

Chapter 8

Threats to the marine reserve system

8.1 The marine reserve system is in its infancy, and the threats that it faces are less well understood than those on land. The Department of the Environment and Water Resources assesses Commonwealth marine protected areas to identify threats posed by human activities, and inform management responses to those threats.¹ In addition to climate change (discussed in the previous chapter), the following activities pose threats to marine protected areas:

- illegal fishing;
- the deliberate or accidental capture of protected species;
- damage to physical habitat through poor anchoring practices or trawling;
- interference with protected species such as cetaceans, birds or sharks by sightseers or divers not following the relevant guidelines or permit conditions;
- ship or boating accidents resulting in physical habitat damage and pollution; and
- the introduction of invasive species through vectors such as vessel hulls and ballast water.²

8.2 Australia's marine environment more generally is exposed to the following additional risks from human activity:

- alteration of catchments – with consequent changes to the quality and quantity of water flowing to the sea;
- sewage and other waste disposal to oceans;
- commercial and recreational fishing;
- off-shore oil exploration and extraction; and
- coastal and estuarine developments such as port construction and residential development.³

8.3 As the committee outlined in chapter 4, there is considerable controversy over how marine protected areas should be managed, and how to accommodate demands for multiple-use. Although a wide range of threats face all reserves, two were the

1 Department of the Environment and Heritage, *Submission 126*, p. 13.

2 Department of the Environment and Heritage, *Submission 126*, p. 14.

3 Australian Marine Sciences Association, *Submission 125*, p. 3.

focus of discussion with witnesses during the committee's inquiry: climate change and the impacts of fishing. Climate change was discussed in the previous chapter. This chapter focuses on issues around fishing, as well as touching on the problems of marine pests and natural disasters.

Fishing

8.4 After climate change, the Australian Marine Conservation Society regarded fishing as the greatest threat to the sustainability of marine ecosystems, citing evidence of population crashes in some commercial species that have already affected the viability of the fishing industry:

We say this because we are noticing that there is an increasing number of marine species being overfished. We are seeing fishing industries trying to find structural adjustment assistance because they are not managing to stay afloat. We are seeing fishing boats rusting on the wharves in some regions of the country.⁴

8.5 Some commercial techniques, such as seabed trawling, are very destructive. Seabed trawling involves ships dragging heavy nets across the deep seabed to catch various fish species, destroying fragile and critical benthic marine ecosystems that may never recover.⁵ Dr Richard Kenchington recommended the creation of zoned networks, offering degrees of protection, to allow continuation of fishing using a range of less destructive catch techniques:

...by far the most destructive form of fishing is seabed trawling. Partly through research generated from GBR we now have substantial information in many areas around Australia on the impacts of trawls on undisturbed or already disturbed seabeds. So something which gives an incentive to convert from destructive fishing techniques to ones which do not destroy habitat is perhaps a way forward. But certainly the achievement of areas where the habitat is protected from the impacts of fishing or dredging—and a whole range of other physical impacts on the habitat—is important. That is where sitting around the table becomes important in terms of saying that we have our core no-protected areas and we have our habitat protection zones, and we can then build a more substantial network which is based on viable units ecologically.⁶

8.6 The commercial fishing industry cannot be held solely responsible for overfishing in Australian waters; recreational fishing and illegal fishing continue to have significant impacts, on fishing grounds and in reserves that are ecologically connected to them. More important than *who* is fishing is *how* they are fishing – the techniques that are being used, and the scale of the operation. Discussing the Great

4 Mr Craig Bohm, *Committee Hansard*, 6 June 2006, p. 25.

5 CSIRO, *ECOS*, Issue 129, p. 6, <http://www.publish.csiro.au/nid/216/issue/3810.htm>

6 Australian Association for Maritime Affairs, *Committee Hansard*, 16 June 2006, p. 35.

Barrier Reef Marine Park, the Department of the Environment and Water Resources stated:

Unsustainable fishing activities, whether commercial or recreational, can affect target and non-target species as well as their habitats, and consequently have the potential for producing ecological effects in both the fished areas and the adjoining areas of the Great Barrier Reef Marine Park.⁷

8.7 The committee heard that recreational fishermen had developed a catch, tag and release practice in order to minimise impact of the sport:

Recreational fishing has come a long way in probably the last 30 to 40 years. It used to be about catching your bag limit. If you went into a tournament, those who caught the most fish won the tournament. They would catch their bag limit on all of the different species. Today what is happening is that you have a lot of catch, tag and release or catch and release. There is a mix. Sometimes they take photographs of the fish—it is done on length—and the fish is then released. All that goes up is the digital image of the fish and that is what is weighed, if you like. Sometimes it is done by targeting different species so that people have to move around and not concentrate on one particular species. The short answer is that it is definitely increasing. Austag, which is a program run around Australia, recently reached 500,000 tagged fish on its database. There is any amount of evidence that some iconic species are as high as 80 per cent to 85 per cent released. In the game fishing circles, marlin is somewhere in the vicinity of 95 per cent released. So it is increasing. There are fewer and fewer people needing to go home with an esky full of fish to have enjoyed the day.⁸

8.8 However, even using sustainable techniques and complying with bag limits, recreational fishing can become unsustainable if the number of participants is not controlled. One option for regulating recreational fishing is the use of licences. Mr Colin McKenzie suggested the introduction of fishing licences in Queensland as a means of raising money to manage the Great Barrier Reef, but licensing also provides a mechanism for controlling the scale of recreational fishing and the behaviour of participants:

We are one of the few states that does not have fishing licences. I think people should pay for the privilege of going out there. Our tourism operators go out and take photos and memories. Fishing operators are taking people out fishing and taking the fish. I am a fisherman myself and I think it is fine. It certainly would not worry me to pay for a licence.⁹

7 Department of the Environment and Heritage, *Submission 126*, p. 14.

8 Mr John Harrison, Australian Recreational and Sport Fishing Industry Confederation, *Committee Hansard*, 21 April 2006, p. 51.

9 Association of Marine Park Tourism Operators, *Committee Hansard*, 30 June 2006, p. 58.

8.9 As discussed in chapter 4, a stronger layer of protection against fishing impacts is to declare sanctuaries in areas that are identified as critical to support certain species. The National Parks Association of NSW notes in its submission that the vast majority of NSW marine parks still permit fishing and that there is strong evidence to suggest that many marine species are suffering decline, such as the nationally critically endangered Grey Nurse Shark. Further, many sanctuary zones put in place in the four marine parks presently established in NSW exclude some critical habitat of these threatened species, allowing the species to further decline.¹⁰

8.10 Excluding commercial and recreational fishing from marine protected areas will not provide sufficient protection from the impact of fishing unless illegal activity is also addressed. The impact of illegal fishing on marine protected areas was confirmed by the Department of the Environment and Water Resources:

Illegal fishing poses a direct threat as it diminishes the resource, interferes with the conservation of the protected area and (in the case of illegal longlining) directly threatens non target species such as albatrosses and petrels. Unregulated and unreported fishing outside of Australia's exclusive economic zone has an indirect, but potentially severe impact on marine resources, biodiversity and the conservation values of marine protected areas by directly depleting fish stock which straddle Australia's exclusive economic zone. The Commission for the Conservation of Antarctic Marine Living Resources estimated that hundreds of thousands of sea birds have been killed by unregulated longline fishing since 1996.¹¹

8.11 A range of organisations argued that agencies responsible for the management of the marine protected areas should be adequately resourced to ensure that the objectives of MPAs were realised and in particular that sanctuary zones were not fished.

Monitoring is a key issue for us. There must be an effective and adequately funded system for monitoring the ecosystem itself and the health of its component parts. If we are to have management intervention to support the security of the marine ecosystem then governments must invest in a better understanding of the processes and those interactions.¹²

8.12 The committee heard evidence which suggests that some fishermen disregard zones within marine parks and therefore a system to monitor vessel location was important:

There is no question that some protection is needed. Fishermen tend to be sometimes a law unto themselves and that is perhaps why they take on a dangerous occupation and get away from bureaucracy and governments. They do need careful watching. In some cases, as the Commonwealth has

10 National Parks Association of NSW, *Submission 130*, p. 6.

11 Department of the Environment and Heritage, *Submission 126*, p. 14.

12 Mr Neil MacDonald, South Australian Fishing Industry Fishing Industry Council, *Committee Hansard*, 6 June 2006, p. 16.

done with its own big area in the South Australian bight, you can actually put markers on those boats which then send back an indication as to where the boats are. So, sitting in Canberra, you can see exactly where a fishing boat is that is off in the Australian bight—whether they are outside or inside a protected area—and give them a warning, for instance.¹³

8.13 Similarly, Dr Richard Kenchington, from the Australian Association for Maritime Affairs highlight the value of a vessel monitoring system:

The capacity of vessel monitoring systems is quite extensive, but the more you use it the more expensive it is. You can fit fishing vessels with monitoring systems which will tell you when the winch is running, how heavy the net is and where they are. One of our remote surveillance things is that we should be specifying vessel monitoring systems up, so that we know where vessels are and what they are doing. This then means the surveillance task of vessels that are not reporting in on VMS becomes much easier to manage, and our understanding of the use of the areas of the ocean becomes clearer in terms of revising and revisiting our strategies.¹⁴

8.14 Mr Peter Franklin, from the Commonwealth Fisheries Association, argued that the industry is currently moving towards a vessel monitoring system:

I do not expect major issues in terms of fishermen violating the marine protected areas but, again, it is necessary that the marine protected areas are accompanied by a well-resourced effort. Certainly most of our fishermen by the end of next year will have vessel monitoring systems in place, and they are subject to quite extensive observer coverage, so I cannot see that being a major issue....¹⁵

8.15 Professor Frank Talbot, from the Australian Marine Sciences Association, argued that need for clear demarcation of zones, such as marker buoys:

In other places, I think it is essential that they be demarcated in some way. There are a number of ways of doing it. Virtually every commercial fisherman now, and most offshore fishermen, recreational fishermen, carry their GPSs, so it is very easy to identify precise spots. In some cases I think buoys can help too.¹⁶

8.16 Mr Peter Franklin from the Commonwealth Fisheries Association outlined a perception that once the fishing industry was excluded from certain areas there would not be a presence to monitor for illegal fishing by foreign fishing boats:

...everything will be okay and we can move on to the next marine protected area. There are other threats. For example, in some of these areas that are

13 Professor Frank Talbot, Australian Marine Sciences Association, *Committee Hansard*, 16 June 2006, p. 42.

14 *Committee Hansard*, 16 June 2006, p. 32.

15 *Committee Hansard*, 16 June 2006, p. 24.

16 *Committee Hansard*, 16 June 2006, p. 42.

adjacent to high seas there is a responsibility on the part of the government to ensure that, if Australian fishermen are excluded from these areas, there is adequate surveillance to ensure that foreign fishermen are not operating in those areas either.¹⁷

8.17 However, the committee heard that Australia has developed a world-class capability under its joint offshore protection command, which is an amalgam of resources tasked and controlled from Canberra and centred on the Navy's 16 offshore patrol vessels in order to deal with this issue:

These resources are focused almost exclusively in the north and north-west offshore areas where foreign fishing vessels are placing great pressure on our northern fisheries. The availability and disposition of patrol and enforcement vessels appear to provide inadequate capacity for oversight of the substantial network of offshore marine areas and fisheries south of the Tropic of Capricorn. To meet the national requirement for surveilling and patrolling marine parks, which extend from the tropics to the Antarctic, will require additional resources working in conjunction with marine science missions.¹⁸

Invasive marine pests

8.18 There are three major issues in relation to invasive marine pests. Firstly, deliberately introduced commercial species, for example Atlantic Salmon and Rainbow Trout, may become feral, or serve as a vector for previously unknown diseases and parasites. Secondly, species may be introduced inadvertently, through irresponsible choice of materials, or inadequate quarantine measures:

There is a record of the introduction of a pest into New Zealand where oysters were packed in seaweed—they came from outside or wherever—and then the seaweed was thrown away and a new species of barnacle or worm was transported.¹⁹

8.19 Thirdly, the transfer of species on ship hulls and in ballast water is a major international problem. In addition to the transfer of species, there are difficulties associated with currently available control methods:

You can keep critters off the hulls of boats with very poisonous chemicals but they become toxic. We do not like tributyltin and we now use very toxic copper molecules to keep them off. But it is always a trade-off. It is a

17 *Committee Hansard*, 16 June 2006, p. 14.

18 Mr Harold Adams, Australian Association for Maritime Affairs, *Committee Hansard*, 16 June 2006, p. 27.

19 Dr Richard Kenchington, Australian Association for Maritime Affairs *Committee Hansard*, 16 June 2006, p. 33.

difficult problem. It is very difficult to get rid of the critters. I think the national effort on this is pretty good.²⁰

8.20 Protocols developed and implemented by the International Maritime Organisation are widely adopted by bulk carriers. The National System for the Prevention and Management of Introduced Marine Pest Incursions allows Australian government agencies to coordinate their efforts to control new pest outbreaks, develop pest control plans, and administer Australia's international convention responsibilities through a coastal regime for managing ballast water and biofouling.²¹

8.21 Due to the significance of the Great Barrier Reef and other marine systems, the Australian Government has established the Great Barrier Reef Marine Park Authority, the Australian Fisheries Management Authority and like organisations to manage such pest control issues.

Natural events

8.22 In addition to the impacts of human activity outlined above, marine protected areas are threatened by natural events that can be difficult to predict and virtually impossible to manage:

Cyclones, high sea surface temperatures and naturally occurring invasive species can all impact seriously on marine protected areas and the values for which they are declared...Cyclones have caused damage, such as coral loss, to a number of marine protected areas. Recovery can be slow. Invasive species that are believed to have naturally established on the terrestrial areas of some marine protected areas have also impacted visibly on vegetation and seabirds.²²

8.23 Given the limited management options available to respond to natural events, a heavy emphasis is placed on research, monitoring and ensuring that impacts by reserve users are minimised as appropriate.²³

Conclusion

8.24 Marine reserves face a distinctive set of threats quite different to those faced by most terrestrial reserves. Whereas extractive uses are almost universally prohibited in terrestrial reserves, the more complex relationship between marine reserves and

20 Dr Richard Kenchington, Australian Association for Maritime Affairs *Committee Hansard* 16 June 2006, p. 33.

21 Department of the Environment and Heritage, *Submission 126*, p. 13. For further discussion see the Committee's 2004 Report: *Inquiry into the regulation, control and management of invasive species and the Environment Protection and Biodiversity Conservation Amendment (Invasive Species) Bill 2002*, http://www.aph.gov.au/Senate/committee/ecita_ctte/invasive_species/index.htm.

22 Department of the Environment and Heritage, *Submission 126*, p. 16.

23 Department of the Environment and Heritage, *Submission 126*, p. 16.

fishing presents a distinct management challenge, as well as providing positive opportunities to build mutually beneficial relationships between reserve managers and users.

8.25 Despite the unique nature of marine reserves and the problems they face, they also share a great deal in common with the conservation estate on land. All reserves facing the overarching problem of climate change. All reserves must have adequate sources of funding if they are to be kept well. All reserves need good planning processes and to be managed as part of the overall landscape. It is to management and planning issues that the committee now turns.