



31st October 2016

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Marine Reserves Management Planning Comments  
Department of the Environment and Energy  
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Dear Ms Barnes,

On behalf of the Ocean Science Council of Australia (OSCA), thank you for the opportunity to contribute to the Commonwealth Marine Reserve Management Planning (CMRMP) process. OSCA is a group of university-based independent marine researchers in the fields of law, ecology, economics and social science, with direct expertise in relation to the development of Australia's Commonwealth Marine Reserves Network (CMRN). We note that OSCA was not consulted during the review process.

### Summary

The 2012 expansion of the CMRN was a major step forward in the protection and management of Australia's oceans building on decades of research and an extensive community consultation process. It represented good progress towards establishing a scientifically-defensible network of marine reserves that would deliver marine conservation outcomes and act as reference areas to understand human impacts on our oceans. It also re-affirmed Australia as a world leader in marine conservation. However, the CMRN as proposed in the 2013 management plans was not perfect. The distribution of highly protected (no-take) Marine National Park Zones (MNPZs) was biased to deep waters and only 3% of the highly productive continental shelf was protected in MNPZs (Barr and Possingham, 2013). This is well below the globally recommended minimum of 30% both identified by the international science and management communities<sup>1</sup> and supported by empirical evidence (O'Leary et al. 2016). It is worth noting

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<sup>1</sup> World Conservation Congress (Hawaii 2016) Motion 53 <https://portals.iucn.org/congress/motion/053>; World Parks Congress (Sydney 2014) <http://worldparkscongress.org/downloads/approaches/ThemeM.pdf>

that this is also the standard achieved by the Howard Government over ten years ago with the rezoning of the Great Barrier Reef Marine Park to 33% MNPZ. The Government's Review provided an important opportunity to address these major deficiencies in the initial management plans and thus improve the protection of Australia's oceans. However, the Review has not delivered sufficient and scientifically defensible levels of representation in many important places, and indeed its recommendations broadly erode coverage of the MNPZs as proposed in 2013.

The Review's terms of reference require it to make recommendations to the Minister that are evidence-based. To this end, zoning recommendations must be consistent with the full range of goals and principles of the National Representative System of Marine Protected Areas (NRSMPA), including the CAR (Comprehensive, Adequate and Representative) principles. Indeed, the ESP Report within the Review recognises the scientific evidence that:

*"... because MNPZs are important scientific reference sites for monitoring change within and outside reserves, 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 MNPZ of an appropriate configuration and size to meet conservation objectives" (Beeton et al. 2015; p110)*

and

*"the strongest biodiversity and conservation benefits are delivered by excluding extractive activities from marine reserves [although] less restrictive management regimes can also deliver biodiversity benefits" (Beeton et al. 2015; p 115).*

The Bioregional Advisory Panel (BAP) Report within the Review states that

*"Scientific information was a key input and consideration in recommended new zoning and management arrangements." (Buxton and Cochrane 2015; p 13).*

However, OSCA has seen very little evidence that the review process has focussed on scientific evidence nor that the findings from the ESP are reflected in the BAP recommendations. Worryingly, the BAP recommends that highly biodiverse areas previously protected, such as the globally significant Rowley Shoals in the North West, be opened to commercial fishing, and that the large MNPZ in the Coral Sea be reduced by 26%. The Coral Sea large MNPZ was to be Australia's major (and only) contribution to the protection of intact pelagic marine life at a large scale, consistent with initiatives in New Zealand, the UK and the US to establish very large, fully protected marine reserves.

The overall emphasis of the Review appears to have largely focused on eroding the critically important zones of high protection for zones of lesser protection, changes that have little scientific basis. As they stand, the recommendations fail to address the full set of goals and principles underlying the NRSMPA, instead skewing heavily towards a much narrower subset of goals and principles around minimizing socio-economic costs. However, any such socio-economic gains through the erosion of protection appear marginal at best.

## Marine National Park Zones need to be increased not decreased

The Australian Government can have confidence in the level of consensus that now exists within the international marine research community with respect to the importance of MNPZs in delivering conservation and economic outcomes. This confidence is reflected in myriad international and national “consensus” statements released over the last decades (compiled at <http://www.meeuwig.org/outreach/consensus-statements>). The Great Barrier Reef Marine Park is an exemplar of the benefits with respect to enhanced biodiversity following protection of 33% of the region in no-take MNPZs (McCook et al. 2010). Research shows MNPZs generally increase the number of species, abundance of fish, and the size of fish, and create spill-over of larval and adult fish into adjacent areas (Lester et al. 2009; Harrison et al. 2012; Butcher et al. 2014).

In a rapidly changing climate, MNPZs need to be expanded, not decreased. Research shows MNPZs generate resilience in the face of climate change, helping areas to recover more quickly than areas outside MNPZs (Bates et al. 2014; Olds et al. 2014). As Australia grapples with fires, bleaching events, drought and floods, and with more variable weather than previously experienced, ecosystem resilience is a key concern. It is critical that ecosystems recover quickly from climate-driven pressures, and that ecosystem services (and the economic benefits derived from them) can continue to be delivered. Recent research from MNPZs near Brisbane demonstrated that the fully-protected reefs recovered from flooding damage faster than reefs open to fishing (Olds et al. 2014). Similarly, research from the Great Barrier Reef shows that inside MNPZs, the impact of disturbances such as coral bleaching and storms, was reduced by 38% for fish and by 25% for corals compared with unprotected reefs (Mellin et al. 2016). This was despite the fact that protected areas were subject to more frequent disturbances than unprotected ones.

Australian marine economists have also highlighted the important economic role of MNPZs in accelerating the recovery of fisheries following declines in fish populations due to natural or human-induced causes (Grafton et al. 2006). This economic value of increased resilience derived from MNPZs is high enough that the long-term net effect on fisheries can be positive.

Despite all the evidence that support the benefits of MNPZs and their critical role in buffering the impacts of climate change, the Review recommends the removal of a significant amount of MNPZ areas from the reserve system. Specifically, the Review recommends that 127,000 km<sup>2</sup> of area currently zoned as MNP be removed, with the Coral Sea losing 26% of its large contiguous MNPZ. This recommendation has no scientific grounding nor economic justification given the marginal benefits returned to industry identified in the ABARES assessment of the Review’s recommendations (Larcombe and Marton 2016; Beaver and Turner 2016). The substantial reduction in MNPZ coverage is a major step backwards from the zoning proposed in the 2013 CMR Management Plans, which were already criticised for their bias towards minimising impacts on extractive uses. By allowing activities to continue through most of the CMRN, Australia is overlooking the primary roles of marine parks – that of biodiversity conservation and as scientific reference areas – and risks placing itself in a position where it undermines the network’s potential to deliver conservation benefits on the scale required for robust management and maintenance of properly functioning marine systems in a rapidly changing world. It also fails to achieve the principles of Comprehensive, Adequate, and Representative (CAR) protection which are the underlying foundations of the NRSMPA and the Goals and Principles which guide its implementation.

MNPZs are a vital element in managing and conserving biodiversity, and in providing reference sites against which areas outside MNPZs can be compared to assess the impact of human activity and the efficacy of

management arrangements. Australia's CMRN is already highly 'residual' in that MNPZs have in large part been relegated to areas that minimise interference with extractive activities (Barr and Possingham 2013; Devillers et al. 2015). Most of the current MNPZs and in many cases entire CMRs are located in areas that are neither priorities for conservation nor useful as reference sites to assess the impact of human activity outside the network. Reducing the MNPZs within the CMRs, as is recommended in the Review, further exacerbates this problem.

**Recommendation:** The Government should increase representation of major habitats in MNPZs in a fully replicated design (i.e. multiple examples of each habitat with full protection) within the CMRN, meeting the international standard for "protection of both biodiversity and ecosystem services [that includes] at least 30% of each marine habitat ... [with] no-extractive activities"<sup>2</sup>. This target, agreed at the World Parks Congress (Sydney, 2015) was also adopted by the IUCN Members Assembly at the World Conservation Congress (Hawaii 2016), which adopted the motion that "State and Government Agency Members designate and implement at least 30% of each marine habitat in a network of highly protected MPAs" with the "ultimate aim of creating a fully sustainable ocean at least 30% of which has no extractive activities"<sup>3</sup>. Targets for highly protected areas of around 30% are underpinned by empirical analyses, for example as documented by O'Leary et al. (2016).

### **Coral Sea MNPZ protection must be retained**

OSCA regards the Review's recommendation for a significant reduction in MNPZ coverage within the Coral Sea as a significant retrograde step. We approve of the additional MNPZ coverage recommended, i.e. adjacent to the GBRMP (thereby creating connectivity with MNPZs on the outer edge of the GBRMP), the three new MNPZs recommended over Wreck, South Flinders, and Eastern Holmes Reefs, and the expansion of protection at Coringa Islets. However, the significant losses and fragmentation of the existing MNPZ zone as recommended have no scientific basis, e.g. fragmentation of MNPZ protection at the Osprey Reef Group, and removal of MNPZ protection at Bougainville Reef and Marion Reef. The latter is particularly important as a long-protected isolated reef. The large and intact MNPZ covering the Coral Sea was to be Australia's major contribution to the global protection of intact pelagic marine life at a large scale, consistent with the scale of newly established highly protected marine parks being established globally, for example in New Zealand, the UK, Palau, Chile, and the USA. Moreover, France is in the process of creating a large marine reserve over its Coral Sea Territory, adjacent to Australia's Exclusive Economic Zone, and the combined protection would be globally significant. The Review's proposal to fragment and reduce the size of the large MNPZ by 26% represents a major strategic failure with no basis in science.

The BAP states that several of the Coral Sea reefs are very large and, thus, in their opinion, can be "zoned to achieve conservation (MNPZ) alongside low impact recreational and charter fishing (HPZ (Reefs))" (Buxton and Cochrane 2015; p. 185). No evidence for this opinion is provided, and this view is contradicted by the peer-reviewed literature. Edgar et al. (2014) found that the effectiveness of marine reserves to achieve meaningful conservation outcomes required five key features, including that protected area should be continuous, isolated and large. Large intact MNPZs are also necessary to protect relatively mobile species such as tunas and oceanic sharks (Koldewey et al. 2010; Wilhelm et al. 2014) and turtles (Scott et al.

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<sup>2</sup> <http://worldparkscongress.org/downloads/approaches/ThemeM.pdf>

<sup>3</sup> <https://portals.iucn.org/congress/motion/053>

2012). The BAP provides no information on what constitutes “low-impact” recreational fishing, nor do they allow for growth in the sector. The BAP also does not seem to acknowledge the well-established scientific conclusion that partial protection (e.g. excluding commercial fishing but permitting recreational fishing) does not generate conservation benefits comparable to those of fully protected marine reserves (see below). The BAP’s recommendation to fragment and reduce the Coral Sea MNPZ also fails to recognise that management costs are inversely correlated with reserve size, i.e. larger and simpler is cheaper (Ban et al. 2011).

As mentioned earlier, the establishment of very large MNPZs in offshore environments is increasing as more nations acknowledge their significance and importance as a conservation measure. Their establishment is supported by the recognised failure of regional fisheries arrangements to stem the decline of oceanic species (Juan Jorda et al 2011; Stevens et al. 2000), and the recognised value of retaining examples of relatively intact marine ecosystems in which pelagic species are maintained or supported in recovery.

International policy momentum, including among several of our key regional and trading partners, is progressing the establishment of large MNPZs, not eroding them. Australia has held a role as a global leader in management of its oceans, and the fragmentation of this significant MNPZ in the Coral Sea CMR will tarnish Australia’s reputation and our ability to influence regional efforts towards sustainable marine resource management, as well as reducing conservation outcomes at the expense of minimal economic benefit.

**Recommendation:** The Government should retain the Coral Sea CMR’s large MNPZ with no reduction in areal coverage or location, since it is one of the few locations within Australia’s EEZ where a very large marine national park is currently possible with minimal impact on industry. The Government should reject the recommendations to reduce reef protection at Osprey, Shark, Vema, Bougainville and Marion Reefs, and accept the additional protection recommended for key reefs such as Wreck, south Flinders and east Holmes and the additional MNPZs bordering the GBRMP as recommended by the Review.

### **Increase MNPZ representation, particularly across the continental shelf**

Across the CMRN, the BAP has failed to recommend zoning that reflects key advice from the CSIRO that all marine reserves should contain at least one no-take MNPZ. This failure by the BAP is also despite the advice of the Review’s Expert Science Panel (ESP) that *“because MNPZs are important scientific reference sites for monitoring change within and outside reserves, each reserve should include at least one MNPZ and that a significant sample of each primary conservation feature and each provincial bioregion be included in at least one MNPZ of an appropriate configuration and size to meet conservation objectives”* (Beeton et al. 2015; p110).

Instead, the BAP has recommended zoning without MNPZs for five CMRs in the North-west Region, three CMRs in the Temperate East Region, one in the South-west Region and three CMRs in the North Region. Additionally, the BAP recommendations further erode the value of the CMRN by increasing its residual nature; MNPZs are increasingly relegated to locations chosen to minimise disruption to current commercial fishing activity rather than locations that address the Comprehensive, Adequate, and Representative (CAR) principles. Establishing MNPZs in residual areas severely limits capacity to deliver meaningful conservation

outcomes and provide suitable reference areas for assessment of impact in habitats subject to extraction and other human activity (Devillers et al. 2015, Barr and Possingham 2013). Diminishing the existing protection even further exacerbates this problem and detracts from fundamental scientific principles.

The continental shelf constitutes about 22% of Australian waters (Geoscience Australia 2005). The continental shelf continues to have the least amount of MNPZ coverage, despite that marine life is most diverse and human impacts most intense in coastal waters. Under the now-discarded 2013 Management Plans, less than 4% of the continental shelf was protected within MNPZs (Barr and Possingham 2013) and the Review has not addressed this notable deficiency in its recommendations. Each region continues to have only small amounts of continental shelf within MNPZs, e.g. the shelf and slope of the Temperate East remain virtually unprotected with only 0.01% (shelf) and 0% (slope) protected within MNPZs. The trend to locate MNPZs in residual areas means that important conservation outcomes are missed and that it is difficult or impossible to quantify human impacts in the major habitat areas in which they occur.

Larger proportional protection is required in bioregions or ecosystems with more heterogeneous physical and biological characteristics and more exposure to threats (Pressey et al 2003; Desmet and Cowling 2004). This approach should therefore increase the extent of MNPZs toward the continental shelf, which is the most heterogeneous and heavily utilised region of Australian waters (Williams et al. 2009); however, the recommendations in the Review are in quite the opposite direction.

**Recommendation:** As a bare minimum, the Government should meet the CSIRO recommendations (as stated in their submissions to the development of the CMRN) for each CMR to include at least one MNPZ, with a particular focus on ensuring that the shelf, continental slope and seamounts are better represented within MNPZs.

### **Partial protection (Habitat Protection Zones) does not deliver biodiversity benefits of MNPZs**

The Review proposes the allocation of an additional 456,607 km<sup>2</sup> to Habitat Protection Zones (HPZs) to the CMRN. OSCA supports the proposals where this protection represents an increase in the level of protection, e.g. IUCN VI to IUCN IV or IUCN II, and protecting important conservation areas from extractive uses such as mining. However, we do not support an allocation to HPZ where it is proposed to replace an MNPZ. HPZs allow some form of fishing and thus do not afford the same level of protection as MNPZs, and reduced levels of protection result in reduced conservation outcomes (Denny and Babcock 2004; Shears et al. 2006; Lester and Halpern 2008; Di Franco et al. 2009; Sciberras et al. 2015). There is a significant level of smoke-and-mirrors here where the BAP does not acknowledge the downgrade of many of the MNPZs to HPZs. Instead it obfuscates this downgrading when summarising the protection outcomes by emphasizing that, *“together with Marine National Park (IUCN II) and Sanctuary (IUCN 1a) zones, the additional area zoned as Habitat Protection increases the proportion of the reserve estate receiving a high level of protection from 60 % to 76%”* and in the Coral Sea *“the combined area zoned for high level protection (IUCN Ia, II and IV) increases from 80 % to 97% of the reserve.”* (Buxton and Cochrane 2015; p 14). This implies that conservation outcomes from IUCN IV are comparable to those from IUCN Ia and II – this is not the case as confirmed by the ESP and as documented in the scientific literature.

It is well established that partial protection (e.g. “habitat protection zones” that allow some forms of fishing) does not generate biodiversity benefits anywhere near that achieved by MNPZs (Denny and

Babcock 2004; Shears et al. 2006; Lester and Halpern 2008; Di Franco et al. 2009; Sciberras et al. 2015). In particular, Sciberras et al. (2015) concluded that “while [partially protected areas] PPAs significantly enhance density and biomass of fish relative to open areas, [no-take reserves] NTRs yielded significantly higher biomass of fish within their boundaries relative to PPAs.” Edgar et al. (2014), in their seminal paper in *Nature*, concluded that “no-take” is a critical feature of successful marine reserve in generating biodiversity outcomes and Australia’s peak marine science body, the Australian Marine Sciences Association (AMSA), made clear in its submission to the CMR Review that “Any rezoning to include more habitat protection, even if ‘better’ than general use, is still not no-take and therefore cannot be considered to satisfy CAR principles”<sup>4</sup>. Finally, it should be emphasised that HPZs open to fishing within marine reserves are of no use to assess the effects of fishing and efficacy of fishery management outside of reserves.

Finally, there is a considerable and growing body of scientific evidence that suggests that partial protection, as would occur if MNPZs were replaced with HPZs in the CMRN, would still accrue much of the management costs while adding much less in the way of meaningful, measurable conservation outcomes than MNPZ (Ban et al. 2011, Sciberras et al. 2015).

**Recommendation:** The Government should retain all previously identified MNPZs and not downgrade these fully protected areas to partial protection such as HPZ. New HPZs recommended by the Review should be retained where this increases the level of protection, unless the area should be zoned as an MNPZ to meet CAR principles. For example, a HPZ has been recommended for Adele Island in the North-west Region, which is one of the most important seabird nesting sites in the Kimberley and home to globally unique coral reefs. This area requires protection from all extractive activities, including fishing and hence an MNPZ is required.

## Conclusion

OSCA recognises that stakeholders have concerns when management arrangements and existing access change. However, the history of marine reserve planning and establishment is one in which initial resistance from some extractive users is generally followed by a demonstration that MNPZs did not have significant negative outcomes for these stakeholders, particularly compared to the scale of impacts predicted by these sectors before establishment. Moreover, stakeholders often go on to embrace MNPZs as they observe their benefits, both in terms of commercial fisheries (Goñi et al. 2010), recreational fisheries (Pascoe et al. 2014, Arias and Sutton 2013), tourism (Vianna et al. 2012), and education (Angulo-Valdes et al. 2010).

Stakeholders and tax payers more generally want to know that changes to ocean management will generate benefits and be cost-effective. Changes to the CMRN that reduce protection level, reduce coverage of key ecological features, or increase residuality in the location of MNPZs may also mean that much of the extractive uses that would have occurred in the absence of a CMRN continue effectively as if no CMRN was established at all. This ‘business as usual’ approach is damaging to meaningful marine conservation as it creates a large reserve system that is unlikely to provide the desired conservation outcomes; it represents the deliberate design of a system for poor conservation performance. It may also

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<sup>4</sup> <https://www.amsa.asn.au/sites/default/files/AAA%20AMSA%20Submission.pdf>

hinder the need for more protection in the future, since an area may be deemed to have sufficient protection, even if it is not representative of the biodiversity or reflective of the threats facing a region. It would leave the CMRN open to the charge that it is comprised of “paper parks” with associated costs but few conservation outcomes. Such an outcome will ultimately undermine public support for ocean management and protection.

Decision-makers and the community value evidence-based policy. At a time of rapid environmental change, there is a great need for responsive management underpinned by strong science. In addition to the recommendations above, in order to be fit for purpose, the CMRN will need to embrace the need for representative and replicated MNPZs of adequate size, provide clear direction recommending scientific monitoring of zoning effectiveness, and allocate essential resources for science and enforcement. An appropriately designed and scientifically based CMRN can co-exist alongside important marine industry and other human activity for mutual benefit.

Yours sincerely



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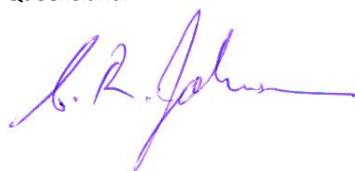
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<sup>5</sup> Note, these are but the most proximate references. The peer-reviewed literature supports the points made in this statement of concern and additional support can be provided if requested.

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