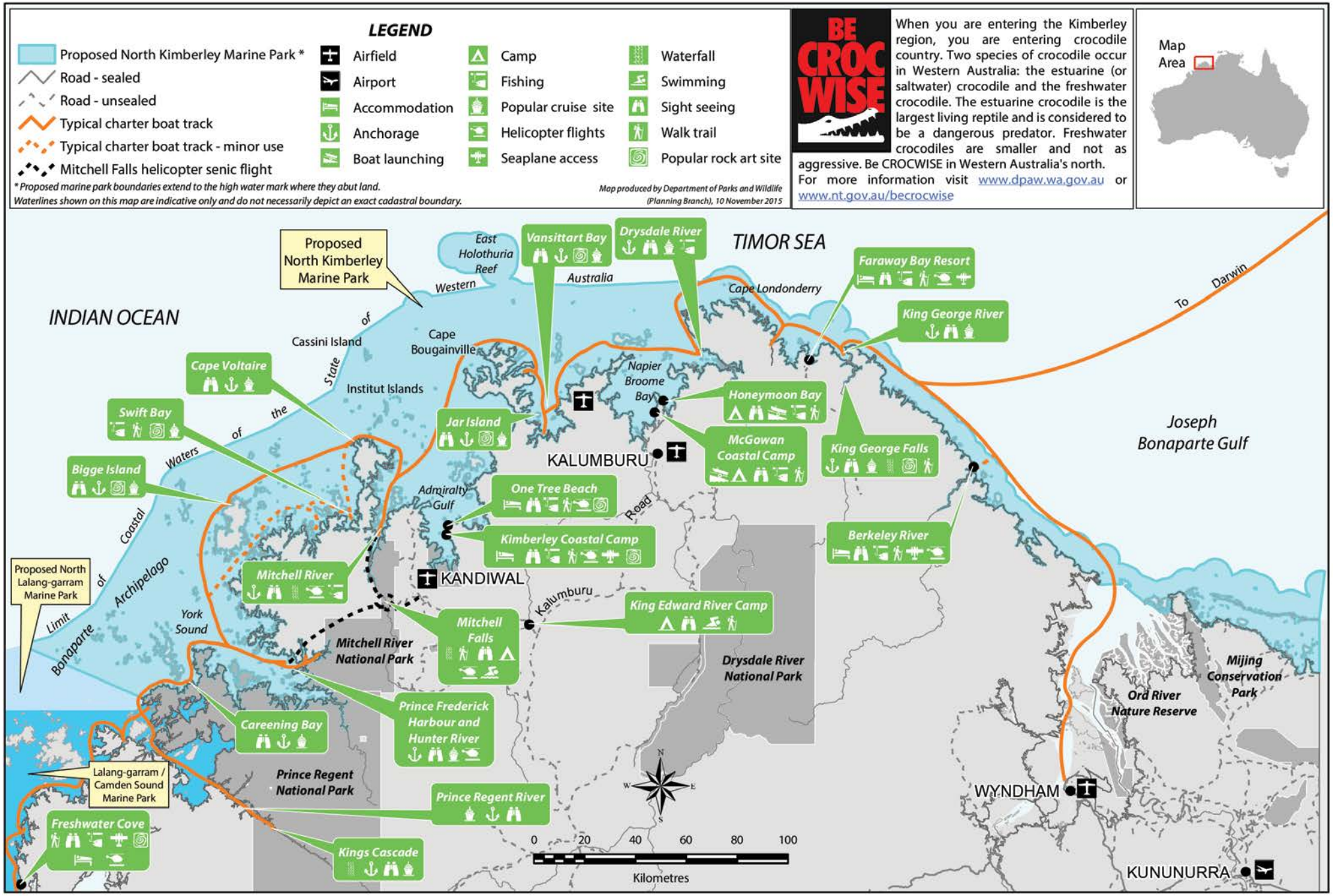
The remote and spectacular north Kimberley holds intrinsic value for both the local and broader (including international) community (Strickland-Munro *et al.* 2014). Protecting this wilderness, rich in cultural and natural values, is recognised as being important, even by those who will never directly gain from it as a resource (for example, by visiting the area).

Economic and resource use

The commercial fishing industry in the proposed marine park provides regional economic benefits, employment opportunities and fresh fish to regional towns. Commercial fisheries operating in the proposed park include the Kimberley Gillnet and Barramundi Managed Fishery, Mackerel Managed Fishery, Kimberley Prawn Managed Fishery, Beche de mer Fishery and a developing Mud Crab Fishery. Other fisheries licensed to operate in the region include the Northern Demersal Scalefish Fishery, the Marine Aquarium Fishery and the Specimen Shell Managed Fishery, however, there is currently minimal fishing effort in the marine park. The Joint Authority Northern Shark Fishery has been inactive since 2008. The Kimberley region is important for pearl production and there are several pearling leases in the proposed marine park.

There are no current mineral interests in the proposed marine park, but significant interests and operations exist in adjacent areas along the coast, on islands and in Commonwealth waters further offshore. Mining tenements exist on the Montalivet Islands, Crystal Head, Port Warrender, Cape Bougainville and Cape Londonderry, and an exploration tenement (diamonds) exists over Commonwealth waters in the Joseph Bonaparte Gulf. Nickel, copper and cobalt concentrate extracted from adjacent areas is transported through the proposed marine park to Wyndham for export. Adjacent Commonwealth waters hold significant petroleum resources and there is currently an application for a petroleum exploration permit (onshore) which overlays a portion of the proposed sanctuary zone near the eastern boundary. The mining and petroleum industries are large contributors to regional, state and national economies, providing new investment, infrastructure development, employment and a range of other socio-economic benefits.

Mackerel. Photo – Clay Bryce


LEGEND
Proposed North Kimberley Marine Park *
Road - sealed
Road - unsealed
Typical charter boat track
Typical charter boat track - minor use
Mitchell Falls helicopter senic flight
Airfield
Airport
Accommodation
Anchorage
Boat launching
Camp
Fishing
Popular cruise site
Helicopter flights
Seaplane access
Waterfall
Swimming
Sight seeing
Walk trail
Popular rock art site
* Proposed marine park boundaries extend to the high water mark where they abut land.
Waterlines shown on this map are indicative only and do not necessarily depict an exact cadastral boundary.
Map produced by Department of Parks and Wildlife (Planning Branch), 10 November 2015
BE CROC WISE
When you are entering the Kimberley region, you are entering crocodile country. Two species of crocodile occur in Western Australia: the estuarine (or saltwater) crocodile and the freshwater crocodile. The estuarine crocodile is the largest living reptile and is considered to be a dangerous predator. Freshwater crocodiles are smaller and not as aggressive. Be CROCWISE in Western Australia's north.
For more information visit www.dpaw.wa.gov.au or www.nt.gov.au/becrocwise
Map Area
Proposed North Kimberley Marine Park
INDIAN OCEAN
TIMOR SEA
East Holothuria Reef
Western Australia
Vansittart Bay
Drysdale River
Faraway Bay Resort
Cape Londonderry
King George River
To Darwin
Cape Voltaire
Cassini Island
Cape Bougainville
State of the Waters
Institut Islands
Napier Broome Bay
Honeymoon Bay
Swift Bay
Jar Island
McGowan Coastal Camp
King George Falls
Joseph Bonaparte Gulf
Bigge Island
KALUMBURU
Admiralty Gulf
One Tree Beach
Coastal Archipelago
Kimberley Coastal Camp
Berkeley River
Proposed North Lalang-garram Marine Park
Limit of Bonaparte
Mitchell River
KANDIWAL
Kalumburu Road
King Edward River Camp
York Sound
Mitchell Falls
Mitchell River National Park
Drysdale River National Park
Mijing Conservation Park
Ord River Nature Reserve
Prince Frederick Harbour and Hunter River
Careening Bay
Lalang-garram / Camden Sound Marine Park
Prince Regent National Park
Prince Regent River
WYNDHAM
Freshwater Cove
Kings Cascade
0 20 40 60 80 100
Kilometres
KUNUNURRA

Miriuwung Gajerrong traditional owners. Photo – Holger Woyt/Parks and Wildlife

5. Management context

5.1 Legislative context

The proposed marine park will be managed in accordance with the provisions of the CALM Act, *Wildlife Conservation Act 1950*, Department of Parks and Wildlife (Parks and Wildlife) policy and other relevant legislation mentioned throughout this plan.[2]

The creation of the proposed park helps fulfil Australia's responsibilities under several international conventions, such as the Convention on Biological Diversity, and supports the International Union for the Conservation of Nature's Protected Areas Program. The proposed marine park will contribute to the National Representative System of Marine Protected Areas.

The Department of Fisheries (DoF) will continue to manage fisheries in the marine park and all commercial and recreational fishing activity remains subject to the *Fish Resources Management Act 1994*. DoF will also continue to manage pearling under the *Pearling Act 1990*.

5.2 Joint management

The lands and waters of the proposed marine park are highly significant to the culture and heritage of the Wunambal Gaambera, Balanggarra, Ngarinyin, and Miriuwung Gajerrong people. In recognition of the significant cultural values and ongoing connection and responsibilities to these lands and waters, it is proposed to jointly manage the marine park with traditional owners. Joint management will provide the opportunity for Parks and Wildlife and traditional owners to work together, with the wider community, to achieve the cultural, ecological and social management objectives set out in this plan. Traditional knowledge and understanding of the saltwater country will be incorporated into the management of the proposed marine park, and traditional owners will be actively involved in managing the area.

Traditional owners have determined native title rights and interests based on strong and ongoing cultural connections over their land and saltwater country. This plan does not provide any additional restrictions on the exercise of native title rights save to the extent otherwise agreed by native title holders and in accordance with the CALM Act and Conservation and Land Management Regulations 2002. Determined native title rights within the proposed marine park include the right to:

- enter, travel and remain on the waters
- hunt, fish, gather and use resources for personal, domestic and communal needs
- undertake cultural activities
- take and use water.

[2] Relevant legislation and policies can be found on the Parks and Wildlife website at www.dpaw.wa.gov.au/about-us/36-policies-and-legislation.

The Western Australian Government is negotiating Indigenous Land Use Agreements (ILUAs) with Wunambal Gaambera Aboriginal Corporation, Wilinggin Aboriginal Corporation, Balanggarra Aboriginal Corporation and Yawoorroong Miriuwung Gajerrong Yirrgeb Noong Dawang Aboriginal Corporation under the Native Title Act. The ILUAs will provide for the valid creation of the marine park in accordance with the Native Title Act and provide the commitment that the park will be jointly managed.

Subject to successful ILUA negotiations, joint management with traditional owners will be given effect under the CALM Act through section 56A Joint Management Agreements (JMAs), which will be attached to the final management plan. Joint management can commence once the proposed marine park has been created and the JMAs have been signed and attached to the final management plan. Each JMA will establish a Joint Management Body (JMB) with representatives from the relevant Aboriginal Corporation and Parks and Wildlife to manage the proposed marine park in accordance with the agreement and the CALM Act.

The JMBs will oversee management of the proposed park, make management decisions, provide strategic input into how management strategies are implemented, and monitor implementation of the plan.

5.3 Implementation

Operational responsibility for implementing the management plan will be coordinated by the Parks and Wildlife East Kimberley District Office under the guidance of the JMBs and as agreed in the JMAs. Other agencies may also be required to provide support, as necessary, to implement the action within the scope of their statutory responsibilities. Where other agencies are required to support implementation of a management strategy, their name is listed in brackets next to the strategy. Where an agency or body is required to take a lead role in strategy implementation, their name (or acronym) is in bold in the proposed management tables in Chapter 6. For all other strategies, Parks and Wildlife is the lead agency.

A Memorandum of Understanding has been developed between the Minister for Environment and the Minister for Fisheries to establish principles of cooperation and integration between Parks and Wildlife and DoF in the management of the State's marine parks and reserves. Collaborative operational plans will be developed to ensure efficient and effective delivery of a range of programs where there is shared agency responsibility or mutual interest, including education, compliance, research and monitoring.

Conducting drop camera surveys at Cape Talbot. Photo – Chris Nutt/Parks and Wildlife

Wunambal Gaambera Traditional Owner Jazzlyn Phillips takes water samples in the proposed North Kimberley Marine Park. Photo – Anna Smith/Parks and Wildlife

6. Proposed management

Objectives and strategies have been developed to address management issues that have been identified for the marine park. The subsections below summarise the main challenges and opportunities faced, and how the proposed management will respond to these. A risk assessment was used to identify and analyse current and future pressures on natural values (and thus challenges faced), such as climate change.

Targets and performance measures have been specified for a selection of key values, known as performance indicators, against which management effectiveness will be assessed. The performance indicators have been selected to reflect the highest management priorities of the MPRA, traditional owners, Parks and Wildlife and the community.

6.1 Connection to country (cultural values)

Joint management of the marine park will provide opportunities for Aboriginal people to fulfil their cultural obligations to look after country, record and share culture and language, and pass traditional knowledge onto future generations. The JMBs will oversee management of the proposed park, make management decisions, provide strategic input into how management strategies are implemented and monitor implementation of the plan.

One priority is to establish appropriate visitation protocols so that people are being respectful when visiting country to protect and conserve the unique ecological and cultural values of the park, in particular sensitive cultural sites. Parks and Wildlife will work in partnership with traditional owners to develop visitor management and access arrangements that are culturally appropriate.

Table 1 Proposed management of cultural values

Management issues	Management objectives	Management strategies
• Managing inappropriate visitation to protect important cultural places. • Providing visitors with the opportunity to learn and experience Aboriginal culture to build respect, recognition and understanding. • Recording traditional knowledge and maintaining traditional owner rights to own knowledge. • Sharing traditional knowledge between generations to keep law and culture strong. • Providing employment and training opportunities for Aboriginal people to manage country. • Caring for country to maintain healthy populations of plants and animals.	• To ensure that Aboriginal culture and heritage sites in the marine park are protected and conserved. • To support traditional owner connection to country including spiritual and cultural values. • To facilitate and maintain the opportunity for Aboriginal people to fulfil their cultural obligations as protectors and managers of their country. • To provide recognition of and support for traditional owner rights to continue customary practices and to benefit from their country consistent with the purpose of the proposed marine park.	1. Support traditional owners to undertake cultural planning to record the culture and heritage values of the proposed parks to inform management. 2. Develop and apply management targets and performance measures for Aboriginal culture and heritage values. 3. Develop protocols for the recording, storage and use of cultural information to protect the intellectual property rights of traditional owners and address confidentiality requirements. 4. Integrate traditional or cultural knowledge with contemporary research and monitoring, such as by ensuring traditional owners are given opportunities to participate in research programs. 5. Develop and implement protocols to ensure research is conducted in a culturally appropriate manner. 6. Develop and implement tools to measure and monitor impacts on cultural heritage values and sites and implement strategies to address issues where appropriate. 7. Develop and implement cultural awareness communication tools, emphasising the importance of cultural and heritage values. 8. Regulate access to culturally sensitive sites in the marine park that traditional owners consider unsuitable for visitation (through commercial operator licences, by regulation or other mechanisms as relevant). 9. Support the declaration of the marine park as an IPA, where relevant. 10. Continue to support and develop ranger programs. 11. Identify opportunities to provide employment, business and training for traditional owners on country (such as cultural and eco-tourism businesses). 12. Support traditional owners to manage sustainable populations of traditionally hunted species, such as making sure research and monitoring programs provide information to traditional owners on the health of local populations of hunted species. 13. Integrate traditional or cultural knowledge with contemporary research and monitoring.

Holothuria Reef, Wunambal Gaambera country. Photo – Anna Smith/Parks and Wildlife

Key performance indicator	
Target	To be developed with traditional owners
Performance measure	To be developed with traditional owners
Reporting	Every five years

6.2 Caring for country (natural values)

Maintaining the current condition of the natural values, both for their intrinsic value and for the cultural, recreational and commercial benefits they provide, is a key focus for management of the proposed marine park. A knowledge base of biodiversity, key ecological processes and human-induced pressures on these values is required to support effective adaptive management. Research will be a strong focus for the implementation of the management plan and will be designed to fill key knowledge gaps.

As part of the *Kimberley Science and Conservation Strategy*, the State Government has provided significant funding of $14.2 million for a major marine science program in the Kimberley, with 10 partner agencies working on 26 research projects along the 13,500km Kimberley coastline (see www.wamsi.org.au). Building partnerships with traditional owners, communities, tourism operators and industry to deliver research outcomes is essential and will also influence the success in the uptake of research findings.

One of the major pressures on natural values is climate change, as the marine environment of the Kimberley is highly vulnerable to projected climate change effects (Halpern *et al.* 2015, Climate Commission Secretariat 2011). The significant challenge for marine park management is that climate change impacts are occurring at the same time as a range of other human-induced pressures, such as land degradation resulting in increased levels of sediment. This convergence of multiple pressures places vulnerable habitats, such as coral reefs, under considerable pressure. The management response will focus on zoning as a tool to maintain or improve the resilience of ecosystems susceptible to climate change, and will include a network of sanctuary and special purpose zones to protect vulnerable habitats from multiple pressures. Research to improve understanding and identify appropriate climate change adaptation strategies will also play an important role.

Land management of river catchments and areas adjacent to the marine park will also be critical for protection of the marine park's natural values. There are several current and proposed conservation reserves and parks adjacent to the proposed marine park, which will facilitate integrated land-sea management.

The following management issues, objectives and strategies have been developed to align with the targets and issues highlighted in the healthy country plans prepared by traditional owners.

Table 2 Proposed management of natural values

Management issues	Management objectives	Management strategies
• Caring for country to maintain healthy populations of plants and animals. • A significant challenge is the current lack of knowledge about natural values, and human-induced pressures on these. • Climate change is a major pressure already affecting the natural values of the park. • Other potential and current pressures include: – recreational and commercial fishing, aquaculture and pearling – plastic debris – major oil spills or pollution events, e.g. from large industrial vessels – minor oil spills, e.g. at refuelling sites within the park – biosecurity risks. • There will be opportunities for two-way learning by involving the local communities and traditional owners in research projects and monitoring programs.	• Natural values are not significantly impacted by human activities in the marine park and baseline status is maintained (or improved) across their natural range. • Obtain an adequate biophysical, social and cultural knowledge base of values to support future management requirements. • Acquire adequate knowledge of the implications of climate change and develop applicable management strategies within the marine park. • Investigate the extent and significance of current impacts and potential pressures, and if necessary implement management strategies. • Increase local community and visitor knowledge of the cultural, ecological and social importance of key natural values.	1. Implement the zoning scheme for the proposed marine park (refer to the zoning section on pages 31–44) [DoF]. 2. Prepare and implement a coordinated and prioritised research plan (in collaboration with the Western Australian Marine Science Institution [WAMSI]). The research plan will seek to: • improve knowledge and understanding of the abundance, distribution and natural variability of natural values, and how potential pressures affect natural values in the proposed marine park • improve understanding of key ecological processes, such as connectivity and terrestrial–marine linkages • assess the extent of human usage and potential impacts on biodiversity • improve understanding of ecological implications and potential adaptations to climate change • establish baselines for key performance indicators (refer to the '*interim targets*' below). [DoF – in relation to important habitat for fish, sharks and rays] 3. Develop and implement a coordinated and prioritised monitoring program for the proposed marine park that:

Management issues	Management objectives	Management strategies
		• assesses the effectiveness of the zoning scheme and management arrangements for protection of the park's values, with a focus on condition, pressure and response indicators and metrics for high priority values • assesses the nature, level and potential impacts of pressures (from human activities and external pressures such as climate change), including early warning of critical changes in pressure trends • provides a better understanding of the dynamic nature of undisturbed marine ecosystems as reference points for comparisons with altered environments • uses traditional ecological knowledge and, where possible, provides capacity building and employment opportunities for traditional owners • meets MPRA requirements for assessing the implementation of the management plan. [DoF] 4. Where possible, develop regional and local level adaptive management responses to climate change for the protection of park values, informed by research and monitoring outcomes. 5. Identify and communicate high priorities for research and monitoring projects to appropriate external organisations and funding bodies, and facilitate research and monitoring by appropriate external organisations where possible. 6. Ensure all research projects undertaken by or on behalf of Parks and Wildlife comply with the department's Science Policy (No. 78) and associated guidelines, and ensure granting and renewal of research permits is consistent with the management plan. 7. Facilitate knowledge transfer and uptake of research and monitoring outcomes to adaptive marine park management, planning and policy. 8. Liaise with industry, other government agencies and non-government organisations to access information held on ecological research and monitoring in the area. 9. Work collaboratively with tourism operators to develop systems for recording ecological information and sharing knowledge. 10. Develop and implement a marine pest early warning and monitoring program. [**DoF**] 11. Develop a maritime incident response plan, specific to the proposed marine park, that complements the state's marine oil spill response plan. [Department of Transport (DoT)] 12. Finalise and implement the Kimberley Oiled Wildlife Response Plan.

All key performance indicators	
Interim target	Determine baseline[3] condition of key performance indicators
Coral reef communities	
Target	***Sanctuary zones, special purpose zones (recreation and conservation) and special purpose zones (cultural heritage)*** – No change in community composition or loss of cover relative to baseline levels due to human activities in the proposed marine park[4]. ***General use zones*** – No change in community composition or loss of cover relative to baseline levels due to human activities in the proposed marine park, except in areas approved by the appropriate government regulatory authority[5].
Performance measure	1. Community composition 2. Live coral cover
Reporting	To be determined
Mangrove and saltmarsh communities	
Target	***Sanctuary zones, special purpose zones (recreation and conservation) and special purpose zones (cultural heritage)*** – No change in community composition or loss of extent and density of mangrove and saltmarsh communities as a result of human activities in the proposed marine park[4]. ***General use zones*** – No change in community composition or loss of extent and density relative to baseline levels due to human activities in the proposed marine park, except in areas approved by the appropriate government regulatory authority[6].
Performance measure	1. Community composition 2. Extent 3. Density
Reporting	To be determined
Seagrass and macroalgae communities	
Target	***Sanctuary zones, special purpose zones (recreation and conservation) and special purpose zones (cultural heritage)*** – No loss of distribution or community composition relative to baseline levels due to human activities in the proposed marine park[4]. ***General use zones*** – No loss of community composition; and no loss of distribution relative to baseline levels due to human activities in the proposed marine park, except in areas approved by the appropriate government regulatory authority[6].
Performance measure	1. Community composition 2. Distribution
Reporting	To be determined
Turtles	
Target	***All zones*** – No loss of abundance of nesting turtles or breeding success as a result of human activities[4,6], or feral animal predation in the proposed marine park.
Performance measure	1. Population indices
Reporting	To be determined
Dugongs	
Target	***All zones*** – No loss of abundance or change in distribution relative to baseline levels due to human activities[4,6] in the proposed marine park.
Performance measure	1. Abundance 2. Distribution
Reporting	To be determined

[3] Baseline refers to the starting point (a certain date or state) against which the changes in the condition of a variable or a set of variables are measured. For the proposed North Kimberley Marine Park, the assessment of baseline status for all of the key performance indicators is the interim target.

[4] Excludes loss of a minor or transient nature.

[5] Acceptable limits of change to be determined following the development of baselines.

[6] Excludes loss as a result of sustainable customary take.

Finfish	
Targets	***All zones*** – No loss of finfish diversity as a result of human activities[4,6] in the proposed marine park. ***Sanctuary zones*** – No change in distribution, loss of abundance or change in size composition of finfish species relative to baseline[3] levels due to human activities in the proposed marine park. ***Special purpose zones (recreation and conservation), special purpose zones (cultural heritage) and general use zones;*** 1. No loss of non-targeted finfish abundance as a result of human activities within the proposed marine park. 2. Management targets for targeted finfish species to be determined in consultation with DoF (in its role as the lead agency for managing fisheries), the community and stakeholders.
Performance measure	1. Community composition 2. Abundance
Reporting	To be determined
Water and sediment quality	
Targets	***Sanctuary zones*** – No significant change relative to baseline levels due to human activities in the proposed marine park[4]. ***Special purpose zones (recreation and conservation), special purpose zones (cultural heritage) and general use zones*** – No change relative to baseline levels due to human activities in the proposed marine park, except in areas approved by the appropriate government regulatory authority[6].
Performance measure	1. Nutrients 2. Toxicants 3. Pathogens 4. Litter
Reporting	To be determined

Recreational fishing in the proposed park. Photo – Carolyn Thomson-Dans/Parks and Wildlife

6.3 People on country (recreation, tourism and community values)

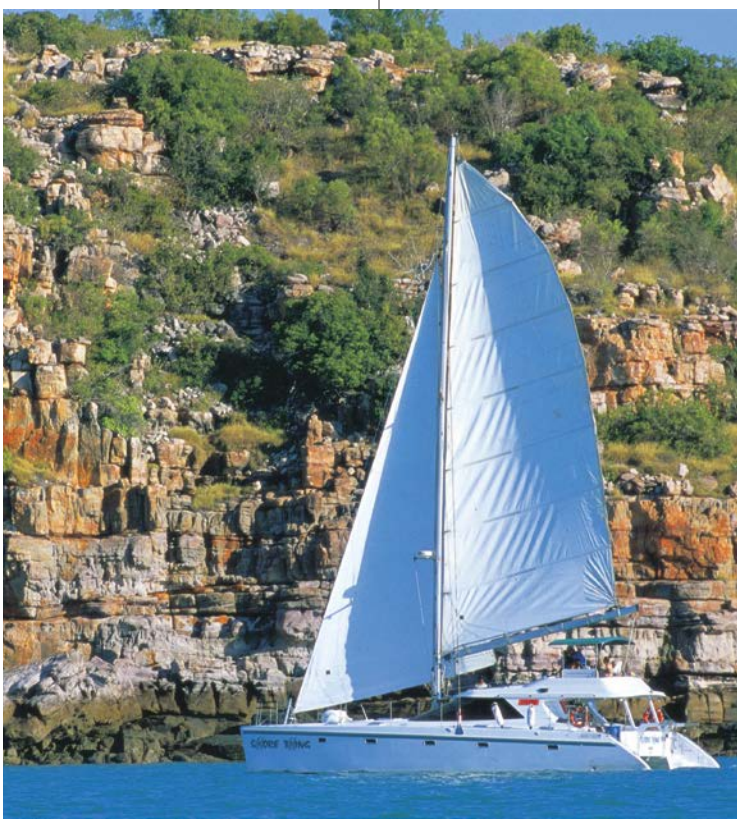
Visitation to the proposed marine park is expected to increase over time as the Kimberley's reputation as a premier destination for cultural and nature-based tourism continues to develop. The growing nature-based economy provides significant opportunities to contribute to social, economic and environmental outcomes. Use and visitation will require careful management to ensure that the ecological, cultural and social values of the proposed marine park are conserved, and that visitor experiences are maintained. The expansive and remote nature of the proposed park also adds further challenges for management.

Proposed future management focuses on working collaboratively with communities and tourism operators to foster a sense of custodianship of this amazing place, and to provide visitors with the opportunity to learn about and experience the park's incredible natural and cultural values. It will be essential to closely monitor growth in user numbers, the status of values at the most popular visitor sites and the effectiveness of the management strategies in place.

The remote nature of the proposed marine park and the many natural hazards that exist within the area pose a significant risk to the unwary visitor. Parks and Wildlife will work with relevant JMBs to undertake periodic assessments of visitor risk and mitigate identified risks wherever possible.

Table 3 Proposed management of recreation, tourism and community values

Management issues	Management objectives	Management strategies
• Maintaining the quality of the tourism and recreation experience (including recreational fishing). • Providing visitors with educational and interpretive material to enhance their experience and increase understanding of the park's values. • Ensuring that park users understand the requirements to access adjacent areas. • Ensuring the safety of visitors to the proposed marine parks, especially in high risk areas. • Ensuring tourism activities do not adversely affect cultural, natural and other commercial, recreational and tourism values.	• To promote visitor access to and enjoyment of the proposed marine park while maintaining the outstanding cultural and natural values. • To increase community understanding and appreciation of the proposed marine park's values and support for management arrangements. • To support continued enjoyment of recreational fishing opportunities within the marine park while maintaining the outstanding cultural and natural values. • To minimise risks to visitors, and encourage appropriate visitor behaviour.	1. Engage with tourism operators and facilitate the establishment of high quality commercial tourism operations that: • demonstrate a commitment to protect and promote the proposed park's cultural, natural, recreation and tourism values • ensure staff and passengers behave appropriately and respectfully at cultural sites • conduct operations according to Parks and Wildlife policy and licence conditions. [Tourism WA] 2. Prepare education and interpretative material to: • increase visitor enjoyment and safety • provide information on natural and cultural values, including research and monitoring outputs • reduce impacts on sites • ensure visitors are aware of cultural laws and protocols • encourage appropriate behaviour including compliance with the management plan. 3. Work with peak bodies and tourism providers to highlight the unique fishing experiences available in the Kimberley, and to raise awareness of sustainable fishing practices and fishing restrictions. [DoF] 4. Conduct periodic assessments and monitoring to determine the effect of management arrangements on visitor safety, and adapt management strategies as required. 5. Implement a collaborative education and compliance program to maximise compliance with the management plan (including commercial operator license conditions), such as undertaking patrols. Adapt management strategies to address any non-compliance issues. [DoF] 6. Investigate whether populations of recreationally targeted species are sustainable in the proposed marine park and undertake adaptive management strategies if required. [**DoF**] 7. Ensure granting and renewal of commercial tour operator licences is consistent with the management plan and contains appropriate conditions. 8. Assess the need for a mooring and anchoring plan and prepare and implement if necessary. 9. Facilitate cross-authorisation of enforcement officers as appropriate. [DoF, DoT]



Cruising Prince Frederick Harbour. Photo – Tourism WA

Performance indicator	Performance measure	Target
Visitor satisfaction	Visitor satisfaction (e.g. experiences and expectations) as determined by the Visitor Monitoring Program[7]	Visitor satisfaction level is 85% or above.
Visitor safety	Number of reported incidents relating to visitor safety	Number of incidents per capita relating to visitor safety decreases compared to baseline levels.

[7] See parks.dpaw.wa.gov.au/for-business/dpaw-visitor-monitoring-program for more information

6.4 Using resources from country (sustainable resource use)

Our social, economic and environmental wellbeing depends on the sustainable management of natural resources. Understanding the marine environment, and having the right information available to make decisions for the long term, is fundamental to effective resource management. The main focus of management for the proposed marine park will be working with other agencies, institutions and industry members to address key knowledge and capability gaps (for example, refer to *The Blueprint for Marine Science 2050*). Working in collaboration with industry is also essential to finding effective management solutions to issues, such as the risk of by-catch from commercial fishing.

Table 4 Proposed management of commercial values

Commercial fishing and pearling		
Management issues	**Management objective**	**Management strategies**
• Working in collaboration to identify management solutions, where necessary. • Ensuring commercial fishers are aware of and comply with management arrangements and zoning, and conduct activities in a culturally sensitive manner.	To recognise and allow for commercial fishing and pearling operations whilst maintaining the cultural and natural values of the proposed marine park.	1. Ensure commercial fishers are aware of the zoning scheme and any restrictions that may apply to their activities in the proposed marine park, and monitor compliance. [DoF] 2. Monitor commercial fishing catch and effort in the proposed marine park and report the results to Parks and Wildlife, the JMB and the MPRA. [DoF] 3. Work in collaboration with commercial fishers to investigate the extent and significance of interactions between commercial fishing and protected species and, where required, develop appropriate management strategies. [DoF] 4. Work with commercial fishers to ensure commercial fishing activities are conducted in a culturally sensitive manner. [DoF] 5. Identify opportunities for collaboration with fishers in developing and implementing management actions. [DoF].

Mineral extraction (oil, gas and mining)		
Management issues	**Management objective**	**Management strategies**
• Ensuring that mineral exploration and development proposals in and adjacent to the proposed park are assessed and managed in recognition of marine park values.	To ensure industry and associated activities are managed in a manner consistent with the objectives of the proposed marine park.	1. Provide formal advice to the MPRA and EPA for the environmental assessment of proposed mineral, petroleum and pipeline activities in and adjacent to the proposed marine park. [DMP, DoF, Office of the Environmental Protection Authority (OEPA)] 2. Provide advice on the assessment, setting of conditions, and monitoring and reporting requirements for mineral, petroleum and pipeline activities consistent with management objectives and management targets for the proposed marine park. [DMP, OEPA] 3. Consider the quality of the remote seascapes of the proposed marine park in site planning and assessment of development proposals. 4. Monitor commercial operations to ensure compliance with licence conditions. [DMP] 5. Work with industry to ensure commercial activities are conducted in a culturally sensitive manner. [DMP] 6. Where appropriate, liaise with industry to gain access to information held on ecological research and monitoring in the area.

Nesting tern colony on Sterna Island in the proposed Institut Islands Special Purpose Zone. Photo – Holger Woyt/Parks and Wildlife

6.5 Zoning and permitted uses

Zoning design

Multiple use zoning helps to manage and protect the values of the marine park that people enjoy. Zoning is a key strategy for protecting the health and resilience of the area, while supporting ongoing tourism and recreation, commercial activities and fishing.

The CALM Act requires marine parks to be zoned as one or a combination of sanctuary, recreation, special purpose or general use zones.[8] The zones provide for varying levels of conservation, recreational and commercial use. Through multiple-use zoning, marine parks will provide economic, recreational and cultural benefits for local communities, as well as environmental benefits. Where possible and appropriate, the development of marine park zoning seeks to accommodate existing uses. The zoning scheme complements other management strategies proposed for the marine park.

The proposed zoning scheme for this park should be considered in the context of the zoning schemes for other marine parks within the region. It has been developed using a network based approach, building on the outcomes of the Lalang-garram / Camden Sound Marine Park and the proposed Lalang-garram / Horizontal Falls and North Lalang-garram marine parks.

The zoning scheme has been designed to:

- include a system of comprehensive and representative 'no-take' or sanctuary areas for the primary purpose of marine biodiversity conservation and increasing resilience to natural and human disturbances
- take special account of the needs of vulnerable species and the current or projected future pressures on these species
- protect and conserve the value of the proposed marine park to the culture and heritage of Aboriginal people
- provide opportunities for recreation and tourism, and allow for ongoing sustainable commercial use
- provide areas relatively free of human impact for research and monitoring, nature appreciation and education
- apply the precautionary principle
- minimise impacts on the existing uses
- be simple for users to understand
- complement proposed or existing terrestrial parks and reserves
- be one in a complementary suite of management mechanisms for the marine park.

[8] For more information on zone types, go to: www.dpaw.wa.gov.au/management/marine/marine-parks-and-reserves/71-know-your-zones

Proposed zoning scheme

The zoning scheme for the proposed North Kimberley Marine Park is shown in Maps 7–11 and a summary of the activities permitted in each zone is presented in Table 5. The proposed zoning scheme comprises:

- eight sanctuary zones covering approximately 387,200ha or 21% of the park
- eight special purpose zones (recreation and conservation) covering approximately 218,400ha or 12% of the park
- three special purpose zones (cultural heritage) covering approximately 44,000ha or 2% of the park
- general use in the remainder of the park, covering approximately 1,195,300ha or 65% of the park.

Special purpose zones (recreation and conservation) acknowledge the high recreational and cultural value of the area and allow for compatible commercial activities whilst providing enhanced protection and conservation for ecological values. Within these zones, people can continue to enjoy recreational activities such as fishing. Commercial prawn trawling and commercial gillnet fishing are not permitted within these zones, to provide increased protection to important ecological values such as seagrass and macroalgae, finfish, turtles and crocodiles.

Special purpose zones (cultural heritage) provide for the recognition and protection of sites of high cultural significance to the traditional owners. They provide a focus for increased education and interpretive information about traditional owner connection to country and culturally significant areas. This is intended to increase visitor respect for these areas and to encourage culturally appropriate behaviour. Within these zones, people can continue to enjoy recreational activities, such as fishing, and sustainable commercial uses. See Table 5 for further information on permitted activities and uses.

The proposed sanctuary zones play a central role in protecting areas of critical habitat to maintain the healthy functioning of the complex ecosystems that make up the marine park. Sanctuary zones act as benchmarks to compare to other areas with similar habitats and ecosystems that are subject to extractive use. This allows managers to gain a better understanding of local and regional pressures on the marine environment over time. As such, sanctuary zones provide important opportunities for education, research and monitoring.

Formal names for individual zones will be developed during the finalisation of the plan, including the use of Aboriginal names where appropriate.

Proposed Coronation Islands Sanctuary Zone

The proposed Coronation Islands Sanctuary Zone will protect an archipelago of more than 40 islands, with representative examples of a diverse range of habitats. The offshore islands are fringed by diverse intertidal platforms, coral reef and sandy beaches, and are surrounded by sheltered subtidal habitats, such as seagrass and macroalgae, and productive deep-water habitats associated with the edge of the continental shelf. This zone will protect an important area for turtles (Wunambal Gaambera Aboriginal Corporation 2010) and many of the islands support turtle nesting. Pods of humpback whales, including mothers and calves, have been observed in this area which is thought to provide an area for feeding and resting following calving (Commie-Grieg and Abdo (eds) 2014). The proposed Coronation Islands Sanctuary Zone provides for conservation, recreation and tourism.

Proposed Prince Frederick Harbour Sanctuary Zone

The spectacular Prince Frederick Harbour Sanctuary Zone encompasses diverse mangrove covered tidal flats. The proposed sanctuary zone includes important nursery habitat for prized finfish such as barramundi and threadfin salmon. Two major rivers (Hunter and Roe rivers) feed into this area, which is adjacent to a deep water channel created by a drowned river valley. With such unique geomorphological features, the zone will likely play an important role in connectivity, and benefit finfish species dependent on habitat within the zone for critical life stages, such as threadfin salmon. Mangrove communities provide important habitat and refuge areas for a variety of species, which in turn support wildlife viewing, and commercial and recreational fishing in areas adjacent to the zone.

Prince Frederick Harbour. Photo – David Pearson/Parks and Wildlife

Proposed Bigge Island Sanctuary Zone

This proposed sanctuary zone, stretching from the western side of the island to the mainland, includes representative examples of coral reef communities (intertidal and subtidal), filter-feeding communities, sandy beaches, mudflats and significant mangrove communities on Bigge Island and the mainland coastline to the east. The area is important for turtle nesting, dugongs and dolphins (Wunambal Gaambera Aboriginal Corporation 2010, Comrie-Grieg and Abdo (eds) 2014). The zone has been designed to include the most significant and diverse range of habitats for conservation and tourism, while avoiding areas important for recreation (including fishing) on the north-west corner of the island.

Bigge Island. Photo – Landgate

Proposed Long Reef and East Holothuria Reef Sanctuary Zone

This sanctuary zone will encompass two of the largest biogenic reef structures found within the proposed Great Kimberley Marine Park. Long Reef is an emergent reef of some 150km rising out of approximately 30m water depth. The reef supports 'exceptionally rare' coral habitats (Richards *et al.* 2015) and a high diversity of soft and hard corals. Corals are vital components of the nearshore Kimberley ecosystem and play an important role in carbon cycling and primary productivity. They provide critical habitat for a huge range of marine plants and animals. Many species rely on the East Holothuria Reef and Long Reef for sustenance and refuge at particular life stages, migrating between these reefs and other habitats, including green and flatback turtles and lesser frigatebirds (Commonwealth of Australia 2011).

East Holothuria Reef. Photo – Anna Smith/Parks and Wildlife

Proposed Drysdale River Sanctuary Zone

The Drysdale River drains the heart of the north Kimberley, and is the third longest river in the Kimberley. The Drysdale River constitutes the largest system of river pools in the high rainfall north-west of the Kimberley (NLWRA 2002) and includes a complex range of wetland habitats (noted as Wetlands of National Significance; CSIRO 2009). This zone is proposed to protect representative areas of wetland and estuarine habitat, including critical nursery areas for mangrove jack and other finfish, and important habitat for saltwater crocodiles, sawfish, mud crabs and more than 20 species of waterbird (Department of Environment 2005).

Proposed Drysdale River Sanctuary Zone.
Photo – Holger Woyt/Parks and Wildlife

Proposed Cape Londonderry Sanctuary Zone

This proposed sanctuary zone will provide increased protection for some of the most remarkable fringing reef communities in the park. Extensive coral reef structures occur amongst large mudflats, mangrove forests and

sandy beaches. Preliminary observations suggest that future research of these reef systems is likely to reveal highly unusual ecological processes that are perhaps without parallel elsewhere in Australia (Wilson *et al.* 2011). The zone also includes a section of Sahul Shelf which is a Commonwealth 'key ecological feature' (Commonwealth of Australia 2011). The carbonate banks and terrace system of the Sahul Shelf are regionally important because of their role in enhancing biodiversity and local productivity relative to their surrounds. The area provides critical habitat for green turtles, snubfin dolphins, seabirds and dugongs (Balanggarra Aboriginal Corporation / Kimberley Land Council 2011, Commonwealth of Australia 2011), and has the highest diversity of fish recorded in the Kimberley (Walker *et al.* 1996). The area is highly significant to the Balanggarra people: "*Rinjiibarda bindingei* is a reef to the north of Cape Londonderry where the Dreaming Star 'fell down' to become the very shiny and highly prized, ritually and socially important pearl shell" (Balanggarra Aboriginal Corporation / Kimberley Land Council 2011).

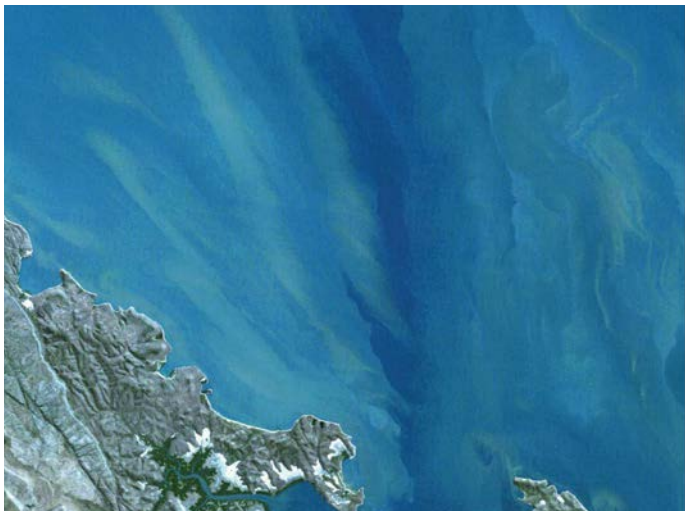
Proposed King Shoals Sanctuary Zone

The King Shoals Sanctuary Zone includes some of the Kimberley's only mapped tidal sand waves and sand banks, as well as carbonate banks (a key ecological feature of the region; Commonwealth of Australia 2011) and deep waters. Carbonate banks are thought to support a high diversity of organisms including reef fish, sponges, soft and hard corals, gorgonians, bryozoans, ascidians and other filter feeders. The banks are likely to be foraging areas for flatback turtles. The zone also provides protection for threatened species such as green and freshwater sawfish which occur in the area (Commonwealth of Australia 2011).

Proposed WA Border Sanctuary Zone

The WA border zone has a low relief coastline with fringing mangroves and very wide salt flats. This swampy coastline and the shallow nearshore waters of the Cambridge Gulf comprise a major distinctive coastal type unique to the 'Top End' of Australia and different from any other area in the proposed marine park. The mangrove and muddy intertidal flats in this zone support microscopic algae which are considered to be one of the most important primary producers in the Kimberley. These microalgae provide food for sediment infauna such as small nematodes, crustaceans and filter-feeding molluscs, and this creates important feeding habitat for migratory shorebirds. The murky nearshore waters provide exceptional habitat for sawfish and snubfin dolphins, and the small creeks and mangrove habitat support targeted species such as barramundi, threadfin salmon and mud crabs. There are petroleum interests overlaying the zone and in the vicinity.

Cape Londonderry. Photo – Anna Smith/Parks and Wildlife



King Shoals. Photo – Landgate

Creeks and mudflats on the WA and NT border. Photo – Landgate

Proposed Careening Bay Special Purpose Zone (recreation and conservation)

The zone is proposed to provide improved protection for mangroves, intertidal flats, sandy beaches and species inhabiting these areas (such as turtles). This area provides for recreation and tourism, and includes safe anchorages for people to use when visiting the historic Mermaid Boab Tree. The location of this zone adjacent to Prince Regent National Park, which protects the catchment area of the Prince Regent River, provides excellent opportunities for integrated land-sea management to protect the area's threatened and priority wildlife.

Proposed Port Warrender Special Purpose Zone (recreation and conservation)

The proposed Port Warrender Special Purpose Zone contains representative areas of a wide range of habitat types, including exposed rocky headlands and coral reef, sandy beaches, and diverse mangrove communities and extensive mudflats associated with the Lawley River delta. The zone provides for the conservation of and increased protection for threatened and priority wildlife including 20 shorebird and tern species, estuarine crocodiles, coastal dolphins and finfish (*A Directory of Important Wetlands in Australia*, plus others). Port Warrender is one of the few areas accessible by road within the proposed park. There are also two coastal camps offering ecotourism experiences. This zone supports ongoing use by local communities and tourism, including recreational fishing and nature appreciation.

Proposed Drysdale River and Napier Broome Bay Special Purpose Zone (recreation and conservation)

Drysdale River has 5,670ha of Wetlands of National Significance (CSIRO 2009) and provides critical habitat for a range of important fauna, including saltwater crocodiles, sawfish, mud crabs, mangrove jack and Queensland groper. The broader area of Napier Broome Bay includes a unique deep water 'basin' and diverse intertidal habitats. The zone encompasses significant areas of cultural importance for Wunambal Gaambera and Balanggarra people. The area is also of high significance to the Aboriginal community of Kalumburu and is one of few areas of the proposed marine park with road access. This zone is proposed to provide for the conservation of and increased protection for ecologically, culturally and socially important wildlife such as snubfin and humpback dolphins, dugongs and finfish, while allowing for ongoing recreational and tourism activities.

Careening Bay. Photo – Carolyn Thomson-Dans/Parks and Wildlife

Port Warrender. Photo – Holger Woyt/Parks and Wildlife

Drysdale River. Photo – Holger Woyt/Parks and Wildlife

Sir Graham Moore Island. Photo – Ray Masini

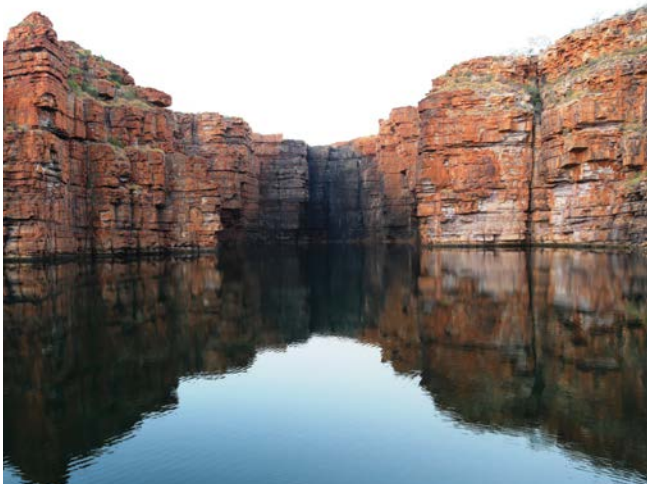
Proposed Sir Graham Moore Islands Special Purpose Zone (recreation and conservation)

This zone encompasses Sir Graham Moore and nearby Scorpion islands just north of the Anjo Peninsula. The southern and eastern shorelines are made up of long sweeping sandy beaches and rocky coves, while the northern shoreline has coral reefs which support a diversity of soft and hard corals. This reef area is important for crayfish, crab and turtle species. Beaches on the island are frequented by nesting turtles as well as providing unique sand dune vegetation communities.

This special purpose zone provides for the conservation of ecologically and culturally important habitats, communities and species, whilst continuing to allow for recreational and tourism.

Proposed King George River Special Purpose Zone (recreation and conservation)

The zone includes a transect from the coast to offshore, encompassing habitats at different depths, from the estuarine habitats of King George River to fringing coral reef communities and deep subtidal habitats around Lesueur Island. The extraordinary King George River is a popular tourism attraction due to its spectacular scenery and the opportunity for wildlife watching. The river is of high cultural significance to the Balanggarra people, for whom the King George Falls are the male and female *Wungkurr*. The surrounding coastline adds to the attraction of the area, including cliffs, gorges, mangrove-lined bays and vast sand dunes. This proposed special purpose zone provides for the conservation of ecologically and culturally important habitats, communities and species, including dugongs, turtles, and humpback and snubfin dolphins, whilst continuing to allow for recreation and tourism.



King George River. Photo – Chris Nutt/Parks and Wildlife

Proposed Berkeley River Special Purpose Zone (recreation and conservation)

This proposed special purpose zone encompasses the renowned cultural, natural and social values of the Berkeley River and its surrounds. The whole river system and Reveley Island have particular cultural significance to Balanggarra people (Balanggarra Aboriginal Corporation / Kimberley Land Council 2011). The zone represents a range of

Berkeley River. Photo – Chris Nutt/Parks and Wildlife

Cape Domett. Photo – Andrea Whiting

habitats including tidal flats and creek estuaries important for shorebirds and finfish, seagrass beds where dugongs feed, and ancient sand dunes and beaches where flatback turtles nest. The area is also known to provide important habitat for snubfin dolphins. About 170km north-west of Wyndham the area offers opportunities for recreation and tourism. This special purpose zone provides for the conservation of ecologically and culturally important marine ecosystems, including habitat for dugongs, flatback turtles, snubfin dolphins and lesser crested terns, whilst continuing to allow for recreation and tourism.

Proposed Institut Islands Special Purpose Zone (recreation and conservation)

Institut Islands. Photo – Holger Woyt/Parks and Wildlife

The proposed Institut Islands Special Purpose Zone (recreation and conservation) covers an area of complex island, intertidal and subtidal habitats and has been recognised for its outstanding natural values by the Western Australian Museum. The offshore islands and northern part of the Cape Voltaire peninsula are fringed with diverse intertidal coral reefs as well as sandy beaches which are used for turtle nesting. Many of the islands, including Sterna Island, are important bird nesting sites. The subtidal environment features unique geomorphology such as pinnacles, banks and shoals which provide for a diverse array of depth classes and ecological communities. This zone aims to recognise and protect these values while continuing to allow for ongoing recreational and tourism activities such as recreational fishing.

Proposed Cape Domett Special Purpose Zone (recreation and conservation)

The proposed Cape Domett Special Purpose Zone provides protection for a globally significant nesting area for flatback turtles. The muddy waters, which are strongly influenced by run-off from the Cambridge Gulf as well as tides, provide excellent habitat for sawfish and snubfin dolphins. This zone provides for the conservation of an ecologically and culturally important marine ecosystem, whilst continuing to allow for sustainable recreation and tourism. The need for temporal closures or vehicle access restrictions in this zone will be investigated during management plan implementation.

Proposed special purpose zones (cultural heritage)

Three special purpose zones (cultural heritage) are proposed within Wunambal Gaambera sea country: Prince Frederick Harbour, Mitchell River and Vansittart Bay.

These areas provide for the recognition and protection of sites and places of high cultural significance to Wunambal Gaambera traditional owners. Hunter River estuary and Mitchell River estuary are inhabited by the *Wunggurr* (creator snake). The lower Vansittart Bay area is the resting place of an important *Kaiara* (sea *Wanjina*). These special purpose zones will help ensure that Wanjina Wunggurr Law and culture is maintained and passed on to future generations of traditional owners, as well as being acknowledged and respected by visitors to these areas.

Permitted uses

The activities and uses table (Table 5) summarises the range of permitted activities across the zone types of the proposed marine park. Marine park users should be aware that many of the listed activities are also regulated under complementary legislation and regulations – for example, regulations regarding wildlife interactions, the disposal of sullage, and size and bag limits for recreational fishing. The CALM Act and Wildlife Conservation Regulations 2002 require some activities (e.g. commercial tourism, research) to obtain a licence to operate in marine parks.

The implementation of this joint management plan may require management actions such as temporal closures. Development of these management actions will aim to limit the impacts on the permitted activities whilst meeting the management objectives. An activity marked as 'assess' indicates an assessment is required by the appropriate agencies in accordance with relevant legislation and the management objectives and targets in this plan.

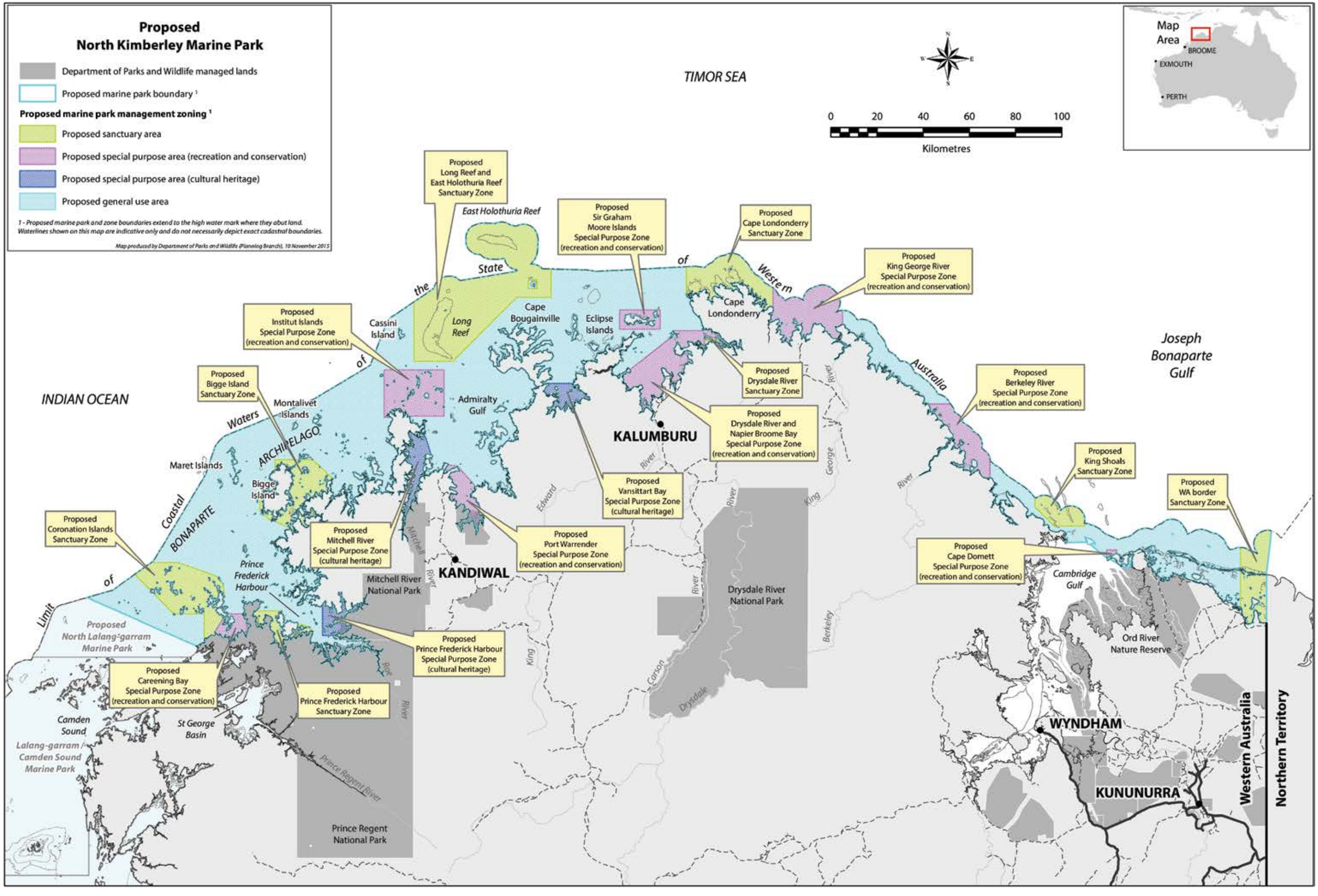
Table 5 Summary of permitted uses for the proposed North Kimberley Marine Park

Activity	Sanctuary zones	Special purpose zone (recreation and conservation)	Special purpose zone (cultural heritage)	General use zones
Customary				
Customary activities (e.g. hunting and fishing)	Yes	Yes	Yes	Yes
Commercial				
Commercial gillnet fishing	No	No	Yes	Yes
Commercial prawn trawl fishing	No	No	Yes	Yes
Commercial fishing (other than gillnet and prawn trawl)	No	Yes	Yes	Yes
Commercial specimen shell and marine aquarium collecting	No	Yes	Yes	Yes
Pearling	No	Assess	Yes	Yes
Aquaculture	No	Assess	Assess	Yes
Scenic flights (charter)	Yes	Yes	Yes	Yes
Ground-disturbing mineral and petroleum exploration and development [a]	No	No	No	Assess
Non-ground-disturbing geophysical surveys [b]	Assess	Assess	Assess	Assess
Ship loading and other mining related infrastructure (e.g. ship loading docks, cabling or pipelines)	No	No	No	Assess
General marine infrastructure (e.g. groynes or jetties)	No	Assess	Assess	Assess
Artificial structures (e.g. artificial reefs)	No	No	No	Assess
Dredging and dredge spoil dumping	No	No	No	Assess
Charter tour operators – fishing	No	Yes	Yes	Yes
Charter tour operators – non-extractive (e.g. wildlife viewing)	Yes	Yes	Yes	Yes
Wildlife/fish feeding	No	No	No	No

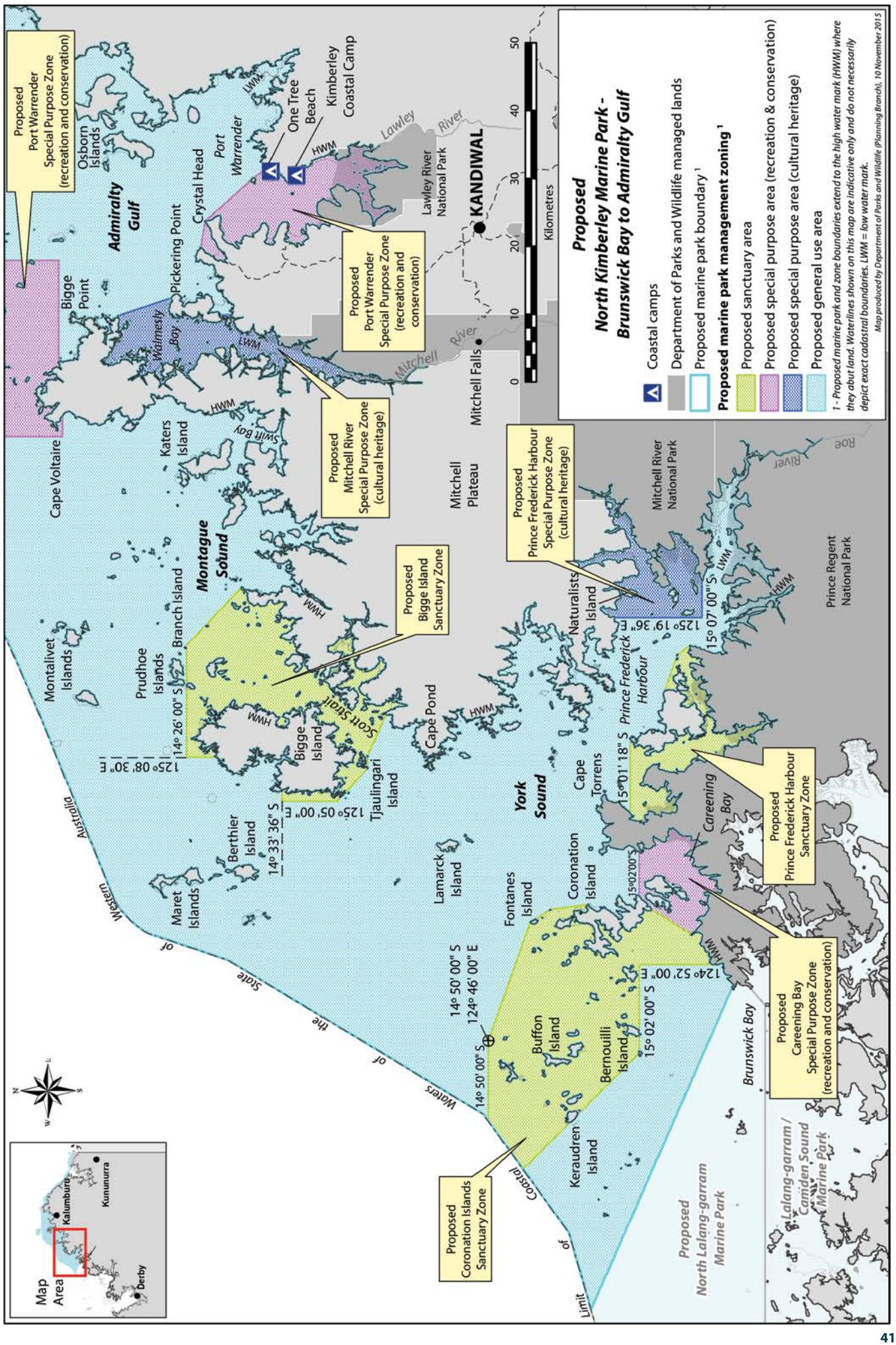
Activity	Sanctuary zones	Special purpose zones (recreation and conservation)	Special purpose zones (cultural heritage)	General use zones
Recreational				
Boating (motorised and non-motorised)	Yes	Yes	Yes	Yes
Nature appreciation and wildlife viewing	Yes	Yes	Yes	Yes
Shore and boat fishing	No	Yes	Yes	Yes
Other use				
Vessel transit	Yes	Yes	Yes	Yes
Navigation aids	Yes	Yes	Yes	Yes
Research and monitoring	Yes	Yes	Yes	Yes
Anchoring (soft bottom only)	Yes	Yes	Yes	Yes
Seaplane landing	Assess	Assess	Assess	Yes
Vessel sewage discharge	No	Yes [c]	Yes [c]	Yes [c]
Permitted activities provisions				
[a] Ground-disturbing mineral and petroleum exploration and development activities include any activity that disturbs the seabed and/or subsoil within the marine park (e.g. drilling). [b] Geophysical surveys such as aeromagnetics will be assessed by the Department of Mines and Petroleum. [c] Impacts will be monitored and managed in accordance with applicable legislation.				

Hunter River in Prince Frederick Harbour. Photo – Holger Woyt/Parks and Wildlife

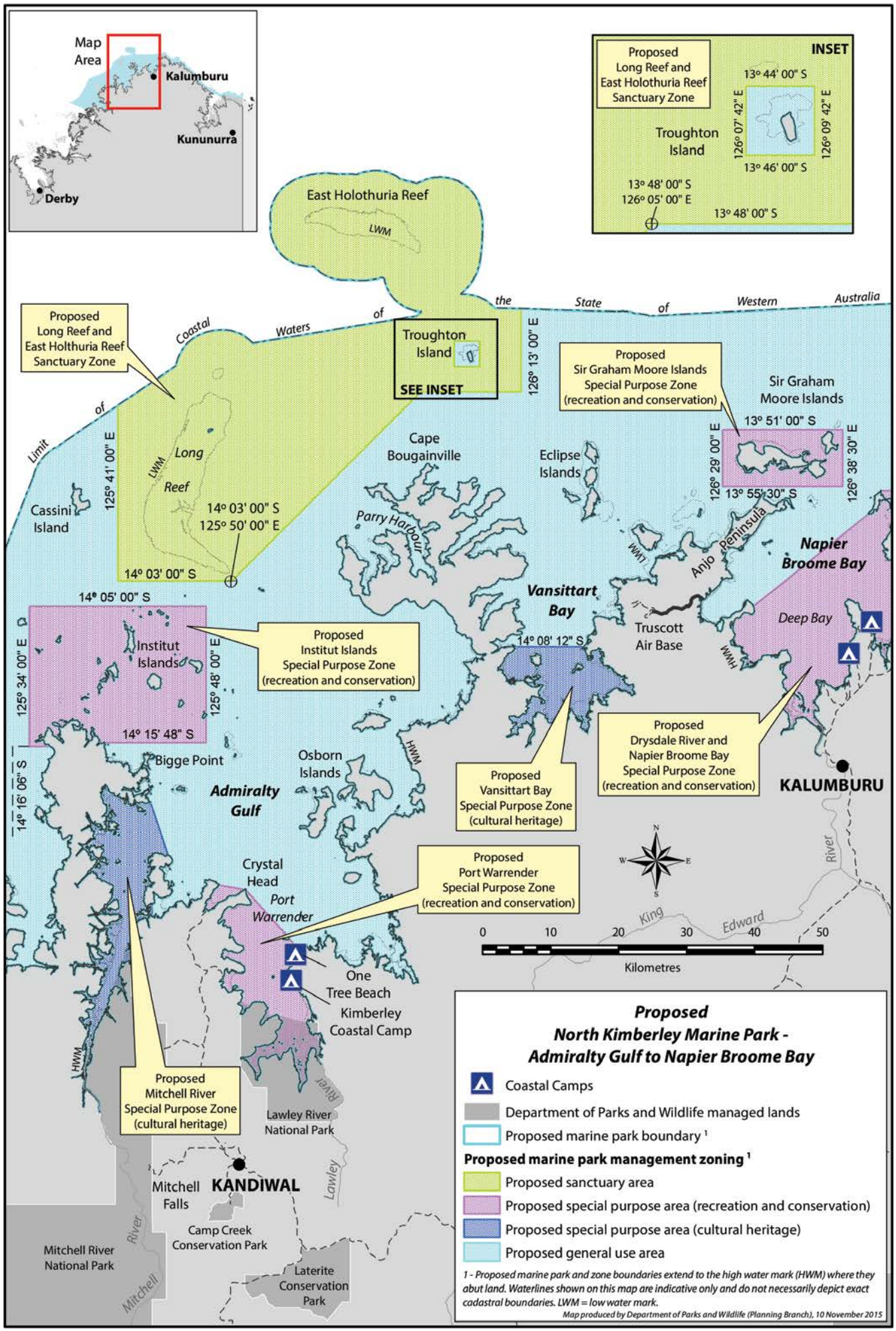
Map 7 Proposed management zoning for the proposed North Kimberley Marine Park



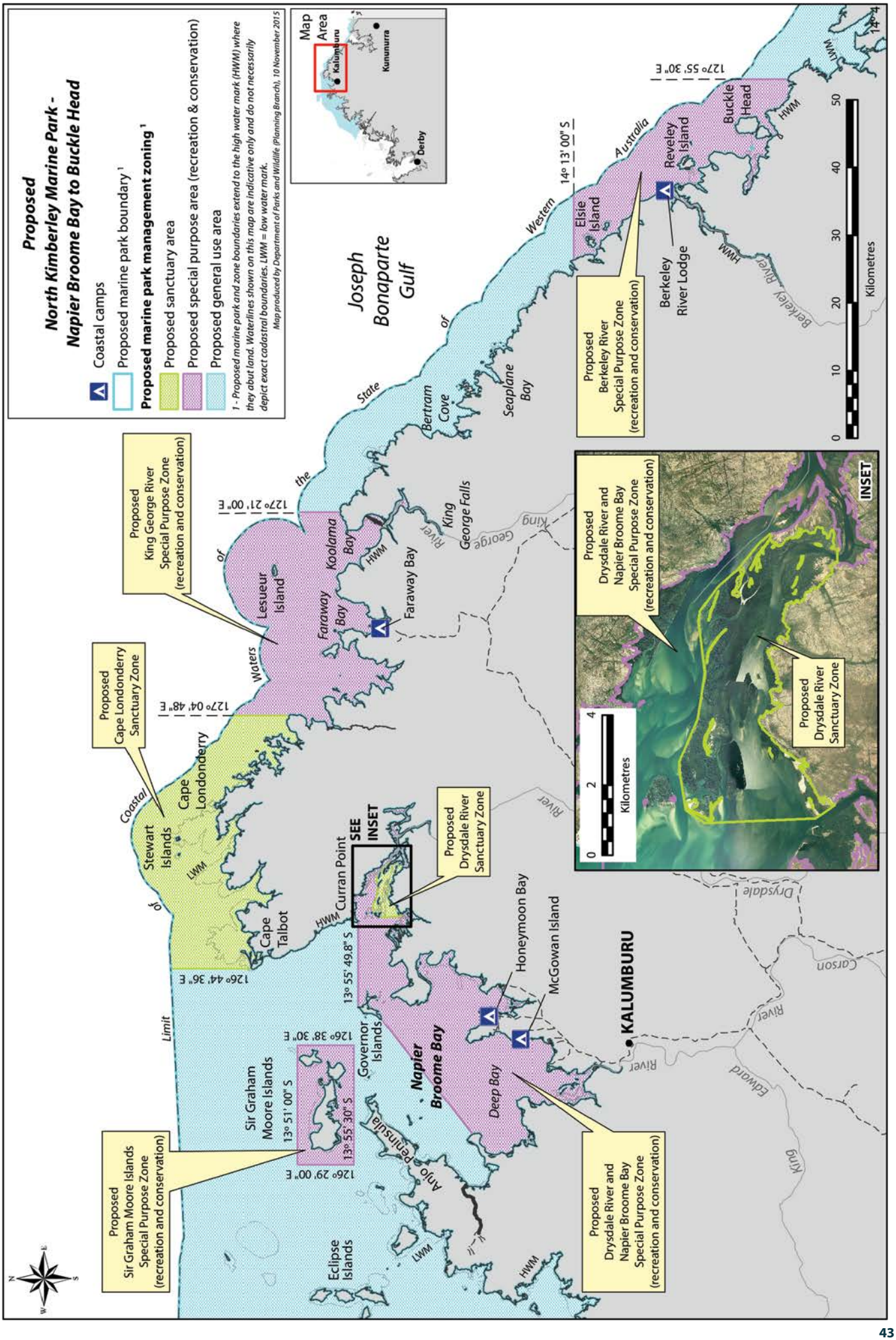
Map 8 Proposed boundary and management zoning for the proposed North Kimberley Marine Park – south-west



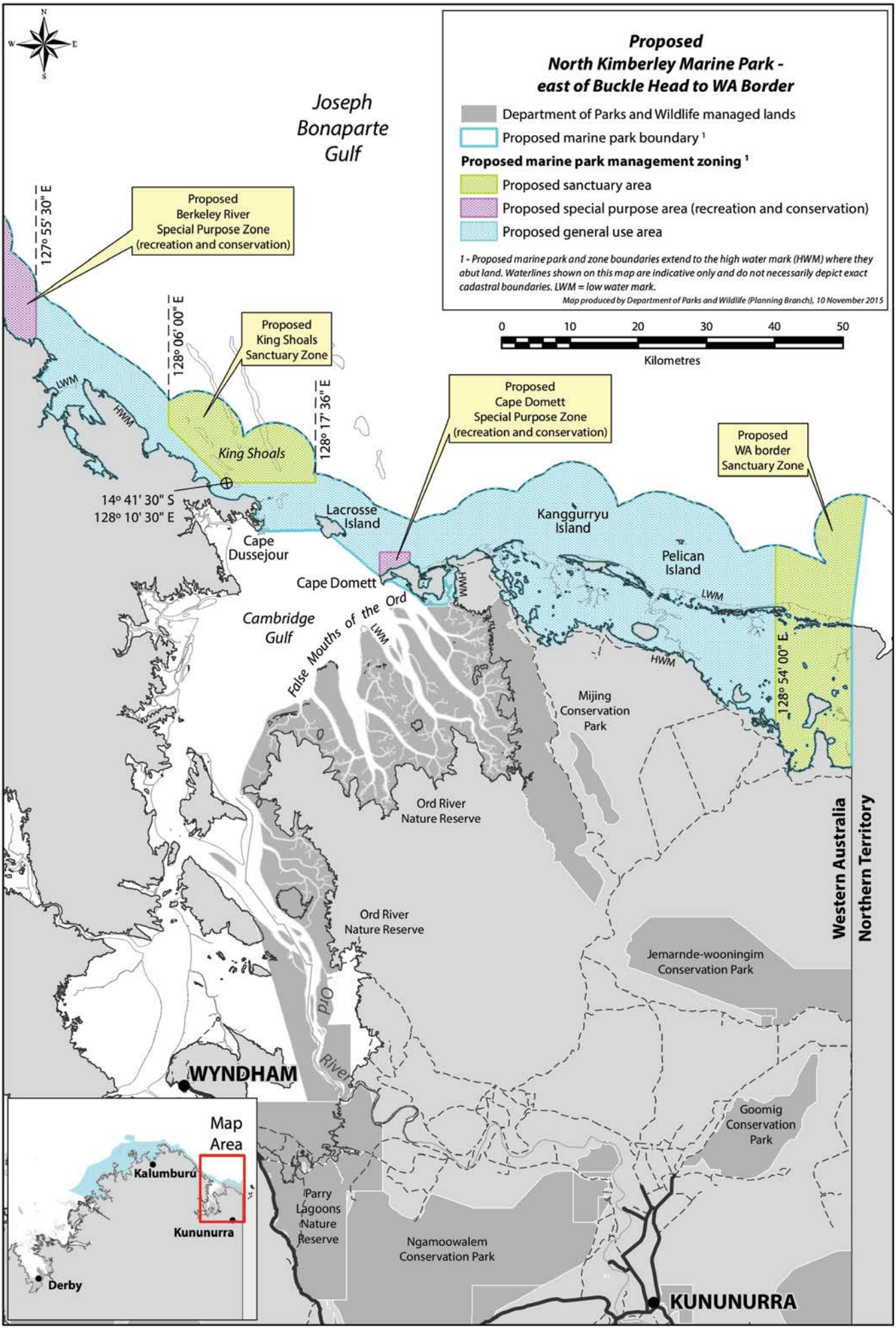
Map 9 Proposed boundary and management zoning for the proposed North Kimberley Marine Park – north-west



Map 10 Proposed boundary and management zoning for the proposed North Kimberley Marine Park – north-east



Map 11 Proposed boundary and management zoning for the proposed North Kimberley Marine Park – south-east



Miriuwung Gajerrong traditional owners monitoring turtle nests. Photo – Corrine Severin

7. Monitoring, evaluation and reporting

Progress towards achieving the objectives and targets is demonstrated by regular monitoring, evaluation and reporting to investigate the effectiveness of management strategies and identify opportunities for improvement. Monitoring refers to ongoing and systematic collection of routine quantitative data and qualitative information. Evaluation and reporting refers to collating and communicating this information to systematically investigate the effectiveness of management activities. Adaptive management is the subsequent revision of management strategies based on the monitoring information and its evaluation.

7.1 Monitoring

A systematic marine monitoring program is progressively being implemented by Parks and Wildlife across WA's network of marine parks and reserves (Western Australian Marine Monitoring Program) to improve the understanding of management effectiveness, and to inform future management decisions. Monitoring will focus on determining trends in key ecological, cultural and social values within a 'condition-pressure-management response' framework that measures the 'health' of values against defined management targets. Where required, interim management targets will be developed or further refined to reflect meaningful short-term steps in achieving the longer term management targets and reserve objectives.

The delivery of the monitoring program will be undertaken by Parks and Wildlife in collaboration with joint management partners, Aboriginal ranger groups, DoF for fisheries related aspects, and through external providers such as the North Australian Indigenous Land and Sea Management Alliance, CSIRO, Australian Institute of Marine Science, universities and community groups where appropriate. Chapter 6 (Proposed management) details the performance indicators for cultural, ecological and social values.

The Parks and Wildlife Visitor Monitoring Program collects information about visitor use and visitor feedback that is used to assess visitor needs and expectations, as well as satisfaction with recreation and tourism facilities and services provided by Parks and Wildlife.

The annual visitor survey provides feedback from visitors about the main purpose of their visit, the activities undertaken during the visit and their overall level of satisfaction during their visit. The survey also provides feedback from visitors about important management issues within these areas. The information collected aids in the planning and management of these recreation areas for issues such as site planning and design, visitor communications, business and marketing plans and performance evaluation.

7.2 Evaluation and reporting

The management strategies outlined in the management plan will be implemented primarily through the annual works programs of Parks and Wildlife's East Kimberley District, Marine Science Program and other specialist branches in collaboration with joint management partners. The East Kimberley District will prepare an annual review of the implementation of the management plan for consideration by the JMBs and the MPRA, who will oversee the management of the proposed marine park. Key parts of the annual review will include:

- progress in implementing management plan strategies
- assessment of value condition, the pressures acting on values, management response and management effectiveness
- identifying issues affecting implementation
- resource allocation.

The MPRA is responsible for conducting periodic assessments in accordance with section 26B(1)(f)(iii) of the CALM Act. The audit process has been formulated in conjunction with Parks and Wildlife and is guided by an audit policy and a performance assessment framework. The JMBs and Parks and Wildlife will provide information to enable an assessment of the plan's implementation.

The zoning scheme and management plan can be amended through a formal public consultation process and does not require Parliamentary consideration. Any substantial change to the management plan requires a statutory two-month public comment period and approvals from the Minister for Environment, Minister for Fisheries and Minister for Mines and Petroleum.

Balanggarra traditional owners, Parks and Wildlife planners and scientists in the proposed King George River Special Purpose Zone.
Photo – Chris Nutt/Parks and Wildlife

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