Australian Government
Department of Sustainability, Environment, Water, Population and Communities

SUBMISSION FORM
for the
South-west Commonwealth marine reserve network proposal

Submission ID
(Office use only)

Thank you for your interest in the Commonwealth marine reserve network proposal for the South-west Marine Region. Good information on our ocean habitats, wildlife and resources, and the people who use and enjoy them is critical to the identification of Commonwealth marine reserves. This public consultation period is an important opportunity for you to review the information that has provided the basis for the South-west marine reserve network proposal and to submit feedback.

To ensure your submission is as relevant and effective as possible, please ensure that you:

- complete the cover page identifying yourself and/or your organisation
- provide clear and concise feedback
- refer to specific marine reserves and/or parts of the proposal you have feedback on

Submissions must be received by the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) no later than close of business on Monday 8th August 2011.

How to make a submission

Please refer to the South-west Commonwealth marine reserve network proposal when making your submission:

http://www.environment.gov.au/coasts/mbp/south-west/consultation/network

To submit your comments on the marine reserve network proposal:

- **email** this form complete with your contact details, feedback and any additional information to: Submissions.Southwest@environment.gov.au

or

- **post** this form **free of charge** to:

  Department of Sustainability, Environment, Water, Population and Communities
  MBP submissions – South-west Marine Region
  Reply Paid 787
  Canberra
  ACT 2601

Submissions must be received by the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) no later than close of business on Monday 8 August 2011.

Required fields are marked with an asterisk (**)

Personal information collected is protected by the provisions of the *Privacy Act 1988* and will only be used to assist the Australian Government complete the marine bioregional planning process. Please include relevant contact details where possible so that the department can notify you that your submission has been received.

1. First Name:* **Lynnath** Surname:* **Beckley**
2. Postal Address:* School of Environmental Science, Murdoch University, 90 South Street,

   Suburb:* Murdoch State:* WA Post Code:* 6150
3. Telephone: 08-93606392
4. Email: L.Beckley@murdoch.edu.au
5. Are you making this submission on behalf of an Organisation? Yes

Name of Organisation: **Australian Marine Sciences Association**

Primary Interest

6. What is your interest in the marine environment?

☐ Commercial fishing	**X** Research	☐ Mining
☐ Recreational fishing	☐ Conservation	☐ Ports
☐ Game fishing	☐ Yachting or private boating	☐ Oil and Gas
☐ Charter fishing	☐ Indigenous use and stewardship	☐ Shipping
☐ Aquaculture	☐ Tourism	☐ Leisure and recreation
☐ Fishing related business	☐ Community/local resident	
☐ Other please specify: AMSA has a specific interest in advancing marine science in Australia		

All submissions will be treated as public documents and will be made public on the DSEWPaC website. However, if you wish your submission to remain confidential, you must clearly mark it "Confidential" and provide reasons why the Department should consider your request for confidentiality. Please note that any submission may be subject to release under the *Freedom of Information Act 1982* and may be provided to third parties for procedural fairness (also known as natural justice). Personal information collected by the Department is protected by the provisions of the *Privacy Act 1988* and will only be used to assist the Australian Government complete the marine bioregional planning process.

Do you give consent for this submission (other than your personal information) to be made public? *

X Yes

If no, please provide reasons why you believe your submission should *not* be made public (please note that public submissions are not normally confidential and a request for confidentiality does not make your submission automatically exempt from release)

To complete **Question 1 and 2** you will need to refer to the South-west Commonwealth marine reserve network proposal (available at: http://www.environment.gov.au/coasts/mbp/south-west/consultation/network)

Question 1.

Please describe your views on the Commonwealth marine reserve network proposal for the South-west Marine Region noting, where relevant, the name of the specific reserve to which your feedback relates. In providing your feedback you may wish to consider:

- any aspects of the proposed marine reserve boundaries and/or zones that you would like to see amended
- the impacts of the proposed marine reserves on you/your sector/organisation/community
- the benefits of the proposed marine reserves for you/your sector/organisation/community

Proposed Abrolhos marine reserve	**Feedback**
The special purpose zone (IUCN VI) on the shelf west and south of the Abrolhos Islands which precludes demersal trawling is supported because of the known destructive effects of such fishing gear on marine benthos (Kumar & Deepthi 2006). However, the regional significance of these islands, especially with respect to high latitude coral reefs, seabird colonies and the oceanographic processes that support the biodiversity, clearly warrant a greater extent and higher level of protection. We strongly encourage careful re-appraisal of the Abrolhos reefs, banks and canyon systems of the shelf-edge, together with high resolution spatial catch and effort data from the rock lobster fishery, in order to devise greater protection for this unique and unusual feature of the bioregion. Location of high protection (IUCN II) areas would also be beneficial for research purposes. For example, recent research at the Maria Island reserve in Tasmania has indicated strong ecological effects, such as major declines in urchins and abalone, being driven by protection of predatory rock lobsters from fishing (Barrett *et al*. 2009).	

Proposed Jurien marine reserve	**Feedback**
The proposed Jurien protected area (IUCN VI) is located adjacent to the Jurien Bay Marine Park in WA coastal waters and thus has the potential to enhance biodiversity conservation outcomes for this region. However, as no high level of protection is proposed, it is unlikely that it will deliver substantial benefits as several studies have shown that partial protection does not deliver strong conservation outcomes (Denny & Babcock 2004; Shears *et al.* 2006; Lester & Halpern 2008). Nevertheless, precluding demersal trawling will prevent destruction of benthic habitats in the area and is to be welcomed.	

Proposed Perth Canyon marine reserve	**Feedback**
The proposed Perth Canyon protected area covers an exceptional geomorphic feature with associated oceanographic processes that support an important pelagic ecosystem characterised by relatively high productivity and the regular occurrence of threatened pygmy blue whales. The level of protection proposed is low (IUCN VI) and thus substantial benefits to marine conservation or ecosystem health are not expected as fishing, seismic exploration, naval exercises and other activities will continue unabated. Canyon environments are, like other slope elements, poorly conserved in the plan and this canyon, in particular, should be targeted for IUCN II protection as a representative of this shelf-edge environment.	

Proposed South West Corner marine reserve	Feedback
The proposed South West Corner protected area covers a substantial proportion of abyssal and deep water habitat and this high level of protection (IUCN II) will be important for the conservation of these relatively un-impacted ecosystems. The two inshore areas with high protection (IUCN II) will bolster conservation of endemic biota and maintenance of ecosystem health on the continental shelf. Further, the relatively short distance (~100km) separating them should enable dispersal between them and improve resilience of communities to natural and anthropogenic disturbances. It is pleasing to note that attention has been given to the Cape Mentelle upwelling region but, although the oceanographic process is cross-shelf, the production benefits are generally propagated long-shore, and higher protection to the Cape Naturaliste / Geographe Bay region would have generated greater conservation benefits.	

Proposed Eastern Recherche marine reserve	Feedback
The proposed 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.	

Proposed Great Australian Bight marine reserve	Feedback
The proposed increased protection (IUCN II) for inshore waters and expansion of protection (IUCN VI) for the Great Australian Bight are commended. Inclusion of areas adjacent to existing protected areas consolidates conservation benefits and facilitates long-shore connectivity though there is obviously still scope to widen the inshore highly protected area.	

Proposed Western Eyre marine reserve	Feedback
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.	

Proposed Western Kangaroo Island marine reserve	Feedback
The proposed Western Kangaroo Island protected area indicates low protection (IUCN VI) but is well located with respect to ecologically important oceanographic processes and downstream effects of the Bonney upwelling system. However, as it encompasses the foraging range of threatened sea lions it is suggested that demersal gill netting be excluded in order to avoid interactions between threatened sea lions and demersal gill nets.	

Question 2.

Please describe any general feedback you have on the South-west Commonwealth marine reserve network proposal

General feedback on the South-west Commonwealth marine reserve network proposal

The Australian Marine Sciences Association, which represents about 900 marine scientists, acknowledges the considerable effort that has obviously gone into developing the proposed SW marine reserve network. The marine biodiversity of SW Australia deserves adequate protection as it exhibits wide taxonomic breadth and distinctness and has a remarkably high proportion of endemic species. However, marine reserves are only one of a suite of management strategies available to conserve biodiversity and ensure the marine environment of the SW region remains healthy and resilient. We thus strongly encourage the federal government to carefully manage extractive use of living and non-living marine resources, threatened species and communities, invasive species, off-reserve areas and overall ecosystem health in this large area of Australia's EEZ. This should be done with due regard to the cumulative effects of anthropogenic impacts and the increasingly apparent consequences of climate change on the marine environment. We also have concerns over research and monitoring aspects and we recommend that a well-designed marine environmental monitoring programme be established for this region.

With respect to the proposed SW marine reserve network, we note the high level of protection (IUCN II) afforded to the abyssal area in the south west corner. This represents forward thinking since, although there are currently limited threats in these deep areas, it is likely that anthropogenic pressures will increase in the future (Game *et al.* 2010). Further, we wish to acknowledge the demarcation of special purpose and multiple use zones (IUCN VI) that restrict the harmful effects of demersal trawling on ecosystem function. Despite these positive aspects, we have strong concerns that the proposed network does not appear to be based on the well-established scientific principles of marine reserve network design, namely, comprehensiveness, adequacy and representation. These core principles have been adopted in the national representative system of marine protected areas (NPSMPA) and endorsed by the Australian Government (ANZECC 1998).

Our 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 highly 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. We are 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 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.

We are surprised, and concerned, that most of the key ecological features mapped, and the areas identified as biologically important, during the planning process either have low levels of protection or no protection proposed at all. Further, areas of high productivity (which are unusual in this nutrient-limited, oligotrophic environment) such as the Perth Canyon and 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).

The areas in the proposed network with low level protection (IUCN VI) such as special purpose and multiple use zones do little to relieve the current pressures of fisheries (including spatially expanding, open-access recreational fishing) and the oil and gas industry that threaten the biodiversity of this bioregion. In fact, the poor spatial resolution of fisheries data that has become evident during this bioregional planning process should be attended to at a federal level. Data collected in 0.5° blocks (>3 000 km^2) are clearly inappropriate for establishing the necessary cost layer for systematic conservation planning.

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 spaced about 20 - 80 km apart to ensure that connectivity among them facilitates replenishment (Shanks *et al*. 2003; Halpern *et al*. 2006; McCook *et al*. 2009, 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 southern neritic 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 do not sufficiently cover the known foraging ranges of the threatened Australian sea lions on the south coast (Goldsworthy *et al.* 2010).

Our concerns regarding research and monitoring concern both strategy and implementation. With such an extensive zoning scheme the strategies and actions section of the plan should have, as a clear goal, development of research and monitoring which would enable performance assessment against its objectives. In particular, this strategy should include replicated before, and after, studies both within, and outside of, zones with different levels of protection. With the current zones adequate replication may be difficult to achieve, particularly for key species and areas of interest such as rock lobsters, sea lions, canyons and the continental slope.

While the plan makes considerable reference to climate change there is little indication of how this will be measured. Throughout the SW bioregion there is now an established array of oceanographic moorings and the data are open access, a long term asset for the region, and should be explicitly mentioned in the plan. The Australian National Mooring Network (ANMN), a facility of the Integrated Marine Observing System, has moorings measuring basic oceanographic parameters (temperature, salinity and current velocity) and, at some sites, biological parameters such as phytoplankton and zooplankton. In the bioregion there is a cross-shelf transect of five moorings offshore from Two Rocks near Perth, two moorings within the Perth Canyon and three National Reference Stations near Rottnest Island, Esperance and Kangaroo Island (Lynch *et al.* 2010). In the plan, collaborations are indicated for research and monitoring. However, AMSA is concerned about the viability of such collaborations because, without considerable funding from the Commonwealth, it is unlikely that many of these will be achieved.

In summary, AMSA welcomes the general recognition of scientific information that has been used in the planning for the SW bioregion. Nevertheless, AMSA encourages the Australian Government to amend the proposed network of marine reserves to address the above mentioned concerns, in particular, by adequately representing habitats in all the continental shelf bioregions and providing a higher level of protection for key features such as the Abrolhos region, the Perth Canyon, Mentelle upwelling system, the Albany Canyons, the Recherche Archipelago, the Great Australian Bight, South Australian Canyons and the South Australian upwelling systems. We are concerned that the gaps in the proposed system of marine reserves will result in poor performance of the network and negate the strong biodiversity conservation outcomes that could be achieved.

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