



A Marine Reserve for Great Barrier Island?

Your chance to have a say

JANUARY 2003



Department of Conservation
Te Papa Atawhai



Cover photograph: Cockles moving on the sand leave distinctive trails. Whangapoua Estuary. Photo: Roger Grace.

Left and back cover: Great Barrier Island is one of the last strongholds of large packhorse crayfish. Photo: Wade Doak.

Above photo: Aerial view of Great Barrier Island's north-east coast. Photo: Graeme Brierly.

All photos in this document not credited are by Roger Grace.

A legacy for our children

The seas around Great Barrier Island are some of the most pristine in the Hauraki Gulf, with a remarkable variety of underwater landscapes and marine life. However even here, locals are reporting that fish aren't as plentiful as they used to be. A marine reserve will ensure that at least one part of Great Barrier's marine world is protected and replenished to pass on to our children and grandchildren.

A decade of discussions

Over a decade ago, the Department of Conservation began talks with tangata whenua and local residents about the need to protect Great Barrier Island's coastal waters. Keen to establish a marine reserve somewhere around the island, DOC circulated a public discussion paper and questionnaire in February 1991. Over 250 people, mainly islanders, sent in their comments.

This early feedback expressed both concern over the decline in the island's fisheries, and strong support for a fully protected marine reserve on the island. The north-east coast was the favoured location for 75% of the people who wrote in. Most respondents (65%) claimed that a marine reserve would not cause problems for their current activities in the area. However three percent were totally opposed to any marine reserve. Restrictions on fishing were the key concern.

New discoveries

Earlier discussions about possible boundaries for a marine reserve centred on an area including the Whangapoua Estuary and beach, the coastline immediately north and south of Whangapoua and the seas out to and surrounding Rakitu Island.

In the years since, DOC has been carrying out further marine studies in an area extending from Needles Point in the north to Korotiti Bay in the south, and a large area offshore. Since the earlier marine reserve proposals were discussed, our knowledge about marine environments and what is needed to best protect them has expanded. Scientists now think that larger marine reserves may be more effective because a larger range of habitats are protected and the effect of fishing at the reserve edges is reduced.

The most exciting discoveries were made in 2002, when a team of scientists and locals sent a remotely operated camera down to 100 metre depths north east of Rakitu. This area, shown as only slightly raised seafloor on the marine charts, revealed a remarkable undersea world – deep water reefs hosting coloured sponges, black coral colonies, jewel anemones – and kingfish.



Kingfish

Nest of crayfish





Jack mackerel

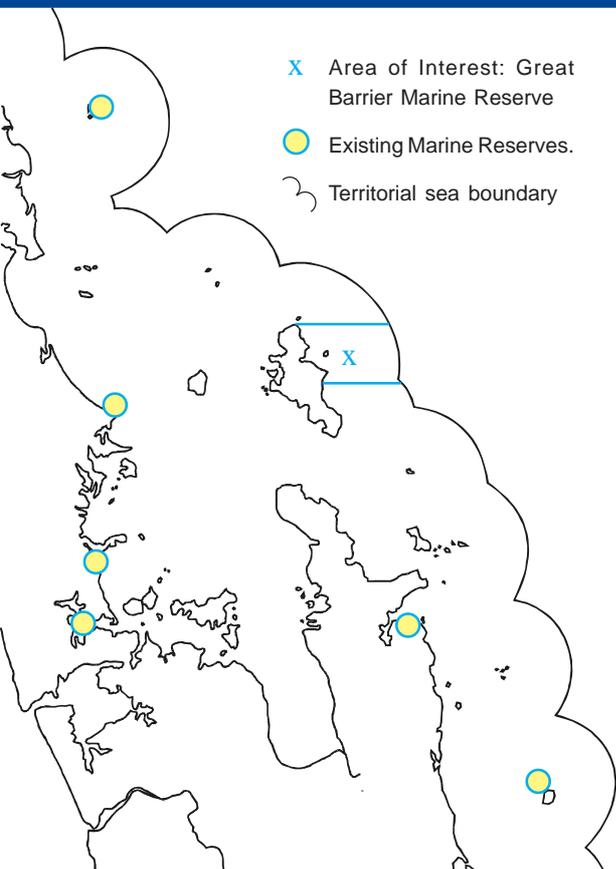
Why a marine reserve?

Marine reserves are the 'national parks' of the sea, where underwater features and marine life enjoy complete protection. Their purpose is to protect representative, unique or special marine habitats for scientific study and enjoyment.

Because much of our underwater environment has been altered by human activities we need to protect bits that represent examples of what was originally there. Within a reserve, marine life is left to recover and flourish in its natural state – for its own sake and for future generations. As with national parks, people are encouraged to visit, marvel at and learn from marine reserves.

Most Great Barrier Island locals know that the island's seas aren't as bountiful now as they were in 'the old days'. A marine reserve will help restore the balance and protect the marine taonga of part of Great Barrier's coast for the benefit of present and future generations.

A network of marine protected areas



Network of marine reserves in northern New Zealand

The Government committed, in the New Zealand Biodiversity Strategy (2000), to protect 10% of New Zealand's marine environment to help conserve marine biodiversity. A network of marine protected areas, which together protect a range of unique and diverse marine habitats and ecosystems, will contribute to this target. It may also enable marine species to move between protected areas – a series of safe havens within movement range of adults or juveniles.



John dory

So far just 0.1% of the coast around mainland New Zealand is protected within 15 marine reserves. There are three small marine reserves in the Auckland region: Cape Rodney-Okakari Point (near Leigh), Long Bay-Okura, and Motu Manawa (Pollen Island) in the Waitemata Harbour. Another – Te Matuku Bay on Waiheke Island – is awaiting approval from the Minister of Fisheries.

Further north is the larger Poor Knights Islands marine reserve, and to the south Te Whanganui-a-Hei (Cathedral Cove) on the Coromandel Peninsula, and Mayor Island (Tuhua) marine reserves. It's the beginning of a network that would be greatly enhanced by a marine reserve on Great Barrier's north-east coast.

What are the benefits?

A marine reserve would help us to retain, in a natural and healthy state, the great variety of plants and animals that live in the diverse marine habitats found on the north-east coast of Great Barrier Island.

Marine reserves:

- Help safeguard against environmental degradation and provide a benchmark against which to measure human impacts in other areas.
- Help rebuild depleted stocks of snapper, crayfish and other species, restore kelp forests and the health of marine ecosystems.
- Increase the range of fish types, as rare and more vulnerable species flourish in the marine reserve.
- Protect the many marine processes and species we don't yet know about.
- Act as a breeding area and reservoir for depleted marine species and provide a source of larvae to boost populations inside and outside the marine reserve.
- Protect large, old experienced marine animals which may have important genetic and social values not protected under fisheries rules.
- Allow fish and marine life to be observed in their natural habitat, natural sizes and numbers and exhibiting natural behaviour.
- Provide a window on a beautiful and fascinating underwater world. Marine reserves are ideal places for scientific study, education, snorkelling and diving, underwater photography, swimming, exploring rock pools and eco-tourism.



Snapper



Kelp forest



Demoiselle

Uses of the north-east coast

People undertake a range of activities on the north-east coast. Responses to the 1991 questionnaire showed the most popular pastimes were swimming, sightseeing, surfing, sunbathing and beach walking. Next were boating (including sailing, windsurfing and water skiing) and recreational fishing. Other activities were diving and snorkelling, education, scientific study, traditional and commercial fishing and tramping.



Glass bottom boat at Leigh marine reserve

How would a marine reserve affect you?

The only activities that would be affected by a marine reserve in the area are fishing, shellfish gathering and removal of shells. Taking any marine life, including fishing and gathering shellfish, rocks or seaweed, is not allowed in a marine reserve. However, fish caught outside a marine reserve can be carried through the reserve.

A marine reserve on the north-east coast may have economic and social implications for commercial and recreational fishers in the area. However, fishing is likely to improve in areas near the reserve and, in the long term, may benefit fish stocks further afield.

Visitors can take boats into marine reserves and anchor but are encouraged to minimise disturbance to the sea floor.

A marine reserve can boost local tourism and service industries as it becomes established. For example, the large number of visitors to the marine reserve at Leigh have substantially benefited the local economy.

Educational and recreational activities are encouraged in marine reserves, as well as scientific research and monitoring.



There is lots to see in a marine reserve

Tangata whenua

Tangata whenua have a long history of using Great Barrier's diverse coastal resources. They continue to be kaitiaki and exercise manawhenua over their interests in the north-east coastal area.

Resident tangata whenua are Ngati Rehua hapu and Ngati Wai iwi. Ngati Maru also have an interest in the north-east coast and marine area.

Many tangata whenua wish to continue to act as kaitiaki for the estuary, within an overall marine reserve on the north-east coast. Many tangata whenua also support continued, but limited, harvesting of shellfish from Whangapoua Estuary. This is not allowed in a marine reserve, but tangata whenua needs could be accommodated by excluding part of the estuary from the reserve boundaries.



Large snapper flourish in marine reserves

Who manages marine reserves?

The Department of Conservation looks after and administers marine reserves but relies on the support and involvement of the local community.



Oysters near the Whangapoua Estuary entrance

Marine reserve regulations are enforced by DOC, sometimes with the help of people appointed as honorary rangers. Local people are well placed to be guardians of a marine reserve, to watch over it and discourage potential offenders.



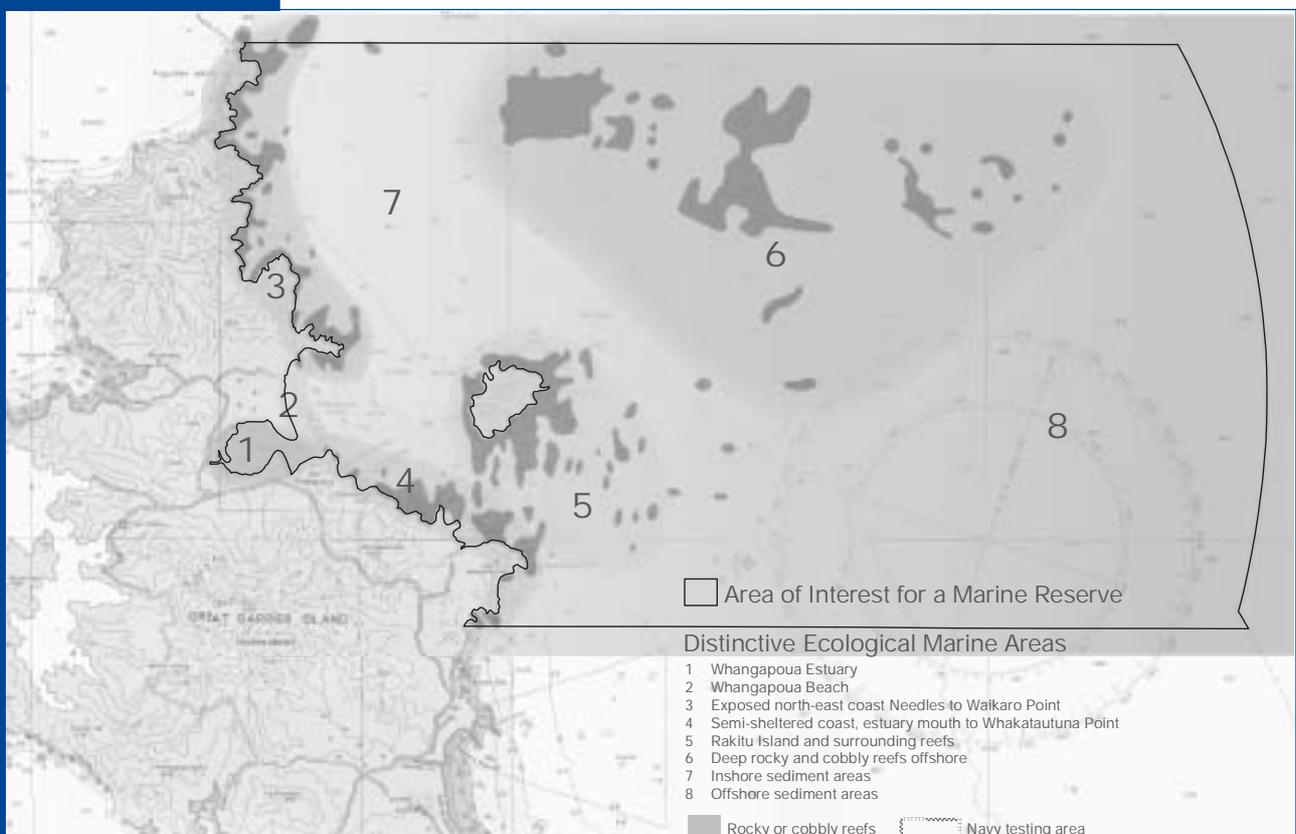
Mangroves in Whangapoua Estuary

Area of Interest for a marine reserve

The Department of Conservation would like to protect the full range of coastal and marine habitats on Great Barrier Island's north-east coast. This would provide a significant area for scientific research, and ensure the survival of an outstanding marine legacy to pass on to future generations.

The area under investigation for a marine reserve is shown here. It extends from Korotiti Bay to Needles Point in the far north, and from mean high water springs out 12 nautical miles to the limits of the territorial sea.

The area includes a wide range of marine habitats, many of which are not represented in marine reserves elsewhere. These include the estuarine and beach areas of Whangapoua, exposed north-east coastline, semi-sheltered coast, Rakitu Island and its surrounding reefs, deep rocky reefs offshore, and inshore and offshore sediment areas.



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NOT TO BE USED FOR NAVIGATION.

Does size matter?

The “best” size for a marine reserve depends on what you are trying to protect. For some species a very small marine reserve may be enough to protect a local population. For species that travel or migrate a very large marine reserve may be required to be effective. Some very mobile species may only take up temporary residence within a reserve. Research is continuing into effective sizes for marine reserves.

Whatever the size we know that fishing for snapper and crayfish just outside marine reserve boundaries affects numbers in the reserve. Fishing causes these species to be generally less abundant closer to the edges of reserves compared to the middle. Recent research at Leigh shows reduced snapper and crayfish numbers within two kilometres from the end of the five kilometre-long reserve. A bigger reserve minimises this effect. The illustration below shows the “edge effect” close to the reserve boundary.

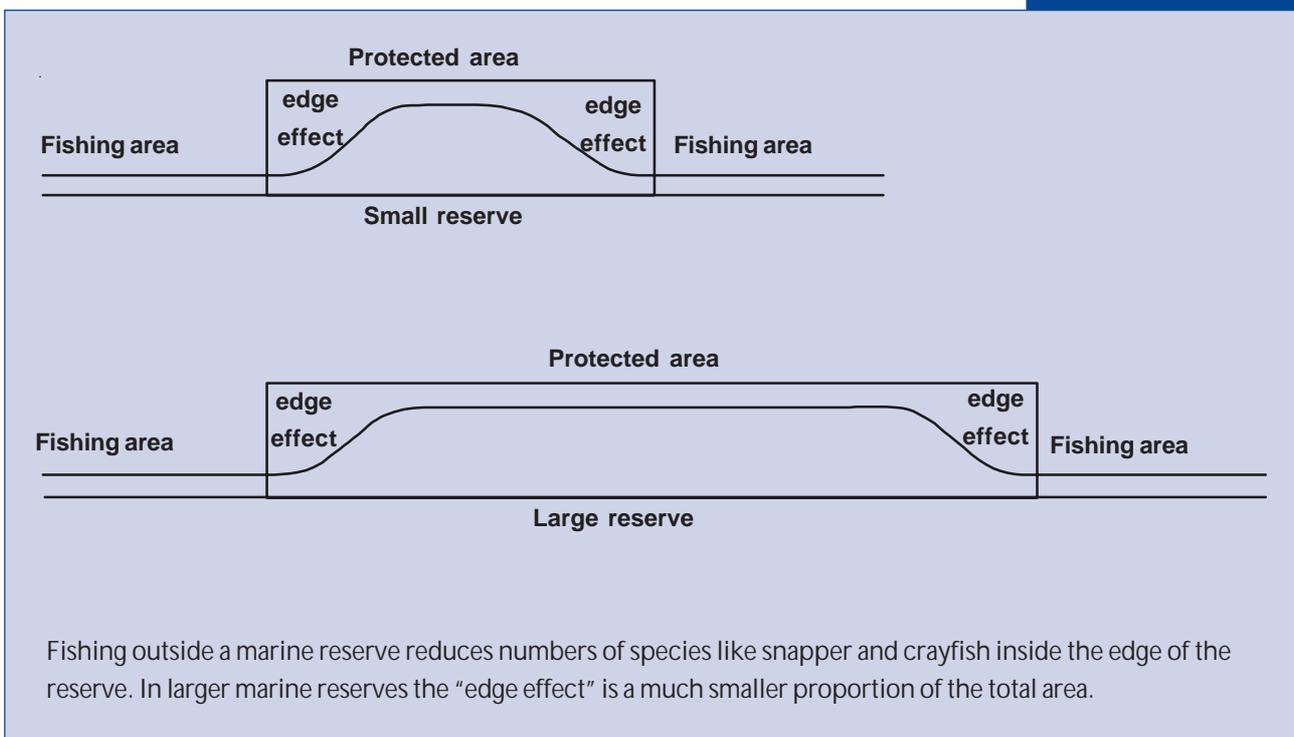
Larger marine reserves enable a wider range of habitats to be protected. So far marine reserves in the Auckland region are relatively small. A large marine reserve at Great Barrier would protect a wide range of habitats, suffer minimal effects from fishing at the edges of the reserve, and would add significantly to the network of marine protected areas in the region.

Government policy is to protect 10% of New Zealand’s marine environment (the Territorial Sea to 12 nautical miles offshore) by 2010. To date we have protected about 4% of our territorial sea, but just 0.1% around mainland New Zealand¹. So we have some way to go to meet this goal.

¹ The 735,000 hectare Kermadec Islands marine reserve is much larger than any other marine reserve around mainland New Zealand and makes up about 3.9% of our territorial sea.



A bigger reserve protects more habitats and minimises the edge effect.
Photo: Graeme Brierly



Fishing outside a marine reserve reduces numbers of species like snapper and crayfish inside the edge of the reserve. In larger marine reserves the “edge effect” is a much smaller proportion of the total area.



The threatened NZ dotterel feeds in Whangapoua Estuary.
Photo: Karen Baird

What's special about the north-east coast?

Along much of Great Barrier's north-east coastline, natural habitats extend from the hilltops to the coast and offshore. This is uncommon in northern New Zealand due to the extent of coastal development. Because most of the land next to the proposed marine reserve is already public conservation land we have a chance to protect an unbroken sequence of natural habitats - land, estuary and sea - and manage them together.

The north-east coast is characterised by exposed rocky shores but has a wide range of coastal features: a sheltered enclosed estuary, an open surf beach, sheltered sandy beaches, boulder beaches and more sheltered rocky shores. Offshore there are sandy and muddy sediments, gravel beds, reefs and deep rocky ground. Each of these features supports a collection of marine plants and animals adapted to local conditions.

Warm waters from the East Auckland Current bring a subtropical influence to the marine life found there and increase its biological diversity. These waters are often remarkably clear which, with the diverse seascapes and rich marine life, makes for spectacular underwater viewing.

The area is one of the last strongholds of the giant packhorse crayfish which migrate to shallow waters around north-eastern Great Barrier Island each season.

The little modified Whangapoua Estuary is home to about one third of our remaining endangered brown teal, New Zealand's unique little duck. Sand flats and spits around the estuary are also important feeding and roosting areas for a significant population of the threatened New Zealand dotterel.

Surveys undertaken within the proposed marine reserve show a wide variety of habitat types, including remarkable deep water reef areas with black coral, sponges and a wealth of invertebrate life.

Needles Point and Aiguilles Island



Jewel anemones
Photo: Jenny & Tony Enderby



Hydroid sea fans

This exposed area at the northern end of the proposed reserve is characterised by steep drop-offs and spectacular underwater scenery. Here, hydroids and sea squirts (ascidians) feature at depths of 15-20 metres and schools of kingfish and other pelagic fish are common.

Rakitu Island



Arid Cove has a beautiful archway near the entrance

Rakitu, a small island six kilometres off Whangapoua beach, has excellent scuba diving. Its rocky shores plunge to depths of over 30 metres where colourful sponges and other encrusting animals cover the rocks. Underwater archways and caves are dotted with light-shunning hydroids or sea fans and beautiful jewel anemones. Plankton-feeding demoiselles and blue maomao are

often present. In the archways low light levels allow marine life normally found in much deeper water to live at depths accessible to snorkellers.



Colourful sponges feature in deep diving depths at Rakitu

Dragon Island, Harataonga Bay

Protected from wind and waves by Rakitu, Dragon Island is only a short snorkel from Harataonga. The eastern end of the island hosts a rich variety of marine life. Many small reefs with a network of deep gullies and huge boulders provide sheltered nooks and crannies for an array of reef fish. Orange and green wrasse and sandagers wrasse give a subtropical flavour to the diverse fish fauna which include black angelfish, demoiselle, porae, blue moki, red pigfish, john dory and abundant red moki.



Black angelfish guarding its eggs

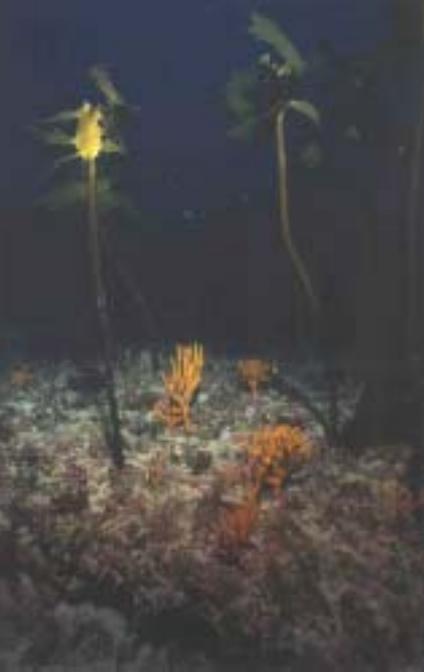


Red moki are common at Dragon Island

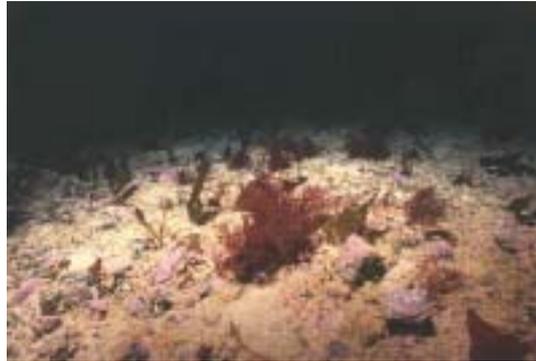


A school of plankton-feeding blue maomao

Rainbow Reef



A mixture of sponges and kelp covers the low rocks at Rainbow Reef



Red seaweeds on the gravel bottom

Named after a rainbow wrasse seen here, as well as the multi-coloured sponges and other life on the seabed, this offshore reef sits between the Harataonga coast and Rakitu Island. At 25 metres, it's an intermediate habitat between the deeper sponge garden and shallower Ecklonia kelp forest. Rock outcrops emerge from a gravel floor, which has a rich flora of small red seaweeds. The rocky reef hosts Ecklonia, mixed with sponges

and hydroids, and harbours large fish such as porae and snapper. Multitudes of small fishes like demoiselle hover over the reef feeding on plankton drifting by.



Porae



Female red pigfish

Deep water habitats

Deep rocky reefs occur to the south-east, north and north-east of Rakitu Island, in depths to about 110 metres. Surveyed by DOC in 2002 using a special underwater camera, this rocky ground supports a rich variety of sponges, black coral and other invertebrates, and are suitable habitat for hapuku. Muddy sediments of the continental shelf to about 150 metres depth extend to the 12-mile limit of the territorial sea. Deeper continental shelf habitats like these, with their special deep water animals, are not represented in other marine reserves.



Black coral colonies, sponges, and a wealth of invertebrate life on a deep reef north of Rakitu.



The endangered brown teal.
Photo: Chris Gaskin

Whangapoua Estuary

Whangapoua Estuary is considered nationally important due to its large size and undisturbed nature. Conservation land surrounds the estuary, which provides habitat for an array of birds, shellfish and fish, as well as the smaller

bacteria and fungi on which the food chain depends.

The estuary “feeds” the surrounding coastal marine communities with nutrients supplied from the mangrove forest, seagrass and wetland areas. Snails, crabs, worms and shellfish feed on micro-organisms in the estuary, which are then preyed on with each rising tide by snapper, yellow-eyed mullet, flounder and rays. Along the water’s edge wading birds feed on rich pickings in the mud and sand.

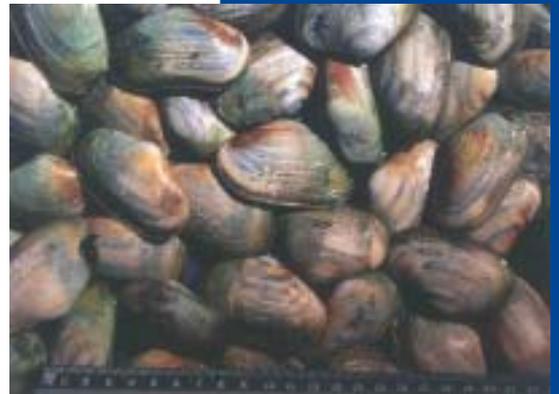
The estuary supports significant numbers of the threatened New Zealand dotterel and is a stronghold for one our most endangered endemic ducks, the brown teal. The spit is a high-tide roost and the mudflats a feeding ground for coastal birds, including the pacific golden plover, banded dotterel, bar-tailed godwit, variable oystercatcher and pied stilt.

The expansive pipi and cockle beds in the estuary are an important shellfish gathering area for local people and tangata whenua. From consultation it was noted that shellfish are less abundant elsewhere on Great Barrier and that shellfish populations at Whangapoua are under pressure from the summer influx of visitors to the island. Many locals have said they should be able to continue to have a sustainable but small harvest of the main shellfish species from the estuary. This view has been endorsed by tangata whenua as kaitiaki of the estuary.

To address these concerns, an exclusion zone could be established within the Whangapoua Estuary to allow an ongoing sustainable harvest of shellfish. DOC is seeking your views on whether an area should be set aside for shellfish gathering and in what location.



Young mangroves in the estuary



Photos: Top: Large pipis collected from the channel at Whangapoua; Bottom: Loose cockle shells over a dense bed of shellfish



What happens next?

After further consultation with tangata whenua, fishers, interested groups and the Great Barrier community, and consideration of feedback on this discussion document, DOC will make a formal application to the Director General of Conservation for a marine reserve. Members of the public then have two months, from the time the application is notified, to make submissions. The Department is required to respond to concerns expressed in submissions.

The Minister of Conservation will make the final decision on the application, which also requires agreement from the Ministers of Fisheries and Transport.

In many areas kina are expanding at the expense of the kelp forest

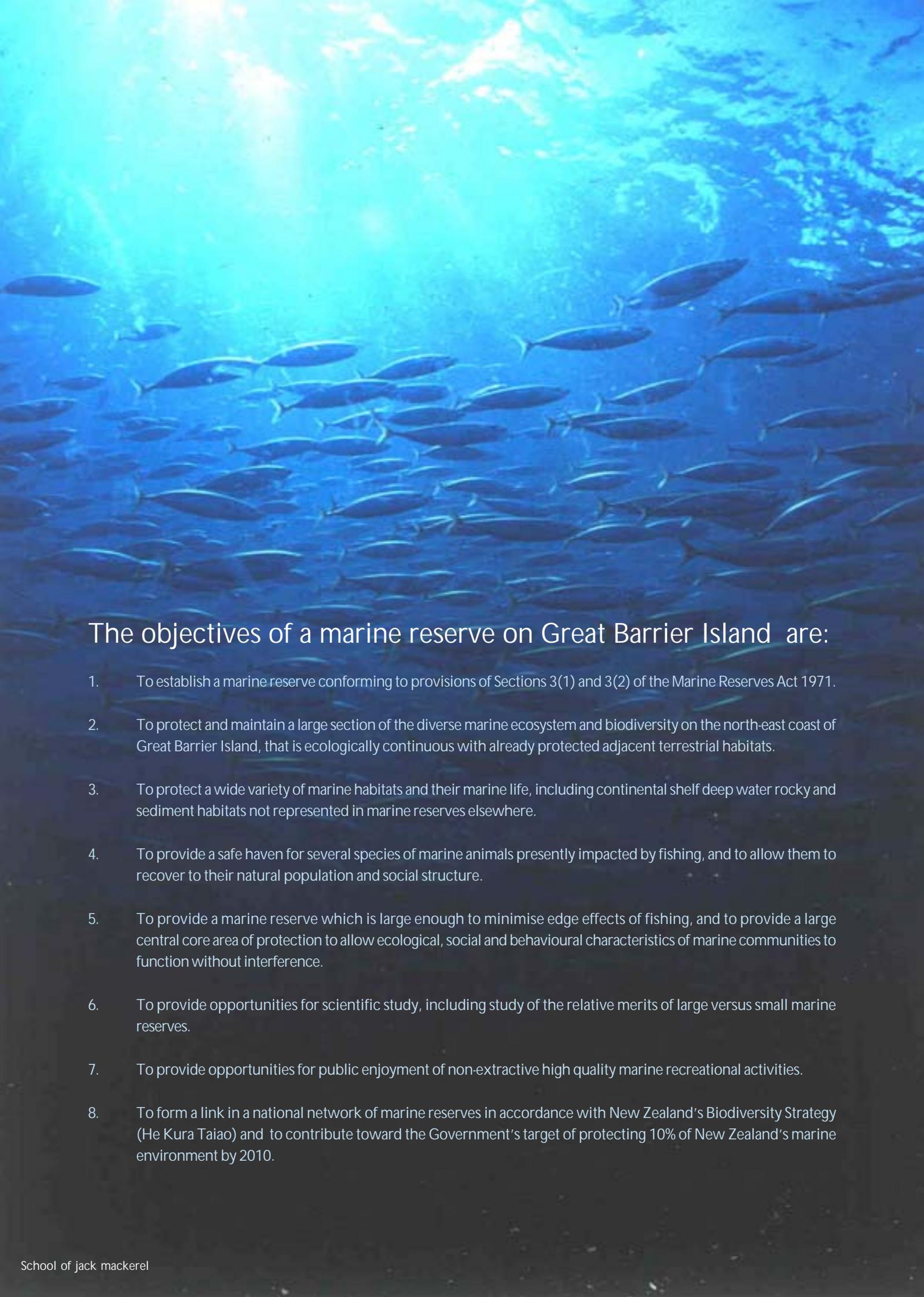
Establishing a Marine Reserve

Pre Statutory Process

Define Objectives	See page 15
Initial Consultation with interested groups	1991 onwards
Site Survey and Investigations	1990 onwards
Draft proposals formulated and public feedback incorporated	1991 & 1994
Community consultation. Discussion document circulated for comment before preparing formal application	December 2002 - March 2003

The Statutory Process (see section 5 of the Marine Reserves Act 1971 for details).

Application is made to the Director General Department of Conservation (DG).	
Application satisfies S.3(1) of the Marine Reserves Act 1971.	If application does not satisfy S.3(1): application does not proceed.
Public notification of intention to apply for an 'Order-in-Council' declaring the area a marine reserve, anyone owning an estate or interest in land adjoining the proposed reserve any local authority with jurisdiction over the area, any local authority with control of the foreshore in the area, the Secretary of Transport and the Director General of Fisheries notified in writing by the applicant.	
2 month objection period.	Includes objections and submissions in support.
1 month for the applicant to answer the objections.	
DG refers the application, objections and answers to objections to the Minister of Conservation.	
Before considering the application the Minister of Conservation considers the objections and the applicant's answers to them (if supplied).	
Where the DG is the applicant the Minister of Conservation may call for an independent report.	
Minister decides whether or not to uphold any objections; applicant and objectors notified in writing of the Minister's decision and the grounds for it.	Any objection upheld: application does not proceed.
If no objections upheld Minister of Conservation considers the application.	Minister not satisfied application meets the criteria in the Act: application does not proceed.
If the Minister of Conservation is satisfied the application meets the criteria in the Act the concurrence of the Ministers of Fisheries and Transport is sought.	If concurrence is withheld: application does not proceed.
If concurrence is obtained the Minister of Conservation recommends the Governor-General make an 'Order-in-Council' to establish the marine reserve.	
'Order-in-Council' is made and notified in the Gazette. Order declaring the marine reserve comes into force 28 days after notification.	



The objectives of a marine reserve on Great Barrier Island are:

1. To establish a marine reserve conforming to provisions of Sections 3(1) and 3(2) of the Marine Reserves Act 1971.
2. To protect and maintain a large section of the diverse marine ecosystem and biodiversity on the north-east coast of Great Barrier Island, that is ecologically continuous with already protected adjacent terrestrial habitats.
3. To protect a wide variety of marine habitats and their marine life, including continental shelf deep water rocky and sediment habitats not represented in marine reserves elsewhere.
4. To provide a safe haven for several species of marine animals presently impacted by fishing, and to allow them to recover to their natural population and social structure.
5. To provide a marine reserve which is large enough to minimise edge effects of fishing, and to provide a large central core area of protection to allow ecological, social and behavioural characteristics of marine communities to function without interference.
6. To provide opportunities for scientific study, including study of the relative merits of large versus small marine reserves.
7. To provide opportunities for public enjoyment of non-extractive high quality marine recreational activities.
8. To form a link in a national network of marine reserves in accordance with New Zealand's Biodiversity Strategy (He Kura Taiao) and to contribute toward the Government's target of protecting 10% of New Zealand's marine environment by 2010.



Great Barrier Island is one of the last strongholds of large packhorse crayfish. Photo: Wade Doak

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