A coordinated approach

Many different groups have a stake in New Zealand's coastal and marine environment, and responsibilities for its management are shared between a range of central and local government agencies. Some significant agencies and their responsibilities include:

Department of Conservation

Responsible for managing protected areas and species, under the Marine Reserves, Wildlife, Conservation, and Marine Mammal Protection Acts. Together with regional councils, DoC also has a role in the management of the coastal marine area (excluding fishing and many significant fishing impacts) under the Resource Management Act.

Ministry of Fisheries

Responsible for managing fishing, its effects, and fisheries resources under the Fisheries Act, whose jurisdiction extends out to 200 nautical miles – the edge of our Exclusive Economic Zone (EEZ).

Regional Councils

Responsible for managing some land use activities and water quality, and together with DoC also manage the coastal marine area, including aquaculture. All these responsibilities fall under the Resource Management Act, which covers our territorial sea area extending out to 12 nautical miles.

Ministry of Agriculture and Forestry

Responsible for minimising the risks posed by vessels accidentally transporting exotic marine life into or around New Zealand waters. This is done under the Biosecurity Act.

Ministry of Foreign Affairs and Trade

Responsible for international agreements to maintain biodiversity in 'high seas' areas, outside of nations' EEZs.

Ministry for the Environment

Responsible for developing an Oceans Policy for New Zealand, to ensure integrated and consistent management of the oceans within New Zealand's jurisdiction. This is a cross-government exercise, covering all aspects of oceans management, out to the edge of the Exclusive Economic Zone and the Continental Shelf beyond.

Human impacts on marine biodiversity

Aside from global climate change, human activities alter the biodiversity of our surrounding oceans in three key ways: through harvesting seafoods, land-based sources of sedimentation and pollution, and through the introduction of marine pests.

Although our coastal waters and habitats are generally in good condition by international standards, they are under stress in some areas – particularly estuaries near towns and cities, and inshore areas near the mouths of large rivers.

Some 390 million tonnes of sediment are washed from the mainland into the sea each year. While sedimentation is part of the earth's natural cycles, poor land-use management practices can have potentially dramatic impacts on the productivity and biodiversity of estuarine and inshore habitats, as demonstrated by the impacts of Cyclone Bola in the East Cape area in the late 1980's.

Point source discharges and contaminated runoff also have impacts. Many estuarine ecosystems have been lost or damaged through land reclamation, encroachment from land development, and other human activities.

Shellfish and some other marine invertebrates remain vulnerable to poaching and localised overharvest, and to habitat degradation caused by sediment from rivers, by pollution, by changes in sea temperatures and by potentially destructive fishing practices like bottom trawling and dredging.

Estuarine and other coastal ecosystems are also threatened by the invasion of exotic species like the Asian date mussel and Undaria seaweed. Such species are spread by hull encrustations on vessels, the transportation of ballast water by vessels and marine farming equipment being transferred from one marine area to another.

Many coastal fish stocks were heavily reduced by overfishing in the 1970s. The fisheries Quota Management System was introduced in 1986 to address this by controlling the commercial catch for all the main fish stocks in NZs fisheries waters. It was introduced to prevent overfishing and improve the economic efficiency of the fishing industry.

Human activities alter the biodiversity of our surrounding oceans in three key ways: through harvesting seafoods, land-based sources of sedimentation and pollution, and through the introduction of marine pests.

Hunting of marine mammals was banned in New Zealand waters in the latter half of the 20th century. Since then, most whale and dolphin species are recovering or at least holding their own. Fur seal numbers appear to be rebuilding in some places, although their populations are a fraction of their original size. Fisheries by-kill (capture of non-target species) remains a problem for some species, such as Hector's dolphin, New Zealand sea lion, and a number of seabirds, although programmes are underway to reduce kills of these species.

Many of our marine species spend part of their lives in international waters, particularly in the southern ocean, so the state of these areas is important to New Zealand's marine biodiversity. New Zealand also has interests in maintaining biodiversity in international waters, for example in the marine area around New Zealand's Antarctic territory – the Ross Dependency.

Photo: NIWA, 2004

Whaingaroa Harbour estuary area. Fenceline shows the impact of stock (left) and no stock impact (right)

Photo: Karen Baird, Department of Conservation *Te Papa Atawhai* 2004

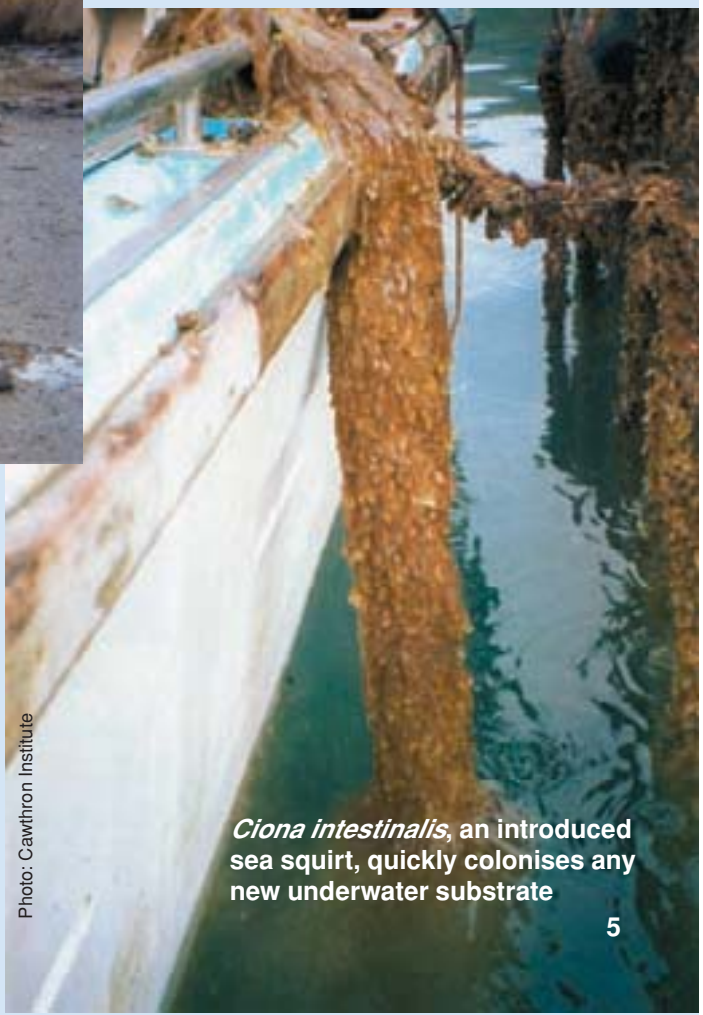

Photo: Cawthron Institute

***Ciona intestinalis*, an introduced sea squirt, quickly colonises any new underwater substrate**

Protecting biodiversity

Our growing understanding of ecosystem issues confirms that an integrated approach to fisheries and environmental management is needed to conserve marine biodiversity.

Fisheries management

In the 1970s, open access to fishery resources and emphasis on increasing commercial harvest began to impact on fish stocks and returns to fishers.

The Quota Management System was introduced in 1986, to improve New Zealand's management of fisheries resources. Key to this is the system's requirement that fish stocks are maintained at a level that produces a maximum sustainable harvest.

Through the Fisheries Act, there are a range of tools to conserve marine areas and marine life, including seasonal area closures (e.g. over spawning grounds), restrictions on certain fishing techniques, partial closures to commercial fishing, as well as taiapure and mataitai (which allow for customary harvest).

Marine Reserves

Marine reserves protect an area in as natural a state as possible, and are administered under the Marine Reserves Act. Marine reserves provide the most comprehensive and long-term means of legal protection afforded to marine areas in New Zealand. Activities permitted in marine reserves can be highly regulated and typically exclude any means of harvest, disturbance, structures, and discharge. Marine reserves provide excellent opportunities for recreation and marine education, and play a key role in research of marine organisms in relatively undisturbed natural habitats.

They can be seen as similar to a marine version of a National Park, in the way they protect unique, distinctive, and representative examples of marine habitats and their dependant organisms.

The Department of Conservation manages marine reserves and is responsible for marking boundaries, law enforcement, issuing scientific permits and monitoring environmental changes.

Marine Mammal Sanctuaries

Marine Mammal Sanctuaries established under the Marine Mammal Protection Act are managed by DoC. Particular restrictions can be placed on activities in sanctuaries in order to protect dolphins, whales, sea lions and seals.

Other Protected Areas

Marine Parks (created under their own Acts of Parliament), and submarine Cable Protection Zones may be able to protect areas of coastal habitat and marine ecosystems.

In addition, the Resource Management Act enables Regional Councils to identify and protect areas of significant conservation value in the marine environment primarily through the practice of zoning and the provision of rules to control the effects of activities.

Cathedral Cove Marine Reserve

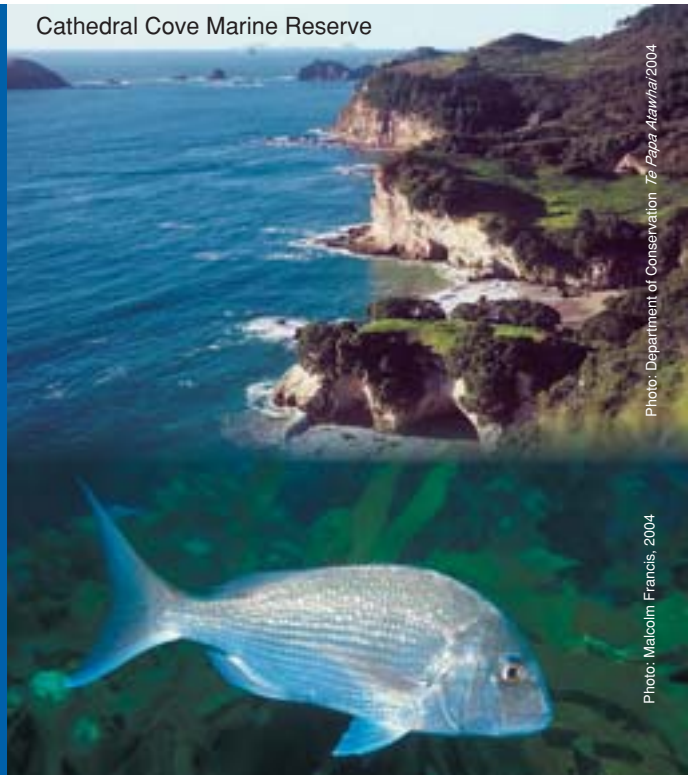

Photo: Department of Conservation *Te Papa Atawhai* 2004

Photo: Malcolm Francis, 2004

Marine reserves and other areas of marine protection
as at May 2005


Photo: NIWA 2004


Photo: Oli Floerl, NIWA 2004


Photo: NIWA 2004

International agreements

In response to increasing global pressure on marine resources, international management regimes are being developed. The United Nations Convention on the Law of the Sea (UNCLOS) was signed in 1982 and provides a standard international regime for ocean spaces including the territorial sea, the EEZ (which had previously been a global resource), and the continental shelf. UNCLOS provides for a sustained yield fisheries regime, as well as the protection of the marine environment.

Further agreements have added to New Zealand's marine responsibilities: through our signing of the United Nations Fish Stocks Agreement (providing a framework for managing fish stocks that are migratory or extend beyond nations' EEZs); through regional fisheries agreements; and through conservation agreements like the Convention for the Conservation of Antarctic Marine Living Resources, which covers the Southern Ocean, and through the Convention on Biological Diversity.

Only a limited number of marine species are specifically protected under law – marine mammals, most seabirds, spotted black groper, marine reptiles, black and red corals.

Protected species

Only a limited number of marine species are specifically protected under law: marine mammals, most seabirds, and a number of other species (including spotted black groper, marine reptiles, black and red corals).


Photo: Malcolm Francis, 2004

Maintaining water quality

The relationship between land use and the sea can be direct and obvious, as with the impact of land clearance on increased rates of sedimentation in estuaries and sheltered waters. The effects of land use on coastal marine ecosystems can also be subtle, as is usually the case with the impact of pollution, pesticides and fertilisers.

Regional Councils address these threats through their Regional Plans, which control the effects of land use practices.

Many councils have begun work with their stakeholders to improve water quality by encouraging good land use practices, like planting buffer zones alongside waterways to reduce sediment and nutrient runoff.

For example, in the Whaingaroa (Raglan) Harbour, community groups and Environment Waikato have worked together to help farmers plant and fence harbour and stream margins, which has dramatically improved harbour health and biodiversity.

Maintaining biosecurity

New Zealand has unique marine plants and animals, and a special advantage because we have fewer introduced organisms than many other countries.

We face a constant danger that exotic species could slip into New Zealand waters via fouling on vessel hulls or through the discharge of ballast water (carried in the base of ships for stability).

Already, scientists have listed 148 marine organisms that have been introduced accidentally – 70 per cent of which probably arrived as fouling. Despite the use of anti-fouling paint, unwanted organisms continue to hitch a ride on ships' hulls.

The Ministry of Agriculture and Forestry works with stakeholders to minimise the risks posed by fouled hulls, through a combination of regulatory and voluntary measures, and public education.

Better Understanding

Both the Department of Conservation and the Ministry of Fisheries are involved in research to improve understanding of New Zealand's marine biodiversity and how it can be protected.

This includes: classifying and characterising marine habitats, developing an ecosystem-scale understanding of fisheries management, investigating nearshore functional ecology and terrestrial effects like sedimentation and pollution, and protected species management.

Protecting special or representative marine habitats will 'bank' some of our biological wealth as an investment for future generations.

Marine Protected Areas

As part of the NZ Biodiversity Strategy, the government is committed to protecting rare and significant habitats, ecosystems, and species, as well as a range of areas representative of the more common coastal, offshore and deep water habitats and their communities.

To this end, government has developed a Marine Protected Areas policy, designed to drive the creation of a network of Marine Protected Areas (MPAs) across our EEZ.

This network can be seen as somewhat similar to to our land-based Protected Natural Areas network.

Protecting special or representative marine habitats will 'bank' some of our biological wealth as an investment for future generations.

Government policy defines a MPA as "an area of the marine environment especially dedicated to, or achieving, through adequate protection, the maintenance and/or recovery of biological diversity at the habitat or ecosystem level in a healthy functioning state".

Some sites selected as part of a MPA network will already be in a near-pristine state; others may have been impacted by a range of human activities, and need some recovery.

Photo: Malcolm Francis, 2004