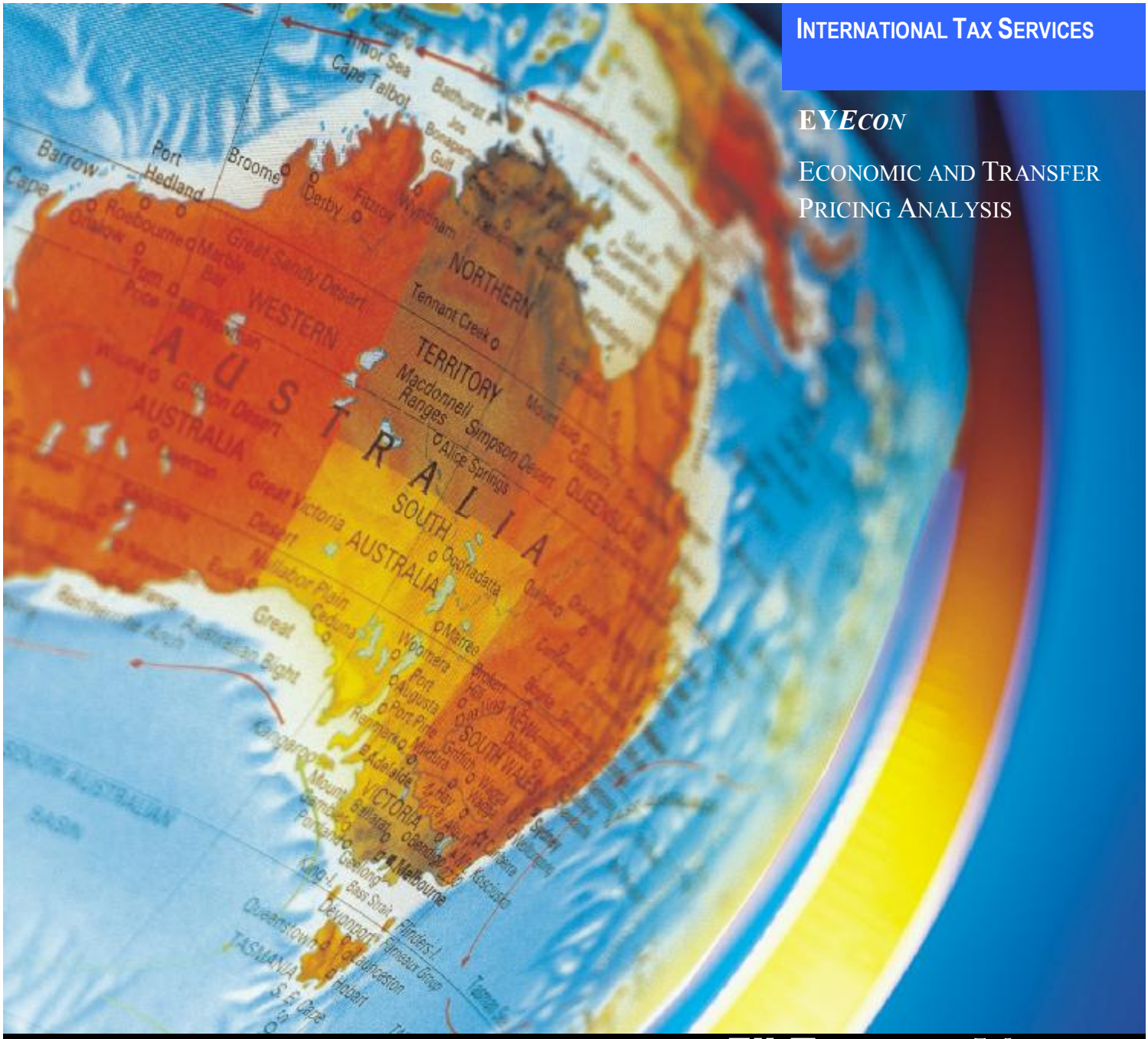

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Australia's Marine Protected Areas: Challenging Times Ahead

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Executive Summary

Australia's economic, social and environmental wellbeing depends on how efficiently it manages the use its natural resources, which include not only the resources located on land, but also those located in Australia's extensive marine environment.

Australia has one of the largest and most diverse marine environments in the world. Under the United Nations Convention on the Law of the Sea, Australia has rights and responsibilities for over 16 million square kilometres of ocean, which is more than twice the area of the Australian continent. This extensive marine environment is the home of a diverse range of marine fauna and flora, most of which is unique to Australia. For example, Australia has the world's largest areas and highest species diversity of tropical and temperate seagrasses, one of the largest areas of coral reefs, the highest mangrove species diversity, and the highest levels of biodiversity for a number of types of marine invertebrates.

The Commonwealth, State and Northern Territory governments share joint responsibility for ensuring these marine resources are used in as efficient manner as possible that is in the best interests of both current and future generations of Australians. The State and Northern Territory Governments are responsible for the management of marine resources up to 3 nautical miles off the Australian coastline, whereas responsibility for the management of the marine environment up to Australia's 200 mile Exclusive Economic Zone rests with the Commonwealth Government.

In particular, Australian governments face the challenging task of determining the appropriate allocation of Australia's marine resources between:

- current commercial and recreational uses of those resources. Australia's marine environment is an important source of natural resources for a wide range of activities including:
  - commercial activities, such as commercial fishing, shipping, as well as offshore oil and gas exploration; and
  - recreational activities, such as recreational fishing, diving, boating, and eco-tourism (e.g. whale and dolphin watching);
- current and future uses of those marine resources. In addition to determining how to allocate marine resources between alternative current uses, governments also face the challenge of ensuring that Australia's marine biodiversity is conserved so that it can be enjoyed by future users. In particular, there is a need to ensure that the current users of Australia's marine resources do not cause serious, or irreversible, damage to the marine environment.

This report examines an increasingly popular approach that is being used by governments in both Australia and overseas to achieve that delicate balance of environmentally sustainable use of marine resources – the establishment of 'Marine Protected Areas'.

In particular, this report examines five key issues:

- What is a Marine Protected Area? (section 2);
- Why are Marine Protected Areas being established? (section 3);
- Where are Marine Protected Areas being established? (section 4);
- What processes are being used to establish Marine Protected Areas in Australia? (section 5); and
- How could the efficiency and effectiveness of Marine Protected Areas be improved? (section 6).

What is a Marine Protected Area?

Definition of a 'Marine Protected Area'

In Australia, the term 'Marine Protected Area' (MPA) is used to refer to an area of sea (which may include land, the seabed and subsoil under the sea) established by law for the protection and maintenance of biological diversity and of natural and cultural resources.

As discussed further in section 2 of this report, this definition of a 'Marine Protected Area' is based on the following World Conservation Union (IUCN) definition of a 'protected area':

> An area of land and/or sea especially dedicated to the protection of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

The key characteristics that define a 'Marine Protected Area' in Australia are that the MPA:

- has been established especially for the conservation of biodiversity;
- is able to be classified into one or more of the six IUCN Protected Area Management Categories reflecting the values and objectives of the MPA;
- must have secure status which can only be revoked by a Parliamentary process; and
- contributes to the representativeness, comprehensiveness or adequacy of the national system.

Activities permitted within a Marine Protected Area

The term 'Marine Protected Area' is misleading to the extent that it can convey the impression that no activities are permitted within these areas. This is not case.

In practice, the types of activities that are permitted within a Marine Protected Area depend on the reasons for protecting that area. As noted by the Department of the Environment and Heritage, if the objective of setting up the MPA is to protect a representative sample of biodiversity, there may be no need to prohibit extractive activities that are well managed and do not affect that biodiversity. Conversely, in other cases, it may be necessary to restrict even non-extractive uses such as ecotourism and scientific research in the MPA in order to achieve its objectives.

With the exception of Victoria's marine national parks and sanctuaries, which prohibit fishing, most MPAs in Australia are 'multiple-use' and allow a range of commercial and recreational activities, including recreational fishing (except in no-take 'sanctuary' zones). Even the most highly protected zones within MPAs typically allow those activities that do not pose a threat to the biodiversity of those areas. For example, in Australia 'sanctuary' zones typically allow 'non-extractive' activities such as boating, diving and eco-tourism (e.g. dolphin and whale watching).

Why are Marine Protected Areas being established?

The Commonwealth, State and Northern Territory governments are working together to establish a national system of MPAs that contains a comprehensive, adequate and representative sample of Australia's marine ecosystems – the National Representative System of Marine Protected Areas (NRSMPA).

Section 3 of this report identifies:

- the objectives of the NRSMPA; and
- the fundamental problems that MPAs are intended to address. This involves looking beyond the stated objectives of the NRSMPA to identify the fundamental problems that MPAs need to address if they are to be successful in achieving their stated objectives.

What are the objectives of the National Representative System of Marine Protected Areas?

- ***Primary and secondary goals of the NRSMPA***

The primary goal of the NRSMPA is to establish and manage a comprehensive, adequate and representative system of marine protected areas to contribute to the long-term ecological viability of marine and estuarine systems, to maintain ecological processes and systems, and to protect Australia's biological diversity at all levels.

In addition to that primary goal, the NRSMPA is also intended to achieve a number of secondary goals:

- to promote the development of MPAs within the framework of integrated ecosystem management;
- to provide a formal management framework for a broad spectrum of human activities, including recreation, tourism, shipping and the use or extraction of resources, the impacts of which are compatible with the primary goal;
- to provide scientific reference sites;
- to provide for the special needs of rare, threatened or depleted species and threatened ecological communities;
- to provide for the conservation of special groups of organisms, such as species with complex habitat requirements or mobile or migratory species, or species vulnerable to disturbance which may depend on reservation for their conservation;
- to protect areas of high conservation value including those containing high species diversity, natural refugia for flora and fauna and centres of endemism; and
- to provide for the recreational, aesthetic and cultural needs of indigenous and non-indigenous people.

- ***Desired outcomes of the NRSMPA***

The desired outcomes of the NRSMPA include:

- protection for Australia's marine biological diversity and marine ecological processes;
- protection and management of significant geological, archaeological, historical and cultural sites;
- recognition and protection of indigenous cultural and heritage values;
- management of certain marine areas and species by indigenous communities in accordance with traditional cultural practices and affiliations;
- a focus for research and training;
- monitoring the environmental effects of human activities, including the direct and indirect effects of development and adjacent land use practices;
- establishment of reference sites for scientific studies, including sites for long-term environmental monitoring;
- education of the community about the environment, attributes and appropriate uses of MPAs to develop a sense of stewardship and associated responsibility;
- protection of the natural aesthetic values of marine protected areas for the educational, recreational and spiritual benefit of the community;
- facilitation of the restoration of degraded marine ecosystems; and
- protection and management of habitats of significance to the life cycles of economically important species including propagation areas.

- ***Meeting Australia's obligations under the UN Convention on Biological Diversity***

The establishment of the NRSMPA is intended to help Australia meet its obligations under the UN Convention on Biological Diversity, which Australia signed in 1992 and ratified in 1993.

The objectives of the Convention on Biological Diversity are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits of genetic resources.

Contrary to popular belief, the UN Convention on Biological Diversity does not commit Australia to including a specified percentage of the area of MPAs within no-take 'sanctuary zones'.

In particular, as noted by the Scientific Peer Review Panel for the National Representative System of Marine Protected Areas, Australia has not adopted the specific targets recommended by either the technical advisory body to the Convention on Biological Diversity, which recommended that at least 20 to 30 per cent of each habitat should be included in 'strictly protected areas', or the Pew Fellows in Marine Conservation, who recommended the inclusion of 10 to 50 per cent of each ecosystem in no-take zones.

Rather, the National Objectives and Targets for Biodiversity Conservation 2001-2005 (June 2001), signed by the Commonwealth and five States and Territories, include as a target the protection of 'a representative sample of each bioregion' within the National Reserve System.

- ***Meeting the obligations of Australian governments under the Inter-governmental Agreement on the Environment***

The establishment of the NRSMPA is also intended to help Australian governments to meet their obligations under the Inter-governmental Agreement on the Environment (1992) which commits Australian governments to the creation of a 'representative system of protected areas encompassing terrestrial, freshwater, estuarine and marine environments'.

What fundamental problems are MPAs intended to address?

- ***The threat of serious or irreversible damage to marine biodiversity***

As noted by the IUCN, MPAs are being established in order to conserve the biological diversity and productivity of the ocean – both of which are regarded as essential to restoring and maintaining the health of marine ecosystems.

Although the worlds oceans are an important source of natural resources, the concern is that human activities are having an adverse effect on the marine environment.

The main concern is not that human activities are causing widespread extinction of marine species. As noted by the IUCN:

- endemism is rare and is usually confined to species which brood or care for their young rather than have them dispersed by currents;
- there are virtually no authenticated records of recent extinctions of completely marine species with planktonic larvae (molluscs, crustaceans and many fish); and
- the concept of a critical habitat for an endangered species is only applicable with marine mammals, sea turtles, seabirds and the occasional endemic species.

Rather, the main concern is that human activities are causing serious or irreversible damage to critical habitat of species that are of value for other uses (e.g. commercial, recreational, or research activities).

It is essential to recognise, however, that this threat of serious or irreversible damage to the biodiversity and productivity of the oceans is itself the result of more fundamental problems which have the potential to prevent the operation of the market for marine resources from efficiently allocating those resources between alternative current and future uses. These fundamental problems include:

- poorly defined and difficult to enforce property rights;
- the existence of externalities; and
- information constraints.

The extent to which MPAs achieve their goal of conserving the biodiversity and productivity of the oceans will depend on how well the establishment of those MPAs addresses each of these more fundamental problems.

- ***Poorly defined and difficult to enforce property rights***

One of the main reasons why there is a threat of serious or irreversible damage to the biodiversity of the world's oceans is the lack of a well defined and enforceable set of property rights governing marine resources.

A well defined and enforceable set of property rights is essential if the operation of the market for marine resources is to produce an efficient allocation of those resources between alternative current uses and conserve those resources so that they are also available for future uses.

In practice, however, such a well defined system of property rights is difficult to develop and enforce.

Underlying the establishment of MPAs, both in Australia and internationally, is a fundamental concern about:

- the adequacy of existing fisheries management practices to constrain commercial and recreational fishing so that it does not seriously or irreversibly damage the marine environment. The key concern here is that traditional fisheries management practices have not been sufficient to protect either fish stocks or the marine environment in the past; and
- the adequacy of existing Marine Protected Areas to protect marine biodiversity. The key concern here is that Australia's existing system of MPAs does not include a sufficiently comprehensive, adequate, or representative sample of Australia's marine biodiversity. The establishment of a National Representative System of Marine Protected Areas is intended to address that deficiency.

- ***The existence of 'externalities'***

Another key reason why there is a threat of serious or irreversible damage to the biodiversity of the world's oceans is the existence of 'externalities'.

Not all of the costs arising from commercial and recreational activities in the marine environment are born by the individuals engaged in those activities. In the course of using the marine environment, current commercial and recreational users of marine resources have the potential to impose external costs on other current and future users of the marine environment.

For example, by extracting marine resources, commercial and recreational anglers can impose an external cost on other current and future users by reducing the quantity and quality of marine resources available to those users. Similarly, individual users of the marine environment are not able to reap all of the benefits from their investment in the marine environment (e.g. returning fish and minimising damage to the marine environment). Rather, the benefits from such investments are enjoyed by other users who have not contributed towards the cost of that investment.

As a result, even if marine resource property rights were well defined and enforceable, there is still a risk that the operation of the market for marine resources would fail to allocate marine resources efficiently between alternative current future uses due to the existence of these external costs and benefits.

- ***Information constraints***

Information constraints are another potential reason why the operation of the market for marine resources may fail to generate an optimal allocation of those resources between current and future potential uses.

In particular, considerable uncertainty still surrounds:

- the precise nature and extent of marine biodiversity in each area of Australia's extensive marine environment;
- the impact that commercial and recreational activities are having on marine biodiversity and productivity in each marine area;
- the value of marine resources to current users, including recreational anglers, dive and boating enthusiasts, ecotourism operators and the wider community; and
- the future value of marine resources.

Although commercial and recreational anglers have a vested interest in promoting ecologically sustainable fishing practices, given the uncertainty currently surrounding the nature and extent of the impact that their activities are having on the marine environment there is a risk that they may fail to take into account the full extent of the adverse impact of their activities.

At the same time, however, it is important to recognise that this uncertainty also makes it difficult for governments to:

- establish that there is a case for intervening in the market for marine resources (e.g. by establishing MPAs that prohibit commercial and recreational fishing within particular zones); and
- evaluate the economic costs and benefits of alternative options for reform, including the prohibition of recreational fishing within proposed no-take 'sanctuary zones'.

In order to maximise the total economic value that Australia derives from its marine resources, it is important to ensure that those resources are allocated efficiently and equitably among alternative current and future uses (including 'non-uses').

In principle, this involves reallocating marine resources from lower value uses to higher value uses until the marginal benefit from reallocating an additional unit of marine resource is equal to the marginal cost associated with reallocating that unit away from existing users (which is equal to the net economic value of that unit of marine resource to existing users plus the administrative and compliance costs associated with implementing and enforcing that reallocation).

In practice, however, considerable uncertainty surrounds the value of Australia's marine resources in their alternative current and future uses, which makes it difficult for governments to determine whether proposed reallocations of marine resources between existing and potential future uses will generate a net benefit for the community as a whole.

In particular, traditional fisheries management practices are seen by some as being too informationally demanding to apply in practice given the complexity of natural systems (which makes them difficult to model) and the uncertainty surrounding the impact of human activities on those complex systems.

The establishment of 'no-take' MPAs is seen as a less informationally demanding, more 'precautionary approach', to protecting fish stocks and critical marine habitats than traditional fisheries management regulations. MPAs are seen as providing an insurance policy to manage the risk that traditional fisheries management practices may fail to conserve fish stocks and critical marine habitats. That is,

MPAs are seen as a means of reducing the probability of fisheries collapse through better hedging of risks.

A critical component of this more 'precautionary approach' is the implementation of strategies to minimise the likelihood of irreversible impacts on the marine environment.

At the same time, however, it is also important to recognise that although the implementation of a 'strong' version of the precautionary approach, which reverses the burden of proof and requires proof that activities will not damage the environment, has the potential to reduce risks to the environment, it also has the potential to create socio-economic risks by preventing activities from occurring which would generate net benefits for the community as a whole.

This is the reason why Australia's environmental protection and fisheries management legislation incorporate a 'weak' version of the precautionary principle which in effect requires there to be a threat or serious or irreversible damage to the environment before precautionary measures can be taken in the presence of uncertainty regarding the impact of the activity on the environment.

Such a 'weak' version of the precautionary principle helps reduce both:

- the 'environmental risk' that measures to protect the environment will not be taken until there is scientific evidence that they have had a serious and irreversible impact on the environment (i.e. until it is too late to protect and conserve those resources); and
- the 'regulatory risk' that the application of a 'strong' version of the precautionary principle may prohibit some activities from occurring which generate net benefits for the community as a whole, despite their adverse effects on the environment (i.e. by limiting the application of the precautionary principle to those cases where there is a threat of serious or irreversible damage).

Where are Marine Protected Areas being established?

Section 4 of this report provides information on the locations in which Commonwealth, State and Northern Territory MPAs are being established.

Commonwealth Marine Protected Areas

Since the establishment of Australia's largest marine park in 1975, the Great Barrier Reef, an additional thirteen MPAs have been established in Commonwealth waters - Coringa-Herald National Nature Reserve, Lihou Reef National Nature Reserve, Ashmore Reef National Nature Reserve, Elizabeth and Middleton Reefs Marine National Nature Reserve, Nigaloo Marine Park (Commonwealth Waters), Mermaid Reef Marine National Nature Reserve, Solitary Islands Marine Reserve (Commonwealth Waters), Great Australian Bight Marine Park (Commonwealth Waters), Macquarie Island Marine Park, Tasmanian Seamounts Marine Reserve, Cartier Island Marine Reserve, Lord Howe Island Marine Park (Commonwealth Waters), Heard Island and McDonald Islands Marine Reserve.

As a result, since 1980, the total area of Commonwealth waters that are protected has increased from just under 35 million hectares to around 60 million hectares in 2004.

In March 2004, the Commonwealth Government also passed legislation to enact the new Great Barrier Reef Representative Areas Program (RAP) Zoning Plan for the Great Barrier Reef Marine Park. This resulted in a six-fold increase in highly protected areas (no-take zones) and over 33% of the GBRMP being protected within the second world's largest network of no-take zones.

In addition, in May 2006, the Minister for the Environment and Heritage announced the establishment of a network of Marine Protected Areas (MPAs) for the South-east Marine Region which are expected to be formally declared by the end of 2006.

State and Northern Territory Marine Protected Areas

The State and Northern Territory governments have also been establishing MPAs within the coastal waters under their jurisdiction:

- Queensland has established in Great Barrier Reef Coast Marine Park, the Moreton Bay Marine Park, and most recently the Great Sandy Marine Park, which encompasses the former Woongarra Marine Park and Hervey Bay Marine Park;
- New South Wales has established the Lord Howe Marine Park, the Solitary Islands Marine Park, the Jervis Bay Marine Park, and the Cape Byron Marine Park. More recently, two new marine parks have been declared that encompass some of the most popular recreational fishing locations in the Port Stephens and Narooma/Bermagui regions: the Port Stephens – Great Lakes Marine Park and the Batemans Marine Park;
- Victoria has created a system of 13 Marine National Parks and 11 smaller Marine Sanctuaries which are all no-take 'sanctuary' zones;
- Tasmania has declared marine reserves at Governor Island, Maria Island, Ninepin Point, Tinderbox and Macquarie Island. In addition, in 2005 the Tasmanian Government also proclaimed two new marine reserves at Port Davey/Bathurst Harbour and in the Kent Group island in eastern Bass Strait;
- South Australia was one of the first States to create marine protected areas. Initially, six small highly protected aquatic reserves were established for a variety of purposes including recreation, education, research, fisheries management and the conservation of particular features. An additional 8 reserves were then established over the next 15 years. Since 1995, there has been a shift in emphasis in South Australia towards the creation of larger, multiple-use MPAs, with specific management arrangements providing varying levels of protection. To date, only one large multiple-use MPA has been established in South Australia - the Great Australian Bight Marine Park;
- Western Australia has a established a number of Marine Conservation Reserves including Hamelin Pool Marine Nature Reserve, Jurien Bay Marine Park, Marmion Marine Park, Montebello-Barrow Islands, Ningaloo Marine Park and Muiron Islands Marine Management Area, Rowley Shoals Marine Park, Shark Bay Marine Park, Shoalwater Islands Marine Park and Swan Estuary Marine Park. Marine conservation reserves are also proposed for 'The Capes', which includes the waters around the Geographe Bay-Leeuwin Naturaliste-Hardy Inlet , Dampier Archipelago-Cape Preston and Walpole-Nornalup inlets; and
- Northern Territory has established one marine park – the Garig Gunak Barlu (Cobourg Marine Park), two smaller Aquatic Life Reserves (East Point Aquatic Reserve and Doctors Gully Aquatic Reserve), and a number of smaller protected areas which also contain a marine component within the intertidal zone.

What processes are being used to establish Marine Protected Areas?

What processes should be used in principle?

As noted in section 5.1, in accordance with 'best practice' regulatory guidelines, the establishment and management of a Marine Protected Area should, in principle, involve:

- identification of the nature and extent of the problem that the establishment of the MPA is intended to address. This involves an assessment of:
  - the biodiversity in the area governed by the proposed MPA;
  - the nature and extent of commercial and recreational activities in the area; and
  - the extent to which each of those activities has adversely affected the biodiversity in that area, or threatens to adversely affect the biodiversity in that area;
- identification of alternative options to address that problem, including:
  - MPA zoning regulations;
  - fisheries management regulations; and
  - some combination of MPA zoning regulations and fisheries management regulations (e.g. restrictions on the type of recreational fishing gear that can be used within MPA zones);
- an evaluation of each of those options. This should involve both:
  - a detailed cost benefit analysis of each of the options. In principle, this would involve identifying and quantifying both:
    - the costs associated with restricting activities within the MPA. These costs include the net benefits that commercial fishers and recreational anglers currently derive from fishing within no-take sanctuary zones, as well as the administrative costs associated with implementing and enforcing those restrictions, which includes the cost of any compensation paid to commercial fishers; and
    - the benefits to be derived from restricting those activities. This includes the benefits that existing and future users derive from the restrictions imposed on commercial and recreational fishing (e.g. any increase in the number of times existing users visit the area and the quality of their experience);
  - a detailed analysis of the socio-economic impacts of each of the options (i.e. their impact on regional economies that depend on the MPA);
- identification of a preferred option. In particular, it is important to ensure that:
  - the benefits of the proposed restrictions on activities within the MPA under the preferred option are sufficient to justify the costs arising from the proposed restrictions on activities within the MPA;
  - the proposed regulations required to establish the MPA are not overly prescriptive and are focused on performance and outcomes, rather than prescribing the manner in which those outcomes are to be achieved (i.e. it is important to use 'performance based' regulations to establish MPAs, rather than overly prescriptive regulations); and

  - the views of all key stakeholders have been taken into account in the development of the preferred option. It is not sufficient simply to ask stakeholders for their views. Rather, it is also important to explain to stakeholders how any of the concerns they might have expressed during the process of consultation have been examined and taken into account when establishing and zoning the MPA. This is essential to ensure the sustainability of the MPA, since its ability to conserve biodiversity will be heavily reliant on the ongoing support of local communities, particularly recreational anglers;

- consideration of the most effective ways of implementing and enforcing the regulations. A crucial consideration here is the extent of support for the MPA from those individuals whose activities are likely to be restricted by the creation of the MPA (e.g. recreational anglers) as well as the local community, since the success of an MPA relies heavily on their ongoing compliance and support. Unless recreational anglers and local communities are actively involved in the development, implementation and ongoing management of the MPA, it is unlikely to be sustainable in the longer term. As discussed further in section 6.1, this means that serious consideration needs to be given to the development of more effective collaborative management arrangements; and
- regular monitoring of the extent to which the MPA is achieving its objectives, as well as a regular review and reform of the regulations that establish the MPA in order to ensure they are as effective and efficient as possible.

In addition, when establishing MPAs, it is also important for governments to apply:

- the ANZECC Guidelines for Establishing the National Representative System of Marine Protected Areas;
- the 'precautionary principle' as set out in Australia's environmental protection and fisheries management legislation, which requires there to be a threat of serious or irreversible damage to the environment before precautionary measures can be taken in the absence of full scientific evidence of the nature and extent of that damage; and
- the Bureau of Rural Sciences guide to assessing the socio-economic impact of MPAs.

What processes are being followed in practice?

In practice, however:

- it has been difficult for governments to identify the precise nature and extent of the problem that each MPA is intended to address (section 5.2.1) in view of the considerable uncertainty surrounding:
  - the actual biodiversity that exists in each area of Australia's extensive marine environment. Although detailed information is available on the biodiversity that exists in some of Australia's marine areas, there are still vast areas of Australia's marine environment where the biodiversity of the marine environment has not been directly assessed. As a result, governments have had to rely on 'broadscale' assessments of marine biodiversity that, in effect, seek to predict the nature of the biodiversity that you would expect to find in a particular area of the marine environment (e.g. the Interim Marine and Coastal Regionalisation or IMCRA);
  - the nature and extent of activities in those marine areas. While relatively detailed information is available on the nature and extent of commercial fishing activities within each area of the marine environment (since commercial fishers are required to report their catch), there is relatively little

detailed information on the nature and extent of recreational fishing activity in each area of the marine environment; and

- the extent to which each of those activities actually adversely affects biodiversity in those marine areas. In particular, considerable uncertainty still surrounds the impact that recreational fishing has on marine biodiversity. In the absence of such information, the general approach has been to assume that recreational fishing has much the same impact as commercial fishing, even though there are significant differences in the fishing techniques employed and the scale of their activities;

- governments have experienced difficulty evaluating the economic costs and benefits of establishing MPAs in view of the considerable uncertainty surrounding the nature and extent of the problem each MPA is intended to address and the extent to which restricting certain activities, such as recreational fishing, have on marine biodiversity (section 5.2.2). In particular, most State governments:
  - have not conducted a quantitative analysis of the costs and benefits of prohibiting recreational anglers from fishing in proposed no-take sanctuary zones. Rather, they have had to rely on the results of a largely qualitative analysis of those costs and benefits;
  - have not conducted a detailed analysis of the socio-economic impact that prohibiting recreational fishing within no-take sanctuary zones will have on local regional economies. Rather, most socio-economic studies conducted to date have focused attention on estimating the impact of the proposed restrictions on commercial fishing within MPAs; and
- there appear to be inconsistencies in the way the precautionary principle is being applied (section 5.2.3). In particular, it appears that a much stronger version of the precautionary principle is being applied at the State government level than required by environmental protection legislation.

How could the efficiency and effectiveness of Marine Protected Areas be improved?

In the course of reviewing the processes Australian governments are using to establish Marine Protected Areas, we have sought to identify a range of initiatives that would help governments with the challenging task of developing a more efficient, effective and sustainable National Representative System of Marine Protected Areas.

These recommended initiatives are outlined briefly below and discussed in greater detail in section 6 of this report.

Develop a National Marine Habitat Protection Strategy (NMHPS)

Central to our recommendations to improve the efficiency, effectiveness and sustainability of Australia's MPAs is the development of a new joint initiative between the government agencies responsible for MPA and fisheries management, recreational angling associations, conservation groups and marine scientists - the National Marine Habitat Protection Strategy.

- ***Objectives of the proposed National Marine Habitat Protection Strategy***

The key objective of the proposed National Marine Habitat Protection Strategy is to protect, restore and enhance Australia's marine habitats.

In particular, the Strategy seeks to facilitate the development, implementation and management of an efficient, effective and sustainable National Representative System of Marine Protected Areas by:

- encouraging greater involvement by local communities in the development, implementation and management of the MPAs in their localities and hence their sense of 'ownership' of those MPAs;
- developing a much better understanding of:
  - the marine biodiversity that actually exists within MPAs;
  - the nature and extent of activities that are being conducted in those areas; and
  - the nature and extent of the impact those activities have having marine biodiversity in those areas;
- increasing the resources available to assist governments with the development, implementation and ongoing management and review of the National Representative System of Marine Protected Areas. Ongoing and increased community participation is vital to the development of more efficient, effective and sustainable MPAs. State and Territory governments simply do not have sufficient resources to manage MPAs and fisheries effectively without the ongoing support of local communities, including recreational anglers and conservationists; and
- co-ordinating the efforts of the various agencies and authorities within each State and Territory that are responsible for MPA and fisheries management, in order to a achieve more efficient and effective protection of marine habitats. The Strategy recognises that the establishment and zoning of MPAs is only one of the instruments available to governments to conserve marine biodiversity and needs to be combined effectively with other instruments such as fisheries management regulations. A key objective of the Strategy is to co-ordinate the development and implementation of more efficient combinations of MPA zoning and fisheries management regulations that are tailored to suit the particular marine conservation needs of each marine area.

- ***Formation of Regional Marine Habitat Protection Partnerships***

Implementation of the National Marine Habitat Protection Strategy would involve the formation of Regional Marine Habitat Protection Partnerships (RMHPPs) comprising individuals and organisations that have a common interest in conserving marine biodiversity and promoting environmentally sustainable use of the marine environment, including:

- local recreational fishing, diving and boating clubs;
- local fisheries management officers;
- local conservation groups;
- scientists involved in marine research in the region;
- local businesses that supply goods and services to the individuals who use the MPAs (e.g. hotels, restaurants, fast food outlets, fishing shops, boat chandleries, boat repairers, service stations, charter boat operators, and ecotourism operators offering whale and dolphin watching tours); and
- local government councils.

The objective would be to:

- build on, and provide additional support for, existing community partnerships including:
  - the partnerships that have already been developed between recreational anglers, fisheries management agencies and marine scientists; and
  - the local advisory committees that have already been established to advise the State authorities responsible for the management of MPAs (e.g. the Marine Park Advisory Committees that advise the NSW Marine Parks Authority and the advisory committees to the Western Australian Marine Parks and Reserves Authority);
- encourage the development of new community partnerships; and
- co-ordinate the efforts of these community partnerships.

- ***Roles and responsibility of Regional Marine Habitat Protection Partnerships***

Each of the Regional Marine Habitat Protection Partnerships would be responsible for helping the State and Territory agencies and authorities responsible for MPA and fisheries management to:

- assess and monitor the condition of fish habitats in their respective regions;
- monitor the nature and extent of commercial and recreational activities being conducted in those regions;
- conduct research into the impact of commercial and recreational activities on marine biodiversity in their respective regions; and
- regularly report on the status of marine habitats in their regions and the impact that commercial or recreational activities are having on the biodiversity of those marine habitats.

That is, in effect we are recommending the creation of 'collaborative management' partnerships between government and local communities to assist with MPA management.

- ***Establishment of National, State and Territory Marine Habitat Protection Boards***

We also recommend that National, State and Territory Marine Habitat Protection Boards should be established to promote, oversee and co-ordinate the development and implementation of the Strategy:

- the National Marine Habitat Protection Board would comprise the chairs of the State and Territory Marine Habitat Protection Boards, as well as representatives from Commonwealth Government agencies and authorities responsible for the management of MPAs and fisheries management; and
- each State and Territory Marine Habitat Protection Board would comprise representatives of the Regional Marine Habitat Protection Partnerships in its region, as well as the government agencies and authorities responsible for MPAs and fisheries management, and State representatives of recreational fishing and conservation groups.

Develop a better understanding of marine biodiversity and the impact of recreational fishing on biodiversity

One of the key objectives of the National Marine Habitat Protection Strategy would be to develop a much better understanding of:

- the marine biodiversity that actually exists within each MPA. Since detailed assessments of biodiversity are only available for a relatively small proportion of Australia's vast marine environment, to date the identification and zoning of MPAs using 'broadscale biodiversity assessment' which, in effect, assume what is likely to be found in those areas. That 'broadscale' data is then complemented by the results of specific studies of biodiversity in those regions where such data are available; and
- the actual nature and extent of the impact that commercial and recreational activities are having on marine biodiversity. In view of the considerable uncertainty still surrounding the impact that recreational fishing activities have on marine biodiversity, typically the zoning of MPAs is based on assumptions regarding the nature and extent of that impact, as opposed to the results of research into the actual impact that recreational fishing is having on biodiversity within that region. In particular, the usual assumption is that all extractive activities, including recreational fishing, have an adverse effect on biodiversity, even though this might not be the case.

The results of research by Regional Marine Habitat Protection Partnerships would help reduce, over time, the considerable uncertainty that currently surrounds both the actual marine diversity that exists in each area, and the actual impact that commercial and recreational activities are having on that biodiversity. This would help the State and Northern Territory governments to develop more effective combinations of MPA zoning and fisheries management regulations to conserve marine biodiversity, while minimising the risk of imposing unnecessary restrictions on recreational fishing.

As a matter of urgency, before establishing any no-take sanctuary zones in popular recreational fishing areas, the State and Northern Territory governments should at least conduct workshops where marine scientists and recreational anglers are able to work together to determine the extent to which different fishing techniques are likely to impact on marine biodiversity in those areas.

The objective of these workshops would be to explore ways of conserving the biodiversity in those regions without having to impose unnecessary constraints on recreational fishing in those areas.

This is the approach the Commonwealth Government used to determine the impact of different types of commercial fishing gear on biodiversity and to refine the boundaries of the Commonwealth MPAs in the South-east Marine Region.

Develop guidelines to assist officials with the application of the 'precautionary principle'

Many of the concerns recreational anglers have about the establishment of Marine Protected Areas arise from the way in which the 'precautionary principle' is being applied when zoning MPAs. In particular, numerous no-take 'sanctuary zones' are being created in State government waters which prevent recreational fishing in those areas, even though there is little or no evidence that recreational fishing poses a threat of serious or irreversible damage to the marine environment in those areas.

As noted in section 5.1.3, the UN Convention on Biological Diversity and Australia's environmental protection legislation all contain a 'weak' formulation of the 'precautionary principle' which states that if there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

The objective of this 'weak' formulation of the precautionary principle is to ensure that precautionary measures are taken to protect the environment only when there is a 'threat of serious or irreversible damage' to the environment, thereby reducing the risk of implementing precautionary measures that unnecessarily restrict activities that only have a minimal adverse effect on the environment.

By contrast, as noted in section 5.2.3, there is some evidence to suggest that State governments appear to be applying a much stronger version of the 'precautionary principle', which involves declaring marine areas to be no-take 'sanctuary zones', even when there is little or no evidence that recreational fishing in those areas poses a threat of serious of irreversible damage to the marine environment in those areas.

Such a practice is inconsistent with Australia's environmental protection legislation and has the potential to impose a net cost on the community by preventing activities that would generate net benefits for the community as a whole.

As a result, there is an urgent need to develop guidelines to assist officials with the application of the 'precautionary principle'.

This could be achieved by referring the issue to the Productivity Commission for consideration and clarification. As noted in section 5.2.3 of this report, the Productivity Commission has already released a staff working paper on the precautionary principle *Precaution: principles and practice in Australian environmental and natural resource management*, which highlights the need to develop clear guidelines for applying the principle. As noted in that staff paper, there are significant benefits to be obtained from the development of guidelines to help officials to apply the 'precautionary principle'.

Create new 'special habitat protection zones'

As noted above, another key objective of the proposed National Habitat Protection Strategy is to co-ordinate the development and implementation of more efficient combinations of MPA zoning and fisheries management regulations that are tailored to suit the particular marine conservation needs of each marine area.

Ideally, the combined zoning regulations and fisheries management regulations applying to a particular marine area should be tailored to suit the needs of that particular area.

In particular, we recommend that consideration should be given to:

- creating a new MPA protection zone - a 'special habitat protection zone', which would provide the second highest level of protection – second only to a 'no-take' or 'sanctuary zone'. This would not require legislative change. Rather, these 'special habitat protection zones' could be created as normal 'habitat protection zones', but would be governed by management plans under existing State and Territory fisheries management legislation (e.g. under the *Fisheries Management Act 1994* in NSW) that:
  - prevent commercial fishing, as well as aquaculture, in those areas; and
  - manage the recreational activities allowed within those areas (including recreational fishing, diving and ecotourism) to ensure they are consistent with conservation and/or sustainable use (to ensure that the protection afforded biodiversity in that area meets the Subsidiary Body on Scientific, Technical and Technological Advice to the Convention on Biological Diversity definition of 'effective protection').

- re-classifying all existing 'recreational only fishing areas' as 'special habitat protection zones'. This would increase both:
  - the overall area of the marine environment protected within Australia's National Representative System of Marine Protected Areas, since many of these areas (e.g. 'recreational fishing havens' in NSW) are not currently classified as MPAs; and
  - the overall percentage of Australia's MPAs that are considered to be 'effectively protected' for the purposes of the Convention on Biological Diversity (without having to include any areas of existing 'recreational only fishing areas' within sanctuary zones).

Consider protecting biodiversity in popular recreational fishing areas through the use of 'Special Habitat Protection Zones' rather than no-take 'Sanctuary' zones

It is also important to ensure that regulations are the minimum necessary to achieve their objectives and do not impose unnecessary constraints on activities.

As recommended by the IUCN Guidelines for Marine Protected Areas, when selecting and zoning MPAs, conservation needs should be balanced against the needs of local people whose livelihoods depend on those areas. In particular, if there is a choice of ecologically suitable areas, the dominant criteria for selection of MPA locations, boundaries and management systems should be socioeconomic.

Consistent with these principles, governments should be seeking, where possible, to use a combination of MPA zoning regulations and fisheries management regulations that conserves biodiversity and increases productivity, while minimising any adverse impacts on local communities.

In particular, before declaring any popular recreational fishing areas to be no-take sanctuary zones, governments should consider the use of alternative options to the creation of no-take sanctuary zones, such as the creation of special habitat protection zones.

For example, if an area has been earmarked as a 'sanctuary zone' in order to protect:

- grey nurse sharks (e.g. those congregating around Broughton Island or Montague Island), consideration could be given instead to creating a 'special habitat zone' in that region that allows the trolling of artificial lures and prevents the use of wire traces; or
- bottom dwelling fish species (e.g. black cod) or marine flora, consideration could be given instead to the creation of a 'special habitat protection zone' that allows recreational fishing that does not use weighted baits or heavy lures designed for bottom fishing.

Consideration could also be given to seasonal closures of special habitat protection zones that would prohibit fishing, and other potentially harmful activities, within those zones during spawning seasons in order to protect spawning fish.

Regularly review existing sanctuary zones

Existing no-take sanctuary zones should also be subject to a regular process of review to determine whether or not it is possible to allow some recreational fishing activity to occur within those zones, while still conserving marine biodiversity within those zones.

In particular, consideration should be given to:

- re-zoning existing no-take sanctuary zones that have been established in popular recreational fishing areas as special habitat protection areas that would allow some recreational fishing subject to certain gear, catch and seasonal closure restrictions; or
- allowing 'no-take' recreational fishing (i.e. 'catch and release'), within 'sanctuary zones'. Florida, for example, allows catch and release fishing by trolling in a number of its 'Sanctuary Preservation Areas' (SPAs) within the Florida Keys National Marine Sanctuary, which protects America's only living barrier coral reef and thousands of acres of seagrass. These SPAs have been set up to protect popular shallow coral reefs and prohibit activities such as spearfishing, shell collecting, tropical fish collecting, fishing and other activities that result in the harvest of marine life by divers, snorkelers, and fishermen. In addition, any direct physical impact to corals in these areas is also prohibited.

It is important to note that the conversion of existing no-take 'sanctuary zones' into special habitat protection zones, or allowing no-take recreational fishing within those zones, would not compromise Australia's ability to achieve its obligations under the UN Convention on Biological Diversity.

As outlined in section 3.1.4 of this report, as a signatory to the UN Convention on Biological Diversity, Australia is committed '… to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth' and has the flexibility to set its own national and/or regional goals and targets. Australian governments have not adopted the specific targets recommended by either the technical advisory body to the Convention on Biological Diversity, which recommended that at least 20 to 30 per cent of each habitat should be included in 'strictly protected areas', or the Pew Fellows in Marine Conservation, who recommended the inclusion of 10 to 50 per cent of each ecosystem in no-take zones.

Rather, the National Objectives and Targets for Biodiversity Conservation 2001-2005 (June 2001), signed by the Commonwealth and five States and Territories, included as a target the protection of 'a representative sample of each bioregion' within the National Reserve System.

Even if Australia was committed to achieving the explicit targets recommended by the technical advisory body to the Convention on Biological Diversity, this would not necessarily require the inclusion of 20 to 30 per cent of each MPA in no-take 'sanctuary zones'. Rather, it would involve including 20 to 30 per cent of each habitat in 'effectively managed marine and coastal protected areas'.

No-take 'sanctuary zones' are not the only zones that are considered to provide 'effective protection' for the purposes of meeting the targets proposed by the technical body to the Convention on Biological Diversity. The Subsidiary Body on Scientific, Technical and Technological Advice to the Convention on Biological Diversity also considers that 'effective protection' is provided by 'areas where threats are managed for the purposes of biodiversity conservation and/or sustainable use' (recommendation VIII/3 B, para. 11(b) of the Subsidiary Body on Scientific, Technical and Technological Advice).