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**PROPOSED NORTH KIMBERLEY  
MARINE PARK**

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**SUBMISSION TO INDICATIVE JOINT  
MANAGEMENT PLAN 2016**

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**This report is an independent research paper commissioned by the Kimberley Like  
Nowhere Else Coalition**



**CENTRE FOR  
CONSERVATION  
GEOGRAPHY**

*Strategic Tools and Conservation Innovation*

## ABOUT THE AUTHOR

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### CENTRE FOR CONSERVATION GEOGRAPHY

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The Centre for Conservation Geography is a research group established in June 2011 to provide expert technical support and advice to government and non-government decision-makers and stakeholders.

The centre applies world's best practice in decision support to biodiversity conservation planning. Based in Australia, our goal is to build a multi-disciplinary team capable of providing support to conservation decisions being made across the world's ecoregions.

The Centre for Conservation Geography currently has projects in Australia and in the Southern Ocean. Our areas of expertise are in marine and terrestrial protected area planning, including protected area performance assessment, cost-efficient conservation priority setting and planning for multiple objectives (e.g. carbon sequestration and biodiversity protection).

<http://www.conservationgeography.org/>

### BRIEF BIOGRAPHY: DANIEL BEAVER

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Daniel is the director of the Centre for Conservation Geography, a visiting scholar at San Francisco State University's Marine & Coastal Conservation and Spatial Planning Lab, and an adjunct research fellow at the Centre for Biodiversity and Conservation Science at the University of Queensland.

He has over 15 years of experience in the theory and practice of systematic conservation planning both on land and in the ocean, and has been engaged in planning for marine protected areas and marine sanctuaries in the Kimberley since 2007.

This submission offers an expert opinion on possible zoning options for the proposed North Kimberley Marine Park based on the publicly available data and Daniel's broad experience in protected area planning and in the Kimberley.

### ACKNOWLEDGEMENTS

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The Marine & Coastal Conservation and Spatial Planning Lab, San Francisco State University, and the Centre for Biodiversity and Conservation Science, The University of Queensland, provided invaluable assistance and support in completing this research.

## EXECUTIVE SUMMARY

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On the 16 February 2016, Traditional Owners and the Western Australian Government released the indicative joint management plan for the proposed North Kimberley Marine Park for public comment.

This submission offers six priority A recommendations and five priority B recommendations for establishing a world-class marine park in the North Kimberley. The recommendations are based on world's best practice in marine park planning and the expert opinion of the Centre for Conservation Geography (CCG). The Centre for Conservation Geography presents these findings for consideration by Traditional Owners, the Western Australian Government and other decision-makers in the planning process.

## KEY FINDINGS

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**Major achievements of the draft plan:** the indicative joint management plan represents a very significant step forward for the protection of cultural heritage and marine life of the Kimberley. It contains a number of intelligent and forward-thinking proposals to protect key values and provide long-term regional infrastructure for tourism and recreation.

### **Recommended Improvements:**

The Centre for Conservation Geography offers six priority A recommendations and five priority B recommendations to change the bias of the marine park zoning away from general use zones and towards sanctuary zones and special purpose (recreation and conservation) zones. This change in emphasis would have the following benefits:

- i. It would better reflect the economic and social reality that mining, trawling and gillnetting (destructive activities incompatible with the natural and cultural values of the North Kimberley Marine Park) provide less than 1% of the current economic and social value generated within the boundaries of the marine park. In this context, allocating two thirds of the marine park to maintaining or increasing these activities is inappropriate.
- ii. It would increase the protection of the natural and cultural values of the Kimberley to a genuinely world-class standard. Current proposals leave almost 80% of the North Kimberley Marine Park, 90% of Kimberley coastal waters and 80% of the Great Kimberley Marine Park open to degradation by mining and/or fishing. This is not the right balance between exploitation and protection, and is well below what is required for a world-class marine park. A substantial increase in the area covered by sanctuary zones is needed to meet the minimum standards for protection recommended by local scientists and the international community.
- iii. It would provide better infrastructure for maintaining and enhancing visitor and community experiences in the Kimberley. The high level of general use zones and the low level of protection provided by special purpose (cultural heritage) zones leaves a number of key locations for tourism and recreation open for degradation by trawling, gillnetting or mining. A greater number of key tourism sites should use a mix of sanctuary zones and special purpose zones to protect key natural and cultural values, diversify visitor experiences and enhance recreational fishing and community-use experiences.

**Priority A changes:** the Centre for Conservation Geography submits six changes as critical to meeting the strategic objectives of the North Kimberley Marine Park and establishing a world-class marine park.

**Priority B changes:** the Centre for Conservation Geography submits five additional changes as important to meeting the strategic objectives of the North Kimberley Marine Park and establishing a world-class marine park.

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## WUNAMBAL GAAMBERA SEA COUNTRY

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### Major achievements:

- There are four new sanctuary zones with a wide variety of sizes, purposes and values. These will inter alia protect some of the North Kimberley's most culturally and/or ecologically important habitats. Each proposed sanctuary zone is in an excellent location. They will protect specific values of high ecological and/or cultural importance while also representing many of the wide variety of habitats in the proposed North Kimberley Marine Park.
- There are four new special purpose (recreation and conservation) zones that provide increased recognition for important values and/or enhanced recreational fishing or community use opportunities in particular locations. This has been achieved by removing the threat of mining as well as trawling and gillnetting, the regions two most destructive fishing practices.
- There are three new special purpose (cultural heritage) zones that provide for increased recognition of cultural heritage in some specific locations where Traditional Owners have identified a high threat of adverse visitor impacts.

### Priority A changes:

- A1. Extend the Long Reef and East Holothuria Reef Sanctuary Zone to include parts of the Bougainville Peninsula, Institut Islands, Voltaire Peninsula and Cassini Island.
- A2. Extend the Bigge Island Sanctuary Zone to include the Maret and Montalivet Islands.
- A3. Extend the Prince Frederick Harbour Sanctuary Zone to encompass more of the 1994 Department of Conservation and Land Management marine sanctuary proposal.

### Priority B changes:

- B1. Establish a new sanctuary zone to protect part of the Anjo Peninsula and the Sir Graham Moore Islands.
- B2. Extend the Coronation Islands Sanctuary Zone to connect with the proposed sanctuary zone for Booby Island in the North Lalang-garram Marine Park.

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## BALANGGARRA SEA COUNTRY

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### Major achievements:

- There are three proposed sanctuary zones at Cape Londonderry, the Drysdale River and King Shoals. These sanctuaries include the first-ever marine sanctuaries for the Bonaparte Gulf bioregion and the implementation of long-standing proposals for protection of areas with exceptionally high natural and cultural values at the Drysdale River and Cape Londonderry (p. 33 and 34).
- There are four proposed special purpose (recreation and conservation) zones that provide increased protection for community use and/or recreational fishing values at key locations like Napier Broome Bay, Faraway Bay and the Berkeley River.

### Priority A changes:

- A4. Extend the Cape Londonderry Sanctuary Zone to include parts of the King George River and Lesueur Island.

**Priority B changes:**

- B1. Establish a new sanctuary zone to protect part of the Anjo Peninsula and the Sir Graham Moore Islands.
- B3. Extend the Drysdale River Sanctuary Zone to better represent the full range of the Drysdale River's estuary habitats.
- B4. Extend the King Shoals Sanctuary Zone to include Lacrosse Island, Thurburn Creek and the adjoining coastline.
- B5. Establish a new sanctuary zone to protect the East Kimberley coast between the proposed King George River and Berkeley River Special Purpose (recreation and conservation) Zones.

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## MIRIUWUNG GAJERRONG SEA COUNTRY

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**Major achievements:**

- The WA Border Sanctuary Zone establishes the first-ever sanctuary zone over Miriuwung Gajerrong sea country and the first-ever sanctuary zone to be established in the Cambridge-Bonaparte marine bioregion.
- The Cape Domett Special Purpose (recreation and conservation) Zone provides some recognition of Cape Domett's importance as one of the world's largest populations of nesting flatback turtles.

**Priority A changes:**

- A5. Extend the WA Border Sanctuary Zone westwards to include Cape Domett.

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## ADDITIONAL PRIORITY A CHANGES

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- A6. The disallowance (or at least much greater restriction) of mining, trawling and gillnetting, in any part of the North Kimberley Marine Park as these activities are incompatible with the cultural, natural and recreational values of the marine park.

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## INTRODUCTION

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This submission presents six priority A recommendations and five priority B recommendations to the indicative joint management plan for the North Kimberley Marine Park.

The Centre for Conservation Geography bases these recommendations on world’s best practice in marine park planning and its expert opinion, and presents them for consideration by the Traditional Owners, the Western Australian government and other decision-makers in the zoning process.

The recommendations represent proposed changes that in the opinion of the Centre for Conservation Geography are either critical (priority A recommendations) or important (priority

B recommendations) to meeting the strategic objectives of the North Kimberley Marine Park and establishing a world-class marine park in the North Kimberley.

The indicative joint management plan requests that points refer to page numbers from the indicative joint management plan. In this report, we have included these numbers in brackets at the end of a sentence, or point (p. 1).

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## ECONOMIC CONTEXT

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Tourism, research, commercial fishing and aquaculture are the industries currently active in the North Kimberley Marine Park (p. 19).

In addition to protecting cultural values and marine life, the North Kimberley Marine Park is designed to be a piece of regional economic infrastructure that will increase opportunities for economic activities such as tourism, recreation, research and education (p. 5).

Tourism is a major industry in the Kimberley, with an estimated value of around \$330 million per annum (p. 5). The establishment of the North Kimberley Marine Park is a key initiative that will support the continued development of nature and culture-based tourism (p. 5). The North Kimberley has few road access points. As a result one of the primary ways to access the North Kimberley is via boat. The Kimberley expedition cruise industry is substantial, with an estimated annual value of around \$63 million (p. 18).

The value of tourism activities in the North Kimberley Marine Park does not appear to have been calculated yet, and this information would be a valuable addition to the management planning process.

Research is a growing industry in the Kimberley. For example, the Western Australian Government has invested \$81.5 million in the implementation of the *Kimberley Science and Conservation Strategy*, which is catalysing growth in the research sector, along with research initiatives driven by ranger groups, higher education institutions, aquaculture, fisheries and mining.

The current and future value of research and education activities in the North Kimberley Marine Park does not appear to have been calculated yet, and this information would be a valuable addition to the management planning process.

The Kimberley is one of the most intact tropical coastal environments left in the world, providing valuable regional, national and global ecosystem services. Methods for providing conservative estimates of the possible values of these ecosystem services were outlined by Eadie and Hoisington (2011).<sup>1</sup>

By using these methods along with publicly available datasets for coral reefs and seagrasses, the value of these ecosystem services for the Kimberley's coastal waters is estimated to be \$360 million per annum. The ecosystem services provided by the North Kimberley Marine Park have a total estimated value of around \$110 million per annum.

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<sup>1</sup> Eadie, L., and Hoisington, C., 2011. *Stocking Up: Securing our marine economy*, Centre for Policy Development, Sydney, New South Wales, Australia.

The broader Western Australian community also highly values the Kimberley. The indicative joint management discusses the intrinsic social value of the Kimberley in the following terms:

*“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).”*

Research shows that the community places a value of around \$200 million on initiatives like the North Kimberley Marine Park, which can deliver increased protection of cultural and natural values in iconic locations like the Kimberley.<sup>2</sup>

The Kimberley pearling industry is worth around \$70 million per annum.<sup>3</sup> Only a small part of the industry is in the North Kimberley Marine Park, with a wild caught pearl dive fishery operating off Eighty Mile Beach and major hatcheries in Broome and King Sound.<sup>3</sup>

The North Kimberley Marine Park is more likely to have a positive than a negative impact on the pearling industry. The indicative joint management plan lists maintaining high water and sediment quality as a key focus (p. 16). High water quality is a key resource for the pearl farm industry.

Commercial fishing in the Kimberley is a significantly smaller industry, with an estimated annual value of around \$7 million per annum.<sup>4</sup>

The Centre for Conservation Geography estimates that the complete removal of the two most damaging forms of commercial fishing (trawling and gillnetting) from the North Kimberley Marine Park would significantly impact less than 15 license holders and have a maximum impact of less than \$2.5 million per annum.

Commercial fisheries, particularly trawling and gillnetting, pose a large risk to the other values of the park. A recent report commissioned by the Federal Government found that both trawling and gillnetting are incompatible with the values of marine parks in the Kimberley.<sup>34</sup>

Trawling and gillnetting pose a particular risk to the nature and culture-based tourism sectors due to the negative user experiences associated with the bycatch from these fishing activities. For example, see the recent fall out from tourists discovering a dead crocodile drowned in a gillnet in the Roe River.<sup>5, 6, 7, 8, 9</sup>

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<sup>2</sup> The Allen Consulting Group, 2009. *The economics of marine protected areas*, The Allen Consulting Group, Melbourne, Victoria.

<sup>3</sup> Government of Western Australia, 2014. *Kimberley: a region in profile 2014*, Department of Regional Development, Perth, Western Australia. Viewed 17/03/2016 <<http://kdc.wa.gov.au/economic-activity/fishing-aquaculture-2/>>

<sup>4</sup> Government of Western Australia, n.d. *Fishing and Aquaculture*, Kimberley Development Commission, viewed 11/12/2015 <<http://kdc.wa.gov.au/economic-activity/fishing-aquaculture-2/>>

<sup>5</sup> Guardian 9/11/2015 <<http://www.theguardian.com/world/video/2015/nov/10/discovery-of-dead-crocodile-leads-to-calls-for-gillnets-to-be-banned-australia-video>>

<sup>6</sup> The West, 8/11/2015 <<https://au.news.yahoo.com/thewest/wa/a/30029808/crocodile-drowned-in-a-gillnet-in-wa/>>

<sup>7</sup> ABC 8/11/2015 <<http://mobile.abc.net.au/news/2015-11-08/dead-croc-sparks-call-for-end-to-kimberley-gill-nets/6920116>>

In the North Kimberley Marine Park, there is a scale difference between the value of the economic activities that are most damaging to the environment (trawling and gillnetting) and the other economic and social values of the marine park.

The value of the most damaging economic activities are worth less than \$3 million per annum while the other economic and social values are valued in the hundreds of millions of dollars per annum.

This scale difference should provide a key economic and social context for the decisions that the joint managers will make around the zoning of the North Kimberley Marine Parks.

This economic and social reality is currently not represented in the marine park zoning, with two thirds of the marine park allocated to economic activities (general use zones that allow mining, trawling and gillnetting) that generate less than 1% of the economic and social value of the marine park.

**Recommendation:**

- Substantially increase the area of the North Kimberley Marine Park in sanctuary zones and special purpose (recreation and conservation) zones relative to general use zones.

**Rationale:**

- Two-thirds of the marine park is currently allocated to economic activities (general use zones that allow mining, trawling and gillnetting) that generate less than 1% of the economic value of the marine park.

## WORLD CLASS PROTECTION OF THE NATURAL AND CULTURAL HERITAGE OF THE KIMBERLEY?

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*“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”* (p. 5).

The globally significant natural and cultural values of the North Kimberley are worthy of world-class protection.

Over the last ten years, governments in the UK, the USA, New Zealand, Chile and Australia have set the benchmarks for the establishment of world-class marine parks. The Pitcairn Islands, the North Hawaiian Islands, the Great Barrier Reef, Ningaloo and the Coral Sea are each examples of conservation approaches for globally significant natural ecosystems (Table 1).

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<sup>8</sup> WA Today 9/11/2015 < <http://www.watoday.com.au/wa-news/kimberley-tourists-in-shock-at-dead-crocodile-trapped-in-netting-20151106-gks3e.html>>

<sup>9</sup> Perth Now 8/11/2015 < <http://www.perthnow.com.au/news/breaking-news/crocodile-drowned-in-a-gillnet-in-wa/news-story/70fd836cd8b8b181fc9c35095f2858af>>

Each of these world-class marine parks has two things in common: the marine park extends over the entire ecological system, and at least a third of the area is fully protected by marine sanctuaries (Table 1).

The North Kimberley Marine Park is one of Australia's largest coastal marine parks (p. 5). However, in total it extends just over a third of the Kimberley's coastal waters (Table 2). In total the seven marine parks in the Kimberley extend over 64% of the Kimberley's coastal waters.

To extend over 100% of the Kimberley's coastal waters, the Great Kimberley Marine Park needs to include at least one additional marine park, which would cover the Buccaneer Archipelago, the Ord River, King Sound, the Dampier Peninsula and Adele Island.

In regards to marine sanctuaries, the joint indicative management plan proposes protection for 21% of the North Kimberley Marine Park in eight new sanctuary zones. These eight new sanctuary zones will inter alia protect some of the North Kimberley's most culturally and/or ecologically important habitats.

Each proposed sanctuary zone is in an excellent location. They will protect specific values of high ecological and/or cultural importance while also representing many of the wide variety of habitats in the North Kimberley Marine Park.

However, the overall level of protection offered to the globally significant natural and cultural heritage values of the North Kimberley is low by world standards (Table 1). It is well below the level of protection recommended by Australian scientists<sup>10,11</sup> and the international community.<sup>12</sup> This demonstrates a failure to keep up with world's best practice. For the North Kimberley Marine Park to be world-class there needs to be a substantial increase in the extent of sanctuary zones.

The indicative joint management plan states that the "*proposed zoning scheme for this park should be considered in the context of the zoning schemes for other marine parks within the region*" (p. 31). The Kimberley region currently includes seven marine parks (Table 2) that together extend over almost two-thirds of the Kimberley's coastal waters.

Together, these existing and proposed marine parks establish a network of sanctuary zones that extend over 13% of the Kimberley's coastal waters. This means that the current and proposed zoning plans support keeping almost 90% (87%) of the Kimberley open for fishing and/or mining.

This outcome is tipped too far towards increasing exploitation and not far enough towards providing key infrastructure for nature-based tourism, recreation and protecting the outstanding natural and cultural heritage of the region.

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<sup>10</sup> Possingham, H., Meeuwig, J., Bejder, L., Booth, D., Kendrick, G., Clarke, R., 2015. *Developing a Great Kimberley Marine Park* <[http://www.likenowhereelse.org.au/wp-content/uploads/2015/03/Great-Kimberley-Marine-Park-Science-Statement\\_Coordinating-Authors.pdf](http://www.likenowhereelse.org.au/wp-content/uploads/2015/03/Great-Kimberley-Marine-Park-Science-Statement_Coordinating-Authors.pdf)>

<sup>11</sup> The Ecology Centre, University of Queensland, 2009. *Scientific Principles for Design of Marine Protected Areas in Australia: A Guidance Statement*. 29pp. <[http://www.uq.edu.au/ecology/docs/Scientific\\_Principles\\_MPAs.pdf](http://www.uq.edu.au/ecology/docs/Scientific_Principles_MPAs.pdf)>

<sup>12</sup> IUCN World Parks Congress, 2014. *A strategy of innovative approaches and recommendations to enhance implementation of marine conservation in the next decade*. International Union for the Conservation of Nature, Gland, Switzerland.

TABLE 1: EXAMPLES OF WORLD'S BEST PRACTICE IN MARINE CONSERVATION

Examples of world-class marine parks <sup>13</sup>	Proportion of ecological system in marine sanctuaries	Proportion of ecological system in marine parks
Great Barrier Reef	33%	100%
Ningaloo	33%	100%
North Hawaiian Islands	100%	100%
Chagos Islands	100%	100%
Coral Sea	51%	100%
Kermadec Islands	100%	100%
Pitcairn Islands	100%	100%
Ascension Island	100%	100%
Nazca-Desventuradas	100%	100%

TABLE 2: KIMBERLEY MARINE PARKS

Kimberley Marine Parks	Proportion of marine park in marine sanctuaries	Proportion of Kimberley coastal waters
Total	20%	64%
North Kimberley Marine Park	21%	35%
Lalang-garram / Horizontal Falls Marine Park	24%	7%
North Lalang-garram Marine Park	0%	2%
Roebuck Bay Marine Park	0%	2%
Eighty Mile Beach Marine Park	25%	4%
Lalang-garram / Camden Sound Marine Park	20%	13%
Rowley Shoals Marine Park	24%	2%

As the largest of the Kimberley's marine parks (the North Kimberley Marine Park is larger than the other six marine parks combined), the zoning plan for the North Kimberley Marine Park represents the best opportunity to address this imbalance.

This submission outlines five priority A locations and five priority B locations where decision-makers could substantially increase sanctuary zones at critical locations for the protection of the natural and cultural heritage values of the North Kimberley while also maintaining or enhancing tourism and recreational fishing outcomes.

### Recommendations:

- Substantially increase the size of the sanctuary zones in the North Kimberley Marine Park.
- Establish at least one additional marine park in the Kimberley that includes the Buccaneer Archipelago, the Ord River, King Sound, the Dampier Archipelago and Adele Island.

<sup>13</sup> Marine Conservation Institute. (2014). MPAtlas. Seattle, WA. <[www.mpatlas.org](http://www.mpatlas.org)> Accessed: 12/04/2016].

**Rationale:**

- Establish a level of protection that is commensurate with a world-class marine park and the recommendations of local scientists and the international community.

## KEY INFRASTRUCTURE FOR RECREATION AND TOURISM?

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One of the four strategic objectives of the North Kimberley Marine Park is:

*“to allow recreation, tourism and community use for the appreciation of the park’s landscape, natural and cultural heritage values.”* (p. 11)

The North Kimberley Marine Park is designed to *“enhance opportunities for recreation and tourism”* (p. 5) and to maintain or enhance visitor satisfaction and experience (p. 29).

To fully enjoy the stunning natural and cultural experiences that the Kimberley has to offer, visitors and residents need to feel that the area is well protected and that these values are not being degraded by inappropriate exploitation or development.

For this reason it would be ideal if each of the key tourism locations provided visitors with an opportunity to experience the protection provided to marine life by the North Kimberley Marine Park’s sanctuary zones.

The Kimberley has high community use values. The ability of local communities to rely on abundant marine life for food is a critical cultural value.<sup>21, 36</sup> The key access points for local communities accessing the North Kimberley Marine Park are Napier Broome Bay and Admiralty Gulf (p. 18 and 19).

Equally, it is a key recreational and tourism value for visitors to explore the recreational fishing values of the Kimberley and/or attempt to catch food to eat. Ideally, high value recreational fishing opportunities would exist along every stage of a visitor’s journey through the Kimberley.

The recommendations contained in this report focus on maintaining and enhancing visitor opportunities to ‘catch a feed’ as part of their North Kimberley experience.

To maintain and enhance these community use and recreational fishing values, an intelligent mix of sanctuary zones and special purpose (recreation and conservation) zones need to be established.

Placing key community resources in special purpose (recreation and conservation) zones protects these resources from mining and commercial trawling and gillnetting while allowing for recreational and community use as well as the development of community based commercial fishing operations if desired.

Placing sanctuary zones adjacent to these resources will enhance their fishing values by providing for spill over from adjacent intact unfished populations.

How well does the North Kimberley Marine Park achieve this? On a theoretical cruise through the North Kimberley Marine Park will visitors have the option each day to experience important values being well protected, as well as having the opportunity to enjoy catching a feed?

Table 3 provides an assessment of how well the proposed zoning plan, outlined in the indicative joint management plan, achieves its objective of enhancing tourism, recreational and community values.

Of the 16 key visitor sites, the zoning plan fails for four sites, takes some note of community and visitor needs for nine sites and performs excellently for three sites.

The recommendations outlined in this paper would ensure that high-value tourism and fishing experiences were available at all 16 key visitor sites in the Kimberley by:

- i. improving protection in special purpose (cultural heritage) zones at the Mitchell River, Vansittart Bay, Mitchell River and Bigge Island, <sup>14</sup> and by providing increased special purpose (recreation and conservation) zone protection at Swift Bay and Bigge Island
- ii. doubling the number of sites that include strategic placement of sanctuary zones to enhance community and recreational fishing experiences from four to eight <sup>15</sup>
- iii. doubling the number of sites where key natural and cultural values are highly protected from four to eight <sup>15</sup>
- iv. maintaining access for recreational fishing and community use at all 16 key sites (p. 20).

**Recommendation:**

- Provide better zoning infrastructure for maintaining and enhancing visitor and community experiences in the North Kimberley by increasing the extent of sanctuary zones and special purpose (recreation and conservation) zones and increasing the protection offered by special purpose (cultural heritage) zones.

**Rationale:**

1. Protect key locations for tourism and recreation, which are currently exposed to degradation by trawling, gillnetting or mining due to the high level of general use zones and the low level of protection provided by special purpose (cultural heritage) zones.
2. Protect key natural and cultural values, diversify visitor experiences, enhance recreational fishing, and support community use by implementing a mix of sanctuary zones and special purpose zones in a greater number of key tourism sites.
3. Ensure that the North Kimberley continues to be able to offer great opportunities to 'catch a feed' at each stage of a visitor's journey around the Kimberley Coast.

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<sup>14</sup> New special purpose (cultural heritage) zone proposed by the Centre for Conservation Geography.

<sup>15</sup> The additional four sites would be the King George River, Faraway Bay, Cape Voltaire and the Hunter River.

TABLE 3: ASSESSMENT OF THE PERFORMANCE OF THE PROPOSED ZONING PLAN FOR THE NORTH KIMBERLEY MARINE PARK IN MAINTAINING AND ENHANCING COMMUNITY USE, RECREATIONAL FISHING AND TOURISM VALUES AT KEY SITES.

Key Visitor Locations (p.20)	Score <sup>16</sup>	Community use or recreational fishing values protected from damage by trawling, gillnetting or mining?	Community use or recreational fishing values enhanced by strategic placement of sanctuary zones?	Key natural and cultural values highly protected within sanctuary zones?
1. Berkeley River	C	Yes	No	No
2. King George River	C	Yes	No	No
3. Faraway Bay Resort	C	Yes	No	No
4. Eastern Cape Londonderry Creek	A	Yes	Yes	Yes
5. Drysdale River	A	Yes	Yes	Yes
6. Honeymoon Bay and McGowan Coastal Camp	C	Yes	No	No
7. Kalumburu	C	Yes	No	No
8. Vansittart Bay	F	No	No	No
9. One Tree Beach and Kimberley Coastal Camp	C	Yes	No	No
10. Kandiwal	C	Partially	No	No
11. Mitchell River	F	No	No	No
12. Cape Voltaire	C	Yes	No	No
13. Swift Bay	F	No	No	No
14. Bigge Island	B	No	Yes	Yes
15. Hunter River and Naturalists Island	F	No	No	No
16. Careening Bay	A	Yes	Yes	Yes

<sup>16</sup> A score of A is a yes for all three criteria, a score of B is a yes for two of three criteria, a score of C is a yes for at least one criteria, and a score of F is a yes for none of the three criteria.

## WUNAMBAL GAAMBERA SEA COUNTRY

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From the Coronation Islands to Napier Broome Bay, the North Kimberley Marine Park extends over Wunambal Gaambera sea country. The indicative joint management plan outlines seven natural values to use as performance indicators (p. 15 and 16). These are:

- a. coral reefs
- b. turtles
- c. dugongs
- d. seagrass and macroalgal communities
- e. mangroves and saltmarshes
- f. finfish
- g. water and sediment quality.

In assessing the proposed zoning plan, this report pays particular attention to these values in addition to species of special conservation significance. Such as coastal dolphins, crocodiles and seabirds (p. 16).

This reports outlines three priority A changes and two priority B changes specific to Wunambal Gaambera sea country. Additionally, priority A change A6. *Proposed Changes Incompatible Activities* applies to Wunambal Gaambera sea country as well as to other sections of the North Kimberley Marine Park.

## MAJOR ACHIEVEMENTS

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The indicative joint plan of management represents a very significant step forward for the protection of the cultural heritage and marine life of Wunambal Gaambera sea country.

It contains intelligent and forward-thinking proposals to protect key natural and cultural values and provide long-term regional infrastructure for tourism and recreation:

- a. There are four new sanctuary zones with a wide variety of sizes, purposes and values. These will *inter alia* protect some of the North Kimberley's most culturally and/or ecologically important habitats. Each proposed sanctuary zone is in an excellent location. They will protect specific values of high ecological and/or cultural importance while also representing many of the wide variety of habitats in the proposed North Kimberley Marine Park.
- b. There are four new special purpose (recreation and conservation) zones that provide increased recognition for important values and/or enhanced recreational fishing or community use opportunities in particular locations by removing the threat of mining as well as trawling and gillnetting, the regions two most destructive fishing practices.
- c. There are three new special purpose (cultural heritage) zones that provide for increased recognition of cultural heritage in some specific locations of particular concern for Traditional Owners.

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## LONG REEF AND EAST HOLOTHURIA REEF SANCTUARY ZONE

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The Long Reef and East Holothuria Reef Sanctuary Zone extends over some of the Kimberley's most important coral reef and turtle habitats. One of the largest coral reef platforms in the Kimberley, Long Reef contains a globally unique reef habitat of high-density organ pipe corals.<sup>17</sup>

Identified as an area of particular interest for conservation in 1994<sup>18</sup>, Long Reef is one of the largest bank and shoal systems<sup>19</sup> in the Kimberley and supports biologically important breeding and feeding grounds for snubfin dolphins and lesser frigatebirds.<sup>20</sup>

Traditional Owners have identified this area as an important habitat for turtles,<sup>21</sup> and a recent baseline study of the Kimberley's marine turtles<sup>22</sup> confirmed the Long Reef and East Holothuria Reefs area as one of the Kimberley's most important turtle habitats, with hundreds of turtles identified in surveys of the area.

The Centre for Conservation Geography strongly supports the location and purpose of the Long Reef and East Holothuria Reef Sanctuary Zone as appropriate to the values it is designed to protect. Long Reef and East Holothuria Reef is the best possible location to protect these values.

The Centre for Conservation Geography suggests that the sanctuary zone could be expanded to also include other key values, particularly those associated with the Bougainville Peninsula, Admiralty Gulf, Institut Islands and Cassini Island (see section A1. *Proposed Changes Bougainville Peninsula, Voltaire Peninsula, Institut Islands and Cassini Island* below).

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## BIGGE ISLAND SANCTUARY ZONE

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The Bigge Island Sanctuary Zone protects the exceptional cultural and natural values of Wuuyurru (Bigge Island) and Scott Strait.

All islands in Wunambal Gaambera Country contain important cultural values.<sup>21</sup> However, Wuuyurru (Bigge Island) has particularly high cultural values as a previously inhabited island with permanent freshwater sources and frequently visited rock art sites.<sup>21</sup>

Wuuyurru (Bigge Island) and Scott Strait also contain a high diversity of significant natural values, including some of the highest conservation value mangrove habitats in the Kimberley<sup>23</sup>

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<sup>17</sup> Richards, Z.T., Bryce, M., and Bryce, C., 2013. New records of atypical coral reef habitat in the Kimberley, Australia, *Journal of Marine Biology*, Volume 2013, Article ID 363894, 8 pages, <http://dx.doi.org/10.1155/2013/363894>

<sup>18</sup> Department of Conservation and Land Management (CALM). 1994. *A representative marine reserve system for Western Australia*. Report of the Marine Parks and Reserves Selection Working Group. Department of Conservation and Land Management, Perth Western Australia.

<sup>19</sup> Harris, P, Heap, A, Passlow, V, Scaffi, L, Fellows, M, Porter-Smith, R, Buchanan, C, & J Daniell. 2005. *Geomorphic Features of the Continental Margin of Australia*. Geoscience Australia, Record 2003/30, 142pp.

<sup>20</sup> Commonwealth of Australia, 2011. *Biologically important areas in the North-west marine region*. <<http://www.environment.gov.au/webgis-framework/apps/ncva/ncva.jsf>>

<sup>21</sup> Wunambal Gaambera Aboriginal Corporation, 2010. *Wunambal Gaambera Healthy Country Plan – Looking after Wunambal Gaambera Country 2010 – 2020*

<sup>22</sup> Comrie-Greig, J. and Abdo, L. (eds). 2014. *Ecological studies of the Bonaparte Archipelago and Browse Basin*. INPEX Operations Australia Pty Ltd, Perth, Western Australia.

<sup>23</sup> Pedretti, Y.M., and Paling, E.I. 2000. *WA Mangrove Assessment Project 1999-2000*, Marine and Freshwater Research Laboratory, Environmental Science, Murdoch University, Perth, Western Australia.

and one of the north Kimberley's more important dugong (and hence probably seagrass<sup>37</sup>) habitats.<sup>21</sup>

Traditional Owners have identified this area as an important area for turtles<sup>21</sup> and the Federal Government has identified it as a biologically important area for coastal dolphins.<sup>20</sup>

Bigge Island is also a popular location for cultural tourism (p. 20). By leaving the north-west of Wuuyuruu (Bigge Island) open for recreational fishing, the zoning plan seeks to increase the tourism values of the area by enhancing the recreational fishing values and providing for a diverse mix of tourist experiences (p. 33).

The Centre for Conservation Geography strongly supports increasing tourism values, but has concerns over whether zoning this area as general use provides enough protection for the cultural heritage values visitors are seeking to experience.

The Centre for Conservation Geography strongly supports the location and purpose of the Bigge Island Sanctuary Zone as appropriate to the location of the values it is designed to protect. Wuuyuruu (Bigge Island) is the best possible location to protect these values.

Furthermore, the Centre for Conservation Geography strongly supports the intention of intelligently working towards ensuring the North Kimberley Marine Park becomes a key piece of regional economic infrastructure for tourism while also protecting the cultural and natural values of Wuuyuruu (Bigge Island).

The Centre for Conservation Geography suggests that the sanctuary zone could be expanded to also include other key values, particularly those associated with the Maret and Montalivet Islands (see section A2. Proposed Changes Maret Islands and Montalivet Islands below).

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## PRINCE FREDERICK HARBOUR SANCTUARY ZONE

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First proposed as a marine sanctuary in 1994,<sup>18</sup> Prince Frederick Harbour is crucial to the protection of important cultural values, as well as the protection of estuary and mangrove habitats and areas influenced by large freshwater inflows in the Kimberley.

The indicative joint management plan places a spotlight on the conservation values of the region's mangroves "*the north Kimberley contains the most species rich system of mangroves in the world*" (p. 16). Prince Frederick Harbour contains the second largest area of mangroves in the Kimberley bioregion (p. 16).

The proposed Prince Frederick Harbour Sanctuary Zone provides protection for one of the three stands of mangroves in Prince Frederick Harbour assessed as having national heritage values.<sup>23</sup>

The Centre for Conservation Geography strongly supports the location, and purpose of the Prince Frederick Harbour Sanctuary Zone. The proposed zone is some seven times smaller than the original 1994 Department of Conservation and Land Management proposal,<sup>18</sup> and the Centre for Conservation Geographer recommends expanding the zone to closer to its original boundaries (see section A3. *Proposed Changes Prince Frederick Harbour* below).

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## CORONATION ISLANDS SANCTUARY ZONE

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The Coronation Islands Sanctuary Zone provides protection for the cultural and natural values of the southernmost section of the Bonaparte Archipelago, which is in the North Kimberley Marine Park.

All of the islands in Wunambal Gaambera Country have high cultural and natural values.<sup>21, 24</sup> Traditional Owners have identified this area as a key habitat for turtles<sup>21</sup> and the Federal Government has identified it as a biologically important area for calving and nursing humpback whales.<sup>20</sup>

The Centre for Conservation Geography strongly supports the location and purpose of the Coronation Islands Sanctuary Zone as appropriate to the values it is designed to protect.

The Centre for Conservation Geography suggests that it is worth considering connecting the Coronation Islands Sanctuary Zone to a sanctuary zone at Booby Island in the North Lalang-garram Marine Park (see section on B2. Proposed Changes Coronation Islands to Moolgoodna (Booby Island) below).

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## SPECIAL PURPOSE (CULTURAL HERITAGE) ZONES

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The indicative joint management plan proposes three special purpose (cultural heritage) zones in Wunambal Gaambera sea country. Located at the Hunter River, Mitchell River and Vansittart Bay, these zones are designed to “provide for the recognition and protection of sites and places of high cultural significance” (p. 37).

The Centre for Conservation Geography strongly supports the purpose and placement of these special purpose (cultural heritage) zones. However, the zones appear at risk of being unable to meet their objectives.

The zones protect these areas from active mining operations, but not from mining exploration or commercial fishing, particularly destructive fishing practices like trawling and gillnetting. This is surprising considering that Traditional Owners have documented their concerns about overfishing from commercial operators and tourists.<sup>21</sup>

The Wunambal Gaambera Healthy Country Plan has identified commercial fishing as one of the main threats to their sea country<sup>21</sup> Traditional Owners have ranked the threat as high because they are concerned about its impact on culture and marine life.

They are particularly concerned about the impact on fin fish, turtles and dugong, each of which are also identified as key values of the North Kimberley Marine Park (p. 15 and 16).<sup>21</sup>

Furthermore, the indicative joint management plan acknowledges that the cultural and natural values of the north Kimberley sea country are extraordinarily interconnected (p. 14). Why then does the indicative joint management plan propose that commercial fishing be allowed in special purpose (cultural heritage) zones?

Why is commercial gillnetting allowed in the special purpose (cultural heritage) zones in Wunambal Gaambera sea country when it is not allowed in the special purpose (cultural heritage) zones in Yawuru sea country?<sup>25</sup>

Why does the plan propose to allow trawling in the special purpose (cultural heritage) zones when each of these areas is either currently closed to trawling or not currently accessed by the trawl fishery?<sup>60</sup>

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<sup>24</sup> Conservation Commission of Western Australia, 2010. *Status performance assessment: Biodiversity conservation on Western Australian Islands. Phase II – Kimberley Islands.* <[http://conservation.wa.gov.au/media/8919/final%20version\\_14april2010.pdf](http://conservation.wa.gov.au/media/8919/final%20version_14april2010.pdf)>

<sup>25</sup> Department of Parks and Wildlife 2015, *Proposed Yawuru Nagulagun / Roebuck Bay Marine Park Indicative Joint Management Plan 2015*, Department of Parks and Wildlife, Perth.

The Centre for Conservation Geography strongly supports the purpose and location of the special purpose (cultural heritage) zones, but suggests that they would better meet their objectives if they offered a similar level of protection to either the proposed special purpose (recreation and conservation) zones or sanctuary zones (see section A6. *Proposed Changes Incompatible Activities* below).

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## SPECIAL PURPOSE (RECREATION AND CONSERVATION) ZONES

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The indicative joint management plan proposes five special purpose (recreation and conservation) zones in Wunambal Gaambera sea country.

It is difficult to assess these zones, as scientific evidence consistently shows that partially protected zones like these fail to provide a high level of effective protection for marine life.<sup>26, 27, 28, 29, 30, 31, 32, 33</sup>

These zones are most likely to have a beneficial impact for particular species or communities like subtidal sponges and soft corals, endangered sawfish and coastal dolphins, which have cultural, ecological and/or tourism values and are particularly threatened by trawling and/or gillnetting.

However, these zones are powerful tools to “*provide for sustainable resource use*”, which is one of the four strategic objectives of the North Kimberley Marine Park (p. 11). They protect the marine park from trawling and gillnetting, which have been assessed as not ecologically sustainable and posing unacceptable risks to the values of marine parks in the Kimberley.<sup>34</sup>

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<sup>26</sup> Edgar GJ, Stuart-Smith RD, Willis TJ, Kininmonth S, Baker SC, Banks S, Barrett NS, Becerro MA, Bernard ATF, Berkhout J, Buxton CD, Campbell SJ, Cooper AT, Davey M, Edgar SC, Forsterra G, Galvan DE, Irigoyen AJ, Kushner DJ, Moura R, Parnell PE, Shears NT, Soler G, Strain EMA, Thomson RJ (2014) Global conservation outcomes depend on marine protected areas with five key features, *Nature*, **506**, 216–220.

<sup>27</sup> McPhee, DP; Leadbitter, D and Skilleter, GA. 2002. Swallowing the Bait: Is Recreational Fishing in Australia Ecologically Sustainable? *Pacific Conservation Biology*, Vol. 8, No. 1: 40-51.

<sup>28</sup> Lester SE, Halpern BS (2008) Biological responses in marine no-take reserves versus partially protected areas. *Mar Ecol Prog Ser* 367: 49–56.

<sup>29</sup> Sciberras M, Jenkins S, Kaiser M, Hawkins S, Pullin A (2013) Evaluating the biological effectiveness of fully and partially protected marine areas. *Environmental Evidence* 2: 4

<sup>30</sup> Kelaher BP, Coleman MA, Broad A, Rees MJ, Jordan A, et al. (2014) Changes in Fish Assemblages following the Establishment of a Network of No-Take Marine Reserves and Partially-Protected Areas. *PLoS ONE* 9(1): e85825. doi:10.1371/journal.pone.0085825

<sup>31</sup> Frisch AJ, Cole AJ, Hobbs J-PA, Rizzari JR, Munkres KP (2012) Effects of Spearfishing on Reef Fish Populations in a Multi-Use Conservation Area. *PLoS ONE* 7(12): e51938. doi:10.1371/journal.pone.0051938

<sup>32</sup> Shears NT, Grace RV, Usmar NR, Kerr V, Babcock RC (2006) Long term trends in lobster populations in a partially protected vs. no-take marine park, *Biological Conservation*, 132, 222-231.

<sup>33</sup> Babcock, R., C., Phillips, J., C., Lourey, M., and Clapin, G., 2007. Increased density, biomass and egg production in an unfished population of Western Rock Lobster (*Panulirus cygnus*) at Rottne Island, Western Australia, *Marine and Freshwater Research*, Vol: 58, p. 286-292.

<sup>34</sup> Mary Lack Shellack Pty Ltd, 2010. Assessment of risks that commercial fishing methods pose to conservation values identified in the areas for further assessment of the North and North-west marine regions, Department of the Environment, Water, Heritage and the Arts, Canberra, ACT, Australia.

They also protect marine park values from seabed mining and mining for oil and gas, activities that are also likely to be incompatible with the values of the North Kimberley Marine Park.

The zones do this while supporting potentially ecologically sustainable uses. For example, they can support community use, recreational fishing, tourism, research, education and commercial fishing that utilises non-destructive fishing techniques like trolling for mackerel, trapping for mud crabs and hand collection of beche-de-mer.

They also protect tourism, recreational fishing and community-use values from degradation by mining, trawling, or gillnetting.

For example, the tourism values of the marine parks can be damaged and visitor experiences degraded when visitors learn or are forced to confront the fact that humpback whale calves, coastal dolphins, crocodiles, or endangered sawfish are not protected from trawling and gillnetting in the North Kimberley Marine Park.

Likewise, it can degrade tourism values or visitor experiences if visitors are confronted by trawling bycatch during their visit to the marine park. There are already anecdotal reports of commercial gillnetting or trawling operations damaging recreational fishing and community-use values.

In light of this, the Centre for Conservation Geography strongly supports the three special purpose (recreation and conservation) zones in Wunambal Gaambera sea country that are located either in important areas for tourism or near key points of access for Traditional Owners. The special purpose zones in Napier Broome Bay, Port Warrender and Careening Bay fit these criteria.

It is surprising that larger areas of the North Kimberley Marine Park, which are currently in general use zones, are not in special purpose (recreation and conservation) zones.

The indicative joint management plan shows Freshwater Bay in the eastern Bougainville Peninsula, Swift Bay, Montague Sound and north-west Bigge Island as key tourism locations (p. 20) and Admiralty Gulf as a key community use location (p. 19). These are currently zoned as general use areas.

Why have additional special purpose (recreation and conservation) zones not been established instead of the proposed general use zones at these locations?

Additionally, zoning Admiralty Gulf and Prince Frederick Harbour as general use fails to incorporate the existing commercial fishing closures for trawling into the zoning plan.

Areas already closed to trawling need to be zoned either sanctuary or special purpose (recreation and conservation) so that the zoning plan, at a minimum, provides at least as much protection as is provided under existing management arrangements.

Furthermore, the Centre for Conservation Geography recommends that special purpose (recreation and conservation) zones be used instead of general use zones in Wunambal Gaambera sea country to ensure that the North Kimberley Marine Park does not continue to allow activities that are incompatible with the values it has been established to protect (see section A6. *Proposed Changes Incompatible Activities* below).

The Centre for Conservation Geography is less supportive of the Institut Islands Special Purpose (recreational and conservation) Zone where the purpose appears to be recognise the outstanding natural and cultural values of an area. However, the indicative joint management plan does not provide them with the protection that they deserve.

If there are particular locations in this zone that are important for recreational fishing, these specific small areas could be maintained as a special purpose (recreation and conservation)

zone while the rest of area is protected by sanctuary zones (see section A1. *Proposed Changes Bougainville Peninsula, Voltaire Peninsula, Institut Islands and Cassini Island* below)

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## PRIORITY A CHANGES

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### A1. PROPOSED CHANGES BOUGAINVILLE PENINSULA, VOLTAIRE PENINSULA, INSTITUT ISLANDS AND CASSINI ISLAND

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#### BOUGAINVILLE PENINSULA

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The North Kimberley Marine Park extends over one of the world's last unspoiled coastlines (p. 5). However, the proposed zoning plan leaves almost 90% (88%)<sup>35</sup> of the coastline unprotected.

One of the major gaps in protection for the shorelines, estuaries, seagrasses, mangroves and fringing coral reefs of the Kimberley coast is between the Drysdale River and Scott Strait, where there is over 1000 kilometres (1,245km) of coastline with no proposed sanctuary zones.<sup>35</sup>

This is a major gap in the “*system of comprehensive and representative ‘no-take’ or sanctuary areas*” that the zoning plan is being designed to provide (p. 31). The preeminent coastal conservation feature of this region is the Bougainville Peninsula.

*“The long, finger-like arms of the Bougainville Peninsula, with long, narrow, shallow bays between them, are a special feature of the Kimberley”.*<sup>18</sup> The Bougainville Peninsula contains two of the 12 key habitats for dugong identified by Traditional Owners in the North Kimberley Marine Park.<sup>21,36</sup>

These key dugong habitats also represent our current best knowledge of the distribution of important seagrass meadows in the North Kimberley Marine Park.<sup>37</sup>

The Bougainville Peninsula is also the second most important location for the protection of fringing coral reefs in the North Kimberley Marine Park.<sup>38</sup> The Bougainville Peninsula is the eastern boundary of Admiralty Gulf, which also includes features like the Mitchell River and Port Warrender, and has been identified as one of the key locations for freshwater inputs to the Kimberley marine environment.<sup>39</sup>

Dugong, seagrasses, coral reefs and ecological processes around freshwater inputs are four of the seven key natural values of the North Kimberley Marine Park identified in the indicative joint management plan (p. 15 and 16).

Dugong and seagrasses are poorly protected by the proposed zoning plan, with just two of the 12 key habitats identified by Traditional Owners protected by sanctuary zones.<sup>21,36</sup>

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<sup>35</sup> Geoscience Australia, 2004. *Geodata Coast 100k 2004*.  
<<http://www.ga.gov.au/meta/ANZCW0703006621.html>>

<sup>36</sup> Balangarra Aboriginal Corporation / Kimberley Land Council (2011): Balangarra Healthy Country Plan 2012 - 2022.

<sup>37</sup> Seagrass within the Kimberley remains unmapped (p. 15).

<sup>38</sup> UNEP-WCMC, 2010. *Global Coral Reef Distribution*, United Nations Environmental Monitoring Program, World Conservation Monitoring Centre, [http://www.unep-wcmc.org/global-coral-reef-distribution-2010\\_125.html](http://www.unep-wcmc.org/global-coral-reef-distribution-2010_125.html)

Equally, ecological processes around freshwater inputs are currently poorly protected. Sanctuary zones extend over only a third of the minimum area recommended for protection, by the international community<sup>12</sup> and Australian scientists.<sup>10, 11</sup>

The Bougainville Peninsula and the broader region of Admiralty Gulf currently contain no proposed sanctuary zones.

The Bougainville Peninsula is an indigenous protected area and one of the only large feral-free regions of mainland Australia.<sup>39</sup> Protection of the Bougainville Peninsula would therefore complement existing terrestrial reserves (p. 31) and provide increased opportunities to research the impact of feral animals on terrestrial-marine linkages (p. 25).

The peninsula also contains a high diversity of shoreline habitats not common in the proposed North Kimberley Marine Park, including chenier ridges and high energy rocky shores, which are currently completely unrepresented in the proposed sanctuary zones of the North Kimberley Marine Park.<sup>40</sup>

The Bougainville Peninsula is immediately adjacent to the proposed Long Reef and East Holothuria Reef Sanctuary Zone (Long Reef Sanctuary). The simplest option for protecting the Bougainville Peninsula is to extend the proposed Long Reef Sanctuary southwards to include the northern and western sections of the Bougainville Peninsula.

Extending the eastern boundary at 126°16'15.6"E southwards to 13°54'S, then westwards to 126°07'E, then south to the coastline at 13°56'16.8" will include the fringing coral reefs and dugong habitats of the northern and western Bougainville Peninsula in the sanctuary zone. It will also ensure that the pearling leases and tourism sites to the east remain outside the sanctuary zone.

Within Admiralty Gulf, the Long Reef Sanctuary should be extended to include the entirety of the western side of the Bougainville Peninsula by establishing a new southern boundary for the sanctuary that starts at the south-western base of the Bougainville Peninsula at 126°04'40.8"E, 14°14'6"S and extends east to Borda Island.

It would then extend north from Borda Island at 126°02'E to 14°07'19.2"S, and westwards across the top of Admiralty Gulf to the proposed Institut Islands Special Purpose Zone. This will have the additional benefit of fully including the Long Reef bank in the proposed Long Reef Sanctuary.<sup>19</sup>

Fully including physical features in sanctuary zones is a long established principle of world's best practice in conservation planning.<sup>11</sup> It will also include the Low Rocks Nature Reserve in the Long Reef Sanctuary, increasing the complementarity of the zoning plan with existing and proposed terrestrial reserves (p. 31).

This an area of particularly low use for recreational and commercial fishers, with effort focused further to the east and west in Admiralty Gulf and Vansittart Bay.

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<sup>39</sup> Mustoe, S., 2008. *Kimberley Coast Natural Values Workshop, 5-7 February 2008*, Transcript of Results. WWF-Australia, Sydney, New South Wales, Australia.

<sup>40</sup> Duke, N., Wood, A., Hunnam, K., Mackenzie, J., Haller, A., Christiansen, N., Zahmel, K., and Green, T., 2009. *Shoreline ecological assessment, aerial and ground surveys, 7<sup>th</sup>-9<sup>th</sup> of November 2009*, Uniquet Pty Ltd, University of Queensland, Brisbane, Queensland, Australia.

## INSTITUT ISLANDS AND VOLTAIRE PENINSULA

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The Institut Islands contain outstanding natural values (p.37). Located at the entrance to Admiralty Gulf, they contain a complex mix of habitats influenced by the freshwater inflows of the Mitchell and Lawley Rivers. They also contain biologically important areas for coastal dolphins, turtles and seabirds, including supporting more than one out of every 100 nesting Roseate Terns globally.<sup>20,41</sup>

The cultural and natural values of the Kimberley are inextricably interlinked. (p. 14) Traditional Owners have identified the islands as one of the most important locations for turtles in the North Kimberley Marine Park. The islands also have other important cultural values.<sup>21</sup>

The Voltaire Peninsula contains a high diversity of shoreline habitats not common in the proposed North Kimberley Marine Park, including seagrass verges, which are currently completely unrepresented in the proposed sanctuary zones of the North Kimberley Marine Park.<sup>40</sup>

These outstanding values are deserving of higher protection than that offered by the proposed special purpose (recreation and conservation) zone. The special purpose (recreation and conservation) zones are only partially protected, and there is a body of scientific literature that demonstrates that such zones are significantly less effective at protecting natural values than fully protected marine sanctuaries.<sup>26, 27, 28, 29, 30, 31, 32, 33</sup>

The special purpose (recreation and conservation) zones will be more effective at protecting and enhancing the recreational fishing values of the islands than their natural values. While these values are important, a better balance needs to be struck between the protection of recreational fishing values and the protection of natural and cultural values.

All the 81 islands located at the entrance to Admiralty Gulf have currently been kept open for fishing, and none are fully protected. Extending the Long Reef and East Holothuria Reef Sanctuary Zone (Long Reef Sanctuary) to include what is currently the Institut Islands Special Purpose Zone would better protect these outstanding natural values while still leaving 26 of the 81 islands open for fishing.

Decision-makers may desire to maintain a special purpose (recreation and conservation) zone over some islands to enhance their recreational fishing values. If so, this could be achieved by:

- a) establishing a new special purpose (recreation and conservation) zone over the islands around Parry Island, Racine Island and Moliere Island, or
- b) maintaining the existing special purpose (recreation and conservation) zone south of 14°07'19.2"S, and east of 125°45'E to include the Lafontaine Island, Lagrange Island and Kuntjumul Kutanga Island, or
- c) creating a small special purpose (recreation and conservation) zone around specific islands, like the Troughton Island zoning plan in the Long Reef Sanctuary, if there is a specific island or islands of particular interest to recreational fishers.

This is an area of low value for commercial fishers, with effort focused deeper within Admiralty Gulf rather than at the entrance around the Institut Islands and Cape Voltaire.

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<sup>41</sup> BirdLife International (2016) Important Bird and Biodiversity Area factsheet: Low Rocks and Sterna Island (Kimberley). Downloaded from <http://www.birdlife.org> on 13/04/2016

## CASSINI ISLAND

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Cassini Island is “one of the most diverse places in the Kimberley”<sup>42</sup> and has been identified as an important location for protection since at least 1991.<sup>43</sup>

Surrounded by coral reefs, Cassini Island is the most important green turtle nesting site identified by the Federal Government in the proposed North Kimberley Marine Park. Extending the Long Reef and East Holothuria Reef Sanctuary west to 125°34'E would include the high conservation value habitats around Cassini Island.

Cassini Island is also a valued recreational fishing location. The establishment of a sanctuary that protects natural values, and includes a small special purpose (recreation and conservation) zone, would enhance these recreational fishing values. This special purpose zone would enable recreational fishing access to specific locations like the zoning plan currently achieves at Bigge Island.

The area around Cassini Island and into Commonwealth waters is a location of higher value to commercial mackerel fishers. However, the mobile pelagic nature of the target species, combined with latent effort in the fishery, means this fishery can adjust to any negative impacts from the establishment of sanctuary zones in the North Kimberley Marine Park (see section *Impacts of Recommendations on Commercial Fishers*).

### **Recommendation:**

- Extend the proposed Long Reef and East Holothuria Reef Sanctuary Zone to include parts of the Bougainville Peninsula, Institut Islands, Vansittart Peninsula and Cassini Island.

### **Rationale:**

1. Protect the exception natural and cultural values of the Bougainville Peninsula, Cassini Island, Institut Islands, Admiralty Gulf and Voltaire Peninsula, which are currently unrepresented in sanctuary zones.
2. Increase the number of natural and cultural values adequately represented and protected in sanctuary zones (p. 31).
3. Increase the protection provided for dugong, turtles, coastal dolphins, seabirds and other significant species, which are currently under-protected by the proposed zoning plan (p. 31).
4. Minimise impacts on existing users (p. 31).
5. Increase complementarity with existing terrestrial reserves (p. 31).

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<sup>42</sup> Pers. comm. Clay Bryce, Western Australian Museum

<sup>43</sup> Burbidge, A.A., McKenzie, N.L. and Kenneally, K.F. (1991). *Nature Conservation Reserves in the Kimberley Western Australia*. Department of Conservation and Land Management, Como.

## A2. PROPOSED CHANGES MARET ISLANDS AND MONTALIVET ISLANDS

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Traditional Owners have identified the Maret and Montalivet Islands as important habitats for turtles. In a recent baseline study of the Kimberley's turtle populations, the Maret Islands, along with the Lacepede Islands and the Cassini Island / Long Reef / Holothuria Reefs complex, were also identified as three of the more important turtle habitats in the Kimberley. <sup>22</sup>

Turtle habitats are currently poorly represented in marine sanctuaries in the Kimberley. Of the 16 important locations for turtles identified by the Wunambal Gaambera, just three are protected in sanctuary zones.

Extending the proposed Bigge Island Sanctuary Zone to include the Maret and Montalivet Islands would double the number of Traditional Owner-identified turtle habitats protected in sanctuary zones. Additionally, it would include Prudhoe Island, which has also been documented as a significant turtle-nesting site, in the proposed sanctuary zone. <sup>51</sup>

The Maret, Montalivet and surrounding islands contain highly diverse coral reefs, which are thought to be regionally significant in the Kimberley. <sup>22</sup>

In regards to the north Kimberley's coral reefs, the indicative joint management plan states "*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*". The coral reefs of the Maret and Montalivet Islands are deserving of protection in sanctuary zones.

These islands and their surrounding habitats are also biologically important areas for seabirds and for snubfin and Indo-Pacific humpback dolphins. <sup>20</sup> Expanding the proposed Bigge Island Sanctuary Zone to include the Maret and Montalivet Islands would increase the protection of these habitats, which are mostly under-represented based on Australian and international standards for protection. <sup>10,11,12</sup>

The current proposed Bigge Island Sanctuary Zone is designed to protect key natural and cultural values while minimising impacts on recreational fishing in the north-west of Bigge Island (p. 33). The boundaries also explicitly avoid overlap with prawn trawling. <sup>60</sup>

Failing to provide protection for regionally significant turtle and coral habitats in favour of prawn trawling is a poor decision. It is also unnecessary. The prawn trawl fishery is in economic decline. Over the last five years, 90% of licences have been latent and 77% of the fishing days allocated to the fishery have remained unfished.

This extremely high level of latency means that high conservation value areas like the Maret and Montalivet Islands can be protected without any significant negative economic impact on the fishery.

Not extending the proposed Bigge Island to the north-western side of the island provides for a greater diversity of tourist experiences, and enhances the recreational fishing values of this area. However, it does raise a question about the protection of the high cultural values of Bigge Island.

A special purpose (cultural heritage) zone could be a better compromise between cultural heritage, tourism and recreational fishing values than the current general use zoning for this area.

### **Recommendation:**

- Expand the Bigge Island Sanctuary Zone to include the area to the north and west between 125°22'E and 14°33'36"S to include the Maret and Montalivet Islands. Within

this area, the north-west of Bigge Island between 125°05'E and 125°08'31"E should be a special purpose (cultural heritage) zone.

**Rationale:**

1. Protect the cultural and natural values of the Maret and Montalivet Islands, including high conservation value coral reef, turtle and coastal dolphin habitats.
2. Improve protection of cultural heritage at Bigge Island.
3. Enhance tourism and recreational fishing experiences at north-west Bigge Island.

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### A3. PROPOSED CHANGES PRINCE FREDERICK HARBOUR

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First proposed as a marine sanctuary in 1994,<sup>18</sup> Prince Frederick Harbour is critical to the protection of important estuary and mangrove habitats and areas influenced by important freshwater inflows in the Kimberley.

The indicative joint management plan also places a spotlight on the conservation values of the North Kimberley's mangroves: "*The north Kimberley contains the most species rich system of mangroves in the world.*" (p. 16)

Prince Frederick Harbour contains the second largest area of mangroves in the Kimberley bioregion (p. 16). Prince Frederick Harbour contains three stands of mangroves assessed by the WA Mangrove Project as having national heritage values.<sup>23</sup>

Only one of these three mangrove sites is protected in the proposed sanctuary, which is over seven times smaller than the original sanctuary zone proposed by the Western Australian Department of Conservation and Land Management in 1994.<sup>18</sup>

Prince Frederick Harbour contains important cultural values, including one of the 12 sites in the North Kimberley Marine Park that Traditional Owners have identified as being important for dugong.<sup>21,36</sup>

With the current lack of seagrass mapping for the Kimberley, dugong habitats are also the best predictor of significant seagrass meadows. This important site for dugong is one of ten that are unprotected by the proposed zoning plan.

The indicative joint management plan identifies the importance of the ecological processes that result from the annual delivery of large volumes of fresh water, nutrients and sediments from the Kimberley's river systems to the coastal marine environment (p. 14 and 16). These ecological processes occur in five locations along the Kimberley coast, the Ord River, Napier Broome Bay, Admiralty Gulf, Prince Frederick Harbour and the Prince Regent River.

Of these locations, it is most feasible to establish adequate levels of protection for the ecological processes driven by these values in Prince Frederick Harbour. The Ord and Prince Regent Rivers are outside the North Kimberley Marine Park and unprotected while existing uses in Napier Broome Bay and Admiralty Gulf make higher levels of protection less feasible.

Prince Frederick Harbour is adjacent to one of the feral-free areas of mainland Australia and is bordered on all sides by existing or proposed national parks. Increasing protection in this area would complement existing terrestrial reserves (p. 31), and provide increased opportunities to research terrestrial-marine linkages in a landscape undamaged by feral animals (p. 25).

Prince Frederick Harbour has also been identified as a biologically important area for both snubin and Indo-Pacific humpback dolphins. The small, localised populations of these coastal dolphins are extremely vulnerable to the death of even a single individual per year.<sup>44</sup>

Prince Frederick Harbour represents one of the locations in the Kimberley where it is most feasible to protect a substantial proportion of a biologically important area for coastal dolphins in sanctuary zones.

In the original sanctuary proposal for Prince Frederick Harbour, the Hunter River has become an important site for tourism operators seeking to provide customers with wilderness fishing experiences (p. 20).

Protecting the rest of Prince Frederick Harbour while leaving the Hunter River (and Naturalists Island) open for recreational fishing will enhance rather than detract from the wilderness fishing qualities sought by tour operators.

Additionally, moving through a sanctuary zone en route to the Hunter River provides an enhanced visitor experience by creating a direct experience of how the multiple-use zoning plan protects key areas while maintaining or enhancing recreational, or commercial fishing opportunities in other locations.

The indicative joint management plan does not show the Roe River as an important location for tourism (p. 31); however, if decision-makers deem that there are locations in the Roe River that are also critical for visitors to have wilderness fishing experiences, then these specific locations could be allocated to a special purpose (recreation and conservation) zone in a larger sanctuary zone for the Prince Frederick Harbour.<sup>45</sup>

In terms of other commercial uses, the north west of Prince Frederick Harbour contains five small (currently inactive?) pearling leases. However, the rest of the area covered by the original sanctuary proposal is an area of low use for commercial and recreational fishers.

Given that Prince Frederick Harbour is closed to trawling and has no mining interests, and that recreational fishing activities are concentrated in the Hunter River, it would appear that the current general use zone is to allow continued commercial gillnetting.

Commercial gillnetting is not an activity that is compatible with the natural or cultural values of Prince Frederick Harbour, and poses a particular threat to the survival of the populations of coastal dolphins in Prince Frederick Harbour.<sup>44,50</sup>

### **Recommendation:**

- Extend the proposed Prince Frederick Harbour Sanctuary Zone to the area east of Cape Torrens and Cape Pond to encompass the area of the original 1994 sanctuary proposal, with the exception of the existing pearling leases and the proposed Prince Frederick Harbour Special Purpose (cultural heritage) Zone.

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<sup>44</sup> Brown, A.M., Bejder, L., Pollock, K.H., and Allen, S.J. 2016. Site-specific assessments of the abundance of three inshore dolphin species to inform conservation and management, *Frontiers in Marine Science*, Vol. 3:4, <[http://www.frontiersin.org/Journal/Abstract.aspx?s=1553&name=marine\\_megafauna&ART\\_DOI=10.3389/fmars.2016.00004](http://www.frontiersin.org/Journal/Abstract.aspx?s=1553&name=marine_megafauna&ART_DOI=10.3389/fmars.2016.00004)>

<sup>45</sup> Noting that the Roe River is the site of a stand of mangroves assessed as having national heritage values.

- Note: if there are specific locations of particular significance for tourism operators providing fishing experiences in the Roe River, then these specific locations could be placed in a special purpose (recreation and conservation) zone like the one for Troughton Island in the Long Reef and East Holothuria Reef Sanctuary Zone.

**Rationale:**

1. Increase protection for seagrass, dugong habitats, ecological processes centred on important freshwater inflows, coastal dolphin habitats and nationally significant mangrove habitats.
2. Enhance recreational fishing experiences in the Hunter River.
3. Enhance tourism experiences in Prince Frederick Harbour.
4. Minimise impact on existing users.
5. Complement existing and proposed terrestrial reserves.

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## PRIORITY B CHANGES

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### B1. PROPOSED CHANGES ANJO PENINSULA AND SIR GRAHAM MOORE ISLANDS

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**Note:** The Anjo Peninsula occurs in Wunambal Gaambera country while the Sir Graham Moore Islands are in Balangarra country. For this reason this proposed change occurs twice in this report under both the Wunambal Gaambera and Balangarra sections.

The Anjo Peninsula contains a high diversity of coastline habitats, particularly habitats like high energy rocky shorelines and wave cut platforms, which are not represented or are under-represented in the proposed sanctuary zones of the North Kimberley Marine Park.

There is currently over 1000 kilometres (1,245km) of coastline between the Drysdale River and Scott Strait sanctuary zones.

The Anjo Peninsula is an ideal location to increase the representation of the Kimberley coastline in sanctuary zones. It is a biologically important area for snubin and Indo-Pacific humpback dolphins,<sup>20</sup> and Traditional Owners have identified it as a key area for dugong<sup>36</sup> and turtles.<sup>21</sup> Including this area in a sanctuary zone would also represent at least some of the unique, deep water-basin habitats of Napier Broome Bay in sanctuary zones (p. 35).

The high cultural and natural values of the adjacent Sir Graham Moore Islands are recognised in the indicative joint management plan, which proposes the area as a special purpose (recreation and conservation) zone to maintain recreational fishing access (p. 36).

However, the indicative joint management plan does not show the Sir Graham Moore Islands as an important recreational fishing location, with visitors mostly bypassing the area on the way between Napier Broome Bay and Vansittart Bay (p. 20).

A sanctuary zone would be more appropriate in this location than the proposed special purpose (recreation and conservation) zone. In addition to better protecting the high cultural and

natural values of the area, a sanctuary zone would better complement the proposed Nature Reserve at the Sir Graham Moore Islands.<sup>46</sup>

The Mungalalu-Truscott Airport at the base of the Anjo Peninsula has the potential to develop into a tourist hub.

A sanctuary zone covering the tip of the Anjo Peninsula and the Sir Graham Moore Islands would provide increased infrastructure for tourism by increasing the diversity of potential visitor experiences. It would also maintain or enhance recreational fishing experiences while still leaving the areas most accessible from the airport open to recreational and commercial fishing.

**Recommendation:**

- Change the Sir Graham Moore Islands from a special purpose (recreation and conservation) zone to a sanctuary zone and extend the new sanctuary zone south to 13°58'S to include the tip of the Anjo Peninsula and part of the Napier Broome Bay basin.

**Rationale:**

1. Provide protection for unrepresented habitats and the high cultural and natural values of the Sir Graham Moore Islands and the Anjo Peninsula.
2. Enhance recreational fishing experiences near Mungalalu-Truscott Airport.
3. Enhance tourism experiences near Mungalalu-Truscott Airport.
4. Minimise impact on existing users.
5. Complement proposed terrestrial reserves.

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## B2. PROPOSED CHANGES CORONATION ISLANDS TO MOOLGOODNA (BOOBY ISLAND)

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The proposed Coronation Islands Sanctuary Zone is directly north-east of the sanctuary zone proposed by the Centre for Conservation Geography for Moolgoodna (Booby Island) in the North Lalang-garram Marine Park.

The zoning system could be simplified (p. 31) and improved by extending the Coronation Islands Sanctuary Zone to include the area around Moolgoodna (Booby Island).<sup>47</sup>

**Recommendation:**

- Extend the Coronation Islands Sanctuary Zone west to the North Lalang-garram Marine Park and south to 15°2'16.8"S to include the sanctuary zone at Moolgoodna (Booby Island) proposed by the Centre for Conservation Geography.<sup>47</sup>

**Rationale:**

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<sup>46</sup> Pers comm. Western Australian Department of Parks and Wildlife, 26/02/2016.

<sup>47</sup> Beaver, D., 2015. *Proposed Lalang-garram/Horizontal Falls and North Lalang-garram Marine Parks and Proposed Oomeday National Park: Submission to draft joint management plan*, Centre for Conservation Geography, Sydney, NSW, Australia.

1. Protect the region of high-ecological importance around Moolgoodna (Booby Island).
2. Increase complementarity with the zoning plans for North Lalang-garram and Lalang-garram / Camden Sound Marine Parks.
3. Benefit recreational fishing by increasing the wilderness fishing values in the Jungulu Special Purpose Zone.
4. Provide long-term secure protection for an important nature-based tourism asset.
5. Minimise negative economic impacts on commercial prawn trawling and mackerel fishing due to high capacity for shifting effort within these two fisheries.

## BALANGGARRA SEA COUNTRY

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From Napier Broome Bay to the Ord River, the North Kimberley Marine Park extends over Balanggarra sea country. Balanggarra sea country includes the entirety of the Bonaparte Gulf bioregion as well as small but significant sections of the Kimberley and Cambridge-Bonaparte bioregions.<sup>56</sup>

The indicative joint management plan outlines seven natural values to use as performance indicators (p. 15 and 16). These are:

- a. coral Reefs
- b. turtles
- c. dugongs
- d. seagrass and macroalgal communities
- e. mangroves and saltmarshes
- f. finfish
- g. water and sediment quality

In assessing the proposed zoning plan, this report pays particular attention to these values in addition to species of special conservation significance like coastal dolphins, crocodiles and seabirds (p. 16).

This reports outlines one priority A and four priority B changes specific to Balanggarra sea country. Additionally, priority change A6. *Proposed Changes Incompatible Activities* applies to Balanggarra sea country as well as to other sections of the North Kimberley Marine Park.

## MAJOR ACHIEVEMENTS

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The indicative joint plan of management represents a very significant step forward for the protection of the cultural heritage and marine life of Balanggarra sea country.

It contains intelligent and forward-thinking proposals to protect key natural and cultural values, and to provide long-term regional infrastructure for tourism and recreation:

- There are three proposed sanctuary zones at Cape Londonderry, the Drysdale River and King Shoals. These sanctuaries include the first ever marine sanctuaries for the Bonaparte Gulf bioregion<sup>56</sup> and the implementation of long-standing proposals for protection of areas with exceptionally high natural and cultural values at the Drysdale River and Cape Londonderry (p. 33 and 34).<sup>18</sup>
- There are four proposed special purpose (recreation and conservation) zones that provide increased protection for community use and recreational fishing at key locations like Napier Broome Bay, Faraway Bay and the Berkeley River.

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## CAPE LONDONDERRY SANCTUARY ZONE

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Cape Londonderry is one of the highest conservation value parts of the Kimberley coast (p. 33 and 34). The proposed sanctuary zone protects a significant section of the original 1994 reserve proposal by the Department of Conservation and Land Management.<sup>18</sup>

The proposed Cape Londonderry Sanctuary protects key cultural and natural values for fringing coral reefs, seagrasses, finfish, mangroves, coastal dolphins, turtles, dugong and seabirds (p. 33 and 34). Along with the King Shoals Sanctuary Zone, the Cape Londonderry Sanctuary Zone establishes the first-ever sanctuary zones for the Bonaparte Gulf bioregion.

The Centre for Conservation Geography strongly supports the location and purpose of the Cape Londonderry Sanctuary Zone as appropriate to the location of the values it is designed to protect.

Many of these values are unique, and the proposed Cape Londonderry Sanctuary Zone is the only location where these values can be protected.

The Centre for Conservation Geography suggests including more of the original Cape Londonderry reserve proposal around Lesueur Island and the King George River to reinforce the strengths of the proposed Cape Londonderry Sanctuary Zone. Lesueur Island and King George River also contain unique values that are currently unprotected (see section on A5. *Proposed Changes Lesueur Island and the King George River* below).

This should be done in a way that enhances the tourism and recreational fishing values of key areas like the King George River and Faraway Bay.

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## DRYSDALE RIVER SANCTUARY ZONE

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The Drysdale River Sanctuary Zone is the only sanctuary zone proposed for the mapped estuary habitats of the North Kimberley.<sup>48</sup> Estuary and coastal habitats are under-represented in the proposed sanctuary zones of the North Kimberley Marine Park.

Of the top 10 estuaries in the North Kimberley Marine Park (by catchment size), the Drysdale River is the only estuary to have any part of its area in sanctuary zones.<sup>49</sup> The Drysdale River has high natural and cultural values and is an excellent location for protecting a representative sample of the North Kimberley's estuary habitats.

The Centre for Conservation Geography strongly supports the intention of the proposed zone to intelligently work towards balancing conservation, tourism and fishing, thus ensuring the North Kimberley Falls Marine Park becomes a key piece of regional economic infrastructure for tourism while also maintaining or improving the fishing values in the Drysdale River.

The Centre for Conservation Geography strongly supports the location and purpose of the Drysdale River Sanctuary Zone. The Drysdale River is an excellent location to protect these values.

The Centre for Conservation Geography has some concerns over the failure of the proposed sanctuary zone to comprehensively and adequately represent the mapped habitats of the

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<sup>48</sup> Dyal A., Tobin G., Galinec V., Gallagher J., Ryan D, Heap A. and Murray E. (2005). Western Australia coastal waterways geomorphic habitat mapping, Version 2, 1:100 000 scale digital data.

<sup>49</sup> NLWRA. 2002. Australian Catchment, River and Estuary Assessment 2002, volume 1. National Land and Water Resources Audit, Commonwealth Government, Canberra.

[http://audit.ea.gov.au/anra/coasts/coasts\\_frame.cfm?region\\_type=AUS&region\\_code=AUS&info=estuaries](http://audit.ea.gov.au/anra/coasts/coasts_frame.cfm?region_type=AUS&region_code=AUS&info=estuaries)  
Data also available at [www.ozestuaries.org](http://www.ozestuaries.org)

Drysdale River. Suggested changes to resolve these concerns are outlined in the section B3. *Proposed Changes Drysdale River* below.

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## KING SHOALS SANCTUARY ZONE

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The King Shoals Sanctuary Zone protects unique habitats at the mouth of the Ord River estuary (p. 34). This area is critical to comprehensively representing the habitats of the North Kimberley Marine Park in sanctuary zones (p. 31).

The Centre for Conservation Geography strongly supports the location and purpose of the King Shoals Sanctuary Zone as appropriate to the location of the values it is designed to protect.

The Centre for Conservation Geography suggests strengthening this protection by expanding the King Shoals Sanctuary Zone to include other unique or key values adjacent to King Shoals, for example Lacrosse Island, the coastal habitats of Cape Dussejour and the estuary habitats of Thurburn Creek (see section B4. *Proposed Changes Lacrosse Island and Thurburn Creek* below).

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## SPECIAL PURPOSE (RECREATION AND CONSERVATION) ZONES

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The indicative joint management plan proposes four special purpose (recreation and conservation) zones in Balanggarra sea country.

Unfortunately, partially protected zones, like these proposed special purpose (recreation and conservation) zones that allow commercial and/or recreational fishing, have been shown to fail to provide the same benefits as sanctuary zones.<sup>26, 27, 28, 29, 30, 31, 32, 33</sup>

The special purpose (recreation and conservation) zones are most likely to have a beneficial impact for particular species or communities like subtidal sponges and soft corals, endangered sawfish and coastal dolphins, which have cultural, ecological and/or tourism values and are particularly threatened by trawling and/or gillnetting.

However, these zones are powerful tools to “*provide for sustainable resource use*”, which is one of the four strategic objectives of the North Kimberley Marine Park (p. 11). They protect the marine park from trawling and gillnetting, which have been assessed as not ecologically sustainable and posing unacceptable risks to the values of marine parks in the Kimberley.<sup>50</sup>

They also protect marine park values from seabed mining and mining for oil and gas, activities that are also likely to be incompatible with the values of the North Kimberley Marine Park.

These zones do this while providing for potentially ecologically sustainable uses. For example, they can support community use, recreational fishing, tourism, research, education and commercial fishing that utilises non-destructive fishing techniques like trolling for mackerel, trapping for mud crabs and diving for beche-de-mer.

In addition, they protect two of the key use values of the marine parks. For example, the tourism values of the marine parks can be damaged and visitor experiences degraded when visitors learn or are forced to confront the fact that humpback whale calves, coastal dolphins, crocodiles,

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<sup>50</sup> Mary Lack Shellack Pty Ltd, 2010. Assessment of risks that commercial fishing methods pose to conservation values identified in the areas for further assessment of the North and North-west marine regions, Department of the Environment, Water, Heritage and the Arts, Canberra, ACT, Australia.

or endangered sawfish are not protected from trawling and gillnetting in the North Kimberley Marine Park.

Likewise, it can degrade tourism values or visitor experiences if visitors are confronted by trawling bycatch during their visit to the marine park. There are already anecdotal reports of commercial gillnetting or trawling operations damaging recreational fishing and traditional use values.

In light of this, the Centre for Conservation Geography strongly supports the special purpose (recreation and conservation) zones in Balanggarra sea country, which are located either in important areas for tourism or near key points of access for Traditional Owners.

At least parts of the special purpose zones in Napier Broome Bay and at the King George and Berkeley Rivers fit these criteria.

The Centre for Conservation Geography recommends that special purpose (recreation and conservation) zones be used instead of general use zones in Balanggarra sea country to ensure that the North Kimberley Marine Park does not continue to allow activities that are incompatible with the values it has been established to protect (see section *A6. Proposed Changes Incompatible Activities* below).

The Centre for Conservation Geography is less supportive of the Sir Graham Moore Islands Special Purpose (recreational and conservation) Zone.

The zone's purpose appears to be to recognise the outstanding natural and cultural values of an area. However, the indicative joint management plan does not provide them with the high level of protection that they deserve.

If there are particular locations in this zone that are important for recreational fishing, these specific small areas could be maintained as a special purpose (recreation and conservation) zone while the rest of the area is protected in sanctuary zones (see section *B1. Proposed Changes Anjo Peninsula and Sir Graham Moore Islands* below)

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## PRIORITY A CHANGES

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### A5. PROPOSED CHANGES LESUEUR ISLAND AND THE KING GEORGE RIVER

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The indicative joint management plan is to be commended for proposing a large sanctuary zone to protect the unique habitats of Cape Londonderry. However, this area is much smaller than the 1994 proposal. In particular, the failure to include Lesueur Island and the King George River needs to be addressed.

Lesueur Island is home to a unique suite of Kimberley habitats. Traditional Owners have identified the area around Lesueur Island as one of the two most important habitats for dugong and turtles on the Bonaparte coast. This is indicative that the area also contains important seagrass habitats.<sup>37</sup> It is also a significant nesting site for turtles.<sup>51</sup>

Lesueur Island is unique in being the only offshore island in the Kimberley section of the Bonaparte Gulf bioregion. The proposed sanctuary zones currently include less than 1% of the

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<sup>51</sup> Conservation Commission of Western Australia, 2010. *Status performance assessment: Biodiversity conservation on Western Australian Islands. Phase II – Kimberley Islands.* <[http://conservation.wa.gov.au/media/8919/final%20version\\_14april2010.pdf](http://conservation.wa.gov.au/media/8919/final%20version_14april2010.pdf)>

island habitats of the Bonaparte Gulf bioregion, including none of the islands greater than 10 hectares in size.

The marine habitats around Lesueur Island are mapped as a key ecological feature of the Australian marine environment due to their carbonate bank habitats.<sup>52</sup> Lesueur Island is home to the only mapped geomorphic banks in the Bonaparte Gulf section of the North Kimberley Marine Park.<sup>19</sup>

Lesueur Island contains 95% of the deeper coral reefs of the Bonaparte Gulf section of the North Kimberley Marine Park. These deeper coral reef ecosystems of the Bonaparte Gulf bioregion are currently completely unrepresented in sanctuary zones.

Lesueur Island is a Nature Reserve, and including the habitats around Lesueur Island in sanctuary zones would improve the complementarity of the zoning plan with existing terrestrial reserves (p. 31).

The King George River is one of the iconic tourism sites of the Kimberley. Its estuary habitats are unique ecologically.

The importance of the natural heritage values of these estuary habitats was recognised by recreational and commercial fishers, who declared the King George River as one of the Kimberley's only no take areas under the Accord for the Future Management of Barramundi and Threadfin Salmon 2007-2012.<sup>63</sup>

The unique habitats of Lesueur Island and the King George River should be included in sanctuary zones by extending the Cape Londonderry Sanctuary Zone eastwards to the eastern boundary of the 1994 proposal to include parts of the King George River Special Purpose (recreation and conservation) Zone.

This would have a negligible impact on commercial fisheries as the Northern Prawn Trawl and Kimberley Barramundi and Gillnet Fishery are already excluded from the existing special purpose (recreation and conservation) zone.

This region contains some important locations for tourism and recreational fishing including the King George River, Faraway Bay and the Eastern Cape Londonderry Creek estuaries.

To enhance opportunities for tourism and recreation, the zoning plan needs to provide tourists with a good mix of experiences. This is not currently achieved on the Bonaparte coast with each of the main visitation points, King George River, Eastern Cape Londonderry Creek, Faraway Bay and the Berkeley River all containing no sanctuary zones.

The existing sanctuary zones on the Bonaparte coast at King Shoals and Cape Londonderry have critical natural heritage values but are not generally visited by tourists. Including key parts of the unique habitats of the King George River in sanctuary zones would address this issue.

For example, if the Cape Londonderry Sanctuary was extended east to include the King George River Special Purpose (recreation and conservation) Zone with the exception of the following areas:

- King George River south of 14°2'S to maintain recreational fishing access near the spectacular waterfalls

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<sup>52</sup> Commonwealth of Australia, 2012. *Key Ecological Features*, <[http://www.environment.gov.au/metadataexplorer/full\\_metadata.jsp?docId={093A2086-7DE3-41A7-B407-5BCCA7F400A5}&loggedIn=false](http://www.environment.gov.au/metadataexplorer/full_metadata.jsp?docId={093A2086-7DE3-41A7-B407-5BCCA7F400A5}&loggedIn=false)>

- Koolama Bay south of 13°55'S and west of 127°19'E to keep some of the key King George River anchoring sites open for fishing
- Faraway Bay and Eastern Cape Londonderry Creek south of 13°52'S and 127°15'E to keep key areas around Faraway Bay and Eastern Cape Londonderry Creek open for fishing.

This extension would substantially improve the zoning outcomes by protecting key natural and cultural heritage values currently not included in sanctuary zones while also improving tourism opportunities and enhancing recreational fishing opportunities by keeping areas open to fishing.

This extension would ensure that these areas stay in the best possible condition by placing sanctuary zones nearby to ensure replenishment of the fishing values from unfished areas. It will also better complement existing management arrangements under which fishing is not currently allowed in the King George River.

If decision-makers believe that a small area of the habitats around Lesueur Island should also be kept open for recreational fishers, this could be achieved by maintaining a smaller special purpose (recreation and conservation) zone over a small part of the island as has been achieved at Bigge Island in the current zoning plan.

**Recommendation:**

- Extend the Cape Londonderry Sanctuary Zone eastwards to the proposed 1994 boundary to include the King George River Special Purpose (recreation and conservation) Zone with the exception of the following areas, which are to remain special purpose (recreation and conservation) zones:
  - King George River south of 14°2'S to maintain recreational fishing access near the spectacular waterfalls
  - Koolama Bay south of 13°55'S and west of 127°19'E to keep some of the key King George River anchoring sites open for fishing
  - Faraway Bay and Eastern Cape Londonderry Creek south of 13°52'S and 127°15'E to keep key areas around Faraway Bay and Eastern Cape Londonderry Creek open for fishing.

**Rationale:**

- Protect the unique natural and cultural heritage values of Lesueur Island and the King George River.
- Enhance tourism opportunities and experiences at the King George River and the broader Bonaparte coast.
- Maintain, or enhance recreational fishing opportunities in the King George River, Faraway Bay and Eastern Cape Londonderry Creek.
- Complement existing and proposed terrestrial reserves at Lesueur Island and the King George River.

## PRIORITY B CHANGES

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### B1. PROPOSED CHANGES ANJO PENINSULA AND SIR GRAHAM MOORE ISLANDS

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**Note:** The Anjo Peninsula occurs in Wunambal Gaambera country while the Sir Graham Moore Islands are in Balanggarra country. For this reason this proposed change occurs twice in this report under both the Wunambal Gaambera and Balanggara sections.

The Anjo Peninsula contains a high diversity of coastline habitats, particularly habitats like high energy rocky shorelines and wave cut platforms, which are not represented or are under-represented in the proposed sanctuary zones of the North Kimberley Marine Park.

There is currently over 1000 kilometres (1,245km) of coastline between the Drysdale River and Scott Strait sanctuary zones.

The Anjo Peninsula is an ideal location to increase the representation of the Kimberley coastline in sanctuary zones. It is a biologically important area for snubin and Indo-Pacific humpback dolphins,<sup>20</sup> and Traditional Owners have identified it as a key area for dugong<sup>36</sup> and turtles.<sup>21</sup>

Including this area in a sanctuary zone would also represent at least some of the unique, deep water-basin habitats of Napier Broome Bay in sanctuary zones (p. 35).

The high cultural and natural values of the adjacent Sir Graham Moore Islands are recognised in the indicative joint management plan, which proposes the area as a special purpose (recreation and conservation) zone to maintain recreational fishing access (p. 36).

However, the indicative joint management plan does not show the Sir Graham Moore Islands as an important recreational fishing location, with visitors mostly bypassing the area on the way between Napier Broome Bay and Vansittart Bay (p. 20).

A sanctuary zone would be more appropriate in this location than the proposed special purpose (recreation and conservation) zone. In addition to better protecting the high cultural and natural values of the area, a sanctuary zone would better complement the proposed Nature Reserve at the Sir Graham Moore Islands.<sup>53</sup>

The Mungalalu-Truscott Airport at the base of the Anjo Peninsula has the potential to develop into a tourist hub.

A sanctuary zone covering the tip of the Anjo Peninsula and the Sir Graham Moore Islands would provide increased infrastructure for tourism by increasing the diversity of potential visitor experiences and maintaining or enhancing recreational fishing experiences while still leaving the areas most accessible from the airport open to recreational and commercial fishing.

#### **Recommendation:**

- Change the Sir Graham Moore Islands from a special purpose (recreation and conservation) zone to a sanctuary zone, and extend the new sanctuary zone south to 13°58'S to include the tip of the Anjo Peninsula and part of the Napier Broome Bay basin.

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<sup>53</sup> Pers comm. Western Australian Department of Parks and Wildlife, 26/02/2016.

**Rationale:**

1. Provide protection for unrepresented habitats and the high cultural and natural values of the Sir Graham Moore Islands and the Anjo Peninsula.
2. Enhance recreational fishing experiences near Mungalalu-Truscott Airport.
3. Enhance tourism experiences near Mungalalu-Truscott Airport.
4. Minimise impact on existing users.
5. Complement proposed terrestrial reserves.

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### B3. PROPOSED CHANGES DRYSDALE RIVER

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The proposed Drysdale River Sanctuary Zone is designed to protect a representative sample of the habitats of the high value Drysdale River estuary. Unfortunately, the sanctuary zone as proposed doesn't include representation of the Drysdale River's flood and ebb tide delta, one of just two such habitats mapped in the Kimberley bioregion.

Additionally, while the proposed sanctuary zone contains a good sample of the Drysdale River's mangrove habitats, its sample of the estuaries intertidal flats, saltmarshes and tidal sand banks is below the thresholds set by Australian scientists and the international community.<sup>10,11,12</sup>

The tidal sand banks of the Drysdale River are of particularly high conservation value. They represent almost 60% of the total mapped extent of this habitat in the Kimberley bioregion.

As well as having high natural and cultural heritage values, the Drysdale River has recreational fishing and tourism values. However, the recreational fishing values are further upstream among the mangroves and smaller creeks while the under-protected natural values are at the mouth of the river.

It should therefore be possible to improve the zoning plan so that the important natural values are protected while keeping most of the areas of interest to recreational fishers open for fishing.

The best way to achieve this is to expand the proposed sanctuary zone eastwards to 126°54'E, westwards to 126°46'E, and northwards to 13°57'S. This will include the Drysdale River's flood and ebb tide delta, and increase the representation of the high conservation tidal sand banks. It will have the added benefit of significantly simplifying the boundaries of the Drysdale River Sanctuary Zone (p. 31).

These proposed changes will increase the size of the proposed Drysdale River Sanctuary Zone but will still leave it well below the minimum recommended size for sanctuary zones (research from Edgar et al., shows that smaller sanctuary zones are only fully effective after they have been in place for at least 10 years<sup>26</sup>).

However like the proposed Deewai (Lower Three Ways) Sanctuary Zone in the Lalang-garram/Horizontal Falls Marine Park, the proposed Drysdale River Sanctuary Zone has more than one purpose.

As well as providing much needed protection to key natural and cultural values, it also represents a thoughtful design that will help maintain or improve adjacent fishing values, as well as provide a variety of tourism experiences for visitors to the Drysdale River.

Sanctuary zones like this are critical educational tools that provide visitors and fishers with a lived experience of sanctuary-zone benefits for fishing.

The Centre for Conservation Geography recommends against expanding the proposed sanctuary zone to meet minimum size recommendations unless this can be achieved without undue risk to its capacity to deliver on its educational and recreational fishing objectives (for example by

extending the sanctuary northwards along the eastern coast of Napier Broome Bay towards the Cape Londonderry Sanctuary Zone?).

**Recommendation:**

- Extend the proposed Drysdale River Sanctuary Zone eastwards to 126°54'E, westwards to 126°46'E, and northwards to 13°57'S.

**Rationale:**

1. Ensure comprehensive and representative inclusion of the estuary habitats of the Drysdale River in sanctuary zones (p. 31).
2. Maintain and enhance the recreational fishing values of the Drysdale River and Napier Broome Bay.
3. Provide a range of visitor experiences for visitors to the Drysdale River.
4. Better complement the proposed Cape Londonderry National Park.

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## B4. PROPOSED CHANGES LACROSSE ISLAND AND THURBURN CREEK

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The North Kimberley Marine Park extends over one of the world's last unspoiled coastlines (p. 5). However, the proposed zoning plan leaves almost 90% (88%)<sup>35</sup> of the coastline unprotected.

One of the major gaps in protection for the shorelines, estuaries, seagrasses, mangroves and fringing coral reefs of the Kimberley coast is between the WA Border and Cape Londonderry, where there is almost 1000 kilometres (934km) of coastline with no proposed sanctuary zones.  
<sup>35</sup>

This is a major gap in the "system of comprehensive and representative 'no-take' or sanctuary areas" that the zoning plan is being designed to provide (p. 31).

The coastline south of the King Shoals Sanctuary Zone between Cape Dussejour and Thurburn Creek contains a diverse mix of the coastline habitats of the Bonaparte Gulf bioregion, including habitats like saltmarshes, chenier dunes and high energy rocky shores, which are currently not represented in sanctuary zones.

One of the consequences of having no sanctuary zones over the habitats along the coastline between the WA Border and Cape Londonderry is that the estuary habitats<sup>49</sup> of the Bonaparte Gulf bioregion<sup>56</sup> are completely unrepresented in the proposed sanctuary zones.

Extending the King Shoals Sanctuary Zone to include Thurburn Creek would include a representative sample of at least one of the estuary types of the Bonaparte Gulf bioregion.

Lacrosse Island to the south of the King Shoals Sanctuary Zone contains 83% of the island habitats in the Cambridge-Bonaparte section of the North Kimberley Marine Park.<sup>51</sup> The sanctuary zone proposals in the indicative joint management plan currently leave 99.7% of the island habitats of the Kimberley section of the Cambridge-Bonaparte bioregion unprotected.<sup>51</sup>

Situated at the mouth of the Ord River estuary, Lacrosse Island contains high cultural and natural values and is critical to the protection of island features in this part of the Kimberley. Lacrosse Island is a proposed Nature Reserve,<sup>46</sup> and extending the King Shoals Sanctuary Zone to include Lacrosse Island would better complement the proposed nature reserve.

Tourist and recreational fishers do not frequently visit this area (p. 20). There may be some current use by commercial gillnetters in this area.

**Recommendation:**

- Extend the proposed King Shoals Sanctuary Zone to include Lacrosse Island, Thurburn Creek and the shoreline habitats between Thurburn Creek and Cape Dussejour.

**Rationale:**

1. Ensure comprehensive and representative inclusion of the estuary and coastline habitats of the Bonaparte Gulf bioregion in sanctuary zones (p. 31).
2. Ensure adequate representation of the island habitats of the Cambridge-Bonaparte bioregion.

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## B5. PROPOSED CHANGES EAST KIMBERLEY COAST

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The North Kimberley Marine Park extends over one of the world's last unspoiled coastlines (p. 5). However, the proposed zoning plan leaves almost 90% (88%)<sup>35</sup> of the coastline unprotected.

One of the major gaps in protection for the shorelines, estuaries, seagrasses, mangroves and fringing coral reefs of the Kimberley coast is between the WA Border and Cape Londonderry, where there is almost 1000 kilometres (934km) of coastline with no proposed sanctuary zones.

<sup>35</sup>

This is a major gap in the “*system of comprehensive and representative ‘no-take’ or sanctuary areas*” that the zoning plan is being designed to provide (p. 31).

The East Kimberley coastline between the proposed King George River and Berkeley River Special Purpose (recreation and conservation) Zones is a high conservation value section of coastline with almost no existing use due to its predominantly rough oceanographic conditions.

Protection needs to be higher in locations like this to compensate for the lower levels of protection that eventuate in other parts of the marine park where there are more competing uses.<sup>54</sup>

Establishing a new sanctuary zone in this area provides an opportunity to include habitats like the estuaries of the Bonaparte Gulf bioregion, which are currently completely unrepresented in sanctuary zones.

Protecting this area in a sanctuary zone may have some small impact on the Northern Prawn Trawl; however, the habitats of the red-legged banana prawn, which is the main target species in this region, are in the deeper waters of the Bonaparte Gulf not in the North Kimberley Marine Park.

**Recommendation:**

- Create a new sanctuary zone for the East Kimberley coastline between the proposed King George River and the Berkeley River Special Purpose (recreation and conservation) Zones.

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<sup>54</sup> For example see the higher levels of protection within sanctuary zones in the northern section of the Great Barrier Reef Marine Park.

**Rationale:**

1. Ensure comprehensive and representative inclusion of the estuary and coastline habitats of the Bonaparte Gulf bioregion in sanctuary zones (p. 31).
2. Increase protection for the high cultural and natural values of the Kimberley in locations that minimise impacts on existing users (p. 31).

## MIRIUWUNG GAJERRONG SEA COUNTRY

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From the Ord River to the WA border the North Kimberley Marine Park extends over Miriuwung Gajerrong sea country (p.10). The indicative joint management plan outlines seven natural values to use as performance indicators (p. 15 and 16). These are:

- a. coral Reefs
- b. turtles
- c. dugongs
- d. seagrass and macroalgal communities
- e. mangroves and saltmarshes
- f. finfish
- g. water and sediment quality

In assessing the proposed zoning plan, this report pays particular attention to these values in addition to species of special conservation significance like coastal dolphins, crocodiles and seabirds (p. 16).

This reports outlines one priority A change specific to Miriuwung Gajerrong sea country. Additionally priority change A6. *Proposed Changes Incompatible Activities* applies to Miriuwung Gajerrong sea country as well as to the other sections of the North Kimberley Marine Park.

## MAJOR ACHIEVEMENTS

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The indicative joint plan of management represents a very significant step forward for the protection of the cultural heritage and marine life of Miriuwung Gajerrong sea country.

It contains intelligent and forward-thinking proposals to protect key natural and cultural values and provide long-term regional infrastructure for tourism and recreation:

- a. The WA Border Sanctuary Zone establishes the first ever sanctuary zone over Miriuwung Gajerrong sea country and the first ever sanctuary zone<sup>55</sup> to be established in the Cambridge-Bonaparte marine bioregion.<sup>56</sup>
- b. The Cape Domett Special Purpose (recreation and conservation) Zone provides recognition of Cape Domett's importance as one of the world's largest populations of nesting flatback turtles and mangrove habitats with national natural heritage values.

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## WA BORDER SANCTUARY ZONE

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The WA Border sanctuary zone is the first-ever sanctuary zone to be established in both Miriuwung Gajerrong sea country and the first ever sanctuary zone<sup>55</sup> to be established in the

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<sup>55</sup> The proposed King Shoals Sanctuary Zone also crosses over from the Bonaparte bioregion into the Cambridge-Bonaparte bioregion.

<sup>56</sup> IMCRA, 2006. A Guide to the Integrated Marine and Coastal Regionalisation of Australia Version 4.0. Department of the Environment and Heritage, Commonwealth of Australia, Canberra, Australia.

Cambridge-Bonaparte bioregion.<sup>56</sup> The proposed sanctuary zone protects habitats that are unique in the Kimberley (p. 34).

The Centre for Conservation Geography strongly supports the proposed WA Border Sanctuary Zone as protecting key values in Miriuwung Gajerrong sea country and the Cambridge-Bonaparte bioregion.

The Centre for Conservation Geography suggests that the zone could be improved by expanding it westwards to Cape Domett to include the rest of the Miriuwung Gajerrong section of the North Kimberley Marine Park (see section A4. *Proposed Changes Cape Domett to WA Border* below).

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## CAPE DOMETT SPECIAL PURPOSE (RECREATION AND CONSERVATION) ZONE

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Cape Domett is one of the largest flatback turtle nesting sites in the world.<sup>57</sup> It is also the site of the highest conservation mangroves in the Miriuwung Gajerrong section of the North Kimberley Marine Park.<sup>23</sup>

The designation of a small special purpose (recreation and conservation) zone at Cape Domett provides some important recognition of the importance of these natural and cultural values (p. 37). However, the level of protection provided is not appropriate to the significance of the values.

Partially protected zones that continue to allow commercial and/or recreational fishing have been shown to fail to provide the same benefits as sanctuary zones.<sup>26, 27, 28, 29, 30, 31, 32, 33</sup> The extremely high values present in this area are deserving of protection in a sanctuary zone (see section A4. *Proposed Changes Cape Domett to WA Border* below).

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## PRIORITY A CHANGES

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### A4. PROPOSED CHANGES CAPE DOMETT TO WA BORDER

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From the mouth of the Ord River east to the WA border, the North Kimberley Marine Park extends over Miriuwung Gajerrong sea country. This area is roughly equivalent to the Cambridge-Bonaparte bioregion.<sup>56</sup>

The indicative joint management plan is to be commended for proposing the first-ever sanctuary zones in the Cambridge –Bonaparte bioregion at King Shoals and the WA border. Unfortunately, these two small sanctuary zones fail to comprehensively and adequately represent the natural and cultural values of this unique region of the Kimberley.

For example, Cape Domett contains one of the largest flatback turtle nesting sites in the world but is not proposed for sanctuary zone protection in the indicative joint management plan.<sup>57</sup>

The highest conservation value mangroves in the Cambridge Gulf section of the North Kimberley Marine Park also occur around Cape Domett.<sup>23</sup> The WA Mangrove Assessment Project identifies these mangroves as having national heritage values.<sup>23</sup>

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<sup>57</sup> Whiting, A.U., Thomson, A., Chaloupka, M., and Limpus C.J., 2008. Seasonality, abundance and breeding biology of one of the largest populations of nesting flatback turtles, *Natator depressus*: Cape Domett, Western Australia, *Australian Journal of Zoology*, Vol 56, pp. 297-303.

Cape Domett has a campground and 4WD access, but this area is of low recreational fishing value due to the extremely wide intertidal flats making fishing impossible except at high tide. The proximity of much better fishing in the Ord River Estuary also reduces the recreational fishing use of this location.

Access for this limited recreational fishing activity could be maintained by establishing a small special purpose (recreation and conservation) zone within a 1km of the campsite, while protecting the rest of the area in a large sanctuary zone.

Cape Domett is also a proposed National Park (p. 7). Extending the WA Border Sanctuary Zone to include Cape Domett would therefore also provide greater complementarity between the zoning plan and existing and proposed terrestrial reserves (p.31).

Equally, the only mapped reefs in Miriuwung Gajerrong sea country are at Pelican Island and outside the proposed sanctuary zones. Pelican Island is also a Nature Reserve and seabird breeding site and extending the WA Border Sanctuary Zone to include Pelican Island would mean the zoning plan better complemented existing terrestrial reserves (p. 31).

The proposed sanctuary zones currently include less than 1% of the island habitats of the Cambridge-Bonaparte bioregion, including none of the islands greater than 10 hectares in size.<sup>51</sup> The proposed sanctuary zones also currently include none of the estuary habitats of the Miriuwung Gajerrong sea country.<sup>49</sup>

Extending the WA Border Sanctuary Zone to Cape Domett would also include Pelican Island and the Ningbing Range Creeks estuaries. This would significantly increase the comprehensiveness of the network of sanctuary zones by including a representative sample of the reefs, larger islands and estuaries of Miriuwung Gajerrong sea country and the Cambridge-Bonaparte bioregion (p. 31).

The indicative joint management plan proposes significantly lower level of protection for the Miriuwung Gajerrong section of the North Kimberley Marine Park. Given the risk of multiple potential impacts from mining, shipping, fishing and agriculture, this is the opposite of what is needed for this area.

The dam over the Ord River and the intensive agriculture in the Ord River catchment means that the Cambridge-Bonaparte bioregion is exposed to impacts not present in the rest of the North Kimberley Marine Park.

Equally, the higher levels of shipping associated with the port at Wyndham also exposes the Cambridge-Bonaparte bioregion to higher levels of impacts from shipping than elsewhere in the North Kimberley Marine Park.

The Cambridge-Bonaparte bioregion is one of the sections of the North Kimberley Marine Park most at risk from oil and gas developments, with mining for oil and gas occurring within 100km of the marine park and exploration occurring immediately adjacent to the North Kimberley Marine Park both on land and in the adjacent Commonwealth waters.

The Cambridge-Bonaparte section of the North Kimberley Marine Park also contains mining exploration leases to within about 1km of the North Kimberley Marine Park, as well as mining tenements and active mining leases to within 40km of the North Kimberley Marine Park.

Gillnetting, one of the most destructive forms of commercial fishing,<sup>34</sup> is also widespread in this area.<sup>60</sup>

Given the risk of multiple cumulative impacts and the lack of high levels of protection in any other part of the Cambridge-Bonaparte bioregion, there is a strong argument for including all of the Miriuwung Gajerrong sea country in the North Kimberley Marine Park in a single large sanctuary zone.

If decision-makers conclude that this is not feasible, then any remaining general use zones should be converted to special purpose (recreation and conservation) zones to at least protect Miriuwung Gajerrong sea country from activities like mining, trawling and gillnetting that are incompatible with the values the North Kimberley Marine Park has been established to protect (see section A6. *Proposed Changes Incompatible Activities* below).

**Recommendation:**

- Extend the WA Border Sanctuary Zone to include Cape Domett, Pelican Islands, the Ningbing Range Creeks estuaries, thus including all of the Miriuwung Gajerrong sea country within the North Kimberley Marine Park in a single large sanctuary zone. This sanctuary zone should then be renamed.

**Rationale:**

1. Increase protection for Miriuwung Gajerrong sea country, which is at risk from multiple cumulative impacts and has largely been excluded from the North Kimberley Marine Park (e.g. the Ord River Estuary).
2. Provide more comprehensive representation for the full range of habitats present in the Cambridge-Bonaparte bioregion, including the globally important flatback turtle nesting habitats at Cape Domett (p. 37).
3. Better complement existing and proposed terrestrial reserves.

## ADDITIONAL PRIORITY A CHANGES

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### A6. PROPOSED CHANGES INCOMPATIBLE ACTIVITIES

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Providing for *sustainable resource use* (p. 11) is one of the four strategic objectives for the North Kimberley Marine Park. In the section on zoning design (p. 31), the indicative joint management plan outlines that:

*“Where possible and **appropriate** (emphasis added), the development of marine park zoning seeks to accommodate existing uses.”*

Some uses are incompatible with the values of the North Kimberley Marine Park. For example, mining is unlikely to be compatible with the other natural, cultural, economic and social values of the North Kimberley Marine Park.

Mining is also not an existing use in the North Kimberley Marine Park (p. 19). Given this lack of compatibility and no existing activity, why does the current zoning plan keep approximately two-thirds of the proposed North Kimberley Marine Park open for mining?

If there are particular locations that the joint managers or mining companies believe are suitable for a development that is compatible with the values of the North Kimberley Marine Park, where are those locations?

In the absence of such information, the Centre for Conservation Geography recommends that the North Kimberley Marine Park excludes mining as an incompatible activity.

This could be easily achieved by changing the proposed general use zones to special purpose (recreation and conservation) zones. In describing the proposed special purpose (recreation and conservation) zones, the indicative joint management plan states:

*“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.” (p. 32)*

Given the strategic objectives of the marine park (p. 11), sanctuary zones and special purpose (recreation and conservation) zones should extend over a much larger section of the marine park, and general use zones should be absent or only present in specific locations for specific reasons.

As the general use zones allow activities that are not compatible with the values of the marine park, the zoning system would be substantially improved by their absence from the North Kimberley Marine Park.

Converting general use zones to special purpose (recreation and conservation) zones would simplify the zoning scheme and significantly reduce risks to other industries, for example, tourism, recreational fishing, conservation and research.

In relationship to mining exploration Table 5, *Summary of permitted uses for the proposed North Kimberley Marine Park*, (p. 38) there is allowance for “*Non-ground-disturbing geophysical surveys.*” It is not clear what is meant by these terms. Which types of geophysical surveys will be allowed or disallowed?

Both trawling and gillnetting have also been identified as activities that are incompatible with marine reserves in the Kimberley. The indicative joint management plan states that its management objective for commercial fishing is:

*“To recognise and allow for commercial fishing and pearling operations whilst maintaining the cultural and natural values of the proposed marine park.”* (p. 30)

It is therefore troubling that both gillnetting and trawling continue to be allowed across extensive areas (~67%) of the North Kimberley Marine Park despite being incompatible with the objective of maintaining the cultural and natural values of the proposed marine park.<sup>34</sup>

The North Kimberley Marine Park contains cultural heritage values of global significance (p. 5). Traditional Owners have been officially registering their concern over the impact of trawling on cultural heritage for at least 20 years.<sup>58</sup> In particular, they have noted the presence of dead turtles, dugong and juvenile reef fish washed up on beaches, in addition to vessels accessing Aboriginal lands and sites and anchoring close to communities.<sup>58</sup>

Traditional Owners have also identified commercial gillnet fishing as a threat to estuarine fish species, whales, dolphins and sawfish.<sup>58</sup>

If turtles, dugong and fin fish are all identified as key values of the marine park, (p. 15 and 16) and visitor management is a key cultural heritage management issue, (p. 24) why is trawling and gillnetting an allowable activity across such extensive parts of the marine park, including in special purpose (cultural heritage) zones?

Traditional Owners have requested the development of a zoning scheme that revises where prawn trawling or gillnetting is allowed to continue.<sup>58</sup>

By continuing to allow trawling and gillnetting across such extensive areas of the marine park, including in special purpose (cultural heritage) zones, this plan does not appear to properly consider the impact of incompatible commercial fishing activities like trawling and gillnetting on the cultural values of the marine park.

Trawling and gillnetting not only damage the cultural and conservation values of the marine park but their tourism and recreational values as well. It is likely to damage the tourism brand of the marine park if visitors learn that humpback whale calves, coastal dolphins, crocodiles and endangered sawfish are not protected from trawling and gillnetting in the marine park.

Likewise, it will probably damage the tourism values of the area if visitors are confronted by trawling bycatch during their visit to the marine park. Trawling and gillnetting can also have major effects on the recreational fishing values of key locations.

The Centre for Conservation Geography recommends that trawling and gillnetting be removed from the proposed North Kimberley Marine Park as activities that are incompatible with the conservation, tourism and recreational values of the reserves.

This could be easily achieved by changing the proposed general use zones to special purpose (recreation and conservation zones) and by not allowing these activities in the special purpose (cultural heritage) zones.

This would have the added benefits of simplifying<sup>59</sup> the zoning scheme and making management and enforcement easier and more cost-effective.

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<sup>58</sup> North Kimberley Saltwater Country Steering Committee, 2010. *North Kimberley Saltwater Country Plan*, Mayala Native Title Claim Group, Dambimangari Corporation, Wunambal-Gaambera Aboriginal Corporation, Balanggarra Native Title Claim Group and Kimberley Land Council, Kimberley, Western Australia.

It would also mean that the North Kimberley Marine Park better complements the management of the adjacent Commonwealth Kimberley Marine Reserve, which excludes both trawling and gillnetting as incompatible activities across all of its zones.

The current zoning plan fails to provide protection that is at least equivalent to that provided by current management arrangements for gillnetting and trawling in the Kimberley. This raises a number of questions:

- Why does the zoning plan continue to allow trawling in areas such as Prince Frederick Harbour and Admiralty Gulf where it is currently prohibited from operating? <sup>60</sup>
- Why does the zoning plan continue to allow trawling in areas that have ceased to be accessed by the trawl fishery? For example, why is trawling allowed in Miriuwung Gajerrong sea country when there is no recent history of trawling? Equally, why is trawling allowed east of the Berkeley River in Balanggara sea country when there is no recent history of trawling in this area? Areas in Wunambal Gaambera sea country that are not currently trawled but which the current zoning plan leaves open for trawling include: Vansittart Bay, the western Bougainville Peninsula, Cassini Island, Mudge Bay, southern Montague Sound and the Maret Islands.
- Why does the zoning plan continue to allow gillnetting across such extensive areas of the North Kimberley Marine Park when the Accord for the Future Management of Barramundi and Threadfin Salmon 2007-2012 restricts the fishery to the smaller areas in which it traditionally operates? <sup>63</sup>

If the joint managers decide that trawling and/or gillnetting should be allowed to continue in the North Kimberley Marine Park, then the zoning plan should, as a minimum, restrict these fisheries to specific small locations.

For example, analysis by the Centre for Conservation Geography shows that general use zones could be reduced to less than 25% of the North Kimberley Marine Park while still maintaining access for the Kimberley Prawn Trawl Fishery to its most valuable trawling grounds in northern Admiralty Gulf, northern Montague Sound and west of Prince Frederick Harbour.

If these operations continue in small parts of the marine park, they need to be undertaken with 100% observer coverage either via onboard observers or video cameras so that managers have access to accurate and verifiable data on the damage these activities are having on the cultural, natural, economic and social values of the marine park.

### **Recommendations:**

- Change all proposed general use zones to special purpose (recreation and conservation) zones.
  - Option B: If the joint managers determine that this is not feasible reduce general use zones to less than 25% of the North Kimberley Marine Park. Centre for Conservation Geography analyses show that less than 25% of the North Kimberley Marine Park contain key areas for the trawl or gillnet fisheries.

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<sup>59</sup> The indicative joint management plan outlines that the zoning plan should be: *“simple for users to understand”* (p. 31).

<sup>60</sup> Fletcher, W.J. and Santoro, K. (eds). (2014). *Status Reports of the Fisheries and Aquatic Resources of Western Australia 2013/14: The State of the Fisheries*. Department of Fisheries, Western Australia.

- Remove gillnetting and trawling as allowable activities in special purpose (cultural heritage) zones.

**Rationale:**

1. Protect the North Kimberley Marine Park against mining, trawling and gillnetting, which are incompatible with the values of the park
2. Provide more effective protection for cultural heritage in the North Kimberley Marine Park.
3. Increase complementarity with the zoning plan for the Commonwealth Kimberley Marine Reserve.
4. Provide more effective protection for the tourism, recreation and conservation values of the North Kimberley Marine Park.
5. Provide more effective protection for endangered sawfish, coastal dolphins and calving humpback whales.
6. Maintain the current status of no mining operations in the North Kimberley Marine Park .
7. Protect the North Kimberley Marine Park from the Kimberley Gillnet Fishery, which is highly damaging to cultural, natural, recreational and tourism values and should not be allowed to operate in the park.
8. Protect the cultural, natural, recreational and tourism values of the North Kimberley Marine Park against the potential negative impacts of the Kimberley Prawn Trawl, which is in long-term decline and should not be allowed to operate in the park
  - a. If the joint managers determine that this is not feasible, there would be considerable benefits and minimal economic impact on the fishery from restricting trawling to less than 25% of the North Kimberley Marine Park.

## IMPACTS OF RECOMMENDATIONS ON COMMERCIAL FISHERS

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### KIMBERLEY GILLNET AND BARRAMUNDI FISHERY

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The Kimberley Gillnet and Barramundi Fishery (KGBF) operates in the nearshore and estuarine environments of the Kimberley, from the Northern Territory border to the top of Eighty Mile Beach, and targets threadfin salmon and barramundi. <sup>60</sup>

The fishery's main areas of operation are: Roebuck Bay, King Sound, the North Kimberley Coast (six small river systems) and Cambridge Gulf. <sup>60</sup>

The KGBF is a limited entry fishery with five licenses. <sup>60</sup> In addition to the five licensed commercial fishers, the fishery also supports harvest by recreational, charter and indigenous fishers. <sup>60</sup>

From 2006 to 2010, effort in the fishery increased 240% as a result of the transfer of licenses to new entrants to the fishery. In 2011 and 2012, effort dropped dramatically as one of these new

licensees was not operating. The average annual GVP for the fishery has been around \$900,000.<sup>61</sup>

On the 5 November 2013, the Western Australian Government announced that it had purchased two of the fishing licences in the Kimberley Gillnet fishery (reducing the number of licences from seven to five) and was closing Roebuck Bay to gillnetting.<sup>62</sup>

Based on historical data, Roebuck Bay has supported around 70% of the threadfin salmon catch and around 30% of the barramundi catch, or around 60% of the annual value of the fishery.<sup>61</sup>

As a result of negotiations between recreational and commercial fishers, there are a number of closed areas in the fishery and a commitment to restrict the commercial fishery to its traditional areas of operation.<sup>63</sup> There is currently a “no take” area for both commercial and recreational fishers in the North Kimberley Marine Park at the King George River.

Based on historical data, the annual catch of barramundi in the Kimberley coast and Cambridge Gulf sections of the fishery appears to be around 16 to 20 tonnes.<sup>61</sup> The catch of threadfin salmon in this area is lower, around 4-5 tonnes.<sup>61</sup> Historically, these sections account for about 30% of the fishery, or around \$0.3 million per annum.<sup>61</sup>

Barramundi and threadfin salmon are the main target species for the fishery. These are culturally significant species and an important food source for North Kimberley communities.<sup>63</sup>

Recent genetic studies of threadfin salmon show that it has very localised stocks. (For example, there are at least two genetically distinct stocks in Roebuck Bay ) This could make the species vulnerable to localised depletion.<sup>64</sup>

This appears to have already occurred in Roebuck Bay where traditional owners report a large decline in the abundance of threadfin salmon over the life of the fishery.

The Western Australian fisheries agency claims that the Kimberley Gillnet and Barramundi Fishery is important for the provision of fresh fish to the Kimberley.

However, in 2011 this fishery’s catch was less than 3% of the total barramundi produced in the Kimberley (the Cone Bay saltwater barramundi farm produced 1,121 tonnes of barramundi in the 2011/2012 financial year).<sup>65</sup>

This proportion will reduce still further in coming years with the removal of fishing in Roebuck Bay and the expansion of aquaculture operations in Cone Bay. Aquaculture of threadfin salmon is also on the horizon.<sup>66</sup>

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<sup>61</sup> WA Fisheries Status Reports from 2005 to 2014.

<sup>62</sup> <http://www.fish.wa.gov.au/About-Us/Media-releases/Pages/Roebuck-Bay-a-jewel-for-local-fishers.aspx>

<sup>63</sup> Department of Fisheries, 2009. *Accord for the future management of barramundi and threadfin salmon 2007-2012*, Government of Western Australia, Perth, Western Australia.

<sup>64</sup> Welch, D. J., Ballagh, A. C., Newman, S. J., Lester, R. J. G., Moore, B. R., van Herwerden, L., Horne, J. B., Allsop, Q., Saunders, T., Stapley J. M. and Gribble, N. A. (2010) *Defining the stock structure of northern Australia’s threadfin salmon species*. Final Report to the Fisheries Research & Development Corporation, Project 2007/032. Fishing & Fisheries Research Centre Technical Report No. 10, James Cook University, Townsville, Australia (192pp.).

<sup>65</sup> Marine Produce Australia Limited. 2012. *Annual Financial Report*, Perth, Western Australia.

<sup>66</sup> <http://www.abc.net.au/landline/content/2014/s4105114.htm>

If the Kimberley Gillnet and Barramundi Fishery is fully removed from the Kimberley Marine Parks, it will still continue to provide local fresh fish from ongoing operations in King Sound and the Ord River, which remain outside the marine parks network.

In the event of the Kimberley Gillnet and Barramundi Fishery ceasing to operate, any residual demand for wild caught barramundi or threadfin salmon would be likely be met by license holders in the Northern Demersal Scalefish Fishery.

The recommendations on zoning would exclude this fishery from its traditional areas of operation in the proposed North Kimberley Marine Park as an activity that is incompatible with the values of the proposed marine park.

This would have a large impact on the viability of the North Kimberley Coast components of this fishery. Due to the high impact on this fishery, further licence purchases would be appropriate.

**Recommendation:**

- Allocate funding for purchase of additional licenses from the Kimberley Gillnet and Barramundi Fishery.

**Rationale:**

- Proposed changes would have a significant impact on the fishery.

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## KIMBERLEY PRAWN TRAWL

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The Kimberley Prawn Trawl operates between Talbot Bay and Cape Londonderry. In 2013, the fishery contained 124 licenses, with 45 of these licensees also holding a license in the Northern Prawn Trawl fishery.<sup>60</sup> Of these 124 licences, only 12 were active in 2013, catching a total of 154 tonnes of prawns at an estimated gross value of \$1.5 million over 314 fishing days.<sup>60</sup>

The fishery is effort controlled by a limit of 1,500 fishing days.<sup>60</sup> In 2013, effort was the lowest since effort was first estimated in 1990.<sup>60</sup> This is reflective of a strong downward trend in effort in recent years.

The Western Australian Fisheries Agency suggest that high fishing costs, combined with low prawn prices and competition for human resources with the oil and gas industry, has led to a very high level of latency in the fishery.<sup>60</sup>

Over the last five years, 90% of licences have been latent and 77% of the fishing days allocated to the fishery has remained unfished.<sup>61</sup>

This extremely high level of latency indicates that, depending on size and location, some reduction in the area available to fish would be unlikely to have any significant negative economic impact on the fishery. This is because the fishery has a very high capacity for sustaining a shift in the location of effort.

The recommendations on zoning would close the North Kimberley Marine Park to trawling. Under this scenario, funding should be provided to buy out the current active license holders.

Alternatively, if much larger areas are closed to trawling, but key small areas of high value to the fishery are kept open, the current low level of effort and catch indicates that the boats fishing in these areas could shift effort without a significant impact on the economics or the ecology of the fishery.

The fishery currently contains four closures in the inshore waters of Collier Bay, York Sound, Admiralty Gulf and Napier Broome Bay.<sup>60</sup>

The fishery has used a vessel monitoring system since 2001, and from 2007 to 2012 fishing has been concentrated in 10 discrete locations that together extend over roughly a quarter of the coastal waters between Talbot Bay and Cape Londonderry. <sup>61</sup>

If trawling continues to be allowed in the North Kimberley Marine Park, cancelling the licenses of those operators (90%) who have long ceased to fish would be a useful structural adjustment that could advantage active licensees.

The Kimberley Prawn Trawl is not a major provider of prawns to Western Australians. Western Australia's major prawn fisheries occur in Shark Bay and Exmouth Gulf, with 90% of WA's prawns caught in these two locations over the last five years. <sup>61</sup>

Over the last five years, the Kimberley Prawn Trawl has landed on average 6% of WA's prawns (by \$ value) (Figure 1), with an average annual gross value of \$2 million. <sup>61</sup>

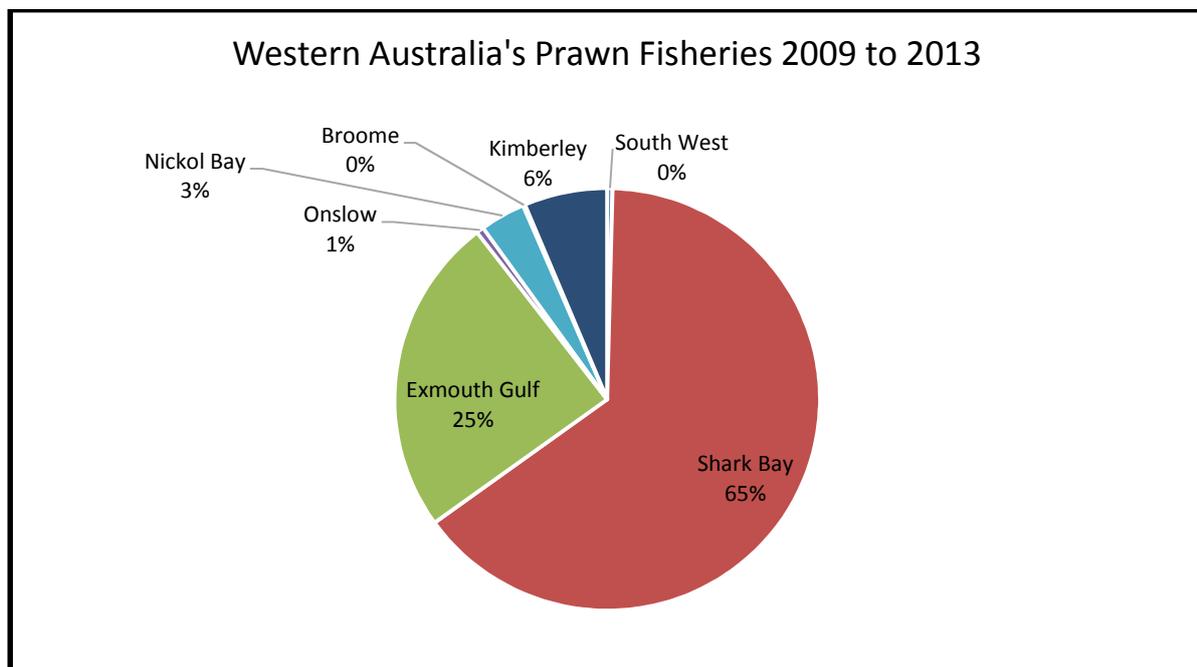


FIGURE 1: THE RELATIVE VALUE OF PRAWNS CAUGHT IN WESTERN AUSTRALIA'S PRAWN FISHERIES.

**Recommendation:**

- Close the fishery and allocate funding to purchase active licenses.
  - Option B: If the joint managers determine that this is not feasible, reduce general use zones to less than 25% of the North Kimberley Marine Park. Centre for Conservation Geography analyses show that less than 25% of the North Kimberley Marine Park contains key areas for the Kimberley Prawn Trawl.

**Rationale:**

- Proposed changes would have a significant impact on the fishery.

## MACKEREL FISHERY

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The mackerel fishery targets Spanish and grey mackerel around reefs, shoals and headlands.<sup>60</sup> The total allowable catch for the Kimberley is 205 tonnes for Spanish and other mackerel, and 60 tonnes for grey mackerel.<sup>60</sup>

In 2013, the catch in the Kimberley was 144.5 tonnes of Spanish mackerel for an estimated gross production value of around \$1.9 million.<sup>60</sup>

The small amount of latency in the fishery (the fishery has left an average of 17% of its total allowable catch uncaught over the last three years), along with the pelagic nature of the target species, suggests that there is some capacity for the shifting of effort in the fishery.<sup>61</sup>

In the proposed North Kimberley Marine Park, the fishery is only likely to be impacted by proposals for marine sanctuaries around reefs, shoals and islands further offshore and near Commonwealth waters.

This includes the areas around the Coronation Islands, Maret and Montalivet Islands, Cassini Island and Long Reef particularly if these islands are host to spawning aggregations of Spanish mackerel.

Spanish mackerel is listed by the IUCN red list as near threatened, and conservation action to protect key spawning aggregations is warranted.<sup>67</sup>

In 2013, there were three boats active in this fishery in the Kimberley.<sup>60</sup> However, a high proportion of the catch appears to occur on reefs and shoals in Commonwealth waters.<sup>68</sup>

If the distribution of catch value in the fishery is similar to that between 2000 and 2002, then the proposed North Kimberley Marine Park does not contain any locations of particular importance for this fishery.<sup>68</sup>

Effort in Kimberley coastal waters appears to be most focused to the south, around the Lacepede Islands.<sup>68</sup>

The relatively low levels of activity of the fishery in the proposed North Kimberley Marine Park, combined with the latency in the fishery and the pelagic nature of the target species, indicates that the fishery is capable of adapting to any changes in management resulting from the zoning recommendations of the proposed marine park.

### **Recommendation:**

- No action required.

### **Rationale:**

- No significant negative economic impact on the fishery predicted.

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<sup>67</sup> Collette, B., Chang, S.-K., Di Natale, A., Fox, W., Juan Jorda, M., Miyabe, N. & Nelson, R. 2011. *Scomberomorus commerson*. The IUCN Red List of Threatened Species 2011: e.T170316A6745396. <http://dx.doi.org/10.2305/IUCN.UK.2011-2.RLTS.T170316A6745396.en>. Downloaded on **13 April 2016**.

<sup>68</sup> Larcombe J., Charalambou, C., Herreria, E., Casey, A.M. and Hobsbawn, P., 2006. *Marine Matters National: Atlas of Australian Marine Fishing and Coastal Communities*, Department of Agriculture, Fisheries and Forestry, Canberra, ACT, Australia.

## NORTHERN PRAWN TRAWL

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The Northern Prawn Trawl operates in the Kimberley to the east of Cape Londonderry in the Joseph Bonaparte Gulf. The main catch in this area is red-legged banana prawns.<sup>69</sup> Adult red-legged banana prawns mostly live in depths of 45-85m.<sup>70</sup>

The proposed North Kimberley Marine Park contains very few areas east of Cape Londonderry that are deeper than 45 metres. In total, the Centre for Conservation Geography estimates that the proposed North Kimberley Marine Park covers about 7% of the Northern Prawn Trawl's Joseph Bonaparte Gulf fishing grounds, with an estimated maximum average annual gross value of \$500,000, or less than 1% of the fisheries total average annual gross catch value of \$74 million.<sup>71</sup>

The recommendations on zoning would close the North Kimberley Marine Park to trawling. As a fishery, the Northern Prawn Trawl would have a high bar to prove that there was any significant impact on their fishery for which taxpayers should provide structural adjustment funding.

This is because taxpayers provided this fishery with \$60.3 million through the Securing our Fishing Future structural adjustment package, which allowed the fishery to return to profitability after a period of negative economic returns.<sup>72</sup>

The "*participation of NPF fishers in the buyback was conditional on their agreement to move to output controls.*"<sup>72</sup> The fishery has so far defaulted on its commitment to implement these reforms and is currently planning not to implement them.<sup>72</sup>

Any small potential change in catch, likely to be significantly less than the maximum predicted impact of \$0.5 million per annum after the redistribution of effort, could and should easily be absorbed by the fishery.

Taxpayers should not have to put up with any reduction in the integrity of the North Kimberley Marine Park to accommodate a fishery that has been given tens of millions of taxpayers' money to implement structural adjustments that it has reneged on.

### **Recommendation:**

- No action required.

### **Rationale:**

- No significant negative economic impact on the fishery predicted.

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<sup>69</sup> See page 64 of Woodhams, J, Vieira, S & Stobutzki, I (eds) 2013, *Fishery status reports 2012*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

<sup>70</sup> See page 77 of Woodhams, J, Stobutzki, I, Vieira, S, Curtotti, R & Begg GA (eds) 2011, *Fishery status reports 2010: status of fish stocks and fisheries managed by the Australian Government*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

<sup>71</sup> ABARES 2011, *Interim estimates of potential catch and gross value of production impacts of draft marine reserves in the North Marine Region*, ABARES report to client prepared for the Department of Sustainability, Environment, Water, Population and Communities, Canberra, November.

<sup>72</sup> Vieira, S, Perks, C, Mazur, K, Curtotti, R and Li, M 2010, *Impact of the structural adjustment package on the profitability of Commonwealth fisheries*, ABARE research report 10.01, Canberra, February.

## PEARL OYSTER FISHERY

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The proposed North Kimberley Marine Park is in zone 3 and zone 4 of the pearl oyster fishery. There has been no diving for pearls in either of these zones since 2008 and the fishery considers operations in zone 4 as economically unviable.

### **Recommendation:**

- No action required.

### **Rationale:**

- No negative economic impact on the fishery predicted.

## BECHE-DE-MER FISHERY

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There are six licensed operators in the beche-de-mer fishery, which allows the take of sea cucumbers by hand or diving anywhere in Western Australia.<sup>60</sup> Since 2007, only two vessels have been operating in this fishery.<sup>61</sup> In 2013, no fishing occurred, with the fishery in the process of developing a rotational strategy where not all years are fished.<sup>60</sup>

The average gross production value over the last five years has been around \$180,000.<sup>61</sup> The fishery targets two species *Holothuria scabra* (sandfish) and *Actinopyga echinites* (deepwater redfish).<sup>60</sup>

While the fishery has access to all Western Australian waters, 90% of the sandfish catch since 2005 has occurred in the Kimberley.<sup>60</sup> Both of these species are restricted to the coastal bathome (0-15m).

The Centre for Conservation Geography estimates that the proposed North Kimberley Marine Park contains just above 70% of the fishery, or around \$130,000 of fishing effort per annum.

The ability of the fishery to choose to fish in some years and not in others indicates a high capacity for the industry to adapt to any changes to management adopted through the zoning of the proposed North Kimberley Marine Park.

Cancelling the licenses of the four operators who have not operated in the fishery since 2007 would be a structural adjustment that could advantage active licensees. This would increase the value of the fisheries licences of the two active operations.

Beche-de-mer is a traditional commercial fishery for traditional owners, with indigenous people trading trepan with Makassan seafarers from the 1600s to the 1940s, and with European beachcombers from the late 1800s. In the North Kimberley Saltwater Country Plan, traditional owners have expressed an intention to re-enter this fishery on a commercial basis.<sup>58</sup>

The overlap between proposed sanctuary zones and areas of focus for the Beche-de-mer Fishery are minimal, with each of the fisheries' known key areas outside of sanctuary zones (Vansittart Bay, Admiralty Gulf and Montague Sound).

The main target species of the fishery is sandfish, *Holothuria scabra*, which is an endangered species<sup>73</sup> and has been decimated by overfishing. The global population of sandfish has suffered a decline of greater than 90% over the last 50 years.

This has resulted in large increases in price.<sup>74</sup> The Kimberley population is considered to be one of the few remaining healthier populations globally and significant protection in marine sanctuaries is warranted.

**Recommendation:**

- No action required.

**Rationale:**

- No significant negative economic impact on the fishery predicted.

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## MUD CRAB FISHERY

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The Kimberley contains a mud crab fishery that operates between Broome and the Northern Territory border.<sup>60</sup>

There are three commercial operators licenced to fish between King Sound and the Northern Territory border, with fishing concentrated in King Sound, York Sound, Admiralty Gulf and Cambridge Gulf.<sup>60</sup>

In addition, there are two Aboriginal corporations fishing for mud crabs, one in King Sound and one in Carnot Bay and Camp Inlet on the Dampier Peninsula.<sup>60</sup> The annual average gross value of production for this fishery is less than \$100,000. However, 2013 saw a more than 50% increase in the fishery, with a total catch of around \$175,000 in value.<sup>60</sup>

Of the fishery's four areas of concentration, York Sound and Admiralty Gulf are in the proposed North Kimberley Marine Park.

If the catch of mud crabs is roughly evenly distributed between the four focal points of effort, then the estimated annual gross value of the mud crab catch in the proposed North Kimberley Marine Park is around \$50,000.

The current low level of effort in the fishery, currently capped at 300 traps, means that the fishery will be able to adapt to any changes in management resulting from the zoning plan.

Further research on the impact of the zoning of the Moreton Bay Marine Park in Queensland and the Solitary Islands Marine Park in New South Wales on mud crab populations indicate that

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<sup>73</sup> Hamel, J.-F., Mercier, A., Conand, C., Purcell, S., Toral-Granda, T.-G. & Gamboa, R. 2013. *Holothuria scabra*. The IUCN Red List of Threatened Species 2013: e.T180257A1606648. <http://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T180257A1606648.en>. Downloaded on 31 March 2016

<sup>74</sup> <http://www.abc.net.au/news/2014-04-24/value-of-sea-cucumbers-rising/5409342>

setting aside a certain proportion of mud crab habitats in marine sanctuaries is unlikely to have a negative impact on this fishery.<sup>75 76</sup>

The recommendations would close parts of York Sound to Mud Crab fishing but leave areas in and around the Hunter River open to commercial mud crab fishing along with Admiralty Gulf, Vansittart Bay and Napier Broome Bay.

**Recommendation:**

- No action required.

**Rationale:**

- No significant negative economic impact on the fishery predicted.

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## KIMBERLEY DEMERSAL FISH TRAP

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The Northern Demersal Scalefish Managed Fishery (NDSF) is a trap fishery targeting high-value demersal species like red emperor and goldband snapper.

The proposed North Kimberley Marine Park is entirely in either Area 1 or Area 2, Zone A of the fishery. The annual WA state of the fisheries reports document no commercial activity in Area 1, while in 2013 despite increased activity in Area 2, Zone A this area still exhibited a latency of effort of 62%.<sup>61</sup>

Therefore, there is currently minimal to no overlap between this fishery and the proposed North Kimberley Marine Park. If the zoning of the proposed North Kimberley Marine Park has any impact on this fishery, it would easily adapt via a shifting of effort.

**Recommendation:**

- No action required.

**Rationale:**

- No significant negative economic impact on the fishery predicted.

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## AQUACULTURE

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There are numerous aquaculture leases in the proposed North Kimberley Marine Park. The recommendations do not propose any overlap between sanctuary zones and pearling leases.

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<sup>75</sup> Meynecke, J.O. and Richards, R.G. 2014. A full life cycle and spatially explicit individual-based model for the giant mud crab (*Scylla serrata*): a case study from a marine protected area, *ICES Journal of Marine Science*, Vol 71:3, pp. 484-498.

<sup>76</sup> Butcher, P.A, Boulton, A.J., Macbeth, W.G., and Malcolm, H.A., 2014. Long-term effects of marine park zoning on giant mud crab *Scylla serrata* populations in three Australian estuaries, *Marine Ecology Progress Series*, Vol. 508: 163-176.

As such, the recommendations are more likely to have a positive than a negative impact on the pearling industry through maintaining and enhancing the health of the north Kimberley marine environment.

**Recommendation:**

- No action required.

**Rationale:**

- No significant economic impact on the fishery predicted.

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