
RESPONSE TO THE BIOREGIONAL ADVISORY PANEL PROPOSALS ON MARINE NATIONAL PARK ZONES AND MINING

RECOMMENDATIONS FOR THE DEVELOPMENT OF MANAGEMENT PLANS FOR AUSTRALIA'S MARINE RESERVES

Version 1.0, October 2016

Report prepared by Daniel Beaver

Director, Centre for Conservation Geography

**Adjunct Fellow, Centre for Biodiversity and Conservation Science, University of
Queensland**

**Visiting Scholar, Marine & Coastal Conservation and Spatial Planning Lab, San Francisco
State University**

**This report is an independent research paper commissioned by the Save Our Marine Life
alliance.**



ABOUT THE AUTHOR

CENTRE FOR CONSERVATION GEOGRAPHY

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

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 Australia since 2004.

ACKNOWLEDGEMENTS

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.

CONTENTS

About the Author	2
Centre for Conservation Geography	2
Brief Biography: Daniel Beaver.....	2
Acknowledgements.....	2
Introduction.....	5
Coral Sea.....	8
Protection of a globally significant tropical ecosystem	8
Protection of coral reefs.....	14
Additional Expert Science Panel Recommendations	21
South-west Region	23
Overview	23
Proposed losses of Marine National Park Zones.....	24
Perth Canyon Marine Reserve	25
Geographe Marine Reserve.....	26
South-west Corner Marine Reserve	27
Bremer Marine Reserve	27
Eastern Recherche Marine Reserve	28
Twilight Marine Reserve.....	29
Proposed additional Marine National Park Zones	29
Two Rocks Marine Reserve	29
Perth Canyon Marine Reserve	30
Geographe Marine Reserve.....	30
Bremer Marine Reserve	31
South-west Corner Marine Reserve	31
Additional Expert Science Panel Recommendations	32
Protection from mining.....	34
North-West Region	36
Overview	36
Proposed losses of Marine National Park Zones.....	37
Kimberley Marine Reserve	37
Dampier Marine Reserve.....	38
Proposed additional Marine National Park Zones	39
Kimberley Marine Reserve	39

Dampier Marine Reserve.....	40
Argo-Rowley Terrace Marine Reserve.....	41
Additional Expert Science Panel Recommendations	42
Protection from mining.....	44
Temperate East Region	46
Overview	46
Proposed losses of Marine National Park Zones.....	46
Proposed additional Marine National Park Zones	48
Norfolk Islands Marine Reserve	48
Solitary Islands Marine Reserve	49
Additional Expert Science Panel Recommendations	49
Protection from mining.....	51
North Region	53
Overview	53
Proposed losses of Marine National Park Zones.....	54
Gulf of Carpentaria Marine Reserve.....	54
West Cape York Marine Reserve	55
Wessel Marine Reserve	56
Proposed additional Marine National Park Zones	56
Oceanic Shoals Marine Reserve	56
Wessel Marine Reserve	57
Limmen Marine Reserve.....	58
Gulf of Carpentaria Marine Reserve.....	58
West Cape York Marine Reserve	59
Additional Expert Science Panel Recommendations	59
Protection from mining.....	61
Footnotes	62
Appendix 1: CCG Reports to the Commonwealth Marine Reserves Review.....	68

INTRODUCTION

On 5 September 2016, the Hon. Josh Frydenberg, Minister for the Environment and Energy, announced the completion of the Commonwealth Marine Reserves Review.¹

In his press release, the Minister reaffirmed the Australian Government's desire to be a world leader in the protection of marine life by using sound science and supporting a sustainable blue economy.¹

*"The new management plans will reflect sound science, protection of the environment and support sustainable industries."*¹

*"Australia is a world leader in the creation of marine parks – we now have the opportunity to be a world leader in their management and will endeavour to finalise management plans by mid-2017."*¹

The Commonwealth Marine Reserves Review produced two reports: the Expert Science Panel (ESP) report² and the Bioregional Advisory Panel (BAP)⁴ report. The ESP was asked to advise the Government on the science underpinning the development of Australia's marine reserves while the BAP was asked to advise on areas of contention and how they might be addressed.³

This report is a brief response from the Centre for Conservation Geography to the recommendations of the BAP on Marine National Park Zones and mining.⁴ The Centre for Conservation Geography provides this response for the consideration of the Australian Government and other decision-makers.

This report represents the independent scientific opinion of the researchers at the Centre for Conservation Geography.

The Save Our Marine Life alliance⁵ commissioned the report in response to the Australian Government's request for input into the development of management plans for the Coral Sea, South-west, North-west, North and Temperate East marine reserve networks.

The Centre for Conservation Geography is available to provide more detailed material on any of the issues raised in this report.

The Centre for Conservation Geography also provided detailed reports on each planning region to the Commonwealth Marine Reserves BAP in March 2015. These reports provide a more in-

¹ <http://www.environment.gov.au/minister/frydenberg/media-releases/mr20160905a.html>

² Beeton, R. J. S., Buxton, C. D., Cochrane, P., Dittmann, S. and Pepperell, J. G. (2015). Commonwealth Marine Reserves Review: Report of the Expert Scientific Panel. Department of the Environment, Canberra.

³ Commonwealth of Australia, 2014, *Marine Reserves Review – Terms of Reference*, <<http://www.environment.gov.au/system/files/pages/931ca952-fdd2-4e14-a512-0a5278d22c71/files/commonwealth-marine-reserves-review-terms-reference.pdf>>

⁴ Buxton, C. D. and Cochrane, P. (2015). Commonwealth Marine Reserves BAP: Report of the Bioregional Advisory Panel. Department of the Environment, Canberra. 341pp.

⁵ <http://www.saveourmarinelife.org.au>

depth analysis, and can be downloaded from the Centre for Conservation Geography website (see Appendix 1 for download links).

The development of Australia's marine reserve network is a historic and important event for the protection of marine life globally with the ESP calling it:

*"the most extensive and comprehensive 'whole-of-ocean' approach to marine conservation by any country"*²

The ESP also noted that significant gaps remained to be addressed. The ESP found that all five networks under review⁶ had:

*"Marine National Park Zones covering large expanses of deep water, and with shallower depths and continental shelf in particular less well represented."*²

The ESP also found that these underrepresented habitats of the shelf and upper slope contained the highest diversity of marine life:

*"Both fish and macrofauna species richness around Australia was highest on the shelf, shelf break and upper slope and decreased with depth"*²

To address these key gaps in protection the ESP recommended that:

*"each reserve should include at least one Marine National Park Zone and that a significant sample of each primary conservation feature and each provincial bioregion be included in at least one Marine National Park Zone of an appropriate configuration and size to meet conservation objectives."*²

Overall the BAP appears to have largely ignored these findings in its recommendations. For example the BAP recommends:

- reducing Marine National Park Zone protection of both shelf and upper slope habitats,
- eight bioregions in the North planning region, six bioregions in the North-west planning region and five bioregions in the Temperate East planning region to have no Marine National Park Zones,
- thirteen marine reserves to have no Marine National Park Zones,
- 203 primary conservation features (as defined by the ESP) to have no Marine National Park Zones.⁴

Primary conservation features were defined by the ESP as including provincial bioregions, mesoscale bioregions, depth ranges, biologically informed seascapes, key ecological features and seafloor features.²

The ABARES assessment of potential displacement of commercial fishing shows that there is considerable room within the Government's existing structural adjustment budget to address the findings of the ESP and remove some of the key gaps in the protection of Australia's marine life.¹⁸

The BAP attempts to claim that partially protected Habitat Protection Zones can play a similar role in protecting marine life as Marine National Park Zones.⁴ However recent scientific evidence clearly shows that full protection is one of five key factors in effective conservation of marine life.⁴⁴ For example the ESP shows that areas within the Coral Sea outside of fully protected areas have suffered a 90% depletion in their shark populations. Further, the BAP proposes to allow destructive commercial fishing activities in 97% of the Habitat Protection

⁶ The Temperate East, South-west, North-west and North Marine Reserve Networks and the Coral Sea Marine Reserve.

Zones it has proposed. These are commercial fishing activities that the Government's independent Fishing Gear Risk Assessment, in findings upheld by the ESP, concluded posed an unacceptable risk to the conservation values of Australia's marine reserves. The BAP's proposed Habitat Protection Zones, while providing welcome protection from mining activities, do not at present appear to be credible proposals to protect marine life. Rather they appear more likely to be a vehicle to expand commercial fishing activities classed by scientists as incompatible anywhere within the marine reserves.

It is now almost four years since these reserves were first proclaimed at the end of 2012. It is within the power of the Minister and the Director of National Parks to set interim management arrangements. This should be done urgently so that further delays in the management planning process do not continue to prevent the majority of Australia's National Representative System of Marine Protected Areas from being operational. As was the case for the South-east Marine Reserve Network it is not unusual for marine reserves to operate under interim management arrangements that match the declared zoning while management plans are being prepared.

If interim management arrangements continue to not be used the Government should consider declaring the Commonwealth Marine Reserve Network a Conservation Zone under the EPBC Act so that new proposals for inappropriate activities (i.e. activities inconsistent with the IUCN designation of the zone) can't be progressed. This would prevent inappropriate activities like the proposals for bottom trawling within the Oceanic Shoals Marine Reserve by the NT Demersal Fishery, or the seismic exploration that occurred over Marine National Park Zones in the North-west Marine Reserve Network from occurring during the management plan development process.

Recommendations for management plans:

1. Reject the BAP's proposals for removing Marine National Park Zone protection on the shelf and upper slope.
2. Increase Marine National Park Zone protection for the shelf and upper slope to address the under representation identified by the ESP. ²
3. Ensure bioregions⁷ contain at least one Marine National Park Zone as recommended by the ESP, ² and outlined by the Government as a key principle of the marine reserve network when planning begun in 1998. ⁸⁴
4. Ensure that each marine reserve contains at least one Marine National Park Zone as recommended by the ESP and CSIRO. ^{2, 64, 72, 81}
5. Ensure that a significant sample of each primary conservation feature (as defined by the ESP) is included within Marine National Park Zones as recommended by the ESP. ²

⁷ The term bioregion is easily confused. Planning regions, Bioregional Advisory Panels, meso scale bioregions, provincial bioregions and other terms are frequently mentioned without explanation. In this report bioregions refers to meso scale bioregions and provinces defined by IMCRA in: 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.

CORAL SEA

PROTECTION OF A GLOBALLY SIGNIFICANT TROPICAL ECOSYSTEM

The Coral Sea Marine Reserve (CSMR) contains Australia's largest Marine National Park Zone. This is one of the few places in the world where such a large marine sanctuary for relatively intact tropical marine life can be established, making the area's conservation values globally significant.^{2, 8, 9, 10, 11} The Expert Science Panel (ESP) highlighted this fact stating:

"Research shows that the Coral Sea offers an environment that is closer to a baseline condition than most other tropical regions"

In December 2013, the Coalition Government proclaimed Marine National Park Zones that represented a compromise between these globally significant conservation values and a desire to keep certain areas open to commercial and/or recreational fishers.¹²

The broad structure of this compromise was first outlined in 2011 with the release of the draft plan for the CSMR. Both commercial and recreational fishers largely welcomed it.

For example, in 2011 recreational fishing magazine *Fishing World* welcomed the draft plan as:

"...the best proposal for any marine reserve I have ever seen tabled in Australia".

¹³

Representatives for over 70% of the commercial fishing interests displaced by the CSMR (by historical \$ value) also wrote in a submission that they would prefer to see simpler management

⁸ Halpern BS, Walbridge S, Selkoe KA, Kappel CV, Micheli F, D'Agrosa C, Bruno JF, Casey KS, Ebert C, Fox HE, Fujita R, Heinemann D, Lenihan HS, Madin EMP, Perry MT, Selig ER, Spalding M, Steneck R, Watson R (2008) A global map of human impact on marine ecosystems. *Science*, **319**(5865), 948.

⁹ Ceccarelli, D.M., 2011. Australia's Coral Sea: A biophysical profile.

¹⁰ CSIRO, 2012. Submission to the Draft Commonwealth Marine Reserve Proposal for the Coral Sea.

¹¹ Australian Research Council Centre of Excellence: Coral Reef Studies, 2012. *Coral Sea Marine Reserve Proposal*, Submission to the Draft Commonwealth Marine Reserve Proposal for the Coral Sea.

¹² Commonwealth of Australia, 2011. *Detailed analysis of the Proposed Coral Sea Commonwealth Marine Reserve*, Department of Sustainability, Environment, Water, Population and Communities, Canberra, ACT, Australia.

¹³ Harnwell, J., 2011. Fishos the big winners in Burke's Coral Sea Plan, *Fishing World*, <<http://www.fishingworld.com.au/news/fishos-the-big-winners-in-burke-s-coral-sea-plan>>

arrangements involving increased protection down to 22°S, provided there was adequate structural adjustment assistance.^{14,15}

This desire to see greater protection of the Coral Sea is also reflected in the broader community. More than 99% of the nearly half a million submissions to the draft zoning plan asked for an increase in Marine National Park Zones, particularly around coral reefs.¹⁶

The 2013 Marine National Park Zones are 95% identical to those highlighted by these submission comments. In fact, they are slightly smaller (~5,000km²). It is therefore surprising that the Bioregional Advisory Panel (BAP) proposes to significantly undermine this broad compromise.

The large Marine National Park Zone in the Coral Sea is Australia's major contribution to the protection of intact tropical pelagic marine life on a global scale. The ESP highlighted the importance of pelagic protection noting the significance of the pelagic ecosystems of the Coral Sea as an important baseline reference area and that:

*"fewer protected areas exist in the pelagic ocean than any other ecosystem on Earth"*²

The BAP appears to ignore these findings and proposes to fragment and reduce the size of the large Marine National Park Zone by over a quarter (26%) (Figure 1).

This proposed loss and fragmentation of the large Marine National Park Zone is a major negative outcome of the BAP.

In total the BAP proposes to remove an area of over 115,000 km² from the Marine National Park Zones in the Coral Sea. This is equivalent to the size of every Marine National Park Zone in the Great Barrier Reef Marine Park combined.

The vast majority of these removed areas contain no recreational fishing while the local representatives of the Eastern Tuna and Billfish Fisher (ETBF), the main commercial fishery impacted, have publicly stated a desire for longlining to be removed from north of 22°S, provided that adequate structural adjustment funding is provided.¹⁵

The BAP states that these changes are necessary to reduce the impact of the CSMR on the ETBF. However, the Government's independent Fishing Gear Risk Assessment found and the ESP upheld that the ETBF posed an unacceptable risk to the conservation values of the Coral Sea and should not be allowed to operate within the reserve.

The BAP ignores this finding and instead proposes opening up over half (56%) of the Coral Sea to longlining including large areas that were proclaimed in 2013 as Marine National Park Zones. Indeed, the BAP's proposals in favour of the ETBF are so extensive that ABARES estimates that

¹⁴ ABARES 2012, *Interim estimates of potential catch and gross value of production impacts of the proposed marine reserve in the Coral Sea*, ABARES report to client prepared for the Department of Sustainability, Environment, Water, Population and Communities, Canberra, February.

¹⁵ De Brett Seafood Pty Ltd, 4 Seas Pty Ltd, Whan and Boxsell Pty Ltd and Great Barrier Reef Tuna Pty Ltd, 2012. Submission to the Draft Commonwealth Marine Reserve Proposal for the Coral Sea.

¹⁶ SEWPac, 2012. *Marine Bioregional Planning in the Coral Sea region: Overview of Public Consultation*, Department of Sustainability, Environment, Water, Population and Communities, Commonwealth Government, Canberra, Australia.

they constitute two thirds (66%)¹⁷ of the predicted value of the BAP's proposals for commercial fishers.¹⁸ However, these areas are of traditionally very low fishing effort in the ETBF (for example see Figure 2 of fishery effort in 2014). ABARES predicts that the maximum annual economic benefit to the fishery from these changes is \$2.4 million per annum or \$26,376 per annum to each of the 92 longlining statutory fishing rights in the ETBF.^{18, 19, 20} As a point of contrast, ABARES annual status reports show that the average normal annual fluctuation in catch in the fishery of over the last five years is around \$4 million.

Australian tax payers have invested significant resources in helping the ETBF become profitable again. The ETBF was provided with \$34.3 million of tax payers money to reduce the number of operators and increase the economic return of the remaining businesses by allowing them to focus on higher value species, caught at lower cost closer to port.^{21, 22} This was of great benefit to the ETBF succeeding in changing the net economic returns of the fishery from an average loss of \$5.1 million per annum between 1994 and 2006²³ to a profit of \$3.0 million in 2011/2012.

The BAP's proposal to remove Marine National Park Zone protection to allow longlining in low effort areas far offshore is not consistent with the investment by taxpayers of tens of millions of dollars to ensure that the fishery can focus its effort on high values species closer to port.

The proposal to greatly reduce and fragment the Coral Sea's large Marine National Park Zone runs counter to the steps other world-leading countries are taking. Accepting the BAP's recommendations would probably see Australia lose some of its status as a world leader in the protection of marine life.

Since the declaration of the large Coral Sea Marine National Park Zone by the Coalition Government in 2013, there have been a number of developments worldwide:

1. In 2014 the USA increased the very large Marine National Park Zones over Pacific Remote Islands Marine National Monument to more than six times their original size to create what was then the world's largest Marine National Park Zone. This zone is more than 2.5 times larger than Australia's contribution to large-scale protection of marine

¹⁷ And an additional 25% of the fisheries benefits flowing to the Northern Prawn Trawl Fishery meaning 91% of the predicted benefits flow to just two particularly well connected wealthy fisheries.

¹⁸ Larcombe, J & Marton, N 2016, Potential displacement of commercial fisheries by a Commonwealth marine reserve zoning scheme: Report on Panel-recommended network. ABARES technical report to client prepared for the Department of the Environment, Canberra, September. CC BY 3.0.

¹⁹ Patterson, H, Georgeson, L, Stobutzki, I & Curtotti, R (ed) 2015, *Fishery status reports 2015*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra. CC BY 3.0

²⁰ ABARES does not specify what proportion of this impact is within the Coral Sea Zone (west of 152°E, formerly called Area E) of the fishery where operators must also hold a Coral Sea boat statutory fishing right (SFR) (see <http://www.afma.gov.au/wp-content/uploads/2014/08/ETBF-management-arrangements-booklet-2015.pdf>). In the annual status report ABARES also does not document how many Coral Sea boat SFR exist. Therefore there may be a disproportionate impact on particular operators based on the current spatial management arrangements in the fishery.

²¹ Commonwealth of Australia, 2009. *Administration of the buyback component of the Securing Our Fishing Future structural adjustment package*, Australian National Audit Office, Canberra, ACT, Australia.

²² Georgeson, L, Stobutzki, I & Curtotti, R (eds) 2014, *Fishery status reports 2013–14*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

²³ 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.

life in the Coral Sea before the proposed loss and fragmentation by the Commonwealth Marine Reserves BAP.

2. In 2015 Chile declared two very large Marine National Park Zones at the Easter Island and Nazca-Desventuradas Marine Parks.
3. In 2015 New Zealand declared a very large Marine National Park Zone at the Kermadec Ocean Sanctuary.
4. In 2015 the UK declared a very large Marine National Park Zone at the Pitcairn Islands Marine Reserve.
5. In 2016 the UK declared a very large Marine National Park Zone at the Ascension Island Ocean Sanctuary.
6. In 2016 the USA increased the very large Marine National Park Zone at the Northwest Hawaiian Islands Marine National Monument (Papahānaumokuākea) to 1.5 million square kilometres. This is an area roughly triple the size of the original Coral Sea Marine National Park Zone (before the proposed loss and fragmentation by the Commonwealth Marine Reserves BAP) and is currently the world's largest Marine National Park Zone.
7. In 2016, during the writing of this report, the Convention on the Conservation of Antarctic Marine Living Resources, a collaboration of 24 nations, including Australia and the European Union declared a very large Marine National Park Zone in the Ross Sea. At 1.1 million square kilometres, the Ross Sea Marine National Park Zone is more than twice the size of the original Coral Sea Marine National Park Zone.

Reducing, rather than increasing the size of the Coral Sea's Marine National Park Zones is in opposition to the international trend and is in direct contravention of the recommendations of the 2012 World Conservation Congress²⁴ for states not to regress on the levels of environmental protection they have achieved.

The Coral Sea extends out of Australian waters into New Caledonia, and New Caledonia has matched Australia's declaration of the CSMR with a large marine reserve in its waters. New Caledonia is in the process of deciding the location of its Marine National Park Zones.

One reason the Australian Government declared a large Marine National Park Zone along the New Caledonia border was to provide for the possibility of matching protection in New Caledonian waters. By proposing the removal of Marine National Park Zones along key sections of the Australia/New Caledonia border, the BAP is undermining this concept of creating a large, connected cross-border Marine National Park Zone.

The BAP puts forward a variety of reasons for the necessity of its proposed losses of Marine National Park Zone protection. The BAP's claim for why these losses of Marine National Park Zone are necessary do not appear to be supported by the available evidence (Table 2).

The BAP does make some welcome proposals for new Marine National Park Zones in the CSMR. The BAP proposes much needed protection of the south-western sections of the Coral Sea by matching the Marine National Park Zone protection across the border in the Great Barrier Reef Marine Park.

All of the other proposals for new Marine National Park Zones relate to the protection of coral reefs and are discussed in the next section.

²⁴ https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2012_RES_128_EN.pdf

Recommendations for management plans:

1. Reject the proposed major loss and fragmentation of the large Marine National Park Zone. It is particularly critical to reject the proposed fragmentation of the Marine National Park Zone and the loss of Marine National Park Zone protection along the New Caledonian border and the removal of protection between Diane Bank and Osprey Reef.
2. Accept the proposals for new Marine National Park Zone protection along the border with the Great Barrier Reef Marine Park.

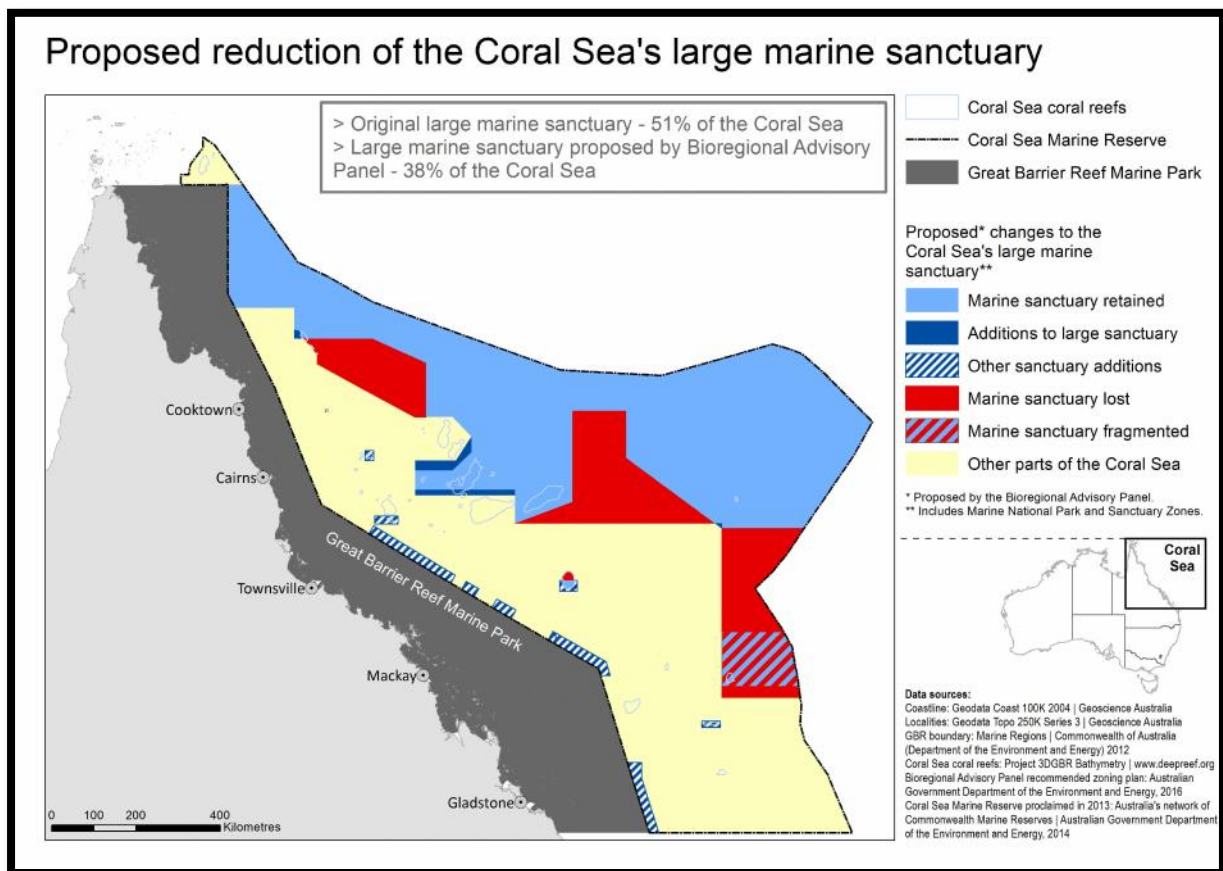


FIGURE 1: SECTIONS OF THE CORAL SEA'S LARGE MARINE NATIONAL PARK ZONE PROPOSED TO BE REMOVED (IN RED) OR FRAGMENTED (RED HASH) BY THE BAP.

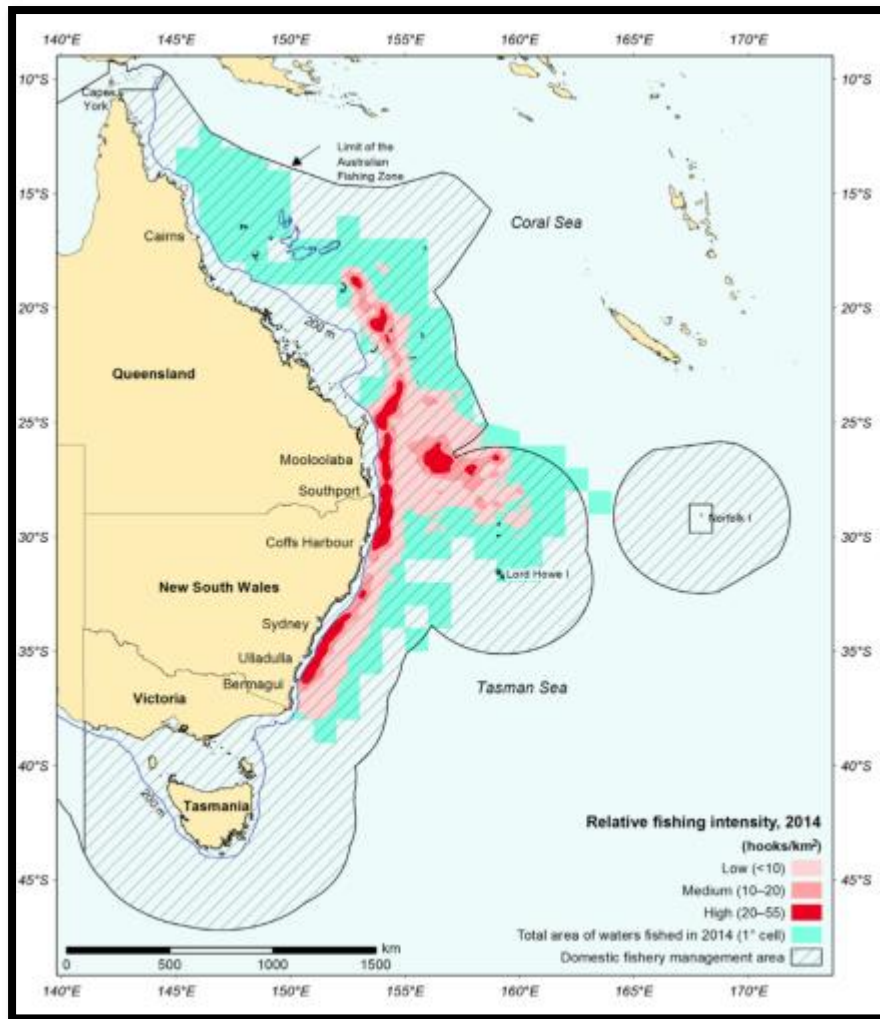


Figure 2: fishing intensity in the Eastern Tuna and Billfish Fishery in the 2014/2015 fishing season. reproduced from Patterson et al. (2015).¹⁹

PROTECTION OF CORAL REEFS

The Expert Science Panel (ESP) emphasised the need for increasing the protection of coral reefs noting that the *"Coral Sea reefs host faunal communities that are unique to Australia"*.

Other researchers have also noted this uniqueness. For example:

"Individual reefs of the Coral Sea are exceptionally distinctive. Unlike the reefs of the Great Barrier Reef, where the corals present in one reef region are a good indication of those present in another, each reef of the Coral Sea has a highly individual suite of species." (Dr Charlie Veron) ²⁵

The Bioregional Advisory Panel (BAP) largely ignores the recommendation of the ESP for greater protection of coral reefs. The BAP proposals remove or reduce Marine National Park Zone protection for some reefs and establishes protection for others (Table 1). However, the net effect of the BAP proposals is that the number of coral reefs proposed for effective Marine National Park Zone protection is largely unchanged (Table 1).

The Coral Sea's unique coral reefs are the key economic infrastructure for the Coral Sea dive tourism industry. If zoned correctly, the creation of the CSMR is projected to enable the Coral Sea dive tourism industry to expand by 150%. ²⁶

This gain in direct sales of \$9 million per annum is roughly three times larger than the maximum possible negative impact on commercial fishing in the Coral Sea that ABARES has estimated. ^{18, 26}

To support this economic growth, it is essential to establish Marine National Park Zone protection over the critical coral reefs that support the industry. Recent research in the Coral Sea shows that reefs not in Marine National Park Zones see their shark populations depleted by 90% of their original biomass, with populations of large predators halved and fish populations depleted by 70%. ²⁷ The importance of protecting the Coral Sea's reef sharks was highlighted by the ESP which identified that: *"Coral Sea reefs comprise a globally significant hotspot for reef sharks"*.

The ability to see non-depleted, remote and protected coral reefs and intact populations of sharks and other large predators is a major marketing opportunity for the Coral Sea dive tourism industry. Few tourists are going to pay a premium to travel long distances to a remote location to see coral reefs where the natural abundance of the ecosystem is damaged or depleted.

The BAP appears to have completely failed to understand the needs of one of the Coral Sea's largest industries.

²⁵ Rivett X., 2011. *Reefs of the Coral Sea*. Protect Our Coral Sea, Cairns, Queensland, Australia.

²⁶ KPMG, 2010. *Economic analysis of a Coral Sea Marine Park*, KPMG Econtech.

²⁷ Edgar GJ, Ceccarelli DM, Stuart-Smith RD, (2015) Reef Life Survey Assessment of Coral Reef Biodiversity in the Coral Sea. Report for the Department of the Environment. The Reef Life Survey Foundation Inc. and Institute of Marine and Antarctic Studies.

The BAP proposes completely removing the protection for Bougainville Reef and reducing the protection of Osprey Reef by more than a quarter. The BAP also proposes completely removing protection for the other reefs in the Osprey Group, Shark and Vema Reefs, reducing the protection of Marion Reef by more than half and leaving Flora, Dart and Heralds Surprise reefs unprotected.

Previously, the dive tourism industry and the Coral Sea Fishery had a Memorandum of Understanding (MOU) that protected Osprey, Bougainville, Flora, Dart and Heralds Surprise reefs from fishing.²⁸ This MOU has now lapsed, and the BAP proposes that none of these coral reefs will receive the protection they need.

The BAP proposal to only partially protect Osprey Reef is particularly difficult to understand. The shark dive at North Horn on Osprey Reef — one of the world's iconic dive sites — is the main drawcard for the Coral Sea dive tourism industry.

It makes no sense to undermine the economic viability of the dive tourism industry by removing protection of the reefs most critical to the industries' future.

This proposed partial protection undermines one of North Queensland's important industries leaving the iconic and economically critical shark populations at Osprey Reef vulnerable to the 90% loss in biomass identified by the ESP to occur on unprotected reefs.

It is critical that the Government reject these proposals. Existing research shows that the kind of partial protection proposed at Osprey Reef is ineffective.^{44, 29, 30, 31, 32, 33, 34, 35, 36, 37} It would

²⁸ Coral Sea Fishers Association Inc., 2009. *Memorandum of Understanding CSFA and CHARROA*.

²⁹ Lester SE, Halpern BS (2008) Biological responses in marine no-take reserves versus partially protected areas. *Mar Ecol Prog Ser* 367: 49–56.

³⁰ 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

³¹ 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

³² Sheers 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.

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

³⁴ 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.

³⁵ Dudley, N., 2008. *Guidelines for Applying Protected Area Management Categories*, International Union for the Conservation of Nature (IUCN), Gland, Switzerland.

³⁶ Possingham, 2011. *Developing Australia's national system of marine reserves: A statement of concern about the proposal for Australia's South West Marine Region*, Submission to the Draft Commonwealth Marine Reserve Network Proposal for the South-west Marine Region.

³⁷ 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>

therefore be a poor decision to risk millions of dollars of revenue for the Coral Sea Dive industry by conducting an experiment with a type of partial protection that has proven ineffective.

Instead, Osprey Reef should be fully protected by extending the proposed boundary of the Marine National Park Zone south to at least 14°6'S to fully include the reef and the seamount on which it sits.

If the Government sees a need to conduct a new experiment into partial protection in the Osprey Group of Reefs, the experiment should be conducted on Vema Reef not Osprey or Shark Reefs. The ESP showed that current understanding of shark movements on Osprey Reef are for significant movement of individuals between Osprey and Shark Reefs.³⁸ The ESP also showed that unprotected reefs in the Coral Sea are vulnerable to up to 90% depletion of their shark populations. Recent research Edgar et al (2014)⁴⁴ shows that full inclusion of reefs within Marine National Park Zones such that they are *isolated* from other zones is one of the five key factors for effective protection.

Therefore, considering the current knowledge of the movement of sharks within the Osprey Group (i.e. between Osprey, Shark and Vema Reefs), it would be more economically prudent to fully protect at least Osprey and Shark reefs. A precautionary approach would require full protection of all three reefs within the Osprey Group by extending the proposed boundary of the Marine National Park Zone south to at least 14°22' until further studies on the nature of shark movements between the reefs can be completed. If the Government is convinced of a need to provide the Coral Sea Aquarium Fishery access to a specific small area of Osprey Reef this should be done in a way that fully protects the Osprey Reef shark population from exposure to any recreational or commercial fishing activities.

It is equally irresponsible to propose such an experiment into partial protection at Marion Reef. Existing research elsewhere has shown this type of zoning to be ineffective.^{29, 30, 31, 32, 33, 34, 35, 44} The ESP shows that this zoning is likely to subject Marion Reef to large depletions of its shark populations and other species. Furthermore, Edgar et al (2014)⁴⁴ shows that full inclusion of reefs within Marine National Park Zones such that they are *isolated* from other zones is one of the five key factors for effective protection.

Marion Reef is the only location where protection is provided for the coral reefs, cays and herbivorous fish of the Marion Plateau, a key ecological feature of the Coral Sea.³⁹ The ESP identifies the reefs of the Marion Plateau as distinct from those further north. The ESP emphasised the need to particularly increase protection for these more southern reefs of the Coral Sea.

The BAP ignores this recommendation and proposes that none of the coral reefs of the Marion Plateau be fully protected. This is not the sufficient protection within Marine National Park Zones that the ESP recommended be extended to all primary conservation features.⁴⁰

The BAP's proposed Marion Reef Marine National Park Zone needs to be extended north to at least 18°52'S to fully protect the reef and associated ecosystems and habitats. If the Government

³⁸ More than 10% of individuals tagged on Osprey Reef moved between Osprey and Shark Reef during the study.

³⁹ Commonwealth of Australia, 2012. *Key Ecological Features*, <http://www.environment.gov.au/metadataexplorer/full_metadata.jsp?docId={093A2086-7DE3-41A7-B407-5BCCA7F400A5}&loggedIn=false>

⁴⁰ As a key ecological feature the coral reefs of the Marion Plateau were identified by the ESP as a primary conservation feature of the Coral Sea.

sees a need to run an experiment into split zoning and partial protection on the coral reefs of the Marion Plateau, it should be conducted at Saumarez Reef not Marion Reef.

Likewise, the Government should reject the BAP's proposal to remove protection for Bougainville Reef.

Bougainville Reef is home to a spawning aggregation of endangered Maori Wrasse ²⁵ and the only mapped biologically important whale shark aggregation site in eastern Australia. ⁴¹ This gives Bougainville Reef unique tourism and conservation values.

The Government should increase protection at Bougainville Reef to over 100km² by expanding the Marine National Park Zone to fully include the east coast's only identified whale shark aggregation site.

The BAP does propose new Marine National Park Zone protection for three coral reefs: Wreck Reefs, East Holmes Reef and South Flinders Reefs. These are excellent and welcome proposals.

Wreck Reefs is one of only two coral reefs in the Kenn Transition bioregion. ^{42,43} Perched on a seamount in the middle of the deep waters of the Cato Trough, Wreck Reefs are isolated by distance (>500km) from the only other coral reef in the Kenn Transition bioregion (Mellish Reefs). Wreck Reef is particularly rich in corals, with more than double the average Coral Sea coral cover. ²⁷

East Holmes and South Flinders Reefs are two of the Queensland Plateau Inner Reefs. Both the CSIRO and the ARC Centre of Excellence for Coral Reef studies submissions highlighted the low level of protection (0.3%) for the 13 coral reefs of the inner Queensland Plateau. ^{10,11}

The CSIRO submission argues strongly for the protection of Queensland Plateau inner reefs to be increased from 0.3% to 33% to bring the protection of these coral reefs into line with the adjacent Great Barrier Reef Marine Park. ¹⁰

The BAP proposal to protect East Holmes and South Flinders goes some way to addressing the very poor level of protection for the coral reefs of the inner Queensland Plateau.

It is economically critical for the dive tourism industry — one of the Coral Sea's largest industries — that coral reefs across the Coral Sea are protected. Protecting a diverse range of coral reefs also creates a more diverse portfolio of dive infrastructure, mitigating against the potential loss of dive sites via catastrophic events (for example cyclones, ship strikes, coral bleaching, or a crown of thorns outbreak).

Anecdotal evidence suggests that West Holmes Reef is more important to the dive industry while East Holmes Reef is more important to the commercial aquarium fishery. If this is the case, consideration should be given to placing the Marine National Park Zone on West Holmes Reef rather than East Holmes Reef.

⁴¹ Commonwealth of Australia, 2011. *Biologically important areas for sharks of the Coral Sea*, <http://www.environment.gov.au/metadataexplorer/full_metadata.jsp?docId={8A0BEEDF-3982-4DE3-904E-F3C7E0A345BF}&loggedIn=false>

⁴² 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.

⁴³ Beaman R., 2012. *Great Barrier Reef and Coral Sea Geomorphic Features*, School of Earth and Environmental Sciences, James Cook University, Cairns, Queensland, Australia.

The BAP also proposes expanding the Marine National Park Zone at Coringa Islets to ensure that the coral reef is fully within Marine National Park Zones, which scientists have identified as critical.⁴⁴

First targeted for protection by the Fraser Coalition Government in 1982, Coringa Islets is home to one of Australia's oldest Marine National Park Zones. It is an excellent BAP proposal to upgrade the protection offered by this Marine National Park Zone to meet recent scientific recommendations.

The ESP found that increasing protection for the unique coral reefs is a critical element of finding the right balance between global conservation values, tourism and fishing. It is essential to an effective zoning plan for the Coral Sea.

The BAP's proposals for reductions in coral reef protection (Table 1) are at odds with these recommendations of the ESP.

It would be highly controversial and economically naïve to proclaim one of the largest tropical marine reserves in the world without substantially increasing the protection of coral reefs. This was highlighted during the public consultation process, with increased protection for coral reefs a major theme of the consultation submissions.¹⁶

The Government will enhance the economic, social and conservation outcomes of the zoning plan, while still keeping more than half of the Coral Sea's reefs open for fishing (Table 1), if it rejects the BAP's proposals to lose protection at Osprey, Marion, Bougainville, Shark and Vema Reefs and accepts the proposals for protection of Wreck, East Holmes and South Flinders Reefs.

Recommendations for management plans:

1. Reject the proposed losses of Marine National Park Zone protection for Osprey, Marion, Bougainville, Shark and Vema Reefs.
2. Accept the proposals for new Marine National Park Zone protection for Wreck, East Holmes, and South Flinders Reefs.
3. Consider expanding the Marine National Park Zone protection at Osprey and Marion Reefs to fully protect the reefs and their surrounding ecological systems. This can be achieved by expanding the Marine National Park Zone proposed by the BAP south to at least 14°06'S for Osprey Reef and north to at least 18°52'S for Marion Reef.
4. Consider expanding the Marine National Park Zone protection at Bougainville Reef to meet minimum size requirements put forward by scientists and fully include the whale shark aggregation site associated with Bougainville Reef.

⁴⁴ 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.

TABLE 1: REEFS PROPOSED BY THE BAP TO HAVE MARINE NATIONAL PARK ZONE PROTECTION REMOVED OR ADDED.

Reefs targeted for protection by 1982 Fraser Government	Reefs proposed for protection by the BAP	Reefs proposed by the BAP to have protection removed or reduced	Reefs outside Marine National Park Zones.
<ol style="list-style-type: none"> 1. Coringa Islets 2. Herald Cays 3. Lihou Reef 4. Magdelaine Cays 	<ol style="list-style-type: none"> 5. Kenn Reefs 6. Mellish Reef 7. Unnamed reef to the east of Coringa Islets. 8. East Holmes Reefs 9. South Flinders Reefs 10. Wreck Reefs 	<ol style="list-style-type: none"> 11. Bougainville Reef 12. Marion Reef 13. Osprey Reef (Osprey Group of Reefs) 14. Vema Reef (Osprey Group of Reefs) 15. Shark Reef (Osprey Group of Reefs) 	<ol style="list-style-type: none"> 16. Abington Reef 17. Ashmore Reef 18. Boot Reefs 19. Cairns Seamount 20. Calder Bank 21. Cato Reef 22. Dart Reef 23. Diane Bank 24. Flora Reef 25. Frederick Reef 26. Heralds Surprise 27. Malay Reef 28. McDermott Bank 29. Moore Reefs 30. North Flinders Reefs 31. Saumarez Reefs 32. Tregrosse Reefs 33. Diamond Islets 34. Unnamed reef between Flinders Reefs and Herald Cays 35. Unnamed reef east of Tregrosse Reefs 36. West Holmes Reefs 37. Willis Islets

TABLE 2: THE BAP RATIONALE COMPARED WITH THE AVAILABLE EVIDENCE FOR THE BAP’S PROPOSED LOSSES OF MARINE NATIONAL PARK ZONES IN THE CORAL SEA MARINE RESERVE.

Marine National Park Zone loss	BAP rationale	Available evidence
Osprey Reef to Willis Islets	Reduce impacts on the Eastern Tuna and Billfish Fishery	This is an area of very low recent effort for the ETBF as the economics of the fishery rely on catching higher values species closer to port (for example see Figure 2).
Osprey, Shark and Vema Reefs	Increase access for recreational and charter fishing	Recreational and charter fishers already have access to well over half of the Coral Sea’s reefs. A better compromise would be recreational and charter fishing access at Vema Reef only where shark populations critical to the Coral Sea Dive Industry are less likely to be impacted.
Lihou Reef to Mellish Reef	Reduce impacts on the Eastern Tuna and Billfish Fishery	This is an area of very low recent effort for the ETBF as the economics of the fishery rely on catching higher values species closer to port (for example see Figure 2).
Bougainville Reef	Increase access for recreational and charter fishing	Recreational and charter fishers already have access to well over half of the Coral Sea’s reefs.
Mellish Reef to Kenn Reef	Reduce impacts on the Eastern Tuna and Billfish Fishery	This is an area of very low recent effort for the ETBF as the economics of the fishery rely on catching higher values species closer to port (for example see Figure 2).
South of Kenn Reef	Reintroduce access to demersal longlining on Coral Sea seamounts	ABARES estimates a maximum economic benefit of less than \$15,000 per annum per licence holder in the line and trap section of the Coral Sea Fishery.
Marion Reef	Reduce impacts on the aquarium sector of the Coral Sea Fishery	There is no evidence that Marion Reef forms a significant part of the catch for the aquarium sector of the Coral Sea Fishery.

ADDITIONAL EXPERT SCIENCE PANEL RECOMMENDATIONS

The ESP recommended that:

*"a significant sample of each primary conservation feature and each provincial bioregion be included in at least one Marine National Park Zone of an appropriate configuration and size to meet conservation objectives."*²

The BAP proposals include at least one Marine National Park Zone in each bioregion of the Coral Sea but fail to include one seafloor type and 16 depth ranges.

The seafloor type not represented within Marine National Park Zones is the abyssal plain in the south of the CSMR. This seafloor type could best be represented within Marine National Park Zones either by extending the southernmost Marine National Park Zone eastwards. This would also include one of the unrepresented depth ranges in the Central Eastern Transition bioregion. Extending the same Marine National Park Zone northwards would also include the other unrepresented depth range within the Central Eastern Transition bioregion.

Of the fourteen other unrepresented depth ranges thirteen are within the Cape Province where none of the shallower depth ranges are represented. These depth ranges can only be included by extending the northernmost Marine National Park Zone northwards to include Boot Reef and the northern tip of the CSMR.

The remaining unrepresented depth range can only be represented through the creation of a new Marine National Park Zone to protect Cato Reef.

In addition to these primary conservation features the ESP documents specific values relating the conservation value of the seamounts, spawning aggregations of pelagic fish and deep water fish assemblages of the Coral Sea.

In regards to the Tasmantid Seamount Chain which extends into the Coral Sea Marine Reserve the ESP found that:

"The seamounts have been found to have different morphologies supporting a diverse range of habitats in temperate and subtropical waters, with high levels of endemism."

The ESP also found that seamounts will be critical refugia for deep ocean fauna:

"Global, climate-driven changes in ocean chemistry and changes to the aragonite saturation horizon suggest that seamounts and canyons, because of their vertically continuous habitat, will offer refuge to deep ocean fauna that are forced out of existing depth ranges"

The ESP also found that Coral Sea has the highest levels of endemism⁴⁵ in Australia for deepwater fish. The ESP thus makes the point that the seamounts of the Coral Sea are doubly important in supporting endemic species and being likely refugia for other endemic species as environmental change occurs in the deep ocean.

The BAP does not propose a level of protection for seamounts in the Coral Sea that meets scientific standards.³⁷ Expanding Marine National Park Zone to the rest of the Wreck Reef

⁴⁵ Species that occur nowhere else on Earth.

Seamount, the Cato Reef Seamount and the Frederick Reef Seamount would establish a world class level of protection for the seamounts of the Coral Sea while also ensuring that seasnakes⁴⁶ and critical primary conservation features are also comprehensively represented.

The ESP also highlights the ecological importance of Australia's second largest spawning aggregation of mesopelagic fish around the Cairns Seamount in the Queensland Trough. The ESP also highlights that this section of the western Coral Sea is home to the highest levels of endemism for deepwater fish in Australia.

The BAP proposals improve the level of protection for these high conservation value features by providing matching Marine National Park Zones for the Great Barrier Reef Marine Park Zoning south of Flinders Reef. The protection of these key conservation features, highlighted by the ESP could be increased to levels that meet scientific standards by expanding the BAP's proposed Marine National Park Zones along the southern boundary of the Great Barrier Reef Marine Park.³⁷ In expanding protection for these important features consideration should be given to establishing a Marine National Park Zone transect from the Great Barrier Reef Marine Park, across the Coral Sea and into New Caledonia. For example, from the Olympic Reef in the Great Barrier Reef Marine Park through Frederick Reef and Kenn Reefs in the Coral Sea to New Caledonian waters.

Recommendations for management plans:

1. Include all primary conservation features within Marine National Park Zones as recommended by the ESP by:
 - a. Extending the southernmost Marine National Park Zone east and north to include an additional three unrepresented primary conservation features.
 - b. Extend the northernmost Marine National Park Zone north to include Boot Reef and the northern corner of the CSMR to include an additional 13 unrepresented primary conservation features.
 - c. Establish a new Marine National Park Zone over Cato Reef to include the final unrepresented primary conservation feature.
2. Increase seamount protection to a sufficient level in a way that is complementary to the protection of other key conservation features identified by the ESP, including seasnakes, by extending Marine National Park Zone protection to fully include the seamounts of Wreck, Cato and Frederick Reefs.
3. Increase protection for spawning aggregations of pelagic fish and endemic deepwater fish highlighted by the ESP by expanding the Marine National Park Zones proposed by the BAP along the boundary of the Great Barrier Reef Marine Park.

⁴⁶ The ESP shows that according to current survey data Frederick Reef contains the full diversity of Coral Sea seasnakes including two species not recorded on any of the other reefs.

SOUTH-WEST REGION

OVERVIEW

The South-west Marine Reserve Network proclaimed in 2013 included 7% of shelf habitats and 2% of upper slope habitats within Marine National Park Zones. This is well below scientific recommendations for protection.³⁷ The ESP identified that this under representation of shelf and upper slope habitats is a problem across the Commonwealth Marine Reserve Network.²

ABARES estimates the total maximum impact of the 2013 South-west Marine Reserve Network on commercial fishing would be \$2.1 million. There is therefore considerable room in the Government's structural adjustment budget for improving the shelf and upper slope Marine National Park Zones in the South-west.¹⁸

This is especially true when you consider that \$0.8 million (38%) of that impact is on the Western Rock Lobster Fishery, which is more likely to see a positive impact than a negative impact on catch.⁴⁷ A further \$0.4 million (19%) of that impact is on the SESSF Gillnet, Hook and Trap fishery, which has virtually ceased to operate in the South-west due to closures to protect endangered⁵⁵ Australian Sea Lions.

Another \$0.3 million (14%) of that impact is on fisheries with very small levels of displacement (i.e. less than 3% of the fishery, or less than \$50,000 in total catch).^{18,48} This means that the total displacement of commercial fishing in the South-west where structural adjustment might be required is less than \$1 million per annum.

The Government should reject the BAP proposals to reduce Marine National Park Zone protection over the South-west's unique and under-protected shelf and upper slope habitats. The BAP's proposals would increase the under representation of these shallower, highly diverse habitats identified by the ESP. Instead the Government should consider taking advantage of opportunities to increase Marine National Park Zone protection for the shelf and upper slope in the South-west Marine Reserve Network.

The BAP puts forward a variety of reasons for the necessity of these proposed losses of Marine National Park Zone protection. In most cases the BAP's claim for why these losses of Marine National Park Zone are necessary is not supported by the available evidence (Table 3).

The ABARES estimates clearly show that there is no reason why the protection of shelf and upper slope habitats in the South-west can't be improved. The Government should reject the BAP proposals to remove Marine National Park Zone protection over some of the South-west's unique and under-protected shelf and upper slope habitats. Instead the Government should heed the recommendations of the ESP and take up opportunities to increase Marine National

⁴⁷ Centre for Conservation Geography estimate based on the predicted increase in abundance of western rock lobsters within Marine National Park Zones and the corresponding increase in egg production and spill over from migration.

⁴⁸ Commonwealth of Australia, 2012. *Completing the Commonwealth marine reserves network: Regulatory impact statement*, Department of Sustainability, Environment, Water, Population and Communities, Canberra, ACT, Australia.

Park Zone protection on the shelf and upper slope and represent the full range of primary conservation features within Marine National Park Zones.

TABLE 3: THE BAP RATIONALE COMPARED WITH THE AVAILABLE EVIDENCE FOR THE BAP’S PROPOSED LOSSES OF MARINE NATIONAL PARK ZONES IN THE SOUTH-WEST MARINE RESERVE NETWORK.

Marine National Park Zone loss	BAP rationale	Available evidence
Perth Canyon Marine Reserve	Improve access for recreational and charter fishers.	90% of the area east of 115°E including all the documented key locations for recreational & charter fishers, i.e. the Derwent Shipwreck, the Barges Shipwrecks and the moveable fish attraction devices were already open to recreational fishers.
Geographe Marine Reserve	Better complementarity with the Ngari Capes Marine Park.	The BAP proposals do improve complementarity with the Ngari Capes Marine Park.
Bremer Marine Reserve	Reduce impacts on the South Coast Trawl Fishery.	ABARES estimates a maximum economic benefit of less than \$1,500 per annum per licence holder in the WA South Coast Fishery.
South-west Corner Marine Reserve	Reduce impacts on West Coast Demersal Scalefish Fishery.	ABARES estimates a maximum economic benefit of less than \$100 per annum per licence holder in the WA West Coast Demersal Scalefish Fishery.
Eastern Recherche Marine Reserve	Reduce impacts on the South Coast Deep Sea Crab Fishery.	ABARES estimated a maximum economic benefit of less than \$100 per annum per licence holder in the WA South Coast Deep Sea Crab Fishery.
Twilight Marine Reserve	Reduce impacts on the South Coast Rock Lobster & Temperate Gillnet Fisheries.	ABARES estimates a maximum economic benefit of less than \$3,000 per annum per licence holder in these WA two fisheries.

PROPOSED LOSSES OF MARINE NATIONAL PARK ZONES

In the South-west, the BAP proposes six losses in Marine National Park Zones within the Perth Canyon, Geographe, South-west Corner, Bremer, Eastern Recherche and Twilight Marine Reserves.

All of these Marine National Park Zone losses are in shelf and upper slope habitats which the ESP identified as being under represented. The proposed losses extend over very large areas. With a total area of 2,473 km² the proposed losses represent a greater area of marine protection

than the entire New South Wales, Tasmanian and Victorian state waters marine sanctuary networks combined.

PERTH CANYON MARINE RESERVE

The BAP proposes removing the 58 km² Marine National Park Zone at the head of the Perth Canyon. This is the only Marine National Park Zone over the highest density blue whale feeding grounds at the shelf breaking head of the Perth Canyon.

Recent research confirms that the highest conservation values parts of the Perth Canyon are at the shelf breaking head of the canyon. The Australian Government has also identified the canyon's shelf breaking head as a biologically important area for Australia's largest known feeding aggregation of endangered ⁴⁹ blue whales. ^{50, 4}

The BAP states that:

"New information supports the understanding that the Perth Canyon is an area of biological significance, driven by localised upwelling around canyon heads that drives productivity and the associated feeding aggregations of an array of species, from whales and seabirds to pelagic predators such as tuna and marlin." ⁴

The BAP claims that its proposed change will facilitate better access for recreational and charter fishers. However, impacts on recreational fishing were already negligible. The 2013 zoning left 90% of the area to the east of 115°E open for recreational fishing including all the key locations for recreational fishers, i.e. the Derwent Shipwreck, the Barges Shipwrecks and the moveable fish attraction devices at the head of the Perth Canyon. ⁵¹

The best Western Australian game fishing locations include areas such as Exmouth, the Rowley Shoals, and the Montebello Islands, all of which prosper in marine reserves close to Marine National Park Zones.

In fact, Australia's premier game fishing locations like Ningaloo and the northern Great Barrier Reef happily exist in marine reserves with far higher levels of Marine National Park Zones than the Perth Canyon Marine Reserve.

There can be no credible evidence-based argument that Marine National Park Zones and game fishing cannot coexist. Indeed, the Perth Game Fishing Club (the region's largest) noted in its 2014 annual member magazine ⁵² that "the club is in a wonderful position with membership growth at all-time numbers".

This directly contradicts claims by some recreational fishing lobby groups that the 2012 and 2013 proclamations of the Perth Canyon Marine Reserve had negative impacts on game fishing.

⁴⁹ IUCN red list: <http://www.iucnredlist.org/details/2477/0>

⁵⁰ Commonwealth of Australia, 2014. *Biologically important areas of regionally significant marine species*, Department of the Environment, Canberra, ACT, Australia.
<http://www.environment.gov.au/metadataexplorer/full_metadata.jsp?docId={5FDD27DB-60B0-443C-946B-219246223974}&loggedIn=false>

⁵¹ Recfishwest, 2011. *Recfishwest submission on the South-west Commonwealth marine network proposal*, Submission to the Draft Commonwealth Marine Reserve Network Proposal for the South-west Marine Region.

⁵² Perth Game Fishing Club, 2014. *Strike 2014*, <<http://www.pgfc.com.au/wp-content/uploads/2013/12/Strike-2014-magazine-sans-FAD-Pages.pdf>>

It is neither sound science nor world-leading management to reduce the Marine National Park Zone protection of the highest conservation value area in the Perth Canyon to zero in order to cater to claims of recreational fishing impacts for which there is no evidence.

The BAP does propose an expansion to the Perth Canyon Marine National Park Zone further west outside of the high density whale feeding area at the shelf breaking head of the Perth Canyon (see section below). However, offsetting gains in Marine National Park Zones with losses, as the BAP has in the West Cape York Marine Reserve, means that the BAP fails to meet the ESP's recommendations for substantially increasing protection of the unrepresented, or underrepresented habitats of the upper slope.

Recommendations for management plans:

1. Reject the proposed loss of Marine National Park Zone in the shelf breaking head of the Perth Canyon.
2. Consider expanding the existing 58 km² Marine National Park Zone in the shelf breaking head of the Perth Canyon to greater than 100 km² to provide more effective protection and better representation for the high conservation value habitats in this location.

GEOGRAPHE MARINE RESERVE

Geographe Bay is a key ecological feature for Australian marine life. The ESP notes Geographe Bay's high diversity, productivity and biologically important feeding, resting, breeding and nursing areas for marine life. Geographe Bay is home to one of Australia's largest continuous seagrass beds.² The ESP recommended that:

“Protection of these extensive and potentially important seagrass beds extents should be maintained or improved.”

The BAP proposes the loss of most of the eastern Marine National Park Zone in the Geographe Bay Marine Reserve. This is an area with a high conservation value mix of seagrass, reefs and sandy habitats.² The BAP proposes replacing this lost Marine National Park Zone with Marine National Park Zone in areas where the habitat values are currently less documented.

In regards to the Geographe Marine Reserve, the 2015 Centre for Conservation Geographe advice to the Commonwealth Marine Reserves BAP included the following statement:

“The zoning plan should also consider minor adjustments to the boundaries of the Marine National Park Zones to maintain their existing size while helping them to better complement the Marine National Park Zones in the Ngari Capes Marine Park and increasing the ease of navigation around their boundaries.”⁵³

The BAP's proposals do improve complementarity with the zoning of the Ngari Capes Marine Park and ease of navigation however it is unclear whether these areas maintain or improve the protection of Geographe Bay's seagrass and reef habitats.

⁵³ Beaver, D., Turner, J., Keily, T., and Douglass, L., 2015. *The South-west Marine Reserve Network: Centre for Conservation Geography report to the Commonwealth Marine Reserves BAP*, Centre for Conservation Geography, Sydney, NSW, Australia.

Recommendations for management plans:

1. Accept the proposed loss of Marine National Park Zone in the Geographe Bay Marine Reserve, provided that the proposed new Marine National Park Zone areas in the Geographe Bay Marine Reserve are also accepted and these areas are capable of maintaining or improving the protection of reef and seagrass habitats within Geographe Bay.

SOUTH-WEST CORNER MARINE RESERVE

The BAP proposes the loss of the Marine National Park Zone protection over the high conservation shelf and upper slope habitats off Peaceful Bay in the South-west Corner Marine Reserve. This area is critical to the representation within Marine National Park Zones of one of the South-west Region's biologically informed seascapes. These seascapes have been identified as a primary conservation feature by the ESP which should be included within Marine National Park Zones. The BAP claims that reducing the protection of this seascape to 0% is necessary to reduce economic impacts on the West Coast Demersal Scalefish Fishery.

This is not supported by ABARES evidence, which shows that the changes to the South-west Corner Marine Reserve carry a maximum economic benefit of \$68,300 per annum across all commercial fisheries. ABARES also estimates the maximum economic benefit to the West Coast Demersal Scalefish Fishery of the BAP's proposed changes across all reserves to be \$600 per annum, or \$86 per licence holder per annum.^{18, 54}

It would be a poor outcome to compromise critical protection of the shelf and upper slope to reduce impacts for which there is no evidence.

Recommendations for management plans:

1. Reject the proposed loss of Marine National Park Zone on the shelf and upper slope of the South-west Corner Marine Reserve off Peaceful Bay.

BREMER MARINE RESERVE

The BAP proposes the loss of the western third of the Bremer Marine National Park Zone. This is a particularly high conservation value part of the WA South Coast adjacent to numerous key conservation features. These include Fitzgerald National Park, breeding colonies for endangered⁵⁵ Australian Sea Lions, and one of the three most critical calving sites in Australia for Southern Right Whales.⁵⁰

⁵⁴ 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.

⁵⁵ IUCN red list: <http://www.iucnredlist.org/details/14549/0>

Bremer Bay is also home to a growing tourism industry that relies on a healthy marine life to continue to thrive. The local community is opposed to trawling, which they perceive as having a very high negative impact on their local marine life.⁵⁶

The BAP states that these losses in protection are necessary to reduce the economic impact on the WA South Coast Trawl Fishery. The evidence does not support this claim.

ABARES estimates that the proposed loss of Marine National Park Zone in the Bremer Marine Reserve would carry a maximum economic benefit to the WA South Coast Trawl Fishery of \$4,700 per annum or \$1,175 per licence holder per annum.^{18, 54}

It would be a poor decision to compromise the high social, tourism and conservation values of the inshore shelf of the Bremer Marine Reserve to cater to a claim of adverse economic impact that there is no evidence for.

The BAP does propose an expansion to the Bremer Marine National Park Zone further south (see section below). However, offsetting gains in Marine National Park Zones with losses, as the BAP has in the Bremer Marine Reserve, means that the BAP fails to meet the ESP's recommendations for substantially increasing protection of shelf habitats across the network.

Recommendations for management plans:

1. Reject the proposed loss of Marine National Park Zone on the inner shelf of the Bremer Marine Reserve.

EASTERN RECHERCHE MARINE RESERVE

The BAP proposes the loss of Marine National Park Zone over the upper slope of the Eastern Recherche Marine Reserve. Upper slope ecosystems already have the poorest level of protection,⁵⁷ with less than 2% protection within the Marine National Park Zones of the South-west Region.

The BAP claims that this change is necessary to reduce adverse impacts on deep sea crab fishing. The evidence does not support this.

ABARES estimates that the maximum economic impact of the proposed loss of Marine National Park Zone protection in the Eastern Recherche Marine Reserve across all commercial fisheries is \$1,900 per annum. Even if all of this benefit flows to deep sea crab fisheries, it still only constitutes a benefit of \$83 per licence holder per annum.^{18, 54}

It would be a poor decision to compromise the protection of high conservation value and poorly protected upper slope ecosystems to cater to a claim of adverse economic impact that the evidence does not support.

⁵⁶ For example see <http://www.pressreader.com/australia/albany-advertiser/20160623/281672549239994>

⁵⁷ Compared to the shelf – 7.3% protected and the deep ocean – 16.3% protected.

Recommendations for management plans:

1. Reject the proposed loss of Marine National Park Zone on the upper slope of the Eastern Recherche Marine Reserve.

TWILIGHT MARINE RESERVE

The BAP proposes the loss of Marine National Park Zone in the high conservation value Great Australian Bight shelf ecosystems of the Twilight Marine Reserve. At over 1,000 km² in size, the area of this proposed loss is almost twice the size of the entire Victorian state waters marine sanctuary network, and would be a very large loss of shelf protection. The loss contradicts the findings of the ESP which found that shelf habitats were already under represented.

The BAP claims that this loss is necessary to reduce adverse impacts on the WA Temperate Gillnet Fishery and the WA Southern Lobster Fishery. The evidence does not support this.

ABARES estimates that the maximum economic benefit of this loss in Marine National Park Zone protection to all commercial fisheries combined is \$82,500 per annum.¹⁸ Even if the WA Temperate Gillnet Fishery benefited from all this gain, it would still only represent a benefit of \$2,500 per licence holder per annum in Zone 2 of the WA Temperate Gillnet Fishery (the section of the fishery licence to operate in the Great Australian Bight).^{18, 54}

Equally, if the WA Southern Rock Lobster Fishery benefited from all this gain, it would still only represent a benefit of \$2,946 per licence holder, per annum in the Southern Rock Lobster Pot Regulation Fishery (the section of the fishery licenced to operate in the Great Australian Bight).^{18, 54}

It would be a poor outcome to compromise the protection of such a large area of high conservation shelf in return for such a small economic gain to a small number of commercial fishing businesses.

Recommendations for management plans:

1. Reject the proposed loss of Marine National Park Zone on the inner shelf of the Twilight Marine Reserve.

PROPOSED ADDITIONAL MARINE NATIONAL PARK ZONES

The BAP proposes seven additions to the Marine National Park Zones of the South-west Marine Reserve Network. The proposed additions occur within the Two Rocks, Perth Canyon, Geographe, Bremer and South-west Corner Marine Reserves.

TWO ROCKS MARINE RESERVE

The BAP proposes doubling the size of the Two Rocks Marine National Park Zone from 7 km² to 15 km². This is a welcome increase in size for the South-west Marine Reserve Networks' only Marine National Park Zone over the inner shelf habitats of the Rottneest Shelf.

In addition to its high conservation values, this Marine National Park Zone is important for establishing new infrastructure for the Perth dive industry, and for providing a location close to Perth where West Australians can experience and learn about the values of the South-west Marine Reserve Network.

But at 15km² the reserve is still smaller than scientific recommendations. ⁴⁴ Extending the Marine National Park Zone into a cross-shelf transect would meet the minimum size requirement while still having minimal impact on recreational and commercial fishers.

Recommendations for management plans:

1. Accept the proposed increase in the size of the Two Rocks Marine National Park Zone.
2. Consider further extending the Marine National Park Zone to the western boundary of the Two Rocks Marine Reserve.

PERTH CANYON MARINE RESERVE

The BAP proposes creating a new Marine National Park Zone outside of the shelf breaking head of the canyon. This is an important development for the important conservation values in this deeper part of the canyon. The ESP noted recent studies which found a wide variety of habitats in the cliffs and gorges of the deep canyon, including deep water corals, sea stars and anemones.

This area contains no recreational fishing values and ABARES estimates that it will displace minimal commercial fishing effort. ¹⁸

While not a replacement for the critical Marine National Park Zone at the shelf breaking head of the Perth Canyon, this new Marine National Park Zone provides much-needed increased protection for the deeper habitats of the Perth Canyon.

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zone as a welcome additional protection to the existing two Marine National Park Zones within the Perth Canyon Marine Reserve.

GEOGRAPHE MARINE RESERVE

The BAP proposes creating two new Marine National Park Zones within the Geographe Marine Reserve.

The new Marine National Park Zones complement the zoning of the adjacent Ngari Capes Marine Park in state waters and create simple boundaries for easy identification and navigation by recreational fishers.

It is unclear whether these proposed new Marine National Park Zones contain similar or higher conservation values than the Marine National Park Zone that is proposed to be lost.

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zones as a well-designed replacement for the Marine National Park Zone proposed to be lost provided that they maintain or improve the protection of reef and seagrass habitats within Geographe Bay.

BREMER MARINE RESERVE

The BAP proposes extending the inner shelf Bremer Marine National Park Zone into a cross-shelf transect that extends into the upper slope and deep ocean sections of the marine reserve to protect much of the high conservation value Bremer Canyon.

The Bremer Canyon is home to a remarkable annual aggregation of marine life, including nursing sperm whales and orcas, which is a key resource for a growing local tourism industry.² The proposed new Marine National Park Zone still leaves key parts of the upper slope unprotected, including some of the highest conservation value sections of the canyon — the shelf incising canyon heads.³⁹

Extending the new Marine National Park Zone to cover the rest of the unprotected parts of the Bremer Reserve would provide much-needed additional protection for the South-west region's high conservation value shelf and upper slope habitats.

ABARES estimates that most of this large new Marine National Park Zone contains low to no commercial fishing values, with a maximum impact on commercial fishing estimated at around \$33,000 per annum.^{18,58}

If the adjacent parts of the Bremer Marine Reserve contain similar commercial fishing values, extending the Marine National Park Zone to cover the whole of the Bremer Marine Reserve would displace less than \$0.3 million of commercial fishing effort.

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zone in the Bremer Marine Reserve.
2. Reject the loss of the Marine National Park Zone over the inner shelf of the Bremer Marine Reserve.
3. Consider extending the new Marine National Park Zone over the rest of the Bremer Marine Reserve.

SOUTH-WEST CORNER MARINE RESERVE

The BAP proposes two new Marine National Park Zones within the South-west Corner Marine Reserve.

⁵⁸ Plus the non-trawl commercial fishing values of the Marine National Park Zone on the inner shelf, which is proposed to be lost.

In the deep ocean, the BAP proposes extending the Marine National Park Zone over the Naturaliste Plateau southwards to provide greater representation for deep-water habitats in an area where there are currently no fishing activities.

In the upper slope, the BAP proposes protection for part of the high conservation value Swan Canyon, which the commercial fishing industry originally proposed for Marine National Park Zone protection.^{39, 59} The Swan Canyon also currently contains no commercial fishing activities.

The proposed new Swan Canyon Marine National Park Zone could be significantly improved by being widened and extended onto the shelf to connect with the Investigator Islands (WA) Marine National Park Zone.

Commercial fishers are likely to experience minimal impact (less than \$0.1 million per annum)⁶⁰ from widening and extending the new Marine National Park Zone over the Swan Canyon so that it covers the whole canyon and connects to the Investigator Islands (WA) Marine National Park Zone in a full cross-shelf and slope transect from the inner shelf to the deep ocean. This is based on the ABARES estimates for the Investigator Islands (WA) Marine National Park Zone.⁶⁰

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zones in the South-west Corner Marine Reserve as long as it does not require the loss of protection anywhere on the South-west slope or shelf where conservation values are much higher.
2. Consider widening and extending the new Marine National Park Zone over the Swan Canyon so that it covers the whole of the canyon and surrounding habitats, and connects to the Investigator Islands (WA) Marine National Park Zone in a full cross-shelf transect.

ADDITIONAL EXPERT SCIENCE PANEL RECOMMENDATIONS

The ESP recommended that:

“each reserve should include at least one Marine National Park Zone and that a significant sample of each primary conservation feature and each provincial bioregion be included in at least one Marine National Park Zone of an appropriate configuration and size to meet conservation objectives.”²

The BAP proposals for the South-west leave one marine reserve, two bioregions, one key ecological feature, fourteen depth ranges, three biologically informed seascapes and four seafloor types unrepresented within Marine National Park Zones.

The Government can ensure that each reserve and each bioregion in the South-west Marine Reserve Network includes at least one Marine National Park Zone by establishing a single new Marine National Park Zone in the South Kangaroo Island Marine Reserve.

⁵⁹ Commonwealth Fisheries Association, Wildcatch Fisheries SA and Western Australian Fishing Industry Council, 2011. Submission to the Draft Commonwealth Marine Reserve Network Proposal for the South-west Marine Region.

⁶⁰ ABARES 2012 South-west Marine Region Commonwealth Reserve Network: Social and Economic Assessment of the Impacts on Commercial and Charter Fishing. ABARES report to client prepared for the Department of Sustainability, Environment, Water, Population and Communities, Canberra, June.

Likewise establishing a new Marine National Park Zone over the Wallaby Saddle would ensure all key ecological features within the South-west Marine Reserve Network were represented. The Wallaby Saddle area also contains the South-west Marine Reserve Networks only saddle and escarpment seafloor features and would include two previously unrepresented depth ranges.

The unrepresented depth ranges within the Central Western Province and the unrepresented continental rise seafloor features can all be represented by expanding the Marine National Park Zone over the Houtman Canyon to both the east and west.

The unrepresented depth ranges within the Central Western Shelf Province can be included within Marine National Park Zones by expanding the Marine National Park Zone over the big bank southwards and extending it east so that it becomes a cross shelf transect.

The remaining unrepresented seafloor feature (trench/trough) can be included by extending the Margaret River Marine National Park Zone westwards.

The remaining four unrepresented depth ranges within the Great Australian Bight Transition can all be represented by extended the Great Australian Bight Marine National Park Zone southwards.

The remaining unrepresented depth ranges within the Spencer Gulf Shelf Province can all be represented by establishing a new Marine National Park Zone around the shelf break within the Western Eyre Marine Reserve.

The remaining unrepresented biologically informed seascape can be represented by rejecting the BAP's proposal to remove the Marine National Park Zone over the shelf and upper slope habitats near Peaceful Bay within South-west Corner Marine Reserve.

Across all the networks the ESP highlighted the protection of shelf habitats as particularly in need of both additional Marine National Park Zones and new Marine Reserves in the future.

“Broadly, what is missing or deficient is coverage by CMRs and Marine National Park Zones on the continental shelf”

There are fewer locations within Australia's temperate shelf environments where large marine sanctuaries can be established without significant displacement of existing users. Possibly the most iconic of these locations is the Great Australian Bight. If the Government wishes to heed the recommendations of the ESP to significantly increase the representation of shelf habitats within Marine National Park Zones it should consider expanding the Great Australian Bight Marine National Park Zone westwards to the South Australian border and south to include the deeper shelf and upper slope.

This would create Australia's largest Marine National Park Zone on the shelf while causing no additional displacement of current mining or recreational fishing activities and minimal additional impact on commercial fishers.

Recommendations for management plans:

1. Include all primary conservation features within Marine National Park Zones as recommended by the ESP by:
 - a. establishing a new Marine National Park Zone within the South Kangaroo Island Marine Reserve,
 - b. establishing a new Marine National Park Zone over the Wallaby Saddle,

-
- c. expanding the Marine National Park Zone over the Houtman Canyon,
 - d. expanding the Marine National Park Zone over the Big Bank,
 - e. expanding the Margaret River Marine National Park Zone,
 - f. extending the Great Australian Bight Marine National Park Zone,
 - g. establishing a new Marine National Park Zone within the Western Eyre Marine Reserve,
 - h. reject that BAP's proposal to remove Marine National Park Zone within the South-west Corner Marine Reserve off Peaceful Bay.

PROTECTION FROM MINING

The BAP proposes that over half (57%) of the South-west Marine Reserve Network's partially protected zones remain open for mining (Figure 3).

The areas proposed for mining include key tourism and ecological assets like the Abrolhos Islands, Kangaroo Island, the Great Australian Bight, and the Perth Canyon and Two Rocks Marine Reserves near Perth.

The proposals for mining in the marine reserves between Perth and Geraldton pose a major risk to assets such as Perth's beaches, one of the most important seabird nesting sites in the Indian Ocean at the Abrolhos Islands, and Australia's single most valuable single-species commercial fishery (Western Rock Lobster).

These proposals represent a slight improvement on the areas proposed for mining under the 2013 zoning (Figure 3). The BAP proposals to fully protect the Bremer and Geographe Marine Reserves from mining are welcome and much needed.

The BAP proposals to protect parts of the Perth Canyon and Great Australian Bight Marine Reserves from mining appear more tokenistic. The BAP proposes to keep key areas open to mining, such as the shelf breaking head of the Perth Canyon and the deeper waters of the Great Australian Bight where exploration for oil and gas is currently occurring.

The recent decision by BP to pull out of oil exploration in the Great Australian Bight creates an opportunity for the Australian Government to make the Great Australian Bight Marine Reserve almost fully protected from mining.⁶¹

All marine reserves not currently overlapped by mining leases should be considered for full protection from mining. As emphasised at the recent World Conservation Congress industrial activities like mining and mining exploration are not compatible with marine reserves.⁶² Except where there are exploration leases that predate the declaration of the marine reserve, marine reserves should be fully protected from mining as has been achieved in the Great Barrier Reef Marine Park and the Coral Sea Marine Reserve. In particular areas like the Great Australian Bight, Perth Canyon and the Mentelle Basin where oil and gas companies have relinquished their exploration leases should now be fully protected from mining.

⁶¹ There is still one active exploration lease operated by Murphy Australia EPP43 Oil Pty Ltd that overlaps slightly with the Great Australian Bight Marine Reserve.

⁶² <https://dlnr.hawaii.gov/mk/files/2016/10/B.03x-Appx-A-IUCN-Motion-No.-26.pdf>

Recommendations for management plans:

1. Accept the BAP proposals to increase protection from mining within the South-west Marine Reserve Network.
2. Consider expanding this protection to all areas of the South-west Marine Reserve Network not currently overlapped by mining tenements. Key locations where protection from mining urgently needs to be increased include Kangaroo Island, the Abrolhos Islands and the Great Australian Bight.

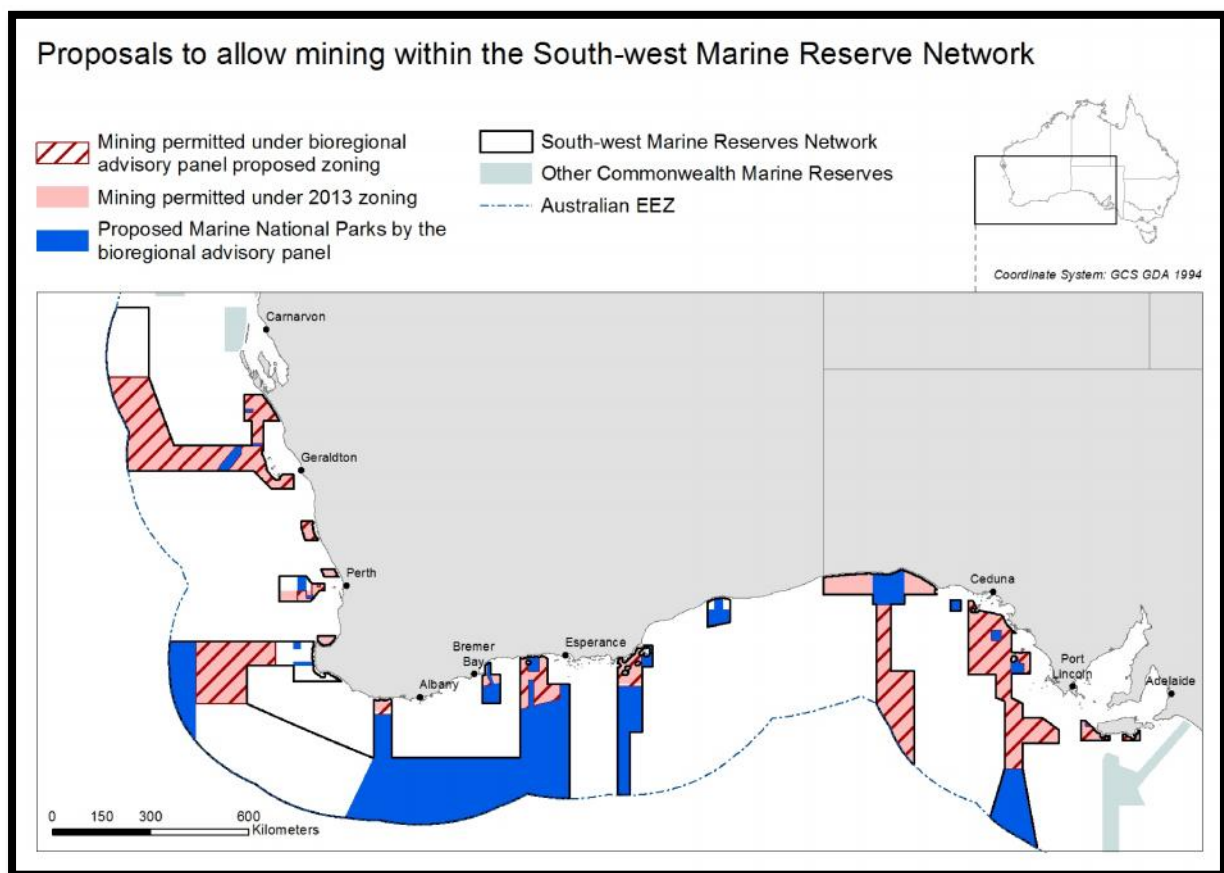


FIGURE 3: BAP PROPOSALS FOR MINING WITHIN THE SOUTH-WEST MARINE RESERVE NETWORK

NORTH-WEST REGION

OVERVIEW

The North-west Marine Reserve Network 2013 included 2% of shelf habitats and less than 1% of upper slope habitats within Marine National Park Zones. This is well below scientific recommendations for protection.

ABARES estimates the total maximum impact of the 2013 North-west Marine Reserve Network on commercial fishing at \$0.3 million. There is therefore considerable room in the Government's structural adjustment budget for improving the shelf and upper slope Marine National Park Zones in the North-west.¹⁸

This is especially true when you consider that the ABARES estimates show only a single commercial fishery⁶³ in the North-west that the 2013 marine reserves could significantly impact, making the actual level of economic impact on commercial fishing \$71,600 per annum.^{18, 48}

For these reasons, the Government should reject the BAP proposals to reduce Marine National Park Zone protection over the North-west's unique and under-protected shelf and upper slope habitats. Instead, the Government should consider taking advantage of opportunities to increase Marine National Park Zone protection for these habitats.

The ESP specifically identified the depth ranges of the North-west as requiring better representation within Marine National Park Zones:

"The major deficiency in the North-west CMR Network is better coverage of depth ranges in Sanctuary Zones or Marine National Park Zones"

The ESP and the CSIRO also recommended that each marine reserve contain at least one Marine National Park Zone.^{2, 64}

The BAP appears to have ignored these recommendations of the ESP. The BAP recommendations leave the Shark Bay, Carnarvon Canyon, Ningaloo, Montebello, Eighty Mile Beach, Roebuck and Joseph Bonaparte Gulf Marine Reserves without Marine National Park Zones. Furthermore, the BAP proposals represent just 35 of 81 of the North-west's depth ranges. This is the virtually the same (34/81) level of representation that the ESP described as a major deficiency.

The ABARES estimates clearly show that there is no reason that these major deficiencies can't be addressed. In addition to the marine reserves which currently contain no Marine National Park Zones priorities for new Marine National Park Zones include the shallower depth ranges of the Gascoyne and Argo-Rowley Terrace Marine Reserves around the Rowley Shoals and Ningaloo.

⁶³ The Commonwealth North-west Slope Trawl.

⁶⁴ CSIRO, 2011. Submission to the Draft Commonwealth Marine Reserve Network Proposal for the North-west Marine Region.

The Government should reject the BAP proposals to remove Marine National Park Zone protection over some of the North-west’s unique and under-protected shelf habitats. Instead the Government should heed the recommendations of the ESP and take up opportunities to increase Marine National Park Zone protection on the shelf and upper slope and represent the full range of primary conservation features within Marine National Park Zones.

PROPOSED LOSSES OF MARINE NATIONAL PARK ZONES

In the North-west the BAP proposes the loss of two Marine National Park Zones in the Kimberley and Dampier Marine Reserves.

Both of these Marine National Park Zones are in locations of exceptionally high conservation value on the North-west’s under-protected shelf ecosystems. The areas are so large that they are equal in total size to combining every marine sanctuary in the Victorian, Tasmanian, Northern Territorian and New South Wales marine sanctuary networks.

The BAP puts forward a variety of reasons for the necessity of these proposed losses of Marine National Park Zone protection. The BAP’s claim for why these losses of Marine National Park Zone are necessary is not supported by the available evidence (Table 4).

TABLE 4: THE BAP RATIONALE COMPARED WITH THE AVAILABLE EVIDENCE FOR THE BAP’S PROPOSED LOSSES OF MARINE NATIONAL PARK ZONES IN THE NORTH-WEST MARINE RESERVE NETWORK.

Marine National Park Zone loss	BAP rationale	Available evidence
Kimberley Marine Reserve	Reduce impacts on the Kimberley Mackerel Fishery	ABARES estimates that the annual catch of mackerel in this area is worth less than \$25,000 per annum.
Dampier Marine Reserve	Increase access for recreational and charter fishers.	Over 95% of the area likely to be accessible to recreational fishing is already open to recreational and charter fishing. No specific fishing locations are documented by the BAP as being impacted.

KIMBERLEY MARINE RESERVE

The BAP proposes removing 2,860km² of Marine National Park Zone over critical tropical shelf habitats in the Kimberley Marine Reserve. For scale, this single loss of Marine National Park Zone is only just smaller (4%) than all the marine sanctuaries in the New South Wales, Victorian, Tasmanian and Northern Territory state waters combined. The BAP’s proposal would remove the only Marine National Park Zone for the Canning bioregion, identified by the ESP as a primary conservation feature of the North-west Region.

The BAP claims that this loss of Marine National Park Zone was necessary to reduce adverse impacts on commercial fishing for mackerel. The evidence does not support this.

ABARES estimates that the total maximum economic benefit of the proposed changes to commercial mackerel fisheries is \$21,800 per annum.¹⁸ It would be a poor decision to remove such a large area of critical tropical shelf Marine National Park Zone protection for such a small economic benefit.

The BAP also claims that this loss of Marine National Park Zone was necessary to support the development of tourism and other local economic development opportunities off Cape Leveque.

However, 86% of the area around Cape Leveque that is claimed to be of interest to recreational fishers is outside the 2013 Kimberley Marine National Park Zone.⁶⁵ The loss of Marine National Park Zone is therefore more likely to have a negative impact on the development of tourism and other local economic development.

A smart mix of Marine National Park Zones and other zones like the WA Government is proposing in its Kimberley Marine Parks^{66, 67} is the best way to support the new opportunities for tourism, recreational fishing and other economic opportunities that upgrading the road to Cape Leveque are likely to bring.

If, as the BAP proposes this Marine National Park Zone is completely removed, then the large increases in recreational fishing that will result from the sealing of the road are much more likely to lead to a degradation of recreational fishing, tourism, conservation and development values in this area.

The BAP does propose an expansion to the Kimberley Marine National Park Zone around Beagle and Mavis Reefs (see section below). However, offsetting gains in Marine National Park Zones with losses, as the BAP has in the Kimberley Marine Reserve, means that the BAP fails to meet the ESP's recommendations for substantially increasing protection of shelf habitats.

Recommendations for management plans:

1. Reject the proposed loss of Marine National Park Zone in the Kimberley Marine Reserve.

DAMPIER MARINE RESERVE

The BAP proposes the loss of 104 km² of Marine National Park Zone over one of the highest conservation value locations in Western Australia, the Dampier Archipelago. This equates to the loss of two-thirds of the Marine National Park Zone.

The BAP proposes to replace this area with a smaller area with lower conservation values to the east. The area is not contiguous with the Dampier Archipelago and offers less continuity with the Marine Park being planned by the WA Government.

⁶⁵ Recfishwest, 2011. *Recfishwest submission to the north-west Commonwealth marine reserve network proposal*, Submission to the Draft Commonwealth Marine Reserve Network Proposal for the North-west Marine Region.

⁶⁶ Department of Parks and Wildlife 2015, Proposed Lalang-garram / Horizontal Falls and North Lalang-garram marine parks, and proposed Oomeday National Park, Department of Parks and Wildlife, Perth.

⁶⁷ Department of Parks and Wildlife 2016, Proposed North Kimberley Marine Park indicative joint management plan 2016, Department of Parks and Wildlife, Perth.

This would be a poor outcome for one of Western Australia's highest conservation value marine environments.

The BAP claims that this is necessary to reduce impacts on recreational and charter fishing. The evidence does not support this. In its 2011 submission Recfishwest applied buffers of between 30 and 50 nautical miles to describe areas of interest to recreational fishers around population centres like Karratha. In regards to recreational fishing in the Dampier Archipelago, 97% of the area within 30 nautical miles of Karratha, and 99% of the area within 50 nautical miles of Karratha is outside the 2013 Marine National Park Zone. ⁶⁵

The claim of a negative impact on recreational and charter fishing is not credible considering that recreational fishing and charter fishing thrive in the Ningaloo and Great Barrier Reef Marine Parks with much higher levels of Marine National Park Zone protection and with no specific fishing locations quoted as being impacted.

In fact a higher, rather than a lower level of Marine National Park Zones is more likely to maintain and enhance the recreational fishing values of the Dampier Archipelago. This is what the WA Government is putting forward with its promise to create a Dampier Archipelago Marine Park in the adjacent state waters.

Offsetting gains in Marine National Park Zones with losses, as the BAP has in the Dampier Marine Reserve, means that the BAP fails to meet the ESP's recommendations for substantially increasing protection of shelf habitats.

Recommendations for management plans:

1. Reject the proposed loss of Marine National Park Zone in the Dampier Marine Reserve.

PROPOSED ADDITIONAL MARINE NATIONAL PARK ZONES

In the North-west the BAP proposes three new Marine National Park Zones within the Kimberley, Dampier and Argo-Rowley Terrace Marine Reserves.

KIMBERLEY MARINE RESERVE

The BAP proposes a large new Marine National Park Zone around Beagle and Mavis Reefs, joining the two Marine National Park Zones in the Kimberley Marine Reserve into a single contiguous Marine National Park Zone.

The proposed new Marine National Park Zone is in an excellent location over high conservation tropical shelf habitats. Its only negatives are those of omission.

It is unfortunate that the new Marine National Park Zone does not include the Commonwealth waters around Adele Island. Adele Island is one of the most important seabird nesting sites in

the Kimberley.⁶⁸ Adele Island supports unique coral reef ecology and is the only coral reef system in Australia where mixed assemblages of rhodoliths and coralliths are known to occur.⁶⁹

It is equally unfortunate that the proposals for marine sanctuaries by the WA Government in the North Kimberley have not been matched with Marine National Park Zones in the northern section of the Kimberley Marine Reserve, particularly around Holothuria Reefs. The Western Australian Premier, the West Australian Marine Parks and Reserves Authority and the CSIRO have all urged that a new Marine National Park Zone be established in the North Kimberley.^{70, 71,64} This area is one of the only places within the North-west Marine Reserve Network where two of the unrepresented primary conservation features identified by the ESP (biologically informed seascapes) can be represented.

The ESP recommends that the Marine National Park Zones of the Kimberley Marine Reserve also be extended to include an unrepresented key ecological feature and unrepresented depth ranges within the Northwest Shelf Province and Timor Province.

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zone in the Kimberley Marine Reserve.
2. Consider expanding the proposed new Marine National Park Zone to include the Commonwealth waters around Adele Island.
3. Consider establishing an additional new Marine National Park Zone in the North Kimberley around Holothuria Reefs to match the protection proposed in WA waters as requested by the WA Premier and the WA Marine Parks and Reserves Authority.
4. Consider expanding the Marine National Park Zones of the Kimberley Marine Reserve to include unrepresented primary conservation features as recommended by the ESP.

DAMPIER MARINE RESERVE

The BAP proposes establishing a new Marine National Park Zone in the shelf habitats east of the existing Marine National Park Zone. These habitats are of lower conservation value compared with those proposed to be lost to Marine National Park Zones to the west. However, this area is still a high conservation value location worthy of protection as long as the cost is not the loss of protection in higher conservation value parts of the Dampier Archipelago.

⁶⁸ Mustoe, S., 2008. *Kimberley Coast Natural Values Workshop, 5-7 February 2008*, Transcript of Results. WWF-Australia, Sydney, New South Wales, Australia.

⁶⁹ 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>

⁷⁰ Barnett, C., 2011. Submission to the Draft Commonwealth Marine Reserve Network Proposal for the North-west Marine Region.

⁷¹ West Australian Marine Parks and Reserves Authority, 2011. Submission to the Draft Commonwealth Marine Reserve Network Proposal for the North-west Marine Region.

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zone in the Dampier Marine Reserve as long as it does not require the loss of Marine National Park Zone protection in the higher conservation value parts of the Dampier Archipelago further west.

ARGO-ROWLEY TERRACE MARINE RESERVE

The BAP proposes extending the large Marine National Park Zone over the Argo Abyssal Plain to include more of the Scott Terrace. This is an area of deep sea with no active fishing operations. The BAP states that this area supports important aggregations of sperm and beaked whales and seabirds like Bulwers Petrel, Matsudaira's Storm Petrel and Swinhoe's Storm Petrel that are not known to occur anywhere else in Australia.

The ESP also highlights the conservation significance of the deeper waters off Western Australia stating:

"A recent study of benthic invertebrate diversity off the deep continental margin of Western Australia reported a largely novel and endemic fauna, with most species either new to science or not previously reported in Australia"

The BAP states that its proposal seeks to:

"include the canyon systems and additional Depth Ranges"

However the BAP proposal does not actually achieve this intention. The large canyon that incises the Scott Plateau and the Rowley Terrace remains largely (68%) outside Marine National Park Zones. In regards to depth ranges the BAP proposals increase the Marine National Park Zone representation of the depth ranges of the Northwest from 34/81 to 35/81.

This is a level of representation within Marine National Park Zones that the ESP described as a major deficiency that needed to be addressed. The ESP recommendations are for the Marine National Park Zones of the Argo-Rowley Terrace to be expanded to include the currently unrepresented depth ranges of the Northwest Transition and one additional depth range within the Timor Province. All of these depth ranges exist to the north of Rowley Shoals. Woodside Energy Ltd recently surrendered exploration lease WA-462-P after drilling three exploration wells north of Rowley Shoals and finding nothing. There are now no major mining, commercial fishing or recreational fishing interests that would prevent the establishment of a large Marine National Park Zone over the unrepresented and underrepresented upper slope habitats at Rowley Shoals.

Rowley Shoals is also the best location for including one of the unrepresented biologically informed seascapes of the North-west.

The BAP ignores the recommendation of the ESP in regards to the representation of these primary conservation features and instead proposes to open up the Rowley Shoals area to demersal trawling. The Government's independent Fishing Gear Risk Assessment found, and the ESP upheld that bottom trawling posed an unacceptable risk to the marine life of North-west Marine Reserve Network.

The BAP claims that this is necessary to reduce impact on the North-west Slope Trawl Fishery. This is not supported by the evidence. ABARES estimates that the maximum economic benefit to

the North-west Slope Trawl Fishery is \$36,900 per annum, or \$5,271 per licence holder, per annum.^{18, 19}

The Government should reject the BAP proposals to allow trawling around the Rowley Shoals. Instead the Government should heed the recommendations of the ESP and take up opportunities to increase Marine National Park Zone protection on the poorly represented upper slope and represent the full range of primary conservation features within Marine National Park Zones.

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zone in the Argo-Rowley Terrace Marine Reserve as long it does not require the loss of protection anywhere on the North-west upper slope or shelf where conservation values are much higher.
2. Consider establishing a new large Marine National Park Zone around the Rowley Shoals to better protect the North-west's upper slope habitats and to include unrepresented primary conservation features as recommended by the ESP.

ADDITIONAL EXPERT SCIENCE PANEL RECOMMENDATIONS

The ESP recommended that:

“each reserve should include at least one Marine National Park Zone and that a significant sample of each primary conservation feature and each provincial bioregion be included in at least one Marine National Park Zone of an appropriate configuration and size to meet conservation objectives.”²

The BAP proposals appear to largely ignore this recommendation leaving six marine reserves, seven bioregions, four key ecological features, 46 depth ranges, five biologically informed seascapes and one seafloor type unrepresented within Marine National Park Zones.⁴

The six North-west Marine Reserves the BAP proposes no Marine National Park Zones for are:

1. Shark Bay
2. Carnarvon Canyon
3. Ningaloo
4. Montebello
5. Eighty Mile Beach
6. Roebuck

Establishing a Marine National Park Zone in the Shark Bay Marine Reserve would also include up to eight other primary conservation features not currently represented within the Marine National Park Zones of the North-west Marine Reserve Network. The Central Western Shelf Province, the Zuytdorp bioregion and six depth ranges within the Central Western Shelf Province.

Establishing a Marine National Park Zone in the Carnarvon Canyon Marine Reserve would also add representation for an additional depth range within the Central Western Transition.

The Government should consider matching the zoning of the Ningaloo Marine Park in state waters with Marine National Park Zones in the Ningaloo Marine Reserve. The following unrepresented primary conservation features could also be represented: the Central Western Shelf Transition, the Ningaloo bioregion and six additional depth ranges within the Central Western Shelf Transition.

Including a Marine National Park Zone within the Montebello Marine Reserve could also provide representation for two additional depth ranges within the Northwest Shelf Province.

The Government should consider matching the zoning of the Eighty Mile Beach Marine Park in state waters with Marine National Park Zones in the Eighty Mile Beach Marine Reserve. This would also provide representation for the Eighty Mile Beach bioregion, one additional depth range within the Northwest Shelf Province and one additional biologically informed seascape.

Including a Marine National Park Zone within the Roebuck Marine Reserve would also provide representation for the Canning bioregion.

A new Marine National Park Zone or Zones are needed within the Gascoyne Marine Reserve to include the trench/trough seafloor feature, three key ecological features and the unrepresented depth ranges of the Central Western Transition and Northwest Province.

A new Marine National Park Zone within the Argo-Rowley Terrace Marine Reserve is critical to the inclusion of the remaining unrepresented depth ranges of the Northwest Transition and one depth range within the Timor Province. Rowley Shoals is also the best location for including one of the unrepresented biologically informed seascapes of the North-west.

Extensions of the Marine National Park Zone in the Kimberley Marine reserve are needed to include the remaining unrepresented key ecological feature and the remaining unrepresented depth ranges of the Northwest Shelf Province and Timor Province, as well as two of the North-west's biologically informed seascapes.

A new Marine National Park Zone within the Oceanic Shoals Marine Reserve is critical to including the remaining unrepresented depth ranges of the Northwest Shelf Transition.

Recommendations for management plans:

1. Include all primary conservation features within Marine National Park Zones as recommended by the ESP by:
 - a. establishing a new Marine National Park Zone within the Shark Bay Marine Reserve,
 - b. establishing a new Marine National Park Zone within the Carnarvon Canyon Marine Reserve,
 - c. establishing a new Marine National Park Zone within the Ningaloo Marine Reserve
 - d. establishing a new Marine National Park Zone within the Montebello Marine Reserve,
 - e. establishing a new Marine National Park Zone within the Eighty Mile Beach Marine Reserve
 - f. establishing a new Marine National Park Zone within the Roebuck Marine Reserve,
 - g. expanding Marine National Park Zones within the Gascoyne Marine Reserve,

-
- h. expanding Marine National Park Zones within the Argo-Rowley Terrace Marine Reserve,
 - i. expanding Marine National Park Zones within the Kimberley Marine Reserve,
 - j. establishing a new Marine National Park Zone within the Oceanic Shoals Marine Reserve.

PROTECTION FROM MINING

The BAP proposes that 87% of the North-west Marine Reserve Network's partially protected zones remain open for mining (Figure 4). The areas proposed by the BAP for mining include key tourism and ecological assets such as the Rowley Shoals, Kimberley and the Shark Bay, and Ningaloo World Heritage areas.

These proposals represent a slight improvement on the areas proposed for mining under the zoning proclaimed in 2013 (Figure 4). The BAP proposals to protect Adele Island and some of the deeper waters west of Ningaloo from mining are welcome and much needed.

However, these proposals are somewhat tokenistic as major areas around Ningaloo and Adele Island are also left open for mining. Mining is not appropriate in these areas so close to the Ningaloo and Kimberley coasts.

The recent decisions by oil and gas companies not to bid on leases around Rowley Shoals and to relinquish leases closer to the Kimberley and Ningaloo coastlines need to be followed up with marine reserve zones that protect these areas from mining.

The proposals to allow mining in the Eighty Mile Beach and Roebuck Marine Reserves threaten some of Australia's most important shore bird habitats, pose a high risk to the tourism industry in Broome, and are a major threat to the pearl diving industry on Eighty Mile Beach.

All marine reserves not currently overlapped by mining leases should be considered for full protection from mining. As emphasised at the recent World Conservation Congress industrial activities like mining and mining exploration are not compatible with marine reserves.⁶² Except where there are exploration leases that predate the declaration of the marine reserve, marine reserves should be fully protected from mining as has been achieved in the Great Barrier Reef Marine Park and the Coral Sea Marine Reserve.

Recommendations for management plans:

1. Accept the BAP proposals to increase protection from mining within the North-west Marine Reserve Network.
2. Consider expanding this protection to all areas of the North-west Marine Reserve Network not currently overlapped by mining tenements. Key locations where protection from mining urgently needs to be increased include Shark Bay, Rowley Shoals, Ningaloo, the Kimberley coast, Eighty Mile Beach and Roebuck Bay where mining would pose a major threat to key conservation, tourism, recreational fishing, or commercial fishing assets.

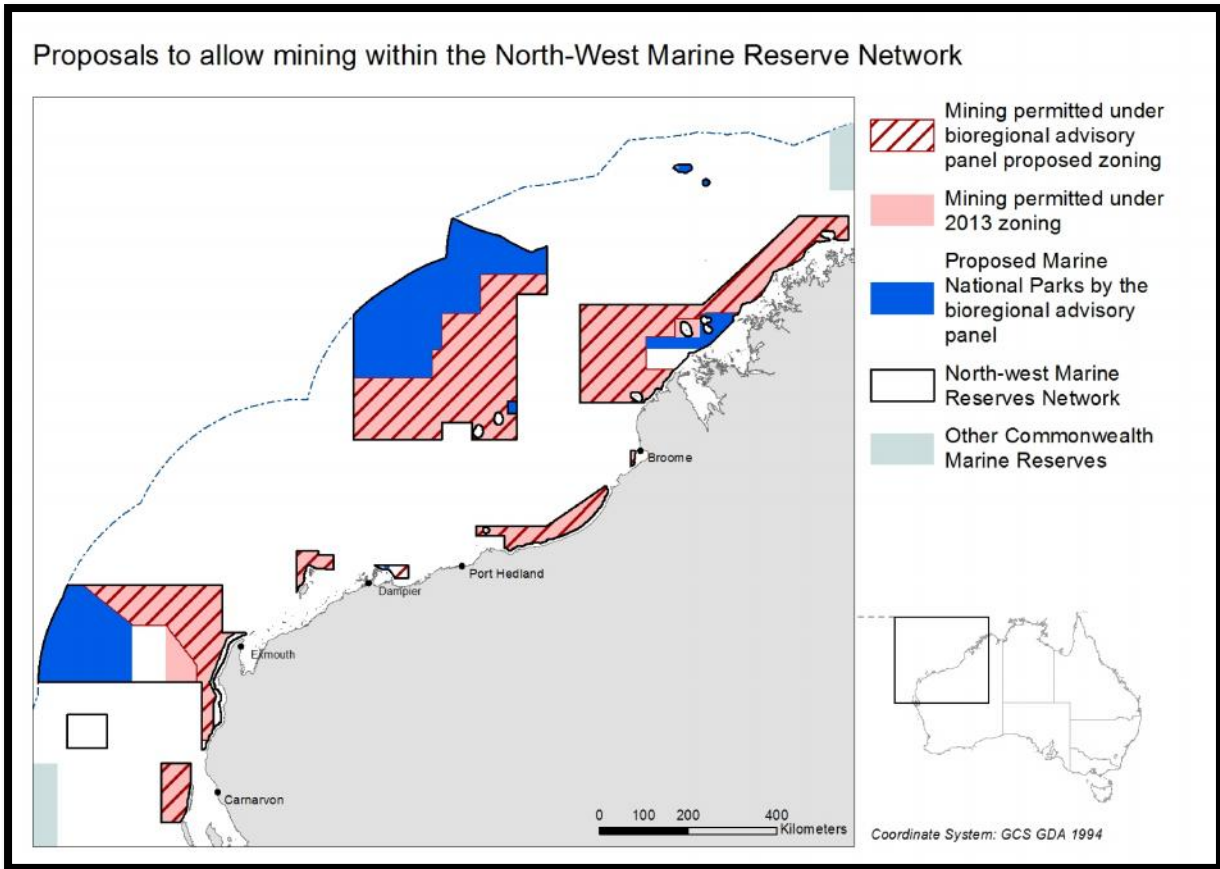


FIGURE 4: BAP PROPOSALS FOR MINING WITHIN THE NORTH-WEST MARINE RESERVE NETWORK

TEMPERATE EAST REGION

OVERVIEW

The 2013 Temperate East Marine Reserve Network included less than 0.2% of shelf habitats and 0% of upper slope habitats on the east coast continental slope within Marine National Park Zones. This is well below scientific recommendations for protection.

ABARES estimates the total maximum impact of the 2013 Temperate East Marine Reserve Network on commercial fishing at \$0.6 million. There is therefore considerable room in the Government's structural adjustment budget for improving the shelf and upper slope Marine National Park Zones in the Temperate East.¹⁸

The ESP recommended major improvements to the Temperate East Marine Reserve Network calling it *"the least comprehensive of the CMR estate"*. The ESP further found:

"the Temperate East CMR Network performs poorly against the Goals and Principles. The major deficiency in representation is coverage on the continental shelf and representation of conservation features in Sanctuary Zones or Marine National Park Zones"

Additionally, the ESP and the CSIRO recommended for each marine reserve in the Temperate East to contain at least one Marine National Park Zone.^{2,72}

The BAP appears to have largely ignored the recommendations of the ESP. The BAP proposes that protection within Marine National Park Zones remain at less than 0.2% for the continental shelf and at 0% for the upper slope habitats of the east coast continental slope. Furthermore, the BAP proposals contain no Marine National Park Zones for the Gifford, Hunter and Jervis Marine Reserves.

The ABARES estimates clearly show that there is no reason that these major deficiencies can't be addressed. The Government should reject the BAP proposals to remove Marine National Park Zone protection over the Middleton Reef Seamount. Instead the Government should heed the recommendations of the ESP and take up opportunities to increase Marine National Park Zone protection on the shelf and upper slope and represent the full range of primary conservation features within Marine National Park Zones.

PROPOSED LOSSES OF MARINE NATIONAL PARK ZONES

In the Temperate East, the BAP proposes the loss of Marine National Park Zone protection over part of the Middleton Reef Seamount. Middleton Reef was first protected in Marine National Park Zones in 1987 and is one of Australia's longest protected remote coral reef habitats.

The BAP claims that this change is necessary to reduce the economic impact on commercial fishing, including trawling. The evidence does not support this claim. ABARES estimates that

⁷² CSIRO, 2012. Submission to the Draft Commonwealth Marine Reserve Network Proposal for the Temperate East Marine Region.

the proposed undermining of the protection of the Middleton Reef ecosystem would provide a maximum economic benefit to commercial fishers of just \$31,000 per annum.¹⁸

The main fishery active in this area is the Eastern Tuna and Billfish Fishery (ETBF). If all of the benefits flowed to the ETBF, this would constitute a benefit of \$335 per annum to each of the 92 longlining statutory fishing rights in the fishery.^{18,19}

The fishing records from 2001 to 2014 show that trawling for alfonso on the Middleton Seamount is a below low effort area for the East Coast Deepwater Trawl Fishery (Figure 5).

The ESP found that seamounts like Middleton Reef that provide vertically continuous habitats are likely to be key refugia for deep ocean marine life if they are forced out of their existing depth ranges by climate driven changes to their habitats.

Recommendations for management plans:

1. Reject the proposed loss of Marine National Park Zone protection for the Middleton Seamount within the Lord Howe Marine Reserve.

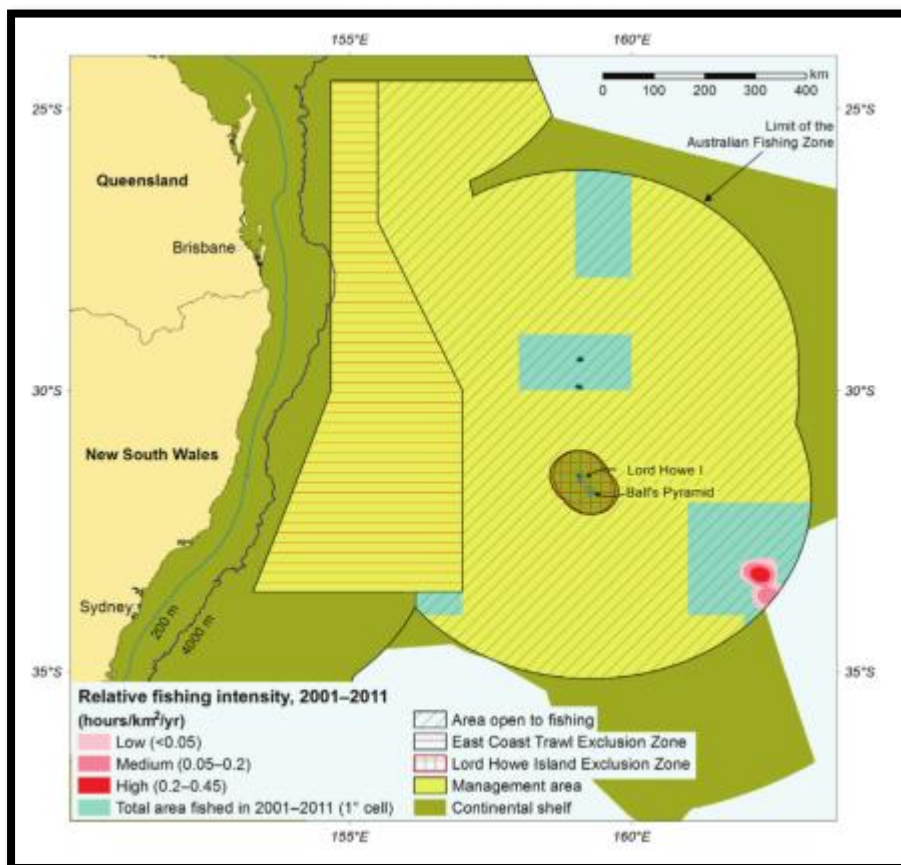


FIGURE 5: RELATIVE FISHING INTENSITY IN THE EAST COAST DEEPWATER TRAWL FISHERY. REPRODUCED FROM WOODHAMS ET AL. (2012).⁷³ THE 2012, 2013 AND 2014 FISHING EFFORT MAPS DO NOT SHOW ANY DATA TO CONTRADICT THIS PATTERN OF FISHING EFFORT.

⁷³ Woodhams, J, Vieira, S & Stobutzki, I (eds) 2012, *Fishery status reports 2011*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

PROPOSED ADDITIONAL MARINE NATIONAL PARK ZONES

In the Temperate East, the BAP proposes two new Marine National Park Zones. A new large Marine National Park Zone in the Norfolk Marine Reserve and a small extension of the Pimpernel Rock Marine National Park Zone in the Solitary Islands Marine Reserve.

NORFOLK ISLANDS MARINE RESERVE

The BAP proposes establishing a new Marine National Park Zone over the deep ocean and upper slope habitats in the south of the Norfolk Marine Reserve. This area contains no active fishing operations, and ABARES estimates that the overall impact of the Norfolk Marine Reserve on commercial fishers will decrease by \$19,300 to \$35,200 per annum.¹⁸

While the BAP proposal for a new Marine National Park Zone is welcome, it still leaves the Norfolk Island Seamounts with 0% protection within Marine National Park Zones.⁷⁴

The Howard Government identified the Norfolk Island Seamounts as one of Australia's 11 most unique habitats for marine life.⁷⁵ The seamounts have also been identified as part of one of the ecologically and biologically significant marine areas of the western South Pacific.⁷²

The ESP found that seamounts like the Norfolk Island Seamounts provide vertically continuous habitats and are likely to be key refugia for deep ocean marine life if they are forced out of their existing depth ranges by climate driven changes to their habitats.

These seamounts are unique habitats of global ecological significance and deserve world-class protection within Marine National Park Zones.

The ESP also recommends that the Marine National Park Zones of the Norfolk Island Marine Reserve be expanded to include unrepresented primary conservation features like bank/shoal and trench/trough seafloor features as well as the six unrepresented depth ranges of the Norfolk Province.

Representation of bank/shoal seafloor features within Marine National Park Zones can be achieved by expanding the BAP's proposal for a new Marine National Park Zone westwards. Representation of trench/trough seafloor features can be achieved by establishing a new Marine National Park Zone in the west of the Norfolk Islands Marine Reserve that could also provide representation for the Norfolk Island seamounts. All but one of the six unrepresented depth ranges exist in discrete locations to the north and south of Norfolk Island. The remaining unrepresented depth range only exists at Norfolk Island.

The ABARES estimates show that there is no economic impediment to the full representation of primary conservation features within the Norfolk Island Marine Reserves as recommended by the ESP.

⁷⁴ Commonwealth of Australia, 2004. *Geomorphic features of the EEZ*. <http://www.environment.gov.au/metadataexplorer/full_metadata.jsp?docId={45B47601-DFDD-4A33-AA58-59E4AF14F369}&loggedIn=false>

⁷⁵ Williams, A., Althaus, F., and Furlani, D., 2006. *Assessment of the conservation values of the Norfolk Seamounts area*, CSIRO Marine and Atmospheric Research.

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zone for the Norfolk Island Marine Reserve.
2. Consider expanding the proposed new Marine National Park Zone to include the Norfolk Island Seamounts and unrepresented seafloor features and depth ranges as recommended by the ESP.

SOLITARY ISLANDS MARINE RESERVE

The BAP advises expanding the Pimpernel Rock Marine National Park Zone in the Solitary Islands Marine Reserve from 1 km² to 1.6 km² to better protect the Pimpernel Rock aggregation of the critically endangered ⁷⁶ Grey Nurse Shark.

While this proposal is welcome, it falls at least 99 km² short of the minimum size that recent scientific research recommends. ⁴⁴ Further expanding this Marine National Park Zone is also critical to including one of the unrepresented primary conservation features identified by the ESP (one of the Temperate East's biologically informed seascapes).

ABARES estimates that the proposed changes for the Solitary Islands Marine Reserve will increase the impact on all commercial fisheries operating in the reserve by \$400 per annum to \$7,600 per annum. ¹⁸

If the surrounding areas contain similar commercial fishing values, then expanding the size of the Marine National Park Zone to meet the minimum size requirement recommended by research scientific research would displace around \$65,000 of commercial fishing effort per annum.

Recommendations for management plans:

1. Accept the proposed expansion to the Pimpernel Rock Marine National Park Zone in the Solitary Islands Marine Reserve.
2. Consider expanding the size of the Marine National Park Zone to meet the scientific recommendations on minimum size.

ADDITIONAL EXPERT SCIENCE PANEL RECOMMENDATIONS

The ESP recommended that:

“each reserve should include at least one Marine National Park Zone and that a significant sample of each primary conservation feature and each provincial bioregion be included in at least one Marine National Park Zone of an appropriate configuration and size to meet conservation objectives.” ²

⁷⁶ IUCN red list: <http://www.iucnredlist.org/details/44070/0>

The BAP proposals appear to largely ignore this recommendation leaving three marine reserves, five bioregions, 2 key ecological features, 34 depth ranges, five biologically informed seascapes and three seafloor types unrepresented within Marine National Park Zones.⁴

The three Temperate East Marine Reserves the BAP proposes no Marine National Park Zones for are:

1. Hunter
2. Jervis
3. Gifford

Establishing a Marine National Park Zone in the Hunter Marine Reserve could also include the following unrepresented primary conservation features: the Central Eastern Province, the two unrepresented key ecological features, the terrace seafloor type, four additional depth ranges within the Central Eastern Province, five additional depth ranges within the Central Eastern Shelf Province, and three additional biologically informed seascapes.

Establishing a Marine National Park Zone in the Jervis Marine Reserve could also include the Southeast Shelf Transition, the Batemans Shelf bioregion, three unrepresented depth ranges within the Southeast Shelf Transition and one additional biologically informed seascape.

New Marine National Park Zones are also needed within the Central Eastern Marine Reserve to include unrepresented primary conservation features like additional unrepresented depth ranges within the Central Eastern Shelf Transition, four unrepresented depth ranges within the Tasman Basin Province, and two additional biologically informed seascapes. New Marine National Park Zones at the western edge of the Central Eastern Marine Reserve⁷⁷ and Taupo Bank⁷⁸ are critical to the representation of these primary conservation features.

New Marine National Park Zones are also needed within the Lord Howe Marine Reserve to include two unrepresented depth ranges within the Lord Howe Province. One of these depth ranges could be represented through the establishment of a new Marine National Park Zone in the southern end of the Lord Howe Marine Reserve, while the other depth range could easily be included by expanding one of the existing Marine National Park Zones.

New Marine National Park Zones are also needed within the Norfolk Marine Reserve to include the bank/shoal and trench/trough seafloor features as well as six unrepresented depth ranges of the Norfolk Province. These primary conservation features exist to the west of the BAP's proposed new Marine National Park Zone (bank/shoal), in the east of the Norfolk Island Marine Reserve (trench/trough) and closer to Norfolk Island (depth ranges).

Expansion of the Solitary Islands Marine National Park Zone is critical to including one of the Temperate East's unrepresented biologically informed seascapes.

Recommendations for management plans:

1. Include all primary conservation features within Marine National Park Zones as recommended by the ESP by:

⁷⁷ Central Eastern Shelf Transition depth ranges and biologically informed seascapes.

⁷⁸ All four unrepresented depth ranges of the Tasman Basin Province occur at Taupo Bank and two only occur there.

- a. establishing a new Marine National Park Zone within the Hunter Marine Reserve,
- b. establishing a new Marine National Park Zone within the Jarvis Marine Reserve,
- c. establishing a new Marine National Park Zone within the Gifford Marine Reserve
- d. expanding Marine National Park Zones within the Central Eastern Marine Reserve,
- e. expanding Marine National Park Zones within the Lord Howe Marine Reserve
- f. expanding Marine National Park Zones within the Norfolk Marine Reserve,
- g. expanding Marine National Park Zones within the Solitary Islands Marine Reserve.

PROTECTION FROM MINING

The BAP proposes that 1% of the Temperate East Marine Reserve Network's partially protected zones remain open for mining (Figure 6). The areas where the BAP proposes to allow mining include all of the zones close to the NSW coastline.

These proposals represent a major improvement on the areas proposed for mining under the 2013 zoning (Figure 4). The BAP proposes to protect all of the offshore zones of the Temperate East Marine Reserves from mining.

These proposals to expand mining protection to nearly all of the Temperate East Marine Reserve Network are welcome and much needed. However, it is not clear why the zones closest to the NSW coastline were not included in this expansion of protection.

Recommendations for management plans:

1. Accept the BAP proposals to increase protection from mining within the Temperate East Marine Reserve Network.
2. Consider expanding this protection to the zones closest to the NSW coast. This will achieve full protection of the Temperate East Marine Reserve Network from mining as has been achieved for the Coral Sea Marine Reserve and the Great Barrier Reef Marine Park to the north.

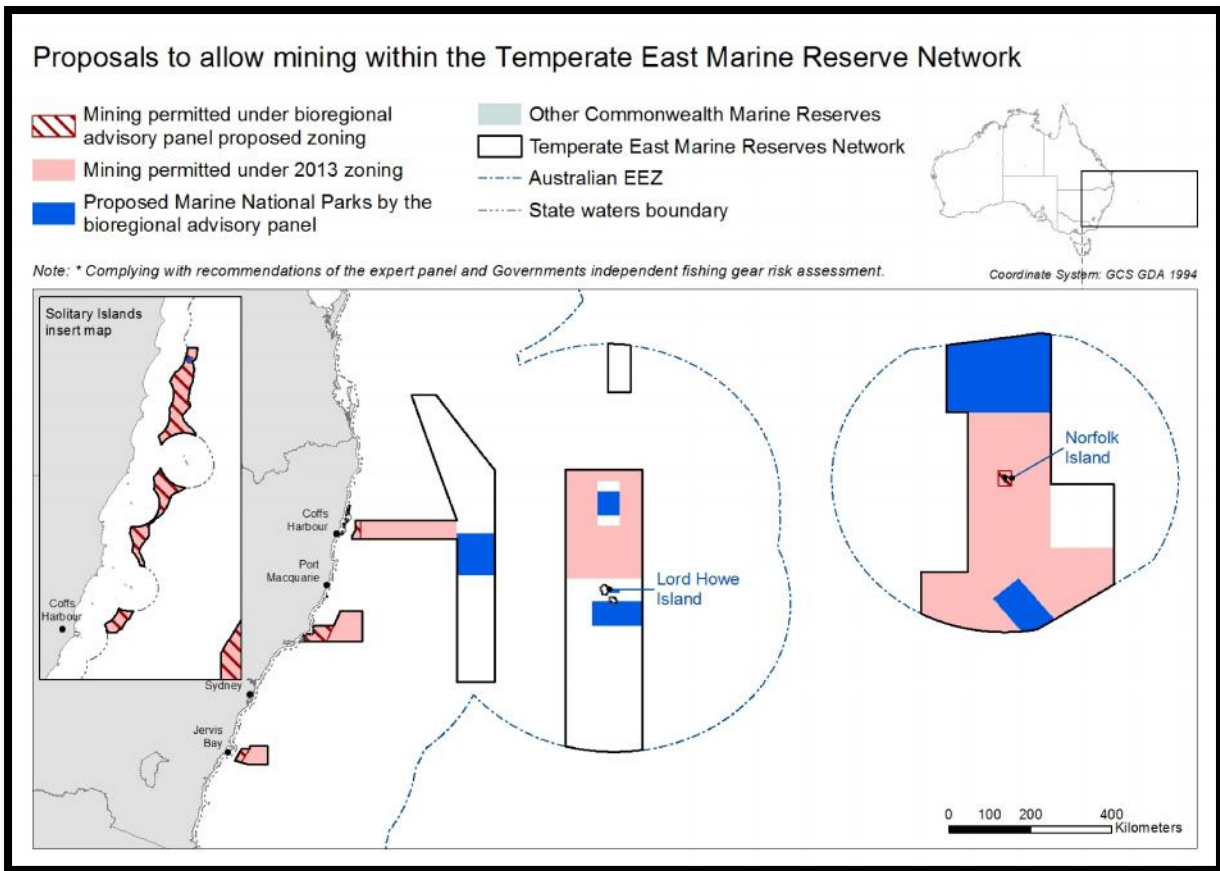


Figure 6: BAP proposals for mining within the Temperate East Marine Reserve Network

NORTH REGION

OVERVIEW

The 2013 North Marine Reserve Network included 3% of shelf habitats and 0% of upper slope habitats within Marine National Park Zones. This is well below scientific recommendations for protection.

ABARES estimates the total maximum impact of the 2013 North Marine Reserve Network on commercial fishing at \$2.1 million. There is therefore considerable room in the Government's structural adjustment budget for improving the shelf and upper slope Marine National Park Zones in the North.¹⁸

This is especially true when you consider that two-thirds (\$1.4 million) of that impact is on the Northern Prawn Trawl Fishery, which would be unlikely to require structural adjustment funding.

This is due to the fact that displacement would be negligible (less than 3% of catch), and that taxpayers have already given the fishery over \$50 million dollars in structural adjustment funding to help it become profitable again after years of negative economic returns.^{18, 79, 80}

The ESP found that the North region had particularly poor representation within Marine National Park Zones. The ESP identified the lack of representation of bioregions, depth ranges and other primary conservation features in the North region as particularly problematic. The ESP, along with the CSIRO recommended that each marine reserve contain at least one Marine National Park Zone and that Marine National Park Zone protection be extended to include the full range of bioregions, depth ranges and primary conservation features (as defined by the ESP).^{2, 81}

The BAP appears to have largely ignored these recommendations. The BAP proposes the first Marine National Park Zones for the Oceanic Shoals and Limmen Marine Reserves but then leaves the Joseph Bonaparte Gulf, Arafura, and Arnhem Marine Reserves without Marine National Park Zones.

The BAP also proposes the first Marine National Park Zones for the Oceanic Shoals and Pellew bioregions. However, the BAP also proposes that a further eight bioregions, the Cambridge-Bonaparte, Bonaparte Gulf, Anson Beagle, Timor Transition, Tiwi, Cobourg, Arnhem Wessel and Groote bioregions have no Marine National Park Zones.

Overall the BAP proposes that an additional 15 primary conservation features in the North have representation within Marine National Park Zones. However the BAP also proposes that more

⁷⁹ 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.

⁸⁰ Commonwealth of Australia, 2009. *Administration of the buyback component of the Securing Our Fishing Future structural adjustment package*, Australian National Audit Office, Canberra, ACT, Australia.

⁸¹ CSIRO, 2011. Submission to the Draft Commonwealth Marine Reserve Network Proposal for the North Marine Region.

than 50% (50/93) of primary conservation features have no Marine National Park Zones. This is still the type of outcome that the ESP described as particularly poor.

The ABARES estimates clearly show that there is no reason that these major deficiencies can’t be addressed. The Government should reject the BAP proposals to remove Marine National Park Zone protection over some of the North’s unique and under-protected shelf habitats. Instead the Government should heed the recommendations of the ESP and take up opportunities to increase Marine National Park Zone protection on the shelf and upper slope and represent the full range of primary conservation features within Marine National Park Zones.

PROPOSED LOSSES OF MARINE NATIONAL PARK ZONES

In the North, the BAP proposes the loss of Marine National Park Zones in the Wessel, Gulf of Carpentaria and West Cape York Marine Reserves. The total area of this proposed loss of Marine National Park Zone protection over high conservation tropical shelf habitats is more than eight times larger than the entire NSW state waters marine sanctuaries network.

The BAP puts forward a variety of reasons for the necessity of these proposed losses of Marine National Park Zone protection. The BAP’s claim for why these losses of Marine National Park Zone are necessary is not supported by the available evidence (Table 5).

TABLE 5: THE BAP RATIONALE COMPARED WITH THE AVAILABLE EVIDENCE FOR THE BAP’S PROPOSED LOSSES OF MARINE NATIONAL PARK ZONES IN THE NORTH MARINE RESERVE NETWORK.

Marine National Park Zone loss	BAP rationale	Available evidence
Gulf of Carpentaria Marine Reserve	Reduce impacts on the Mackerel Fisheries	ABARES estimates that the maximum economic benefit to mackerel fishers is less than \$2,000 per licence holder per annum. ^{18, 82}
West Cape York Marine Reserve	Reduce impacts on the Mackerel Fisheries	ABARES estimates that the maximum economic benefit to mackerel fishers is less than \$2,000 per licence holder per annum. ^{18, 82}
Wessel Marine Reserve	Reduce impacts on the NT Demersal Fishery	ABARES estimates that the maximum economic benefit to all commercial fisheries is less than \$5,000 per annum.

GULF OF CARPENTARIA MARINE RESERVE

The BAP proposes the loss of 3,721 km² of high conservation tropical shelf habitats in the Gulf of Carpentaria Marine Reserve adjacent to the Wellesley Islands, where Traditional Owners have declared one of Australia’s first marine indigenous protected areas.

⁸² <https://www.daf.qld.gov.au/fisheries/monitoring-our-fisheries/data-reports/sustainability-reporting/queensland-fisheries-summary/gulf-of-carpentaria-line-fishery>

This is the single largest loss of shelf protection proposed by the BAP. The BAP asserts that this is necessary to reduce the impact on mackerel fishers. The evidence does not support this.

ABARES estimates that the total benefit of changes to the Gulf of Carpentaria Marine reserve would be \$38,100 per annum to all commercial fisheries other than the Northern Prawn Trawl Fishery.¹⁸

This scale of economic benefit does not justify the loss in protection of high conservation value tropical shelf habitats in an area that is significantly larger than the entire marine sanctuary networks of New South Wales, Victoria, Tasmania and the Northern Territory state waters combined.

The BAP does propose an expansion to the Gulf of Carpentaria Marine National Park Zone elsewhere in the reserve (see section below). However, offsetting gains in Marine National Park Zones with losses, as the BAP has in the Gulf of Carpentaria Marine Reserve, means that the BAP fails to meet the ESP's recommendations for substantially increasing protection of shelf habitats.

Recommendations for management plans:

1. Reject the proposed loss of Marine National Park Zone in the Gulf of Carpentaria Marine Reserve.

WEST CAPE YORK MARINE RESERVE

The BAP proposes the loss of 1,468 km² of high conservation tropical shelf habitats in the West Cape York Marine Reserve adjacent to the Torres Strait. This is the third-largest single loss of shelf Marine National Park zone proposed by the BAP.

The BAP asserts that this is necessary to reduce impacts on Queensland mackerel fishers. The evidence does not support this.

ABARES estimates that the total maximum benefit of the proposed changes to all commercial fisheries is \$0.1 million per annum.¹⁸

This scale of economic impact does not justify the loss in protection of high conservation value tropical shelf habitats in an area larger than the total New South Wales and Victorian marine sanctuary networks combined.

The BAP does propose an expansion to the West Cape York Marine National Park Zone near Crab Island (see section below). However, offsetting gains in Marine National Park Zones with losses, as the BAP has in the West Cape York Marine Reserve, means that the BAP fails to meet the ESP's recommendations for substantially increasing protection of shelf habitats.

Recommendations for management plans:

1. Reject the proposed loss of Marine National Park Zone in the West Cape York Marine Reserve.

WESSEL MARINE RESERVE

The BAP proposes the loss of the north-east corner of the Wessel Marine National Park Zone. The BAP asserts that this is necessary to reduce the economic impact on trawlers in the NT Demersal Fishery. The evidence does not support this.

ABARES estimates that the total maximum benefit of the proposed changes in the Wessel Marine Reserve would be \$3,400 per annum to all commercial fisheries.¹⁸ Furthermore, the Government's independent Fishing Gear Risk Assessment found and the ESP upheld that trawling posed an unacceptable risk to the conservation values of the Wessel Marine Reserve.^{2, 83}

It would be a poor outcome to remove Marine National Park Zone protection over high conservation value tropical shelf habitats in order to provide a negligible economic benefit to a fishery assessed as incompatible with the conservation values of the reserve.

The BAP does propose an expansion to the Wessel Marine National Park Zone further south (see section below). However, offsetting gains in Marine National Park Zones with losses, as the BAP has in the Wessel Marine Reserve, means that the BAP fails to meet the ESP's recommendations for substantially increasing protection of shelf habitats.

Recommendations for management plans:

1. Reject the proposed loss of Marine National Park Zone in the Wessel Marine Reserve.

PROPOSED ADDITIONAL MARINE NATIONAL PARK ZONES

In the North, the BAP proposes new Marine National Park Zones in the Oceanic Shoals, Wessel, Limmen, Gulf of Carpentaria and West Cape York Marine Reserves.

OCEANIC SHOALS MARINE RESERVE

The BAP proposes the first Marine National Park Zone for the Ocean Shoals Marine Reserve and the Oceanic Shoals bioregion. This is a welcome and much-needed proposal that will provide the first-ever Marine National Park Zone protection for the unique habitats of this region.

With this proposal, the BAP takes a step towards meeting the ESP and CSIRO recommendations to have at least one Marine National Park Zone in each marine reserve.^{2, 81}

⁸³ Mary Lack Shellack Pty Ltd, 2010. *Assessment of risks that commercial fishing methods may pose to conservation values identified in the Areas for Further Assessment of the North and North-west Marine Regions*, Prepared for the Department of the Environment, Water, Heritage and the Arts, Canberra, ACT, Australia.

Furthermore, it helps the Government to meet the ESP's recommendation and the Government's 1998 guidelines for at least one Marine National Park Zone in each Australian marine bioregion.^{42, 84}

In the Oceanic Shoals Marine Reserve the ESP recommended that a higher level of protection be provided for the high conservation value carbonate banks and terraces of the Sahul Shelf and Van Diemen Rise. The BAP's proposals would increase the protection of the Van Diemen Rise key ecological feature within Marine National Park Zones from 0% to 0.4%, but protection of the Sahul Shelf key ecological feature would remain at 0%.

The ESP also recommended that the five survey sites established by Marine Biodiversity Hub within the Oceanic Shoals Marine Reserve be protected as scientific reference sites. The BAP's proposal is for protection of one of these survey sites.

The BAP's proposal also leaves five depth ranges within the Oceanic Shoals bioregion, with 0% representation within Marine National Park Zones. Unrepresented primary conservation features for which expanded Marine National Park Zones within the Oceanic Shoals Marine Reserve are critical include the Pinnacles of the Bonaparte Gulf (key ecological feature), the Tiwi bioregion, reef and bank/shoal seafloor features and three depth ranges within the Northwest Shelf Transition.

This is in spite of the ESP's findings that the Oceanic Shoals Marine Reserve is home to vulnerable and endangered coral species. The ESP found that recent surveys of sponges, one of the key surrogates for assessments of marine life in the North, found at least 29 and possibly up to a 100 sponge species that are completely new to science. This is further confirmation of the Oceanic Shoals as an area of extremely high conservation values that is deserving of greater protection.

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zone in the Oceanic Shoals Marine Reserve.
2. Consider expanding Marine National Park Zones in the Ocean Shoals Marine Reserve to establish scientific reference sites and appropriately protect primary conservation features as recommended by the ESP.

WESSEL MARINE RESERVE

The BAP proposes an extension of the Wessel Marine National Park Zone southwards. This is a welcome proposed increase in protection for the high conservation value shelf habitats of the Arafura bioregion.⁴²

The ESP recommended that the Government establish at least one Marine National Park Zone for each marine bioregion. The Wessel Marine Reserve is currently the only marine reserve

⁸⁴ ANZECC TFMPA 1998. *Guidelines for Establishing the National Representative System of Marine Protected Areas*. Australian and New Zealand Environment and Conservation Council, Task Force on Marine Protected Areas. Environment Australia, Canberra.

where the Government has an opportunity to establish a Marine National Park Zone in the Arnhem Wessel bioregion.

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zone in the Wessel Marine Reserve.
2. Consider establishing an additional Marine National Park Zone within the Wessel Marine Reserve for the Arnhem Wessel bioregion.

LIMMEN MARINE RESERVE

The BAP proposes the first ever Marine National Park Zone protection for the Limmen Marine Reserve and the Pellew bioregion. This is a welcome and much-needed proposal that will provide the first ever Marine National Park Zone protection for the unique habitats of this region.

With this proposal, the Commonwealth Marine Reserves network takes a step towards meeting the ESP and CSIRO recommendation to have at least one Marine National Park Zone in each marine reserve.⁸¹

Furthermore, it helps the Government to meet its 1998 agreement to establish at least one Marine National Park Zone in each Australian marine bioregion.^{42, 84}

However, the BAP proposal only represents one of the two depth ranges within the Pellew bioregion.

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zone in the Limmen Marine Reserve.
2. Consider expanding the Marine National Park Zone to include both depth ranges within the Pellew bioregion.

GULF OF CARPENTARIA MARINE RESERVE

The BAP proposes a large new Marine National Park Zone in the Gulf of Carpentaria Marine Reserve. This proposal provides much-needed protection to the high conservation value habitats to the north of the Wellesley Islands.⁵⁰

The BAP proposal increases the protection within Marine National Park Zones of the key ecological feature, plateaux and saddle north-west of the Wellesley Islands from 0% to 0.8%. This is still a very low level of protection, well below scientific standards.³⁷ This is especially true considering that the BAP also proposes that the remaining 99% of the key ecological feature be trawled by commercial prawn fishers. The ESP found in regards to opening up the Gulf of Carpentaria Marine Reserve to trawling that:

“consideration must be given to ensuring that sufficient areas are protected from the impacts of trawl, especially where there is an absence of Marine National Park Zones”

The BAP proposals ignore the advice the ESP increasing trawling access to this key ecological feature for Australian marine life from 1% to 99% while leaving protection within Marine National Park Zones below 1%. Marine National Park Zone protection of the plateaux and saddle north of the Wellesley Islands needs to be increased to a more sufficient level, as recommended by the ESP. This is especially true if the Government does not reject the BAP's proposals to open up this key ecological feature to bottom trawling.

The BAP proposals leave numerous North Region primary conservation features at 0% representation within Marine National Park Zones.⁴ This is counter to the recommendations of the ESP. Expanded Marine National Park Zones within the Gulf of Carpentaria Marine Reserve are critical to the representation of two primary conservation features, saddle seafloors and one of the biologically informed seascapes.

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zone in the Gulf of Carpentaria Marine Reserve.
2. Consider expanding the new Marine National Park Zone to include more of the high conservation value shelf habitats to the north of the Wellesley Islands and include the North Region saddle seafloor feature as recommended by the ESP.
3. Reject the BAP's proposals for bottom trawling within the Gulf of Carpentaria Marine Reserve.

WEST CAPE YORK MARINE RESERVE

The BAP proposes a large new Marine National Park Zone in the West Cape York Marine Reserve. This proposal provides much needed increased protection to the high conservation value habitats around Crab Island.⁵⁰

The BAP proposals while positive still leave the protection of biologically important areas mapped for turtles nesting on Crab Island at level well below scientific standards.³⁷ The Government should consider further extensions of the Marine National Park southwards to provide greater protection for these biologically important turtle habitats.

Recommendations for management plans:

1. Accept the proposed new Marine National Park Zone in the West Cape York Marine Reserve unless doing so requires accepting the loss of Marine National Park Zone in the West Cape York Marine Reserve.
2. Consider extending the new Marine National Park Zone southwards to protect more of the biologically important turtle habitats mapped by the Australian Government.

ADDITIONAL EXPERT SCIENCE PANEL RECOMMENDATIONS

The ESP recommended that:

*“each reserve should include at least one Marine National Park Zone and that a significant sample of each primary conservation feature and each provincial bioregion be included in at least one Marine National Park Zone of an appropriate configuration and size to meet conservation objectives.”*²

The BAP proposals appear to largely ignore this recommendation leaving three marine reserves, seven bioregions, four key ecological features, fifteen depth ranges, eighteen⁸⁵ biologically informed seascapes and six seafloor types unrepresented within Marine National Park Zones.⁴

The three North Marine Reserves the BAP proposes no Marine National Park Zones for are:

1. Joseph Bonaparte Gulf
2. Arafura
3. Arnhem

Establishing a Marine National Park Zone within the Joseph Bonaparte Gulf Marine Reserve could also include the following unrepresented primary conservation features: the Anson Beagle bioregion, the Bonaparte Gulf bioregion, the Cambridge-Bonaparte bioregion, the coast depth range of the Northwest Shelf Transition, and two of the North Region's biologically informed seascapes.

Establishing a Marine National Park Zone within the Arafura Marine Reserve could also include the unrepresented Timor Transition, Cobourg bioregion, two additional key ecological features, the apron/fan, canyon, ridge and slope seafloor features, four additional depth ranges within the Northern Shelf Province, seven additional depth ranges within the Timor Transition and four additional biologically informed seascapes.

Establishing a Marine National Park Zone within the Arnhem Marine Reserve would also ensure representation of the Arnhem Wessel bioregion and one additional biologically informed seascape.

New or expanded Marine National Park Zones are needed within the Oceanic Shoals Marine Reserve to include the following unrepresented primary conservation features: the Tiwi bioregion, two additional key ecological features, reef and bank/shoal seafloor features and three additional depth ranges within the Northwest Shelf Transition.

Expanded Marine National Park Zones within the Gulf of Carpentaria Marine Reserve are critical for the inclusion of saddle seafloor features and one of the North Region biologically informed seascapes.

Recommendations for management plans:

1. Include all primary conservation features within Marine National Park Zones as recommended by the ESP by:
 - a. establishing a new Marine National Park Zone within the Joseph Bonaparte Gulf Marine Reserve,

⁸⁵ It looks as though there might be a typo in the BAP report with the actual number of unrepresented North Region biologically informed seascapes more likely to be eight than eighteen, considering eleven are represented and there are a total of twenty documented by the ESP.

- b. establishing a new Marine National Park Zone within the Arafura Marine Reserve,
- c. establishing a new Marine National Park Zone within the Arnhem Marine Reserve
- d. expanding Marine National Park Zones within the Oceanic Shoals Marine Reserve,
- e. expanding Marine National Park Zones within the Gulf of Carpentaria Marine Reserve

PROTECTION FROM MINING

The BAP proposes that 86% of the North Marine Reserve Network's partially protected zones remain open for mining (Figure 7). The areas proposed for mining include key parts of the Northern Territory and Cape York coastlines.

These proposals represent an improvement on the areas proposed for mining under the 2013 zoning (Figure 7). The BAP proposals to protect the Limmen Marine Reserve, and parts of the Wessel, Oceanic Shoals, Arafura and West Cape York Marine Reserve from mining are welcome and much needed.

However, these proposals are somewhat tokenistic as major areas are also left open for mining. Mining is not appropriate in areas so close to the Northern Territory and Cape York coasts.

While it may be difficult to protect parts of the Joseph Bonaparte Gulf and Oceanic Shoals Marine Reserves where there are active oil and gas leases, there is no reason why all of the reserves to the east of the Oceanic Shoals Marine Reserve can't be fully protected from mining.

All areas within marine reserves not currently overlapped by mining leases should be considered for full protection from mining. As emphasised at the recent World Conservation Congress industrial activities like mining and mining exploration are not compatible with marine reserves.⁶² Except where there are exploration leases that predate the declaration of the marine reserve, marine reserves should be fully protected from mining as has been achieved in the Great Barrier Reef Marine Park and the Coral Sea Marine Reserve.

Recommendations for management plans:

1. Accept the BAP proposals to increase protection from mining within the North Marine Reserve Network.
2. Consider expanding this protection to all areas of the North Marine Reserve Network not currently overlapped by mining tenements.

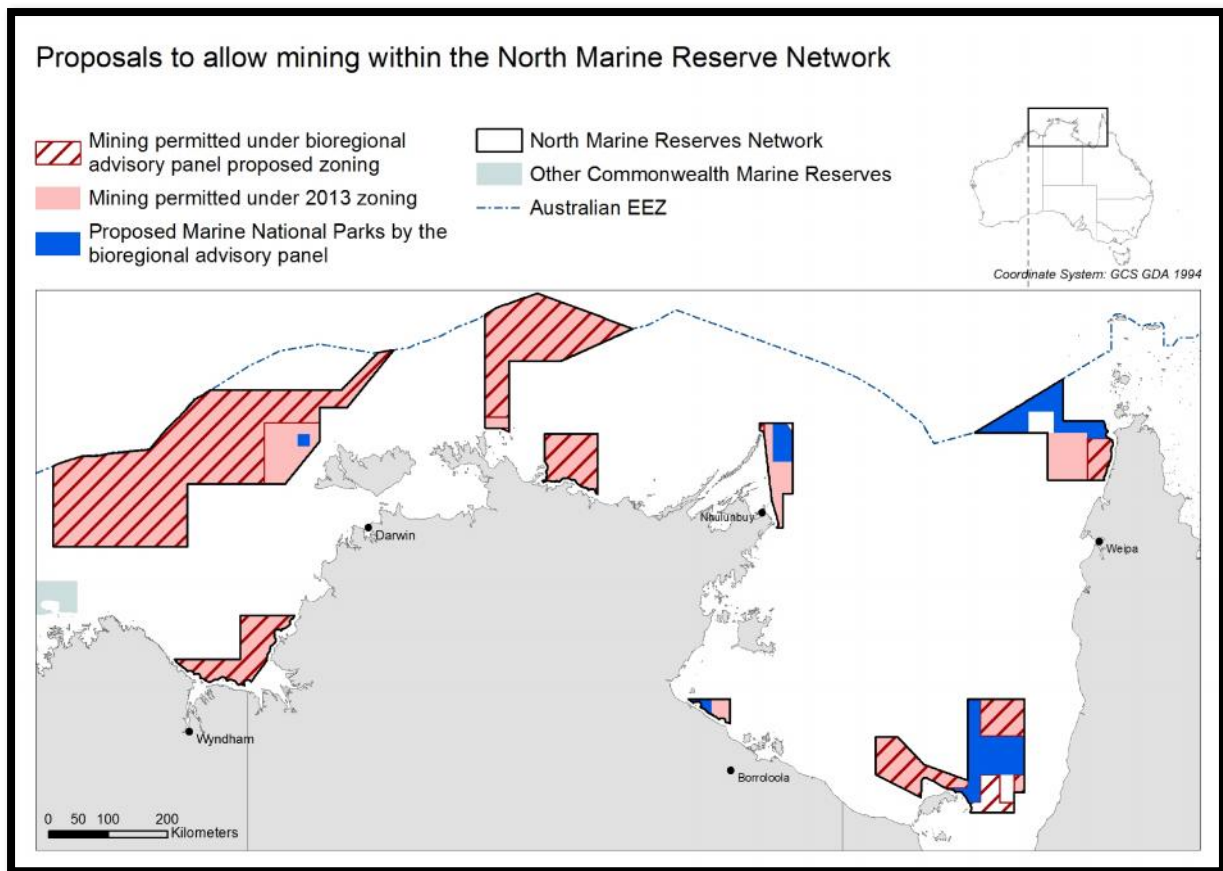


FIGURE 7: BAP PROPOSALS FOR MINING WITHIN THE NORTH MARINE RESERVE NETWORK

FOOTNOTES

1. <http://www.environment.gov.au/minister/frydenberg/media-releases/mr20160905a.html>
2. Beeton, R. J. S., Buxton, C. D., Cochrane, P., Dittmann, S. and Pepperell, J. G. (2015). Commonwealth Marine Reserves Review: Report of the Expert Scientific Panel. Department of the Environment, Canberra.
3. Commonwealth of Australia, 2014, *Marine Reserves Review – Terms of Reference*, <<http://www.environment.gov.au/system/files/pages/931ca952-fdd2-4e14-a512-0a5278d22c71/files/commonwealth-marine-reserves-review-terms-reference.pdf>>
4. Buxton, C. D. and Cochrane, P. (2015). Commonwealth Marine Reserves BAP: Report of the Bioregional Advisory Panel. Department of the Environment, Canberra. 341pp.
5. <http://www.saveourmarinelife.org.au>
6. The Temperate East, South-west, North-west and North Marine Reserve Networks and the Coral Sea Marine Reserve.
7. The term bioregion is easily confused. Planning regions, Bioregional Advisory Panels, meso scale bioregions, provincial bioregions and other terms are frequently mentioned

-
- without explanation. In this report bioregions refers to meso scale bioregions and provinces defined by IMCRA in: 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.
8. Halpern BS, Walbridge S, Selkoe KA, Kappel CV, Micheli F, D'Agrosa C, Bruno JF, Casey KS, Ebert C, Fox HE, Fujita R, Heinemann D, Lenihan HS, Madin EMP, Perry MT, Selig ER, Spalding M, Steneck R, Watson R (2008) A global map of human impact on marine ecosystems. *Science*, **319**(5865), 948.
 9. Ceccarelli, D.M., 2011. Australia's Coral Sea: A biophysical profile.
 10. CSIRO, 2012. Submission to the Draft Commonwealth Marine Reserve Proposal for the Coral Sea.
 11. Australian Research Council Centre of Excellence: Coral Reef Studies, 2012. *Coral Sea Marine Reserve Proposal*, Submission to the Draft Commonwealth Marine Reserve Proposal for the Coral Sea.
 12. Commonwealth of Australia, 2011. *Detailed analysis of the Proposed Coral Sea Commonwealth Marine Reserve*, Department of Sustainability, Environment, Water, Population and Communities, Canberra, ACT, Australia.
 13. Harnwell, J., 2011. Fishos the big winners in Burke's Coral Sea Plan, *Fishing World*, <<http://www.fishingworld.com.au/news/fishos-the-big-winners-in-burke-s-coral-sea-plan>>
 14. ABARES 2012, *Interim estimates of potential catch and gross value of production impacts of the proposed marine reserve in the Coral Sea*, ABARES report to client prepared for the Department of Sustainability, Environment, Water, Population and Communities, Canberra, February.
 15. De Brett Seafood Pty Ltd, 4 Seas Pty Ltd, Whan and Boxsell Pty Ltd and Great Barrier Reef Tuna Pty Ltd, 2012. Submission to the Draft Commonwealth Marine Reserve Proposal for the Coral Sea.
 16. SEWPaC, 2012. *Marine Bioregional Planning in the Coral Sea region: Overview of Public Consultation*, Department of Sustainability, Environment, Water, Population and Communities, Commonwealth Government, Canberra, Australia.
 17. And an additional 25% of the fisheries benefits flowing to the Northern Prawn Trawl Fishery meaning 91% of the predicted benefits flow to just two particularly well connected wealthy fisheries.
 18. Larcombe, J & Marton, N 2016, Potential displacement of commercial fisheries by a Commonwealth marine reserve zoning scheme: Report on Panel-recommended network. ABARES technical report to client prepared for the Department of the Environment, Canberra, September. CC BY 3.0.
 19. Patterson, H, Georgeson, L, Stobutzki, I & Curtotti, R (ed) 2015, *Fishery status reports 2015*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra. CC BY 3.0
 20. ABARES does not specify what proportion of this impact is within the Coral Sea Zone (west of 152°E, formerly called Area E) of the fishery where operators must also hold a Coral Sea boat statutory fishing right (SFR) (see <http://www.afma.gov.au/wp-content/uploads/2014/08/ETBF-management-arrangements-booklet-2015.pdf>). In the annual status report ABARES also does not document how many Coral Sea boat SFR

exist. Therefore there may be a disproportionate impact on particular operators based on the current spatial management arrangements in the fishery.

21. Commonwealth of Australia, 2009. *Administration of the buyback component of the Securing Our Fishing Future structural adjustment package*, Australian National Audit Office, Canberra, ACT, Australia.
22. Georgeson, L, Stobutzki, I & Curtotti, R (eds) 2014, *Fishery status reports 2013–14*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.
23. 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.
24. https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2012_RES_128_EN.pdf
25. Rivett X., 2011. *Reefs of the Coral Sea*. Protect Our Coral Sea, Cairns, Queensland, Australia.
26. KPMG, 2010. *Economic analysis of a Coral Sea Marine Park*, KPMG Econtech.
27. Edgar GJ, Ceccarelli DM, Stuart-Smith RD, (2015) Reef Life Survey Assessment of Coral Reef Biodiversity in the Coral Sea. Report for the Department of the Environment. The Reef Life Survey Foundation Inc. and Institute of Marine and Antarctic Studies.
28. Coral Sea Fishers Association Inc., 2009. *Memorandum of Understanding CSFA and CHARROA*.
29. Lester SE, Halpern BS (2008) Biological responses in marine no-take reserves versus partially protected areas. *Mar Ecol Prog Ser* 367: 49–56.
30. 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
31. 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
32. Sheers 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.
33. 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 Rottnest Island, Western Australia, *Marine and Freshwater Research*, Vol: 58, p. 286-292.
34. 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.
35. Dudley, N., 2008. *Guidelines for Applying Protected Area Management Categories*, International Union for the Conservation of Nature (IUCN), Gland, Switzerland.
36. Possingham, 2011. *Developing Australia's national system of marine reserves: A statement of concern about the proposal for Australia's South West Marine Region*, Submission to the Draft Commonwealth Marine Reserve Network Proposal for the South-west Marine Region.

37. 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
38. More than 10% of individuals tagged on Osprey Reef moved between Osprey and Shark Reef during the study.
39. Commonwealth of Australia, 2012. *Key Ecological Features*,
http://www.environment.gov.au/metadataexplorer/full_metadata.jsp?docId={093A2086-7DE3-41A7-B407-5BCCA7F400A5}&loggedIn=false
40. As a key ecological feature the coral reefs of the Marion Plateau were identified by the ESP as a primary conservation feature of the Coral Sea.
41. Commonwealth of Australia, 2011. *Biologically important areas for sharks of the Coral Sea*,
<http://www.environment.gov.au/metadataexplorer/full_metadata.jsp?docId={8A0BEEDF-3982-4DE3-904E-F3C7E0A345BF}&loggedIn=false>
42. 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.
43. Beaman R., 2012. *Great Barrier Reef and Coral Sea Geomorphic Features*, School of Earth and Environmental Sciences, James Cook University, Cairns, Queensland, Australia.
44. 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.
45. Species that occur nowhere else on Earth.
46. The ESP shows that according to current survey data Frederick Reef contains the full diversity of Coral Sea seasnakes including two species not recorded on any of the other reefs.
47. Centre for Conservation Geography estimate based on the predicted increase in abundance of western rock lobsters within Marine National Park Zones and the corresponding increase in egg production and spill over from migration.
48. Commonwealth of Australia, 2012. *Completing the Commonwealth marine reserves network: Regulatory impact statement*, Department of Sustainability, Environment, Water, Population and Communities, Canberra, ACT, Australia.
49. IUCN red list: <http://www.iucnredlist.org/details/2477/0>
50. Commonwealth of Australia, 2014. *Biologically important areas of regionally significant marine species*, Department of the Environment, Canberra, ACT, Australia.
<http://www.environment.gov.au/metadataexplorer/full_metadata.jsp?docId={5FDD27DB-60B0-443C-946B-219246223974}&loggedIn=false>
51. Recfishwest, 2011. *Recfishwest submission on the South-west Commonwealth marine network proposal*, Submission to the Draft Commonwealth Marine Reserve Network Proposal for the South-west Marine Region.
52. Perth Game Fishing Club, 2014. *Strike 2014*, <<http://www.pgfc.com.au/wp-content/uploads/2013/12/Strike-2014-magazine-sans-FAD-Pages.pdf>>

-
53. Beaver, D., Turner, J., Keily, T., and Douglass, L., 2015. *The South-west Marine Reserve Network: Centre for Conservation Geography report to the Commonwealth Marine Reserves BAP*, Centre for Conservation Geography, Sydney, NSW, Australia.
 54. 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.
 55. IUCN red list: <http://www.iucnredlist.org/details/14549/0>
 56. For example see <http://www.pressreader.com/australia/albany-advertiser/20160623/281672549239994>
 57. Compared to the shelf – 7.3% protected and the deep ocean – 16.3% protected.
 58. Plus the non-trawl commercial fishing values of the Marine National Park Zone on the inner shelf, which is proposed to be lost.
 59. Commonwealth Fisheries Association, Wildcatch Fisheries SA and Western Australian Fishing Industry Council, 2011. Submission to the Draft Commonwealth Marine Reserve Network Proposal for the South-west Marine Region.
 60. ABARES 2012 South-west Marine Region Commonwealth Reserve Network: Social and Economic Assessment of the Impacts on Commercial and Charter Fishing. ABARES report to client prepared for the Department of Sustainability, Environment, Water, Population and Communities, Canberra, June.
 61. There is still one active exploration lease operated by Murphy Australia EPP43 Oil Pty Ltd that overlaps slightly with the Great Australian Bight Marine Reserve.
 62. <https://dlnr.hawaii.gov/mk/files/2016/10/B.03x-Appx-A-IUCN-Motion-No.-26.pdf>
 63. The Commonwealth North-west Slope Trawl.
 64. CSIRO, 2011. Submission to the Draft Commonwealth Marine Reserve Network Proposal for the North-west Marine Region.
 65. Recfishwest, 2011. *Recfishwest submission to the north-west Commonwealth marine reserve network proposal*, Submission to the Draft Commonwealth Marine Reserve Network Proposal for the North-west Marine Region.
 66. Department of Parks and Wildlife 2015, Proposed Lalang-garram / Horizontal Falls and North Lalang-garram marine parks, and proposed Oomeday National Park, Department of Parks and Wildlife, Perth.
 67. Department of Parks and Wildlife 2016, Proposed North Kimberley Marine Park indicative joint management plan 2016, Department of Parks and Wildlife, Perth.
 68. Mustoe, S., 2008. *Kimberley Coast Natural Values Workshop, 5-7 February 2008*, Transcript of Results. WWF-Australia, Sydney, New South Wales, Australia.
 69. 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>
 70. Barnett, C., 2011. Submission to the Draft Commonwealth Marine Reserve Network Proposal for the North-west Marine Region
 71. West Australian Marine Parks and Reserves Authority, 2011. Submission to the Draft Commonwealth Marine Reserve Network Proposal for the North-west Marine Region
 72. CSIRO, 2012. Submission to the Draft Commonwealth Marine Reserve Network Proposal for the Temperate East Marine Region.

-
73. Woodhams, J, Vieira, S & Stobutzki, I (eds) 2012, *Fishery status reports 2011*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.
 74. Commonwealth of Australia, 2004. *Geomorphic features of the EEZ*.
<http://www.environment.gov.au/metadataexplorer/full_metadata.jsp?docId={45B47601-DFDD-4A33-AA58-59E4AF14F369}&loggedIn=false>
 75. Williams, A., Althaus, F., and Furlani, D., 2006. *Assessment of the conservation values of the Norfolk Seamounts area*, CSIRO Marine and Atmospheric Research.
 76. IUCN red list: <http://www.iucnredlist.org/details/44070/0>
 77. Central Eastern Shelf Transition depth ranges and biologically informed seascapes.
 78. All four unrepresented depth ranges of the Tasman Basin Province occur at Taupo Bank and two only occur there.
 79. 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.
 80. Commonwealth of Australia, 2009. *Administration of the buyback component of the Securing Our Fishing Future structural adjustment package*, Australian National Audit Office, Canberra, ACT, Australia.
 81. CSIRO, 2011. Submission to the Draft Commonwealth Marine Reserve Network Proposal for the North Marine Region.
 82. <https://www.daf.qld.gov.au/fisheries/monitoring-our-fisheries/data-reports/sustainability-reporting/queensland-fisheries-summary/gulf-of-carpentaria-line-fishery>
 83. Mary Lack Shellack Pty Ltd, 2010. *Assessment of risks that commercial fishing methods may pose to conservation values identified in the Areas for Further Assessment of the North and North-west Marine Regions*, Prepared for the Department of the Environment, Water, Heritage and the Arts, Canberra, ACT, Australia.
 84. ANZECC TFMPA 1998. *Guidelines for Establishing the National Representative System of Marine Protected Areas*. Australian and New Zealand Environment and Conservation Council, Task Force on Marine Protected Areas. Environment Australia, Canberra.
 85. It looks as though there might be a typo in the BAP report with the actual number of unrepresented North Region biologically informed seascapes more likely to be eight than eighteen, considering eleven are represented and there are a total of twenty documented by the ESP.

APPENDIX 1: CCG REPORTS TO THE COMMONWEALTH MARINE RESERVES REVIEW

TABLE 6: DOWNLOAD LOCATIONS FOR CENTRE FOR CONSERVATION GEOGRAPHY REPORTS TO THE AUSTRALIAN MARINE RESERVES REVIEW (MARCH 2015).

Planning Region	Report can be downloaded from:
Coral Sea	http://conservationgeography.org/content/ccg-coral-sea-report-australias-commonwealth-marine-reserves-BAP
South-west	http://conservationgeography.org/content/ccg-south-west-planning-region-report-australias-commonwealth-marine-reserves-BAP
North-west	http://conservationgeography.org/content/ccg-north-west-planning-region-report-australia-commonwealth-marine-reserves-BAP
North	http://conservationgeography.org/content/ccg-north-planning-region-report-australias-commonwealth-marine-reserves-BAP
Temperate East	http://conservationgeography.org/content/ccg-temperate-east-report-australias-commonwealth-marine-reserves-BAP