

## **Australia's marine conservation**

THE world's handling of marine living resources has been clearly less than successful. In particular our abuse of the natural bounty of fisheries has been disgraceful, with most major stocks overfished, and some of the richest, like the cod on the West Atlantic Grand Banks, virtually destroyed. Greed and politics have played their part, but scientists have also been to blame. Setting "maximum sustainable yields" in highly variable systems has proved impossible. Almost irresistible pressures from fishers in good years and a rapid increase in fishing technology and navigation has set the scene for these disasters. Coral reefs, seagrass beds and mangrove forests, some of the world's most productive ecosystems, have been degraded, cleared and fragmented as a consequence of growing human populations, over-exploitation, and poor hinterland management. As we have watched and researched the deterioration of our marine world we have learned many of the reasons, but our responses have been extremely slow.

Australia is blessed with a huge and varied coastline, and though it has none of the great upwellings that lead to major fisheries, it has excellent stocks of tasty demersal and pelagic fish, prawns, abalone and lobster. Its coral reef resources are superb, and it has the world's most speciose seagrass beds. With a reasonably educated public, good scientific expertise, and a relatively rich population, it could be a leader in conservation success.

The Great Barrier Reef is the great Australian marine icon, and there is strong public support for its adequate conservation. With its vast extent and relatively sparse coastal population, it has so far fared well. Its almost unitary management by the Great Barrier Reef Marine Park Authority (some responsibilities are shared with Queensland Fisheries) has been considered successful and in an astounding coral reef world first, some 30% of the Great Barrier Reef has been protected as no-take reserves, where each of 70+ designated bioregions is represented by at least 20%. As might be expected, this is under severe attack by commercial and recreational fishing interests. Will this stop the GBR continuously degrading? Unfortunately silt and nutrients through land runoff have increased four to five times since European settlement through poor grazing and agricultural practices. The normal damage and regrowth that occurs on reefs makes the impact of this change

difficult to assess, but anecdotal evidence suggests a deterioration of reefs close inshore. There are also suggestions, but no proof, that the big population booms of the coral eating Crown-of-thorns Starfish may in some way be linked to nutrient increase. Reduction of predatory fish (including some surprisingly slow-growing and long-lived species) by too many fishers clearly has an impact on the complex reef ecosystem, but the precise results of this impact are also unknown and may not become evident for some years. We know more about some of the impacts of trawling, with relatively few trawls changing the physical structure of the seafloor and causing a major loss to a highly diverse bottom fauna and flora, and with as few as some dozen or so trawls reducing the benthic biota by 90%. There has been an increase in humpback whales, but a steady reduction in dugongs. Among the turtles the loggerhead is now considered endangered, with the leatherback, green, hawksbill and olive ridley listed as vulnerable. Because of social, financial and political drivers, I believe it is highly likely that line fishing and trawling in the GBR will be allowed to continue well above where they should be and will be unsustainable, despite the reservation of 30% of the reef, and also that effective improvement in the management of grazing and agriculture will not occur for many years. This will continue the degrading impact of human activities on the reefs and inter-reef areas . . . but what the final outcomes will be we just do not know. Only continuous and more detailed monitoring, and a better understanding of the ecosystems and their linkages will provide the knowledge required to refine and adapt the conservation and management strategies of the Great Barrier Reef. But at least for the GBR we have made a good start to understand its biota, ecological processes and the impacts of humans and have an effective management structure.

This is not true for the huge temperate coastline of Australia with its rich and varied ecosystems and with extremely high endemism because of the continent's 40 m year isolation. Reserves for marine protection were slow in starting, and have been usually small. In 1991/1992, the Federal and State Governments began working towards representative marine protected areas and in 1998 the Federal Government developed its Oceans Policy which included "ecosystem planning" in co-operation with the states to form a National Reserve System of

Marine Protected Areas that were "comprehensive, adequate and representative." Through the nineties more MPAs were developed in the states and territories, but actual no-take areas of coast, and particularly shelf and upper slope habitats are still meager — the states control out to the three mile limit and the Commonwealth beyond this, although common agreements of areas of control alter this in some cases. Marine protected areas tend to be multiple use systems, and where they incorporate some no-take areas their introduction has caused intense resentment among commercial and recreational fishers. For example, New South Wales has only two large coastal marine parks (with one more planned and one at Lord Howe Island) and in each instance no take areas were bitterly opposed. Outside these the protected areas are small. No take areas, even those deemed essential for the survival of endangered species like the grey nurse shark, remain inadequate for ecosystem protection along the New South Wales coast.

There is little adequate, detailed and continuous monitoring of Australian coastal biota except for fish catch data. Even here there are no good bycatch data and survivorship of released bycatch. The indications for coastal ecosystems are that we have made many serious changes for the worse. Seagrass beds, important in themselves, but also as feeding and sheltering places for juvenile fish and prawns, have significantly declined within the past 50 years. Long-term fisheries data on the status of fisheries controlled primarily by the Commonwealth identify an increase of overfished stocks from three in 1996 to 16 in 2003 (Bureau of Rural Sciences). This is a sorry record. The gemfish fishery, developed only in the late 1970s, is now at 3% of its original stock size — a direct result of unregulated commercial fishing and politically driven fisheries management in marginal electorates. Trawling on the upper slope shows not only a reduction in overall catch, but also species changes. Some small shark species that were commonly found in catches of earlier exploratory fishery trawling are no longer found. The delectable coastal snapper, one of the most abundant food fish in temperate Australia, has steadily lost stock size with reduced catches over the past years, as have a number of line fish.

Apart from one or two species such as abalone (though here there is heavy poaching) and western rock lobster, there is a steady running down of many stocks that is obvious from the statistics, but is usually denied by both fishers and governments. Blame is thrown by anglers at commercial fishers and in return commercial fishers blame anglers for low catches . . . or the weather or a poor year. Fishery departments find it difficult to reduce effort or adequately control limits due to political and monetary constraints. Without genuine sustainability, Australian fisheries management must be considered a failure.

This might sound overly pessimistic. Perhaps the new approaches through the 1990s to identify bioregions and create a representative system of reserves have not had time to bite; and perhaps fisheries departments will effectively limit input controls (reduce number and size of ships and types and size of gear), and set limits to total catches and control fishing time and place for both recreational and commercial fishers. It is also possible that they will actually implement and enforce regulations, work to restore habitats, and promote sound management of catchments and the coastal zone to protect and restore water quality and environmental flows.

I may be old and cranky, but I just do not believe it will happen soon. Instead I predict that we shall go on overfishing and arguing; that we shall underfund our conservation and fisheries research and compliance effort; that we shall refuse to take the hard but necessary decisions on reserves, no-take areas and fisheries limits for political reasons. So we shall continue to run down our living marine resources . . . and the spin doctors will tell us all is well. When do I expect real common sense in Australia's marine conservation? Well, perhaps if I had another life . . .

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