Dear Ms Gillard and Mr Abbott

Recently articles have appeared in State and national press suggesting that there is little or no scientific evidence to support the creation of systems of marine protected areas. This is false. In this letter we briefly discuss the scientific evidence that shows marine protected areas have very positive impacts on biodiversity, and in many cases fisheries as well. Some reserve systems also produce substantial economic benefits through tourism, as well as providing important educational, inspirational and research opportunities.

Here we use the definition of marine protected areas of the Australian Marine Science Association (AMSA): *areas of the ocean or coastal seas, securely reserved and effectively protected from at least some threats*. In the discussion below, we look briefly at threats to the marine environment, the history of marine protected areas, the development of networks of MPAs in Australia (against a background of bioregional planning), and their importance to Australia in an uncertain future.

The marine environment faces five general threats: climate change and ocean acidification resulting from rising CO$_2$ levels, overfishing, habitat damage, pollution, and the effects of alien organisms. On the global scene, modern fishing activities constitute the most important threat to marine biodiversity at the present time, although this will change in the near future as rising CO$_2$ levels affect ocean chemistry, temperatures and sea levels. Fishing activities in Australia have had damaging effects on biodiversity. Well known examples include the orange roughy where populations (and their fragile coral habitats) have been massively reduced by commercial fishing, and the east coast grey nurse shark, where historic recreational fishing pressures combined with commercial bycatch could result in the regional extinction of this species. While area protection clearly cannot be effective against all threats (eg: ocean acidification) it can provide protection from important threats such as fishing and habitat damage.

Protected areas have been used in some parts of the world for hundreds, perhaps thousands of years. Protected areas established by tribal law in Oceania were put in place purely to protect fisheries, for example by the protection of spawning, nursery and feeding areas. In 1972, the nations of the world pledged to protect representative examples of major terrestrial, marine and freshwater ecosystems through the United Nations Conference on the Human Environment Stockholm Declaration. The protection of such areas is of immense scientific value, in many instances offering the only ‘natural’ benchmark by which we can judge the effects of human interventions. Australia’s commitment to this program of protecting representative ecosystems was re-affirmed in 1982, through the United Nations General Assembly World Charter for Nature, and again in 1992, when Australia supported the international Convention on Biological Diversity. This latter document (the CBD) led,
through an extended program of scientific and stakeholder consultations, to a commitment (set out in the CBD Jakarta Mandate) to develop global and national networks of marine protected areas. Hundreds of scientists from around 180 nations contributed to the development of this program, which continues across the world today. Australian scientists and politicians have played (and continue to play) a world leading role in this program.

Most Australian States had already begun programs of marine spatial protection when the Commonwealth Government took the role of coordinating and supporting the development of networks of marine protected areas in the early 1990s, and by introducing marine bioregional planning in the late 1990s (bioregions contain repeating patterns of similar ecosystems, providing a key spatial framework within which protected area networks can be designed and implemented). These efforts were unanimously applauded by scientists around the world, and in large part established Australia as a major international player in areas of marine science and conservation. Senator Robert Hill played an important role in establishing a national program strongly based on science – which up until the present time has had bipartisan support for nearly two decades.

Australia is a world leader in marine conservation planning, although implementation outside the Great Barrier Reef is patchy. The current planning for marine protected area systems in federal waters has been carried out by the Commonwealth Department of the Environment, Water, Heritage and the Arts (DEWHA) with world class tools and principles, and some outcomes are of a high standard\(^{10}\). Indeed the successful rezoning of the Great Barrier Reef is considered to be a global model of best scientific practice.

Scientific studies have confirmed several ‘common sense’ outcomes. Where areas are effectively protected (and that does mean that compliance measures must be in force) harvested species (fish, for example) tend to be older, larger and more abundant\(^{11}\). In a few cases statistically significant evidence of a beneficial effect of marine reserves cannot be found largely because of inadequate data, or insufficient time for effects to clearly manifest, not because there are actually no effects. This is particularly important because, unlike many land dwelling vertebrates, larger females tend to be more effective breeders (often much more effective). Again, not unexpectedly, benefits appear over time, sometimes slowly\(^{12}\). Some of the oldest marine protected areas are still showing the effects of ‘recovery’ from harvesting and other pressures. Protected areas can also ameliorate coral disease by promoting ecological resilience\(^{13}\). While the benefits for marine biodiversity flowing from no-take areas have been well established, arguments continue (and will continue) about the use of marine protected areas for fishery enhancement purposes. It is noteworthy, in this context, that some MPAs have strong support by fishermen – an example being the shallow seagrass areas of the Gulf of Carpentaria set aside specifically to protect prawn nursery areas. In many instances, protected areas can be specifically targeted to protect the spawning, nursery and feeding areas of commercial species.

If we recognise that some parts of the ocean need to be protected from humans (just like the land) then the benefit of marine protected areas for biodiversity conservation is not a matter of dispute. Over the last few years, there have been hundreds of peer-reviewed scientific articles confirming the beneficial effects of marine protected areas\(^{14}\), supplemented by several recent in-depth reviews (see the reference list below for a listing of some of these). In addition, there have been several major scientific consensus statements, again confirming the scientific basis, and the conservation value, of marine protected areas\(^{15}\).

Australia has committed, through international agreements, to ‘effectively protect’ at least 10% of its oceans and coastal seas\(^{16}\), and the target date for this commitment is imminent. The Australian Marine Science Association has called for Australian governments to protect at least 10% of State and Commonwealth marine waters in no-take (sanctuary) zones, with rare or vulnerable ecosystems protected at higher levels\(^{17}\). Such targets need to be applied at the ecosystem level rather than broadly across marine jurisdictions, noting that many scientists believe much higher levels of protection are necessary to protect marine biodiversity in the long term\(^{18}\). We endorse AMSA’s viewpoint, and call on you take account of important responsibilities to protect Australia’s biodiversity in making long-term decisions.
on Australia’s program of establishing marine protected areas, or the bioregional planning framework in which the program sits.

**In summary:**

- networks of marine protected areas play a vital role in protecting marine ecosystems, certainly just as important as protected areas, such as national parks, in the terrestrial environment;
- systems of protected areas have many benefits, not least of which are the economic benefits flowing from tourism;
- protected areas are not a ‘cure-all’ for problems of marine conservation; they must be put in place alongside other effective measures aimed at protecting biodiversity across Australia’s entire marine jurisdiction, and here implementation of the ecosystem approach and the precautionary principle in fisheries management is essential;
- the establishment of MPAs in Australia fulfils important and long-standing international obligations, and Australia (at present) has an enviable reputation amongst the global community for the strength of its science and the effectiveness of its conservation programs;
- the establishment of protected area networks, particularly in Australia, rests on a strong scientific foundation, and here marine bioregional planning provides an essential scientific and planning framework;
- once established, governments have an obligation to provide funds for effective enforcement of agreed protective measures; particularly in relatively remote areas, history has shown that enforcement is essential for compliance; and
- Australia’s program of the establishment of networks of marine protected areas has, until now, enjoyed bipartisan support across both State and Commonwealth jurisdictions – long-sighted support which will be even more important in an increasingly uncertain future.

**Government actions needed:**

1) Recognize the importance of MPAs in mitigating major threats to marine biodiversity. Set area protection targets ensuring at least 10% of all ecosystem types have no-take protection, with vulnerable, rare and iconic ecosystems, and special and unique habitats, protected at higher levels;

2) Increase funding for marine bioregional planning, while providing additional ongoing funding for enforcement, monitoring, and public education and awareness programs;

3) Provide a vision for managing the diversity of threats to Australian marine habitats through MPAs and other management tools – particularly implementation of the ecosystem and precautionary approaches in fisheries management, combined with urgent greenhouse gas reductions.

We wish to close with a quote from a document endorsed by the Council of Australian Governments in 1996 – Australia’s national biodiversity strategy:

> There is in the community a view that the conservation of biological diversity also has an ethical basis. We share the earth with many other life forms which warrant our respect, whether or not they are of benefit to us. Earth belongs to the future as well as the present; no single species or generation can claim it as its own.

--ooOoo--
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**SIGNATORIES:**

Adriana Verges PhD, marine ecology, Sydney Institute of Marine Science (SIMS) NSW.

Alan Butler PhD, marine research, Hobart, Tasmania, 7000.

Alexandra Grutter PhD, coral reef ecology, The University of Queensland, Brisbane Qld.

Alistair Poore PhD, marine ecology, Evolution & Ecology Research Centre, Unv. of New South Wales.

Allyson O’Brien PhD, soft sediment ecology, The University of Melbourne, Victoria.

Andrew Short Professor, OAM, coastal geomorphology, University of Sydney, NSW.

Andy Davis Assoc Prof, marine conservation biology, University of Wollongong, NSW 2522.

Anne Hoggett PhD, coral ecology, Lizard Island Research Station, Queensland.

Anthony Boxshall PhD, marine ecologist, Carlton 3053, Vic.

Anthony Richardson PhD, marine ecology, University of Queensland, Brisbane Qld.

Any Salih PhD, School of Natural Sciences, University of Western Sydney, Sydney NSW.

Asta Audzijonyte PhD, fisheries modeller, Hobart, Tas.

Barbara Stewart PhD ecology and environment, Landmark Ecological Services, Byron Bay NSW.

Bayden Russell PhD, Southern Seas Ecology Laboratories, University of Adelaide, SA.

Belinda Curley PhD, marine ecology, Sydney Institute of Marine Science, Sydney, NSW.

Bernadette Power PhD, marine ecology, Australian Marine Ecology, Melbourne, Vic.

Bette Willis Professor, coral biology and coral disease, James Cook University, Townsville.

Bill Ballantine PhD, marine biologist / benefits of marine reserves, Leigh New Zealand.

Bill Carter Assoc Prof, marine ecology, Assoc Director Sustainability Research Centre, USC, Qld.

Bill Carter Assoc Prof, marine ecology, University of the Sunshine Coast
Brendan Kelaher PhD, marine biology - University of Technology, Sydney.
Brian Finlayson PhD, aquatic environments & conservation planning, Melbourne University, VIC
Britta Munkes PhD, marine ecology, Edith Cowan University, Joondalup, 6027.
Bronwyn Gillanders PhD, marine ecology, University of Adelaide, Adelaide SA.
Carissa Klein PhD, marine conservation planning, University of Queensland, Brisbane Qld.
Carmel McDougall PhD, pearl oyster aquaculture, the University of Queensland, Brisbane Qld.
Carolina Zagal PhD, marine invertebrate ecology, University of Tasmania, Hobart Tas.
Chris Fulton PhD, coral reef fish ecophysiology, Coral Reef Studies, ANU, Canberra.
Chris Glasby PhD, marine taxonomy, Jingili, NT 0810.
Christine Schoenberg PhD, benthic ecology, Australian Institute of Marine Science, Perth WA.
Colin Hunt PhD, economic impacts of fisheries, School of Economics, University of Queensland.
Corey Bradshaw, Professor, ecological modelling, University of Adelaide, SA.
Cynthia Riginos PhD, marine genetics, School of Biological Sciences, UQ Brisbane Qld.
Dana Burfeind PhD, marine ecology, Australian Rivers Institute, Griffith Uni Qld.
Danielle Sulikowski PhD, Department of Brain, Behaviour and Evolution, Macquarie University, NSW.
David Brewer PhD, marine ecological processes and prediction, Brisbane Qld.
David Holliday PhD, larval fish ecology, Murdoch University, Western Australia.
David McKinnon PhD, biological oceanography, Townsville QLD 4810.
David Pollard PhD, marine ecology, and conservation, Research Associate, Australian Museum.
David Power PhD, fish ecology and biology, Environmental & Life Sciences, Uni Newcastle.
David Sutton PhD, marine microbiology, Inglewood, WA 6052.
Deborah Milham-Scott PhD, impact of water quality on changes in biodiversity, UQ and USC.
Dianne McLean Research Assistant Professor, fisheries ecology, Centre for Marine Futures, UWA.
Dirk Zeller PhD, fisheries science, Fisheries Centre, University of British Columbia, Canada.
Edward Game PhD, *The Nature Conservancy, South Brisbane, QLD.*
Gary Poore PhD, taxonomist, Melbourne 3206 Victoria.
Gayle Mayes PhD, dolphin interactions, Sustainability Research Centre, Uni Sunshine Coast, Qld.
Geoffrey Westcott Professor, marine ecology and conservation, Deakin University, Geelong Victoria.
George Wilson PhD, biological oceanography, marine invertebrates, Australian Museum, Sydney.
Glen Holmes PhD, coral reef ecology, The University of Queensland, Brisbane Qld.
Graeme Kelleher, former director Great Barrier Reef Marine Park Authority, Canberra ACT
Graham Edgar PhD, marine ecology, University of Tasmania, Hobart Tasmania.
Greg Skilleter PhD, marine ecology, Biological Sciences, University of Queensland, Brisbane Qld.
Greta Pecl PhD, marine ecology, University of Tasmania, Hobart Tasmania.
Hedley Grantham PhD, marine conservation planning, University of Queensland, Brisbane Qld.
Heidi Pethybridge PhD, marine ecology and biochemistry, IMAS, University of Tasmania.
Helen Larson PhD, fish taxonomist, Curator Emeritus, Museum & Art Gallery of the Northern Territory.
Helene Marsh Professor, marine conservation biologist, James Cook University, Qld.
Hugh Possingham Professor, spatial ecology, Ecology Centre, University of Queensland, Qld.
Iain Field PhD, marine predator ecology, Graduate School of the Environment, Macquarie University.
Iain Suthers Professor, fisheries oceanography, Sydney Institute of Marine Science (SIMS).
Ian Poiner PhD, tropical marine ecology, Cape Ferguson, Townsville, 4810.
Inke Falkner PhD, marine benthic ecologist, University of Sydney Institute of Marine Science.
James Watson PhD, conservation planner, The Ecology Centre, The University of Queensland, Qld.
Jamie Kirkpatrick, Professor, conservation ecology and planning, University of Tasmania, Hobart Tas.
Jane Fromont PhD, marine biology, Inglewood, WA 6052.
Jeff Shimeta PhD, coastal marine ecology, RMIT University, Bundoora Victoria.
Jeff Wright PhD, marine ecology, NCMCRS, University of Tasmania, Hobart Tasmania.
Jeffrey Leis PhD, marine ecology, Balmain, NSW 2041.
John Beardall Professor, phytoplankton ecophysiology, Monash University, Victoria.
John Hooper PhD, marine biologist, Newmarket Qld. 4051.
John Huisman PhD, algal biodiversity, Murdoch University, WA.
John Pandolfi, Professor, coral reef paleoecology, ARC Centre of Excellence for Coral Reef Studies.
John Thorogood PhD, estuarine and coastal zone ecology, Principal Ecologist, frc environmental.
John Veron PhD, DSc, coral reef research, Townsville Queensland.
Jon Nevill PhD, policy analyst – aquatic ecosystem management and conservation, Hampton Vic.
Julia Phillips PhD, marine phycology, Oceanica Consulting P/L, Karrinyup WA.
Justin Marshall PhD, The Queensland Brain Institute, Brisbane Qld.
Karen Edyvane Professor, marine conservation planning, Charles Darwin University, Darwin, NT.
Karen Miller PhD, marine ecologist, University of Tasmania, Hobart Tas.
Kathryn Burns PhD, marine organic geochemistry, Australian Institute of Marine Science, Townsville.
Kathryn McMahon PhD, marine ecology, Edith Cowan University, WA.
Kathy Townsend PhD, human impacts on the marine environment, University of Queensland, Qld.
Katie Newton PhD, marine ecology, Newcastle East NSW 2300.
Kris Waddington PhD, benthic ecology, Centre for Marine Futures, Oceans Institute, UWA.
Kylie Pitt PhD, marine ecology, School of Environment, Griffith University Qld.
Leanne Armand PhD, marine phytoplankton and palaeoclimate, Climate Futures, Macquarie University.
Liana Joseph PhD, conservation planning, Applied Environmental Decision Analysis CERF, UQ Qld.
Luciana Möller, marine mammal ecologist, Flinders University of South Australia, Adelaide.
Luciano Beheregaray PhD, molecular ecology and conservation genetics, Flinders University.
Lyle Vail PhD, coral ecology, Lizard Island Research Station, Queensland.
Lynnath Beckley Assoc Prof, marine ecology and biological oceanography, Murdoch University, WA.
Margaret Platell PhD, fish ecology, Centre for Sustainable Use of Coasts & Catchments, Ourimbah.
Maria Beger PhD, marine ecologist and conservation planning specialist, University of Queensland.
Marion Cambridge PhD, marine ecology, Oceans Institute, The University of WA.
Matt Edmunds PhD, marine ecology, Australian Marine Ecology, Melbourne, Vic.
Matthew Barrett Pember PhD, fisheries ecology, Palmyra, Western Australia, 6157.
Matthew Taylor PhD, fisheries ecologist, University of New South Wales, Sydney NSW.
Max Finlayson Professor, wetland biodiversity, Inst for Land, Water & Society, Charles Sturt University.
Melanie Bishop PhD, estuarine ecology, Macquarie University NSW.
Michael Noad PhD, whale acoustics and ecology, Cetacean Ecology & Acoustics Laboratory, UQ Qld.
Mike Bennett Professor, Australian shark and ray biology, The University of Queensland, Qld.
Mike van Keulen PhD, Director Coral Bay Research Station, Murdoch University, WA.
Natalie Molschaniewskyj Assoc Prof, marine invertebrate biology & ecology, Uni Tasmania.
Nathan Knott PhD, marine anthropogenic disturbance, Vincentia, 2540, NSW.
Neville Exxon Professor, marine geology and geophysics, Australian National University, ACT.
Nick Wilson PhD, mangrove ecology, Mount George, NSW, 2424.
Nicole Hill PhD, quantitative ecology, CERF Marine Biodiversity Hub, University of Tasmania.
Olaf Meynecke PhD, coastal ecology, Australian Rivers Institute, Griffith University Qld.
Ove Hoegh-Guldberg, Professor and Director, Global Change Institute, UQ Qld.
Patricia von Baumgarten, oceanography, Nairne, SA 5252.
Paul Gribben PhD, marine ecology, University of Technology, Sydney NSW.
Paul van Ruth PhD, biological oceanography, Port Noarlunga South S.A. 5167.
Penny Berents PhD, marine invertebrate biology, Cromer, NSW 2099
Peter Biro PhD, fish population ecology, Evolution & Ecology Research Centre, UNSW.
Peter Harris PhD, marine geology, Googong, Queanbeyan, NSW 2620.
Peter Harrison Professor, coral reef ecologist, Director of SCU Marine Ecology Research Centre, NSW
Peter Unmack PhD, aquatic biodiversity, National Evolutionary Synthesis Centre, Durham NC USA.
Philip Munday, Professor, marine ecology, James Cook University, Townsville, QLD.
Philip England PhD, conservation geneticist Hobart, Tas.
Pia Winberg PhD, Director, Shoalhaven Marine and Freshwater Centre, Nowra, NSW 2541.
Pippa Moore PhD, human impacts on the marine environment, Edith Cowan University, Joondalup WA.
Rachel Przeslawski PhD, marine benthic ecology, Bungendore NSW 2621.
Richard Kingsford Professor, Director of the Australian Wetlands and Rivers Centre, UNSW, Sydney.
Rick Stuart-Smith PhD, marine biodiversity research, Research Fellow, TAFI, University of Tasmania.
Robin Beaman PhD, marine geology, James Cook University, Cairns Qld.
Rod Connolly Professor, marine ecology, Griffith University, Gold Coast, Qld.
Ross Coleman Associate Professor, ecological impacts of coastal cities, University of Sydney, NSW
Ross Hill PhD, marine photo-biology, Postdoctoral Research Fellow, University of Technology, Sydney.
Russ Babcock PhD, marine ecology, Cleveland Qld. 4163.
Sandle Degnan PhD, marine ecology and genetics, Biological Sciences, University of Queensland.
Sarah Butler PhD, marine ecology, Clear Horizon Consulting Pty Ltd, Melbourne, Vic.
Scarla Weeks PhD, biophysical oceanography and remote sensing, University of Queensland, Qld.
Scoresby Shepherd AO, marine biology, Henley South, S.A. 5022.
Shannon Corrigan PhD, genetic connectivity among marine populations, Macquarie University, NSW.
Sheila Peake PhD, whales, Sustainability Research Centre, Uni Sunshine Coast, Qld.
Stephen Smith Assoc Prof, biodiversity assessment benthic ecology, National Marine Science Centre.
Steven Purcell PhD, reef invertebrate fisheries, National Marine Science Centre, Southern Cross Uni.
Sue Murray-Jones PhD, marine biology, Henley Beach South, 5022, Adelaide SA.
Svea Mara Wolkenhauer PhD, fishery habitats impacts, Healthy Waterways, Brisbane Qld.
Tara Martin Adjunct Professor, conservation planning, University of Queensland, Queensland.
Tein McDonald PhD, ecological management and restoration consultant, Woodburn NSW.
Terry Hughes Professor, coral reef studies, ARC Centre of Excellence for Coral Reef Studies, JCU Qld.
Tim Stevens PhD, marine protected area design, School of Environment, Griffith University Qld
Tony Koslow PhD, Director, Scripps CalCOFI Program, Scripps Institution of Oceanography California.
Troy Gaston PhD, marine ecology, Australian Maritime College, UTAS Tasmania.
Trudy Costa PhD, rocky reef ecology, University of Wollongong, NSW.
Vicky Tzioumis PhD, marine ecology, Manly NSW 2095.
Will Figueira PhD, fish population ecology, University of Sydney, Sydney NSW.
William Gladstone Professor, marine conservation & fish behavioural ecology, UTS, NSW.
Winston Ponder PhD, marine mollusca, Senior Research Fellow, Australian Museum, Sydney NSW.

Endnotes:

1 In 2006-07 tourism to the Great Barrier Reef contributed $A5.117 billion to the Australian economy:


3 Veron (2008); Veron et al. (2009).
6 See Pogonoski et al. (2002) and Ponder et al. (2002).
7 Nevill (2009)
8 Otway et al. (2004).
10 There were some problems with the outcomes from the South East Bioregion process – see Nevill & Ward (2009).
12 Edgar & Stuart-Smith (2009)
13 Raymundo et al. (2009).
14 Lists of references may be obtained from Dr Jon Nevill jon.nevill@onlyoneplanet.com.
15 Some of the many scientists’ consensus statements on the subject of marine protected areas may be obtained from http://www.tucs.org.au/~cnevill/marine.htm or by contacting Dr Jon Nevill.
18 Systematic conservation planning attempts to maximise the conservation benefits of reserve networks within a number of key constraints, including providing for other uses of the sea. One of the most important of these constraints are regional area targets, and choosing these targets involves tradeoffs and judgements (see comments in AMSA 2008b). Many papers, reports and a number of workshops have examined the question of protected area targets in the marine environment (Nevill 2007). In the context of this letter, we follow the recommendation in AMSA (2008b) (see discussion above) by recommending a minimum of 10% of every major ecosystem protected in sanctuary zones, and rare, vulnerable or iconic ecosystems, and special or unique habitats, protected at higher levels. These sanctuary zones should lie within larger networks of multi-use zones, some having a buffer function: this is a core concept within the Convention on Biological Diversity Jakarta Mandate.
According to AMSA (2008b): “National or State marine reserve area targets are only useful in the absence of systematic regional conservation plans. Where detailed planning has not been undertaken, a goal should aim to protect all major marine ecosystems, with a minimum target of 10% of all habitat types under full no-take protection by 2012. Rare and vulnerable ecosystems or communities should be provided with greater protection – up to 100% where an isolated ecosystem or habitat type is endangered. Such no-take reserves should lie within larger multi-use protected areas, designed to provide limited harvesting opportunities which will not prejudice biodiversity assets, especially those within the core no-take zones. 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 benefits”.
Returning to the issue of area targets, it is noteworthy that several of the papers discussed in Nevill (2007) assume that, outside the reserve network, biodiversity is not well protected if at all, and these papers often recommend area targets in the range 20-40%. Our recommending an area target of “at least 10%” in this letter, is based partly on an optimistic assumption that all of Australia’s marine jurisdiction, outside the reserve network, is reasonably well protected, particularly by fisheries controls applying the precautionary and ecosystem approaches. While Australia has led the world in developing science to support the application of these approaches, actual implementation in some cases has lagged badly behind the science (Nevill 2009) particularly with respect to recreational and mixed fisheries. There is considerable room for improvement, and the science developed by Australian scientists is providing the tools for such progress.
19 See Ayling & Choat (2008).