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20 September, 2017

Ms Sally Barnes
Director of National Parks
Department of the Environment and Energy

Dear Ms Barnes,

RE: Comments on the Commonwealth Marine Reserves Draft Plans 2017

On behalf of members of the Australian Marine Sciences Association (AMSA), I am pleased to provide comments on the Draft Management Plans for Australia's Marine Parks. AMSA represents Australian marine scientists from academia, industry, and government and engages in public policy discussion where we have specialist knowledge. Founded in 1963, the organisation has grown into Australia's largest organisation for marine scientists; representing approximately 700 professional marine scientists across all Australian states and territories.

In order to provide the most comprehensive, and specific, comments for this submission we asked our State Branches to conduct open, roundtable, discussions with their members. The following comments are science- based, with reference to peer-reviewed articles where possible, or follow general scientific principles as they apply to the International Union for the Conservation of Nature.

AMSA welcomes that draft management plans were released for comment, and agrees with some of the newly proposed zoning, However, AMSA objects strongly to the substantial reduction in the area of highly protected zones, and to the vagueness in management regulations and transparency. The draft management plans indicate a deviation from science-based conservation planning, and risks missing the objectives of achieving biodiversity conservation. AMSA highly recommends a revision of the management plans following CAR principles. Below we outline our major issues with the current draft plan and also make comments relevant to specific Regions and Parks. AMSA would be happy to provide further information associated with this submission if required.

Kind regards,

Associate Professor Will Figueira
President, AMSA

General Comments

AMSA has previously made submissions regarding the establishment of the Commonwealth Marine Reserves, the Independent Review, and has a standing position statement on Marine Protected Areas that can be found here <https://www.amsa.asn.au/position-statements>. Briefly, AMSA expects that any marine zoning plans and the establishment of protected areas in particular, should be decided based on the Principles of Comprehensiveness, Adequacy and Representativeness (CAR) as outlined in the Guidelines for Establishing the National Representative System of Marine Protected Areas for Australia (ANZECC-TFMPA 1998) which is part of the 1996 National Strategy for the Conservation of Australia’s Biological Diversity (the Biodiversity Strategy, DEST). In providing comment on the management plans for Australia’s Marine Parks AMSA believes that the selection and establishment of marine reserves should rest on a strong scientific foundation. Since the first scientific studies on MPAs were undertaken in the early 1970s, a clear global scientific consensus has developed on the benefits of highly protected MPAs, and also, the urgent need for governments to establish such areas. This is recognised through nearly five decades of independent, peer-reviewed science on the ecosystem and societal benefits of MPAs, and also consensus and position statements by our leading marine science experts and organisations. In 2009, Australian experts in marine conservation science provided a guidance statement to the Commonwealth Government that contained advice on how a comprehensive, adequate and representative network of marine sanctuaries could be established (The Ecology Centre 2009).

In our previous submission to the Commonwealth Marine Reserves Review (Buxton and Cochran 2015) we noted a series of instances where the recommendations of the expert scientific panel were not taken on-board. AMSA notes that the new draft management plans, rather than addressing these inadequacies, seems to depart even further from the overall recommendations. We are concerned that, whilst the process to date claims to be science-based and consultative, in reality this is not the case.

Standardized designation and clarification of allowed activities

AMSA notes the change from the terminology “Marine Reserves” to “Marine Parks”. However, although the latter is better, we suggest that the terminology should be compliant with the IUCN and Australian EPBC Act (1999) and thus be called Commonwealth Marine Protected Areas, rather than Reserves or Parks. MPA is an overarching term which encompasses all the IUCN categories and the various levels of protection offered and is also included in the EPBC Act (1999). We will use IUCN zone type designations throughout this document as this should be the benchmark by which zoning arrangements are judged.

CMR designation	IUCN category
Sanctuary Zone	Ia
Marine National Park Zone	II
Recreational Use Zone	II & IV
Habitat Protection and Conservation Park Zone	IV
Special Purpose Zone	VI
Multiple Use Zone	VI

Some important detail in the current draft management plans requires clarification. Firstly, in regard to activities within IUCN VI zones that are classed as “allowed with authorisation”, we note that nearly all activities fall in this class, with very few completely prohibited, and if all are permitted the zones then we will effectively have “business as usual”. Having exceptions makes compliance monitoring difficult and complicates management, while also reducing the level of protection and effectiveness of the zoning. More information is needed on how approvals will be granted, who will approve these, criteria for approval, and whether different activities will have dissimilar methods or levels of assessment and approval.

Shift in focus away from conservation of biodiversity

AMSA notes that the proposed Draft Management Plans put decreasing emphasis on the conservation of biodiversity, instead focusing zoning arrangements around social and economic values. The outcome of this is visible in the general lack of IUCN 1a zones, substantially reduced area devoted to IUCN II no-take zones and general lack of representative coverage of key ecological features within these areas of high-level protection. While AMSA acknowledges, there must be a balance, the shift away from prioritizing biodiversity conservation will lead to a reserve network which is very unlikely to be effective for this purpose.

Unsuitable zoning design for evidence-based adaptive management

For AMSA, one of the most concerning aspects of the draft management plans is that the zoning that has been put forward will generally be not appropriate for the development of rigorous scientific tests of the effects of protection. In 40% of proposed Marine Parks (17 out of 44) there are no IUCN II zones at all – i.e. there are no reference sites where all extractive activities are prohibited within these individual parks. Further, where IUCN II zones are included in marine parks, these are generally not replicated and key conservation features are excluded from these zones. This clearly contravenes the recommendations provided by the *Commonwealth marine reserves review: report of the expert scientific panel (Beeton et al. 2015)*, which state: “each reserve should include at least one Marine National Park Zone” and “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.” This lack of no-take zones will undermine our ability to determine the effectiveness of the different zones for managing marine parks to ensure the protection of marine habitats and species while enabling use. This also impedes the development of evidence-based effective adaptive management, as the adequacy of responses to the different types of zones cannot be rigorously assessed. The lack of these reference zones is also detrimental to scientific designs that are considering off-park management of natural resources.

The proposed monitoring outlined in the current draft management plan is also very vague. Clear objectives and an adaptive management framework are needed in order for an effective monitoring plan to be designed. Criteria for assessing performance of the reserves, as well as evaluation and reporting requirements are unclear. These aspects are critical to meet statutory requirements. Appropriate biological and environmental indicators and ecologically appropriate trigger values need to be determined, which should be subject to review as part of the adaptive management cycle. Clear management plans in response to trigger values also need to be established to allow rapid response to identified biological and environmental changes. In particular, climate change should be considered in all management plans (see below, Davies et al. 2016) as part of a clear performance assessment monitoring and evaluation plan.

Lack of high level protection in most marine parks

In 42 of the 44 proposed Marine Parks, the highest level of protection in the proposed draft Marine Park management plans is IUCN II – i.e. these are protected areas managed mainly for ecosystem conservation and recreation. There are only two IUCN Ia zones (Strict nature reserve: protected area managed mainly for science, called Sanctuary Zones in the Plan), both in the Northwest region: Ashmore Reef (an internationally protected RAMSAR site) and Cartier Island. As stated by the Australian Government’s own web resources (<http://www.environment.gov.au/node/20957>), IUCN Ia zones “can serve as indispensable reference areas for scientific research and monitoring”. The current draft plans, which have not included Sanctuary zones in 42 of the 44 proposed parks, are therefore inadequate in terms of providing essential scientific reference areas and the preservation of natural condition. There are almost no areas that are being managed for ecological condition or conservation alone. All areas are, by definition, being managed for conservation and other uses including fishing and recreation – objectives which often compete when considering matters such as access, permitted activities and social vs economic and ecological values.

Downgrading of protection across the network

The current draft plans have downgraded many areas from IUCN II to IV and others, such as Mermaid Reef which has stood since 1991 have been downgraded from IUCN Ia to II. IUNC II area has gone from over 36% in the 2012

plan to 20% in this draft plan while IUCN IV area has nearly doubled (24% to 43%, Figure 1). There seems to be an expectation that the increased risk exposure inherent in this shift from no-take to partial protection is to be compensated for by effective fisheries management within other zones types. AMSA acknowledges that effective fisheries management should be a cornerstone of resilient marine ecosystems, but it is not a substitute for no-take areas. Indeed, recent analysis of continent-wide fishery independent data shows substantial declines in the biomass of large fishes in areas outside reserves (where fisheries management is present) while no such change is observed inside no-take areas (Edgar et al., draft manuscript). Partial protection is widely acknowledged in the scientific literature as an inadequate alternative to no-take protection, with inferior ecological outcomes in terms of biodiversity or in terms of abundance, biomass and body size of fish, which are often similar to completely unprotected areas (Edgar et al. 2014, Costello and Ballantine 2015, Giakoumi et al. 2017). This is a point of our Oct 2016 submission to the review and unfortunately this issue has only become greater in the current draft management plans. These changes further exacerbate the situation where not all reserves have IUCN II zones and represent a degradation in the biodiversity conservation aims of the network.

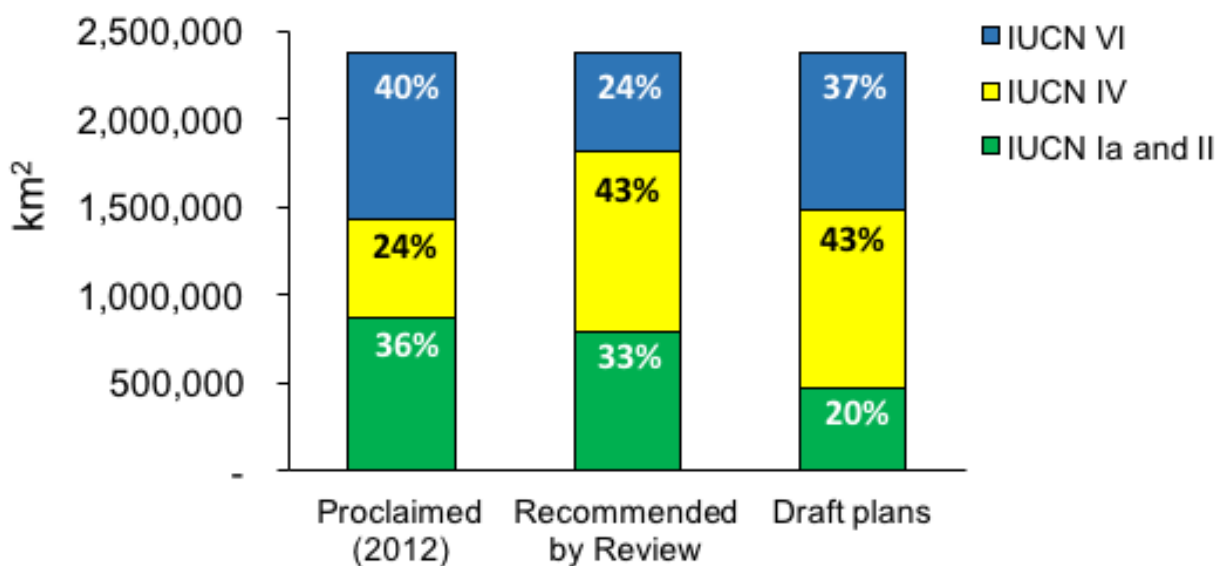


Figure 1: Comparison of area contained within each of the three main zone categories as per the original proclaimed CMR in 2012, that recommendations by the review (based on Figure 4.8.1 of the Bioregional Advisory Panel review), and that proposed in the current draft management plans.

Small proportion and lack of representative coverage of IUCN II areas across habitats and conservation features

AMSA is concerned that the CMR network does not meet the scientific principles of marine park design of comprehensiveness, adequacy and representation. Representation is the only aspect clearly articulated in the draft plan, but unless the network is also comprehensive and adequate, it is unlikely that ecosystem function and biodiversity can be maintained in the representative areas. The choice of wording in calling the protected habitats “representative samples” was poor and suggests that the aim is simply of preservation of species, analogous to in a zoo, rather than protection of the environment. Reserves also need to be comprehensive to provide connectivity, which is important for ecosystem function and also to afford protection to the many migratory species that utilise areas covered by the Parks.

The small proportion and lack of representative coverage of areas in IUCN II zones strongly limits their value as conservation management tools and is not appropriate to meet IUCN objectives. This problem is especially acute in the globally-significant tropical marine ecosystems of the North Region (Halpern et al. 2008), which remains the most poorly protected part of the CMR with just 1.2% of the area in IUCN II zones. The IUCN target is for 30% of each marine habitat to be in non-extractive marine protected areas by 2030. Under the current draft management plans, however, IUCN II areas fall well short of this internationally recognized target.

The distribution of IUCN II zones within marine parks is also a cause for concern. For example, 15% of the area covered by the Temperate East Marine Park is IUCN II, but 11% of that is located within a single Marine Park (Norfolk Island), which means that just 4% is distributed across the other seven Marine Parks, and three of these Parks have no IUCN II whatsoever. As indicated below in comments specific for the different regions, key ecological features also often go unprotected. The small area covered by IUCN II and the distribution of these zones is clearly insufficient to meet the objective of a Comprehensive, Adequate and Representative (CAR) National System of Marine Protected Areas, and contravenes science-based advice.

Lack of vision for the future: marine park zoning design within the context of a rapidly changing environment

The proposed reductions in the number and level of protection in Marine Parks are also a cause for concern in the context of a rapidly changing marine environment. There is growing scientific evidence that full marine protection can greatly enhance the resilience of marine habitats to environmental change, i.e. no-take regions where extractive activities are not permitted are more robust to disturbances caused by climate change. For example, international evidence shows that no-take zones can promote ecological resilience to climate variability by supporting complete trophic webs and larger-bodied individuals (Behrens and Lafferty 2004, Micheli et al. 2012, Mumby et al. 2014). Further evidence from the rapidly warming waters offshore from Tasmania shows that fish communities in no-take zones are more stable than in fished zones and are better able to resist invasions from warmer-affinity species (Bates et al. 2014). Similarly, marine reserves greatly enhanced the capacity of coral reefs to withstand the impacts of catastrophic flooding in 2011 across eastern Australia (Olds et al. 2014).

There is growing scientific consensus that marine protected areas need to be larger and better connected to compensate for habitat loss and reductions in connectivity due to ocean warming and ocean acidification (Gerber et al. 2014, Andrello et al. 2015). For example, ocean warming is expected to lead to a decrease in larval dispersal distances, impacting functional connectivity among regions (Gerber et al. 2014, Andrello et al. 2015). The reduction in full protection (IUCN II zones) proposed and the lack of connectivity among the 44 proposed marine parks is of great concern in the face of rapid climate change.

Structure and works inside marine parks: not compatible with conservation objectives

The draft management plan for Australian Marine Parks allows the construction of infrastructure within protected areas. Marine structures may have medium to large-scale impacts on the environment, affecting adjacent habitats by altering light availability, flow, wave energy, sediment and resource transport (reviewed by Dugan et al. 2011, Dafforn et al. 2015, Heery et al. 2017) with direct and indirect consequences for ecological connectivity (Bishop et al. 2017). The construction in protected areas should therefore be fully avoided in at least some of the higher-protection zones (IUCN II) within the park.

We also noted that there was a lack of biological relevance to the zoning, especially in light of the connectedness of the marine environment and the fact that many marine impacts cannot be spatially contained (dissolved nutrients, sedimentation, oil spills etc.). We note that both SPZs and MUZs still permit multiple uses but could be used to provide a buffer zone around MNPZs to afford these areas greater protection. However, in the current zoning, this is not achieved, and leaves MNPZs vulnerable to such indirect threats. This is a particular concern for the GAB and Western Eyre parks as well as the Northwest and Northern regions more generally as these regions are likely to undergo substantial development as oil and gas exploration increases and potentially proceeds to extraction in future. In addition to exploration activities, there will be increases in shipping, construction of additional infrastructure to support activities, and coastal population growth and development. These changes will result in increasing anthropogenic pressures to the important ecosystems of the area.

Social Values

There is inadequate treatment of social and cultural values throughout the draft plans. Although each reserve plan has a section for “social and economic values”, the contents are mostly economic (commercial fishing, shipping and tourism) and in most cases the same generic paragraph has been copied and pasted into each plan:

“Commercial fishing, commercial tourism and recreation are important activities in the Marine Park. These activities contribute to the wellbeing of regional communities and the prosperity of the nation”.

Heritage values, as defined in the plan, should also cover areas of “social” and “aesthetic” significance, yet any specific description of these is missing from the reserve plans, and these values appear to be limited to historic asset values such as shipwrecks.

These draft plans fail to take into account key cultural values associated with the Australian lifestyle, including existence, bequest, learning, discovery, aesthetics and intrinsic value. Social values that have not been acknowledged include for example non-extractive, non-commercial values such as SCUBA diving, pleasure boating outside commercial tourism. This ignores those Australians who enjoy experiencing these waters without the need for a commercial operator.

Community engagement and support are essential to develop effective marine parks (Kareiva 2006, Costello 2014) and this needs to be acknowledged. Interdisciplinary approaches are required for the development of effective solutions and management of the environmental portfolio (Costanza et al. 2000). Even though the Commonwealth reserves start at 3 nm offshore, the connectivity of life in our oceans means they have an essential role in supporting the socially-valuable coastal waters.

The current plans are insufficiently researched and detailed in the area of social values, and it is therefore unlikely that they will achieve social acceptance and that they will be effective in meeting social and ecological objectives in the long term.

Specific comments by Network

North Network

In contrast to other densely populated tropical seas, the coastal and marine waters of the northern Australia (ie. Northern Australian Shelf Large Marine Ecosystem or NAS LME) are sparsely populated, with relatively undisturbed catchments, resulting in ‘near- pristine’, globally significant, marine habitats and biodiversity (Halpern et al. 2008, J. and Edyvane 2008, Alongi et al. 2011). However, in a recent assessment of cumulative impacts, Halpern et al. (Halpern et al. 2015) have indicated that this region is exhibiting some of the greatest changes in impacts on the planet. Due primarily to remoteness and lack of human disturbance, the commonwealth waters of northern Australia are recognized as a major global stronghold for many marine megafauna including migratory, rare, threatened and endangered marine species, such as cetaceans (Corkeron et al. 1997), sharks and rays (White and Kyne 2010) and turtles (Limpus and Chatto 2004). Many of these marine species and their habitats are undergoing rapid decline in adjacent seas in Southeast Asia (and globally). With healthy populations, high species diversity and intact marine habitats, the waters of the northern Australia are now recognized as a regional and global refuge for many species and significantly, their conservation and management will increasingly play a crucial role in maintaining regional (and global) tropical marine biodiversity (J. and Edyvane 2008, Alongi et al. 2011).

AMSA notes that under the UN GEF-funded Arafura Timor Seas Ecosystems Action Plan (or ATSEF), Australia is currently engaged in a major multi-lateral marine planning program with Indonesia, Timor Leste and Papua New Guinea to understand, sustainably manage and protect the globally-significant ecosystems and species of the Arafura and Timor Seas (ATS), including the waters of northern Australia (ATSEA 2012a, b). To this end, there are major opportunities for Australia to identify planning and sectoral issues of ‘shared interest’ (ie. biodiversity, threatened species, fisheries, shipping/transport, pollution, etc.), with its regional neighbours in the highly-connected ATS, including spatial marine planning and identifying and developing potentially complementary MPAs systems. In finalizing the management plans for the North (and North-West), AMSA encourages the Australian Government as a matter of priority, to identify and progress any potential for complementary marine spatial

planning efforts on issues of shared mutual interests with its nearest regional neighbours, Indonesia, Timor Leste and Papua New Guinea .

Under the draft Commonwealth Marine Park Management Plans (2017), the proposed North Marine Reserves Network continues to be the least protected and poorly represented of all networks, in the entire Commonwealth's Marine Park system with just 25.2% of region represented within the network and the key mesoscale bioregion of Groote, not included at all. The overall level of protection in the north is also inadequate, being the lowest in the entire network. Just 1.2% of the area is protected as IUCN II. There is not a single IUCN Ia (Sanctuary) zone in the entire North Marine Reserves network. A total of six (Arnhem, Arafura, Oceanic Shoals, Wessel, Limmen and Joseph Bonaparte Gulf) out of the eight CMRs have no IUCN II zones and three of these six (Arnhem, Arafura and Joseph Bonaparte Gulf) don't even have an IUCN IV (habitat protection) zone. Only about 1/3 of the primary conservation features identified for the region are included in high level protection (IUCN II) zones.

These issues of under-protection and under-representation of the North Marine Park Network were clearly highlighted in the Expert Panel Report (Beeton et al. 2015). The recommendations from the CMR review were based on broad consultation with significant input from industry stakeholders, as part of the BAP Review (Buxton and Cochran 2015). AMSA notes that while these recommendations called for increased levels of protection in many cases, the Draft Plan as actually reduced its coverage yet further from 2.7% of the region in IUCN II zones to only 1.2%.

The management issues and prescriptions for the North Marine Park network focuses heavily on marine activities not common or extensive in the NMR – ie. marine tourism, offshore recreational fishing, indigenous engagement – issues common on GBR and southeastern seaboard of Australia. The CMRs in the North Region are very remote, under-exploited – and far offshore. Further, some of the key marine issues facing the North Region – illegal foreign fishing, ghostnet impacts on key species, marine biosecurity, and climate change – barely rate a mention in the plan.

In finalising a Commonwealth Marine Park network for the North Marine Region, it is also essential to recognise the strong ecological connectivity of ecological processes and species within the region, particularly the strong land-sea and cross-shelf connectivity (due to the macrotidal conditions, low profile shelf, high volume tropical rivers, etc.). Apart from Limmen – there appears to be no demonstrable attempts to align offshore CMRs and inshore MPA planning by relevant State/Territory agencies. AMSA urges the Commonwealth to acknowledge the 'ecological connectivity of the North region' (particularly within the 'semi-enclosed' Arafura Sea and Gulf of Carpentaria) and incorporate 'shared' conservation assets and values in adjacent coastal waters (of the Northern Territory, Queensland) as a key tenet in designing effective MPAs. There are several opportunities to create such linkages within the network:

- The current Commonwealth proposals do not align at all with the key biologically significant areas or potential Marine Protected Areas identified for the inshore waters off the Northern Territory (see Edyvane and Dethmers 2010). Of the 5 major regions of outstanding biodiversity, ie. 'coastal hotspots', only one of these regions, has any significant biodiversity protection in the Commonwealth's Marine Reserve proposal (Wessel Marine Reserve).
- Four coastal hotspots identified by the NT Government (Edyvane and Dethmers 2010) - Bonaparte, Timor, western Gulf of Carpentaria and southwestern Gulf of Carpentaria – have little or no protection in the adjacent Commonwealth waters proposed Marine Reserves for the North Region. All of these coastal hotspots contain nationally and globally significant marine megafauna.
- The western and southern Gulf of Carpentaria region (especially the northwest Arnhemland, Blue Mud Bay - Groote Eylandt and Limmen Bight region) are truly outstanding in terms of marine biodiversity, particularly for globally significant nesting/breeding/foraging populations of migratory marine megafauna (ie. dugongs, cetaceans, turtles, seabirds/shorebirds) – and all currently lack offshore protection under Commonwealth's proposed Marine Reserve network for the North Marine Region.

As a global stronghold for marine megafauna, AMSA is particularly concerned at the lack of critical habitat protection for threatened marine species in the North Marine Region. AMSA endorses recent guidance from Australia's marine scientific community that all biologically important areas should have at least 30% of their extent within marine sanctuaries, with the proviso that *"threatened and highly range-restricted species and habitats should be targeted for full reservation"* (The Ecology Centre 2009). Biologically important habitats/areas have been mapped for 15 species within the North region and all fail to meet minimum scientific benchmarks for protection (ie. 30%).

Joseph Bonaparte Gulf or Arnhem Marine Parks

AMSA has major concerns. Currently no IUCN II or IV zones in either Marine Parks. The draft management plan adopts recommendations by BAP review and original 2012 proclamation. Importantly, AMSA has already highlighted in its previous comments, that the BAP review provided no justification for its recommendation of 'no change' to these two Marine Parks.

The Marine Park should be extended, where possible, to align with, and include the national and globally significant marine conservation values identified by the NT Government for the 'Bonaparte Coastal Area for Further Assessment' (Edyvane and Dethmers 2010). In particular the marine turtle, crocodile and seabird and shorebird foraging areas. This includes the coastal floodplains of the Finniss River and Peron Islands, Anson Bay, and coastal floodplains associated with the Daly and Reynolds River and Docherty's Creek.

Oceanic Shoals

AMSA supports the upgrading of the zoning from IUCN VI to IUCN II (406 km²) and IUCN IV (6,929 km²). The addition of an IUCN IV zone, within which is a smaller IUCN II zone is positive for the Oceanic Shoals Marine Park.

Three key ecological features remain unprotected (as IUCN Category II) in this proposed Marine Park: the pinnacles of the Bonaparte Basin; the carbonate bank and terrace system of the Van Diemen Rise; and the shelf break and slope of the Arafura Shelf. Protection for the carbonate bank and terrace system of the Van Diemen Rise should be implemented via IUCN II Marine National Parks that capture: (i) the eastern section of the carbonate system that acts as an important foraging areas for nesting turtles and breeding seabirds and captures the carbonate bank and terrace of the Bonaparte Gulf bioregion; (ii) the deeper habitats of Van Diemen Rise within the Timor transition and, (iii) the western section of the carbonate system that captures the range of depth defined habitats of the Oceanic Shoals bioregion and where there are uncommon seascape types. IUCN II protection should be extended to nearby key ecological features including the northeast pinnacles of the Bonaparte Basin (and their unique seascapes and potentially isolated ecological communities) and the shelf break and slope of the Arafura shelf.

Arafura

Currently no IUCN II or IV zones are demarcated in the entire marine park. Further the the BAP review recommendation has been ignored and the recommended IUCN IV (731 km²) zone has been removed. A total of 99% of this marine park is dedicated to trawling and 'multiple use', i.e. SPG (Trawl) /IUCN VI. The decision to not raise a southern sub-zone of the Arafura marine park to IUCN II (or IUCN IV) is highly disappointing, because it is in close proximity (30km) to the Northern Territory Garig Gunak Barlu National Park.

The Northern Territory Garig Gunak Barlu National Park lies approximately 30 km from the Arafura Marine Park and the Croker Island Group Site of Conservation Significance lies adjacent to the reserve. The integration of the two zones (Commonwealth and NT), with perhaps some slight extension of national park in NT waters, would produce a much more effective entity for conservation of biodiversity and sanctuary for threatened species in the Cobourg Bioregion. By way of example, the BAP review saw fit to favour such an integration of Commonwealth and NT MNPZs (i.e. Limmen Bight Marine Park) in the Limmen Marine Park.

Arnhem

Currently no IUCN II or IV zones exist in the entire marine park and zoning has remained unchanged from the 2012 proclamation. The marine park should be extended, where possible, to include key marine conservation

values identified by the NT Government for the Arafura Coastal Area for Further Assessment (Edyvane and Dethmers 2010).

Wessel

Currently there are no IUCN II zones within the marine park and there has been a significant downgrading of the original proclaimed, IUCN II (1,632 km²) zone to IUCN VI. It further completely ignores the BAP review recommendation to increase the IUCN II zone to 1,995km².

AMSA recommends that the marine park should be extended, where possible, to include the national and globally significant marine conservation values identified by the NT Government for the 'Arafura Coastal Area for Further Assessment' (Edyvane and Dethmers 2010). It is important to note that the island beaches of Elcho and the Wessel support nesting activity of four species of marine turtle, but are especially significant for the threatened Hawksbill Turtle. There is also major potential to extend the Wesselmarine park to align with marine-IPAs being established by Indigenous communities in the region (Laynhapuy, Dhimurru).

Limmen

There is currently no IUCN II zone within the marine park which ignores the BAP review recommendation to establish a IUCNII zone (431 km²). There is a major opportunity to link the Limmen marine park to the NT Limmen Bight Marine Park, through the establishment of Sanctuary Zones and/or National Park Zones. This was recommended by the BAP Review. The Gulf of Carpentaria coastal zone, a key ecological feature, remains unprotected (as IUCN Category II) in this proposed Marine Reserve. The marine parks should also be extended, where possible, to include globally significant marine conservation values identified by the NT Government for the western and southwestern Gulf of Carpentaria Coastal Areas for Further Assessment (Edyvane and Dethmers 2010). Protection for the Gulf of Carpentaria basin should be increased by establishing marine parks in the i) Groote Island region, ii) central gulf, iii) southern gulf (Sir Edward Pellews) and iv) by extending the boundaries of the proposed Wessel marine park in the northern gulf.

Gulf of Carpentaria

The proclaimed IUCN II zone (7,388 km²) has been halved to just 3,623 km² which is counter to the BAP review recommendation to increase this zone to 8,246 km². In addition, the BAP review recommendation to establish a IUCN IV zone (1,078km²) has been completely ignored. A total of 85% of this marine park is dedicated to trawling, i.e. SPG (Trawl) /IUCN VI.

The plateaux and saddle north-west of the Wellesley Islands, and the submerged coral reefs of the Gulf of Carpentaria (both recognised key ecological features), remain unprotected (as IUCN Category II) in the marine park. The marine park should also be extended, where possible, to include globally significant marine conservation values identified by the NT Government for the southwestern Gulf of Carpentaria Coastal Areas for Further Assessment (Edyvane and Dethmers 2010). Protection for the Gulf of Carpentaria basin should be increased by establishing Marine National Parks in the i) Groote Island region, ii) central gulf, iii) Southern gulf and iv) by extending the boundaries of the proposed Wessel sanctuary in the northern gulf. High level protection (ie. IUCN II) for the Plateaux and saddle of the Wellesley Islands (a key ecological feature) should be established by including the entire plateau and saddle of the Wellesley Islands within a Marine National Park Zone including: i) the plateau, ii) the saddle and iii) the submerged coral reef.

West Cape York

The proclaimed IUCN II zone (7,957 km²) has been halved to just 3,329 km², in opposition to the BAP review recommendation of only a slight reduction (to 6,783 km²). While the conversion of an area from IUCN IV (10,114 km²) from category VI is to be commended, it is no justification for halving the area of IUCN II zone. The excision of part of the IUCN II area from the West Cape York marine park in the vicinity of the Carpentaria Shoals needs better substantiation for it to proceed. The Expert Scientific Panel was not asked to consider, or have not commented on, this change [this differs sharply from the extensive ESP discussion of changes to the Gulf of Carpentaria marine park]. The socio-economic value of the zone around the Carpentaria Shoal recommended for downgrading remains a matter of contention. The conservation status and ecological values of the Carpentaria Shoal require better description.

Under the proposed marine park network, only part of the Torres Strait ecological system that extends into the North planning region is protected through inclusion in a Marine National Park (IUCN II) zone. AMSA recommends extending the current Marine Park into the Torres Strait ecological system.

North-west Network

Ashmore Reef and Cartier Island

AMSA supports this reserve remaining as IUCN Ia.

Kimberley

AMSA supports the location of the Commonwealth IUCN II protected area adjacent to the Western Australian Camden Sound Marine Park.

Argo Terrace

AMSA does not support the significant loss of IUCN II area, especially since no justification was given for the downgrade. AMSA understands that commercial fishing and mining are potentially important in this region, and this should be made clear if this is the reason for the downgrade. AMSA supported the previous zoning where more IUCN II was included.

Mermaid Reef

AMSA is strongly opposed to the deregistering of this Marine National Nature Reserve IUCN Ia which has been proclaimed in 1991. No explanation has been provided for this delisting.

Roebuck Bay

AMSA supports this marine park being located adjacent to the Western Australian Roebuck Marine Park.

80 Mile Beach

AMSA supports this marine park being located adjacent to the Western Australian Eight Mile Beach Marine Park.

Dampier

AMSA does not support the new zoning which replaces IUCN IV (SPZ) with VI (multiple-use).

Montebello

AMSA supports the location of this marine park being located adjacent to the Western Australian Montebello Islands Marine Park.

Gascoyne

AMSA is strongly opposed to the significant loss of IUCN II protection, and requests that the zoning be returned to IUCN II. AMSA would also like to point out the missed opportunity of extending the Habitat Protection Zone eastward towards Point Cloates to abut the Commonwealth and Western Australian Ningaloo marine parks, and thus protect a remarkable swathe of biodiversity from the reef lagoons to the abyss. It would be preferable if such an inclusion was a Marine National Park Zone, but at the very least, it should be a Habitat Protection Zone.

Ningaloo

As indicated above, AMSA suggests that a coast to abyss protected area be created slicing through the Western Australian Ningaloo Marine Park, the long-standing Commonwealth Ningaloo Marine Park and the new Gascoyne Marine Park.

Carnarvon Canyon

AMSA commends the continued protection of the region.

Shark Bay

AMSA requests the inclusion of some IUCN II zoning in this ecologically important region, particularly as it is adjacent to a World Heritage area and the Western Australian Shark Bay Marine Park.

South-west Network

AMSA's main concern relates to the poor spatial representation in highly protected areas of the habitats on the continental shelf. In particular, we note that there are only very small areas of IUCN II level protection on the southern shelf between Cape Leeuwin and Kangaroo Island and none at all north of Cape Mentelle along the continental shelf off the west coast. Unlike the situation in most developed countries of the world, the SW marine bioregion has large areas that are adjacent to parts of the continent where there are few ports and towns, little population pressure and large areas without established petroleum and/or fishing rights. AMSA is of the opinion that the federal government could have gone further with respect to including high protection areas on the shelf (particularly east of Esperance) so that Australia could have good examples of relatively intact temperate ecosystems to provide baseline data for monitoring and further our understanding of healthy ecological function. These concerns are similar to those raised by AMSA and expressed by others (Edgar et al. 2008) about the South East Bioregional Plan.

The highly protected (IUCN II) areas proposed for the shelf are all, with the exception of the inshore part of the proposed Great Australian Bight reserve, very small (< 30km in width) and frequently separated by large distances (> 250km). It is unlikely that such small isolated areas will be able to maintain connectivity and fulfil the goal of protecting Australia's marine biodiversity. This also makes replication in the design of monitoring programmes to assess the effectiveness of management very difficult. Scientific evidence suggests that, in a network, highly protected areas need to have spacing about 20 - 80 km apart to ensure that connectivity among them facilitates replenishment (e.g. McCook et al. 2010). That the proposed network does not appear to take into account the current scientific consensus on size and spacing of reserves is particularly concerning for conservation of biodiversity of the southern continental shelf. As many endemic south-west coastal and shelf species cannot migrate further south to escape increasing sea temperatures, it is imperative to build resilience by protection from other pressures and facilitation of migration between protected areas. Further, the small size of these proposed protected areas does not sufficiently cover the known foraging ranges of the threatened Australian sea lions on the south coast.

The Great Australian Bight Research Program also identified the upper slope (~400m depth) as an area of high biodiversity for both fish and invertebrates, but this area is afforded very little protection under the proposed zoning.

AMSA is surprised, and concerned, that most of the mapped key ecological features and the areas identified as biologically important during the planning process either have low levels of protection or no protection at all. Further, areas of high productivity (which are unusual in this nutrient-limited, oligotrophic environment) such as the Perth Canyon, Cape Mentelle and south-western Eyre Peninsula upwelling areas remain poorly protected. Globally, protection of oceanographic processes is now being recognised as extremely important in pelagic biodiversity conservation (Grantham et al. 2011).

Abrolhos

AMSA strongly advocates an increase in Marine National Park Zoning (IUCN II) to at least 10% of the protected area. In light of ocean warming due to climate change, the Abrolhos is likely to be a crucial sink for coral reef species from the north that are not well adapted to warmer waters, and this makes this reef system and adjacent waters a priority for conservation and building resilience. The Abrolhos region has complex oceanography, and the thermohaline front occurring in the region is understood to be important for western rock lobster phyllosoma larvae (Sawström et al. 2014).

Jurien

AMSA supports the location of this marine park adjacent to the Western Australian Jurien Bay Marine Park.

Two Rocks

AMSA notes that the zoning of this marine park remains similar to the 2012 protection level.

Perth Canyon

AMSA is strongly opposed to the removal of IUCN II protection from the second canyon head, especially given the canyon is subject to use by the Australian Navy and commercial fishing operations. The canyon is an important upwelling region (Rennie et al. 2006) and is also an important habitat for zooplankton (Sutton and Beckley 2016, 2017), and larger megafauna, such as humpback, blue and sperm whales (Gales et al. 2010).

Geographe

AMSA commends the mining exclusion placed on the Special Purpose Zone. AMSA is strongly opposed to the removal of IUCN II zoning as this region has significant biodiversity values, and keeping some of it protected as IUCN II would enable maintaining reference areas for scientific research. AMSA strongly suggests the Habitat Protection Zones be converted back to IUCN II zones. AMSA has concerns that the allowance of demersal fish and scallop trawling in the protected area as this will have detrimental impacts to the health of the benthos, in particular.

South-West Corner

AMSA commends the mining exclusion zone placed off the Capes. AMSA is strongly opposed to the removal of IUCN II zoning, and suggests it reverts to the earlier zoning, preferably with inclusion of more canyon habitat in the zoning, as much of the current zoning covers the abyss.

Bremer Canyon

AMSA commends the IUCN II protection of canyon habitat, across all depth ranges. AMSA also commends the inclusion of mining exclusion in the Special Purpose Zone.

Eastern Recherche

The Eastern Recherche protected area indicates a high level of protection (IUCN II) for a small area of inshore waters, a strip across the shelf edge and out to abyssal depths. This is important protection for this highly biodiverse and ecologically significant area. However, the size of shelf protected area is very small and does not protect much of the foraging range of the threatened sea lions which breed on these islands or protect them from fishing gear interactions. In view of the exceptional temperate biodiversity of the Recherche Archipelago, we recommend that a highly protected area also be located at the western end to compound conservation benefits by improving connectivity between the Recherche Archipelago and the small highly protected area between Bremer Bay and Esperance. In the light of the limited human use documented for the Eastern Recherche shelf region we strongly recommend that the highly protected shelf areas are expanded to the east.

Twilight

If the Special Purpose Zone must exist, AMSA supports mining exclusion. AMSA recommends that the Special Purpose Zones be reverted to IUCN II as 2012.

Great Australian Bight

AMSA supports the mining exclusion zone but notes that conservation opportunities have been foregone by the current management plan.

Western Eyre

The proposed Western Eyre protected area extends across the shelf to abyssal depths incorporating some shelf edge canyons which facilitate important oceanographic processes. Unfortunately, the coastal upwelling feature of this region with its longshore propagation of productivity (Kämpf et al. 2004) is not well protected. Although the

two highly protected (IUCN II) inshore areas are quite small, they are a relatively short distance apart thereby facilitating connectivity between them. We note that though destructive demersal trawling is precluded from much of the area (special purpose zone IUCN VI), demersal gill netting and its consequent risk to threatened sea lions will continue to be permitted. We suggest that the Commonwealth work with AFMA to complement their management of this serious issue and propose that demersal gill netting be excluded from the area in order to remove a major threat to a protected species restricted to the SW Marine Bioregion. The SPZ allowing demersal trawling through a section of the Western Eyre marine park sets a dangerous precedent for park management and lessens the value of the protected area. Exceptions such as this will also complicate monitoring for compliance and regulation.

Temperate East Network

Jervis

AMSA recommends that this reserve connects to the shore-based state marine reserve using protection IUCN IV or better – this will ensure alignment with CAR principles by covering a range of depths, including the continental shelf and more key areas as well as providing continuity.

Jervis should include an IUCN II zone. AMSA recommends placing this along a contiguous section of the existing reserve spanning its entire longitudinal range, to cover all depths and represent all habitats. The Regional Panel noted that “in the area proclaimed as SPZ, there were several canyons on the shelf that were said to be avoided by the fishery and therefore not fished by [trawling].” This suggests the potential for placing an IUCN II zone with minimal negative socio-economic implications. The minimum width of any IUCN II transect should be > 10km as stated in the review.

Hunter

AMSA recommends that this reserve connects to the shore-based state marine reserve using protection of IUCN IV or higher, and includes at least one IUCN II. In particular, no-take protection from Broughton Island and along the southern boundary of the shelf section would seem most appropriate. As well as providing connectivity, this would improve protection of critical grey nurse shark populations in the area, as well as covering a range of depths and include the continental shelf.

Solitary Islands

AMSA supports the Pimpernel Rock MPNZ, although it has no buffer zone and is a fraction of what is ultimately required. The key problem with the proposed reserve plans is that the continental shelf and slope are not adequately protected. AMSA recommends connecting the SICMR to the Central Eastern CMR via a corridor that includes the continental shelf, with the northern boundary connecting to North Solitary and the southern border connecting to Coffs Harbour, with protection IUCN IV or higher.

Central Eastern

This reserve lacks connectivity to the mainland and there is a lack of representation of shelf habitats. Connecting to the SICMR as stated above would address these issues. In addition, given the high conservation value afforded by seamounts and their potential in productivity and as refugia from continued global warming, AMSA recommends following the precautionary principle through the protection of at least one other seamount.

Lord Howe

The tropical and subtropical characteristics of Lord Howe Island, including the world’s southernmost coral reef, provide unique values that deserve higher levels of protection. AMSA recommends reinstating the northern end of Middleton Reef as an MNPZ to ensure ongoing protection of the seamounts in this area. Seamounts are highlighted by the ESP as important key features for conservation and protection of such areas should be increased, not removed.

We also do not support the conversion of the large area around Middleton and Elizabeth reefs from IUCN IV to IUCN VI. This opens the area up to activities such as commercial trapping, mining, and disposal of dredge spoil – activities which cannot be considered as acceptable in a marine park.

Norfolk

AMSA does not support the loss of the recently-proposed MNPZ over the Vening-Meinseiz Fracture Zone. We also do not support the downgrading of the IUCN IV zoning in the majority of the marine park to IUCN VI for reasons stated above. We note this is the area likely to be subject to high resource use in future whilst also representing unique shallow habitat, thus is in greater need of protection.

Gifford

AMSA does not support the design of the Gifford marine park as it has no areas of IUCN II or above protection. It is therefore open to widespread damaging activities including commercial longlining and trawling.

Cod Grounds

Whilst we support the zoning level of this park (IUCN II), at 4 km² it is too small to provide effective protection for many species, including large predators and migratory species. This issue is exacerbated by a lack of buffer zone.

Coral Sea

AMSA sees the proposed reduction in IUCN II+ coverage within the Coral Sea as a significant, retrograde step. The new Coral Sea draft management plan protects ~24% of the region in IUCN II or greater, a 53% reduction and loss of some 264,000 km² compared to the previous plan. The downgrading of protection of the Coral Sea indicates the Government's lack of willingness to appropriately protect large iconic areas that are amongst the world's last remaining intact coral reef ecosystems. The reduction of protection by 53% is not supported by science and it is incumbent on the Government to justify this reduction. This is particularly important given the allowance of high risk fishing activities in this region as well as and recent impacts of climate change driven mass coral bleaching. The Government's Expert Science Panel noted the uniqueness of the region's coral reefs and emphasised the importance of increasing their protection. Recent research (Edgar et al. 2015) in the Coral Sea shows that reefs not in IUCN II+ protection have their shark populations depleted by 90% of their original biomass, with populations of large predators halved and fish populations depleted by 70%. The importance of protecting the Coral Sea's reef sharks was highlighted by the Expert Science Panel which identified that: "Coral Sea reefs comprise a globally significant hotspot for reef sharks".

The draft management plan for the Coral Sea Marine Park would decimate the large IUCN II+ zone covering the eastern side of the marine park, cut by half the IUCN II+ zones at Osprey and Marion reefs, and convert Vema Reef's IUCN II zone to IUCN IV. These draft changes would only leave IUCN II zones at Coringa-Herald Islets and Bougainville, Lihou, Mellish and Kenn reefs, while Shark, Flinders, Holmes, Moore and Suamarez reefs, and Diane Bank and Willis Islets, would be zone IUCN IV – allowing ongoing exploitation.

These significant losses and the fragmentation of the IUCN II zoning compared to the 2012 management plans have no scientific basis. The intact IUCN II zone 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 Chile, New Zealand, Palau, the UK 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 53% reduction in the IUCN II zoning represents a major strategic failure by the Australian Government with no basis in science.

The ability of the science community to demonstrate the benefit of marine protection relies on the establishment of IUCN II+ zones as reference areas, noting the substantial review by McCook et al. (2010) of the zoning benefits on the Great Barrier Reef Marine Park as a highly relevant example of demonstrating management effectiveness.

Deloitte Access Economics has valued the Great Barrier Reef at A\$56 billion, with an economic contribution of A\$6.4 billion per year (<https://www2.deloitte.com/au/en/pages/economics/articles/great-barrier-reef.html>) but this has been challenged as grossly undervaluing the Reef (<https://theconversation.com/whats-the-economic->

[value-of-the-great-barrier-reef-its-priceless-80061](#)). The protection of the Coral Sea reefs is also critical to the dive tourism industry, which has direct sales of \$6 million each year that could expand to \$15 million if the reefs are highly protected (KPMG 2010). These figures contrast significantly with the \$4.1 million the Government claims will be gained by the commercial fishing industry across the entire Marine Park Network should the 2017 draft management plans be implemented. The economic returns to commercial fishing from reduced MNPZ protection are at best marginal and to only a small number of licence holders.

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