



Position statement on marine protected areas

1. Preamble

1.1. Australia is a party to the *United Nations Convention on Biological Diversity (1992)*. The convention's 2011-2020 strategic plan urges party states to conserve, by 2020, 10 per cent of their coastal and marine areas.

1.2. The Australian (Commonwealth) Government, and all State and Territory Governments, are committed to the development of a national representative system of marine protected areas (NRSMPA) which is comprehensive, adequate and representative.

1.3. This commitment has significant implications, as Australia's marine EEZ covers over 13.86 million km², and is the third largest in the world.

2. What are marine protected areas?

Marine protected areas (MPAs) are areas of the ocean or coastal seas, securely reserved and effectively protected from, at least, some threats. The level of protection and the intent of protection may both vary. The Great Barrier Reef Marine Park (GBRMP) in Queensland is an example of a large multiple use MPA (345,000 km²) containing extensive zones where a variety of fishing activities are allowed (67% of the park), as well as a smaller proportion of 'no-take' zones which are fully protected from all extractive activities (33% of the park).

3. Who does AMSA represent?

3.1. The Australian Marine Sciences Association (AMSA) is Australia's largest professional association of marine scientists with over 1000 members nationally. Our Mission is to advance marine science in Australia. AMSA objectives are:

- To promote, develop and assist in the study of all branches of marine science in Australia;
- To provide for the exchange of information and ideas between those concerned with marine science; and
- To engage in public debate where we have specialist knowledge.

3.2. Marine scientists are not only participants in developing MPAs, through delivering scientific information and advice; they are also a key stakeholder group since they use the marine environment for scientific research. AMSA wishes to emphasise the importance of this dual role for marine scientists and, as such, they should be included as stakeholders in the NRSMPA process.

4. Values of Australia's marine biodiversity

4.1. Australia's marine biodiversity belongs to three major oceanic systems; the Pacific, Indian and Southern Oceans.

4.2. Australia's marine flora and fauna occurs across a broad range of latitudes, and from estuarine to abyssal depths. The bioregions contain ecosystems which are:

- characterised by high endemism, particularly in the southern temperate zone;
- less perturbed when compared to many other places in the world;
- highly diverse;
- poorly understood and documented.

5. Threats to Australia's marine biodiversity

5.1. Australia's marine biodiversity faces five major threats, which can often act together:

- *overfishing*: both from commercial and recreational fishing sectors, with attendant by-catch problems, as well as illegal, unregulated and unreported fishing;
- *climate change*: increased atmospheric carbon dioxide and other gases leading to

global temperature increase and other impacts, resulting in changes to oceanic temperatures, acidity, patterns of water movement (including currents, eddies and fronts), storminess and raised sea levels;

- *habitat damage*: caused by coastal development such as dredging as well as from fishing gear, especially bottom trawling. Damage includes the destruction or modification of coral reefs, vulnerable benthic ecosystems, seagrass meadows, mangroves, coastal foreshores (including coastal wetlands and estuaries) and loss of connection with the ocean;
- *pollution*: both in-sea and land-based, diffuse and point source, which include nutrients, sediments, plastic litter, noise, hazardous and radio-active substances; and ghost fishing and entanglement of wildlife from discarded and lost fishing gear; microbial pollution and trace chemicals such as carcinogens, endocrine-disruptors, and info-disruptors; and
- *ecosystem alterations*: caused by the introduction of alien organisms, especially those transported by vessel ballast water and hull fouling, or by population explosion of native invasive species often as a consequence of the other threats.

5.2. Amongst these five major threats to marine biodiversity, fishing has, until recently, been regarded as the most damaging on a global scale. The disturbance caused by fishing activities stem chiefly from overharvesting, changes to food webs, habitat destruction, and bycatch. More recently, increasing atmospheric greenhouse gases have posed an additional significant threat to the marine environment, both through increased water temperature which impacts on the distribution of species, and acidification of seawater which weakens the carbonate shells of invertebrates (many of which form the base of food chains). At more localised scales, other threats such as pollution and habitat loss/degradation can dominate. An emerging issue is the impact of dredging on nearshore ecosystems such as coral reef, mangrove, estuarine, seagrass, mud-flat, and sponge-field habitats. Denial of river passage by dams has also been a major threat to diadromous species globally.

5.3. In Australia, fishing remains the primary threat to fishes and is the second most important threat to marine invertebrates after habitat degradation. Fishing also affects marine mammals, reptiles and birds through entanglement and drowning in fishing gear, removal of food sources, and boat strikes.

6. What are the benefits of MPAs?

MPAs assist in maintaining healthy ecosystems. Important ecosystem services supplied by the marine environment include: the supply of seafood, passive and active recreational opportunities, the regulation of coastal climate and habitats, dilution and assimilation of wastes (including greenhouse gases) and vessel passage. These services depend heavily on healthy marine ecosystems.

6.1. MPAs serve six main functions, not all of which necessarily apply simultaneously:

- (a) to protect biodiversity and ecosystem function, including the processes on which biodiversity depends;
- (b) to assist in maintaining ecosystem services;
- (c) to provide scientific benchmarks against which anthropogenic modifications to ecosystems and environments can be monitored and evaluated;
- (d) to protect cultural, recreational, spiritual, educational and scientific values;
- (e) to protect from disturbance into the future, representative habitats and species for both their intrinsic value and intergenerational equity.
- (f) to enhance fishery production outside MPA boundaries;

6.2. All Australian States endorsed the *National Strategy for the Conservation of Australia's Biological Diversity* in 1996. This strategy acknowledges the intrinsic value of our biodiversity.

6.3. Key scientific results

The key scientific results from studies of MPAs are listed below and are strongly supported by numerous peer-reviewed scientific papers, both from Australia and internationally.

6.3.1. Well-planned, managed and enforced 'no-take' MPAs (IUCN category I and II) generally harbour denser populations, larger individuals, and higher biomass of previously exploited species.

6.3.2. Following establishment of 'no-take' MPAs, recovery of exploited predatory and/or herbivorous species often results, over time, in striking differences in the community ecology of MPAs compared to surrounding areas.

6.3.3. Recent research now provides strong evidence for the fisheries benefits from MPAs.

This includes evidence for enhanced larval transport out of reserves, spill-over of adults from reserves, and increased catches adjacent to reserves.

7. AMSA's position on MPAs

AMSA endorses MPAs as vital for the conservation of Australia's biodiversity.

7.1. Planning

AMSA recommends the following concepts and approaches for planning MPAs:

7.1.1. It is essential that the selection process for MPAs be guided by sound scientific principles and advice.

7.1.2. AMSA endorses the government's national representative system of marine protected areas (NRSMPA), and encourages its timely implementation.

7.1.3. AMSA stresses the importance of utilising MPA planning principles as set out in several important government documents, for example, The Strategic Plan of Action for the National Representative System of Marine Protected Areas 1999 and Australia's Oceans Policy 1998.

7.1.4. AMSA supports multiple use of the marine environment and strongly supports a protective mix in MPAs that include both 'no-take' areas and those available for other uses. Multiple use enables sustainable harvesting opportunities to occur while at the same time optimising biodiversity conservation in 'no-take' areas.

7.1.5. AMSA endorses the comprehensive, adequate and representative (CAR) planning approach for protection of Australia's marine biodiversity.

7.1.6. In addition to the CAR approach, AMSA recommends that MPAs are part of systematic regional networks based on bioregional assessments.

7.1.7. When an MPA is declared, AMSA supports the need for clearly articulated aims for the MPA, and that the specific reserve is planned and managed accordingly.

7.1.8. Both MPA plans and networks should be considered for biological complementarity, as well as connectivity, efficiency, effectiveness, replication and uncertainty.

7.1.9. National and State marine protected area targets are most useful when part of a systematic regional conservation plan. Where detailed planning has not been undertaken, the minimum requirement to fulfil Australia's international agreements of effective conservation is to protect all major marine ecosystems, with a target of at least 10% of all habitat types under full 'no-take' protection.

7.1.10. AMSA considers that a figure of 10% under 'no-take' protection would slow but not prevent loss of biodiversity. The current 'no-take' level in the GBRMP of 33% is more likely to achieve substantial and sustained biodiversity conservation benefits.

7.1.11. Rare and vulnerable ecosystems, communities or populations should be provided with greater than 10% protection. When these species, ecosystem, or habitat types are critically endangered, AMSA recommends 100% protection within 'no-take' MPAs.

7.1.12. Breeding aggregations, migration choke points, and threatened or unique critical habitats should all be carefully considered for inclusion in 'no-take' MPAs.

7.1.13. AMSA supports the role and importance of extensive stakeholder consultation during MPA planning. Stakeholders should be able to provide a variety of management inputs including both baseline information on ecosystem values and usage, as well as the expression of preferences for reservation site options.

7.1.14. The selection of MPA planning options must be framed within Australia's national and international commitments to the protection of biodiversity. It is essential that alternative options, provided to, or collected from, stakeholders do not compromise the fundamental goals, and essential design principles of the network.

7.1.15. While most attention has focussed on the ecological and fisheries values of MPAs, it is also possible that MPAs may be created to protect sites of heritage, cultural, geological, or physical oceanographic significance. AMSA encourages consideration of these values.

7.1.16. AMSA supports improved coordination between Federal, State and Territory governments in the design of the NRSMPA. There is a need to ensure adequate protection of those ecosystems and species at a national scale, particularly those situated near or migrating across jurisdictional boundaries.

7.1.17. AMSA considers that the small portions of MPAs zoned as 'no-take' at a national scale, particularly for certain heavily exploited shelf habitats, are less effective for biodiversity conservation. For example, only 0.75% of the South East Region continental shelf is protected by 'no-take' MPAs. AMSA encourages the inclusion of more shelf, slope, canyon and canyon head areas within existing and future MPA networks, and increased use of full ('no-take') protection as the main tool to achieve high-quality conservation outcomes.

7.2 Monitoring and research

For MPA planning and management, AMSA strongly supports evidence-based decision making from the best available science. Australia's marine systems remain poorly studied and improved knowledge and long-term data-sets are needed to better understand and monitor Australia's marine environment, habitats and biodiversity.

7.2.1. Well-designed scientific monitoring programmes should be part of all MPA planning and management. Baseline monitoring preferably before, or at least at the time of MPA creation, is a vital tool for the study of long-term MPA effects, to assess the performance of the protected area, and to detect impacts or changes.

7.2.2. AMSA endorses the free and open publication of monitoring and research results regarding MPAs, following peer-review, in recognised scientific journals.

7.2.3. Monitoring data from MPAs also helps our ability to manage the wider marine environment. In particular, MPAs provide reference sites which are not confounded by other impacts, for both fisheries and climate change research. MPAs should be incorporated into broader research programs.

7.2.4. There are few comprehensive taxonomic data-sets of Australia's marine biota and the nation's skills-base in marine taxonomy is in serious decline. As taxonomy is the enabling science of biodiversity, AMSA encourages governments, as a matter of urgency, to invest in taxonomic training and support, particularly for marine taxa.

7.2.5. Similarly, the physical aspects of Australia's marine environment are poorly studied. For example, modern multi-beam sonar bathymetry data have been collected (at mid-2011) over less than 20% of Australia's

EEZ (and over less than 10% of the continental shelf).

7.2.6. Australia lacks an up-to-date, consolidated reporting mechanism on protected areas. The collaborative Australian protected area database (CAPAD), maintained by the Commonwealth (at mid-2012) lacked comprehensive information on State marine protected areas. Further, the database lacks reporting on the extent of protection of marine habitat, ecosystem, geomorphic province, or even bioregion. These are important gaps and should be addressed at a national scale by the Commonwealth Government as a matter of urgency.

7.2.7. Australia's marine environment has been impacted by a range of human activities. AMSA considers that the cumulative impact of multiple stressors on the marine environment constitutes a key knowledge gap not adequately addressed by existing scientific programmes. A quantitative assessment of cumulative human impacts is required to underpin comprehensive evidence-based decision making related to MPAs.

7.3. Fisheries

7.3.1. Good fisheries management is essential for the sustainable use of marine resources and the protection of marine biodiversity. AMSA recognises that MPAs are complementary and not substitutes for well-managed fisheries. AMSA supports improved fisheries management in conjunction with the development of MPA networks.

7.3.2. AMSA strongly supports greater cooperation, integration and collaboration between scientists and managers working in conservation and fisheries.

7.3.3. AMSA supports the consideration, when appropriate, of MPAs as fisheries management tools. For example, MPAs can serve as excellent scientific reference sites.

7.3.4. The establishment of 'no-take' MPAs may result in displacing fishing effort to other areas, which may have negative impacts. To avoid effort transfer, MPA designation should be accompanied by appropriate reductions in overall fishing effort or catch for affected fisheries, particularly those which are at, or near, full exploitation levels.

7.3.5. AMSA endorses the use of structural adjustment packages to buy out and retire fishing effort from industry following establishment of MPAs. These packages are designed to avoid displacement of fishing effort and, also, where

MPAs remove substantial and valuable legal entitlements, alleviate stakeholders suffering significant financial hardship.

7.3.6. AMSA acknowledges that the impact and process of fishing effort displacement from MPAs to other sites (particularly for recreational fisheries) is poorly understood. More research into this issue is needed.

7.3.7. AMSA supports the wide application of ecosystem-based and precautionary approaches to the management of both commercial and recreational fisheries, both within and outside of MPAs.

7.3.8. The Outcomes Statement of the World Summit on Sustainable Development, held in Johannesburg in 2002, contains a commitment to phasing out destructive fishing practices in the marine environment by the year 2012. Australia supports this statement as does AMSA.

7.4. Management

7.4.1. AMSA recognises that ongoing community and stakeholder consultation has been demonstrated, both in Australia and internationally, to be vital to successful MPA management.

7.4.2. In supporting management, decisions should be based on the best scientific evidence and advice available. Where evidence is inadequate, a precautionary stance should be taken, in line with Australia's commitment to the precautionary principle. In addition, where feasible, evidence should be sought.

7.4.3. The selection of any management options by the community and stakeholders needs to be framed within the goals of the MPA. It is important that MPA managers have the authority to resist options that may compromise the goals and design principles of the MPA.

7.4.4. AMSA supports, whenever appropriate, regional management of MPAs and recognises that having staff based near MPAs, who are part of the local community, is an effective approach.

7.4.5. Networks of MPAs should be adequately resourced from inception to ensure that they are properly managed. There are costs involved both in establishing, and maintaining, networks of MPAs. These include scientific research, stakeholder consultation, education, compliance and enforcement, as well as

scientific monitoring to determine the effects and performance of the MPAs.

7.4.6. Successful management needs to include adequate education, information, communication and awareness programmes.

7.4.7. Compliance operations in MPAs should have adequate resourcing and professional enforcement officers.

7.4.8. AMSA supports clear and easy to understand boundaries, signage and regulations for MPAs.

7.4.9. AMSA emphasises that MPAs require effective management strategies across the entire marine environment. This includes targeted activities and programmes to address major environmental stressors such as climate change, invasive species, extractive activities, pollution and habitat loss.

7.4.10. AMSA encourages improved coordination between Federal, State and Territory governments in the management of MPAs.