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Monday 16th August 2010

The Hon Julia Gillard
Prime Minister
Parliament House
Canberra ACT 2600

The Hon Tony Abbott
Leader of the Opposition
Parliament House
Canberra ACT 2600

OPEN LETTER TO THE PRIME MINISTER AND LEADER OF THE OPPOSITION

SCIENCE SUPPORTING MARINE PROTECTED AREAS

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[1], 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*[2]. 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[3], overfishing, habitat damage, pollution, and the effects of alien organisms[4]. 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[5]. Fishing activities in Australia have had damaging effects on biodiversity[6]. Well known examples include the orange roughy where populations (and their fragile coral habitats) have been massively reduced by commercial fishing[7], 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[8]. 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[9]. 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[19]; 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[20].

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Endnotes:

[1] In 2006-07 tourism to the Great Barrier Reef contributed $A5.117 billion to the Australian economy: http://www.gbrmpa.gov.au/corp_site/about_us/great_barrier_reef_outlook_report/outlook_report/evidence/01_standard_evidence_page25

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[5] Nevill, J (2008) Threats to marine biodiversity. From www.tucs.org.au/~cnevill/marineBiodiversityThreats.doc accessed 2 August 2010
[6] See Pogonoski et al. (2002) and Ponder et al. (2002).
[7] Nevill (2009)
[8] Otway et al. (2004).
[9] Johannes (1978, 1981, 1984).
[10] There were some problems with the outcomes from the South East Bioregion process – see Nevill & Ward (2009).
[11] Russ et al (2008).
[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.
[16] See AMSA (2008b) Position paper on marine protected areas. http://www.amsa.asn.au.
[17] See AMSA (2008b) Position paper on marine protected areas. http://www.amsa.asn.au.

[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).
[20] Commonwealth of Australia (1996) page 2.