



Conservation of marine biodiversity and marine protected areas

Pongakawa School



Department of Conservation
Te Papa Atawhai



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POLYTECHNIC
TAURANGA
Te Kuratini o Poike

Karakia

- Ko Rangi
- Ko Papa
- Ka Puta ko Rongo
- Ko Tanemahuta
- Ko Tāwhirimātea
- Ko Tangaroa
- Ko Haumietiketike
- Ko Tumatauenga
- Ko te Rangi ki runga
- Ko te Papa ki raro
- Ka Puta te ira tangata
- Ki te whaiao, ki te ao marama
- Tīhei mauri ora



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How much do we know about our marine environment?

(photo © Indigo Pacific)

Less than 1% of
New Zealand
waters have
been surveyed
(DOC, 2000).



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How much do we know about our marine environment?

- The Ministry for the Environment in its State of the Environment report (1997) found 30,000 of our estimated 80,000 indigenous animals, fungi and plants have been formally identified.
- Up to 80% of all our native species may be living in our seas and many of these will be found nowhere else in the world (DOC, 2000).
- Only 8000 marine species have been identified so far (DOC, 2000). There is much yet to be discovered and understood about marine life and processes.



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NZ Marine Biodiversity Protection

- Of the 8000 NZ marine species identified so far there are:
 - 61 seabirds
 - 41 marine mammals
 - 964 fishes
 - 2000 molluscs
 - 300 sponges
 - 400 echinoderms
 - 900 seaweeds
 - 700 micro-algae
- (DOC, 2000:13)



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NZ Marine Biodiversity Protection

- 38 of these species are known to be threatened
 - Up to 80% of all our native species may be in our seas
 - Many of these are native species and found nowhere else in the world
- (DOC, 2000:7)



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Why is NZ Marine life so diverse?

- Size and variety of our seas (480 million hectares – that's 15 x our land area)
- Latitude – from subtropical to sub Antarctic; from mudflats to trenches 10,000m deep



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What are marine reserves and MPAs?

- Marine reserves are areas of ocean where marine life is protected from the effects of human activities such as fishing and development.
- Marine Reserves are like underwater versions of national parks; they aim to preserve areas of our marine environment in their natural state. In marine reserves marine life and their habitat are left in a natural state, undisturbed by people.



(photo © Indigo Pacific)

About marine reserves

- In New Zealand marine reserves, activities not allowed include: commercial or recreational fishing, shellfish gathering or other human exploitation or coastal development (such as marinas).
- **Are all marine reserves no take zones?**
- In New Zealand all marine reserves are currently no take zones. In other parts of the world marine reserves are often known as Marine Protected Areas (MPAs). Unlike New Zealand marine reserves, MPAs in other countries do not always give total protection to marine life. In Australia for example, many MPAs are open to recreational and limited commercial fishing (Kingsford and Battershill, 1998).



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Research opportunities



Photo © Indigo Pacific

- Marine reserves or MPAs provide scientists with valuable opportunities to study marine life in places where human impacts are controlled or minimised.
- The scientific value of having areas that can operate as 'control sites' was one of the original motivating arguments that led to the creation of New Zealand's first marine reserve.



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Who had the idea of a marine reserve first?

- 1975 near Leigh, north of Auckland
- Cape Rodney-Okakari Point marine reserve

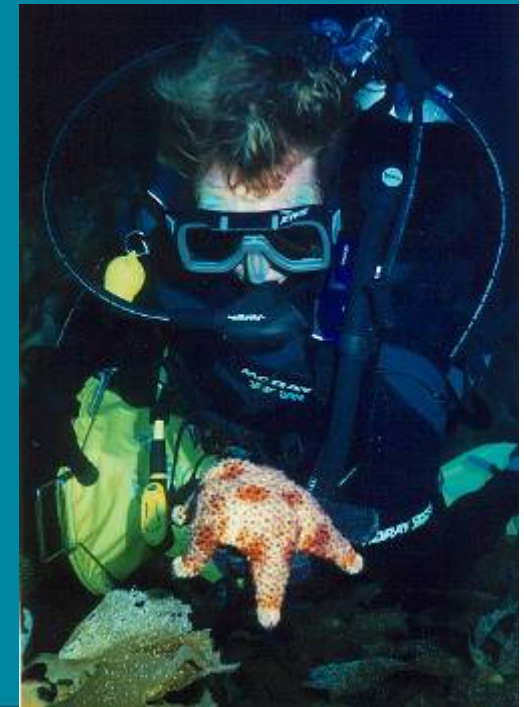


(photo © Daniel Sharp)

Who benefits?

- Species within reserve boundaries
- Species outside reserve boundaries
- People

(photo © Indigo Pacific)



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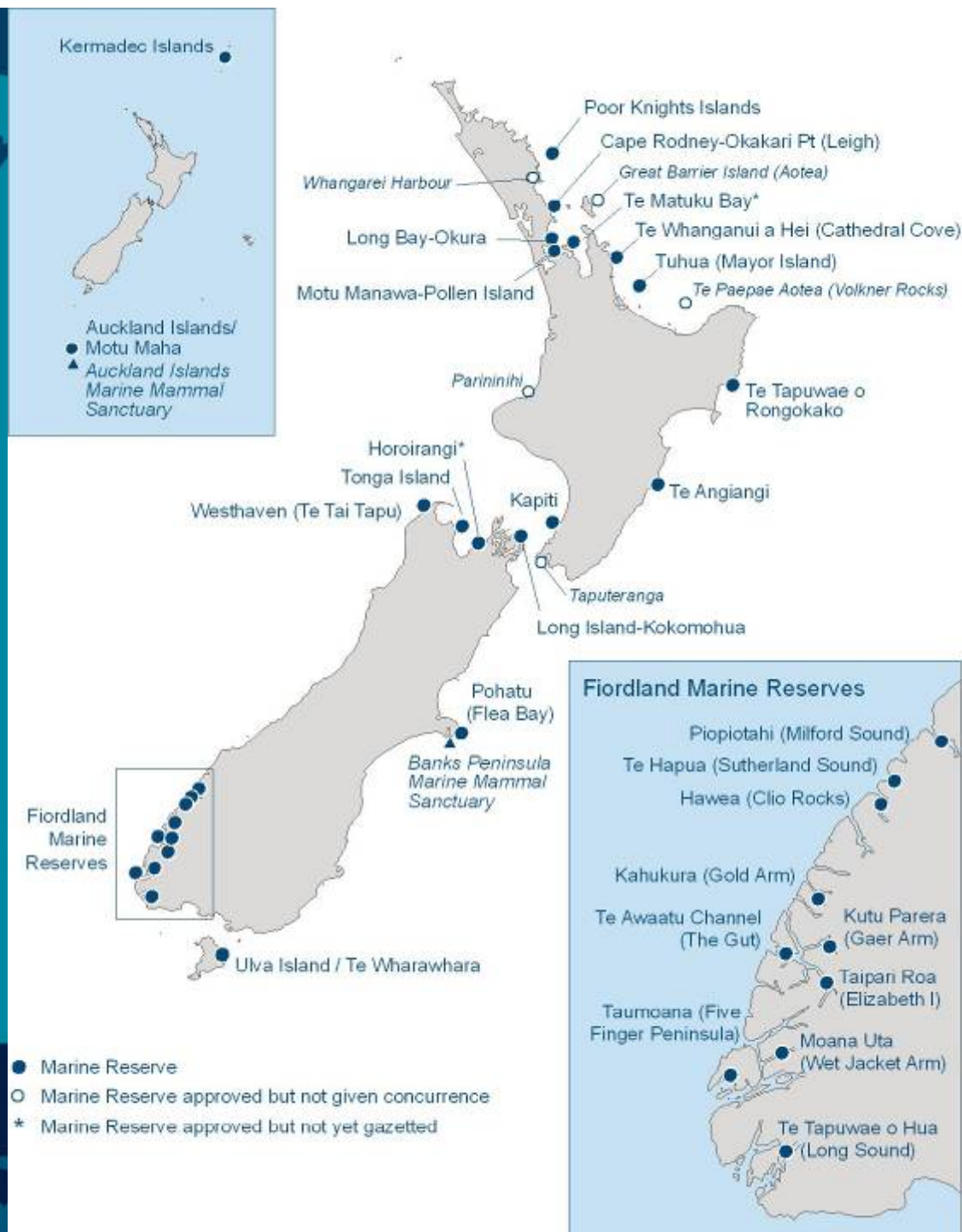
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Where New Zealand's marine reserves located?

Source:

www.doc.govt.nz/Conservation/Marine-and-Coastal/Marine-Reserves/ (reproduced with permission)



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Implications of marine reserves

- Research has found marine reserves do impact on life within their boundaries. Reserves affect:
 - Biomass
 - Species density
 - Species size
 - Species diversity



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Why protect marine areas?

- In a recent press release the Department of Conservation (2004) provided the following explanation for why we need to protect marine areas. They said:
- “The ocean risks losing its balance if too many fish, sea-weed, sand or rocks are removed or excessive sewage, chemical wastes and sediment runoff occurs. It is important to conserve the health and natural character and quality of the coastal and marine environment. One way to achieve this is through a representative network of marine protected areas of different marine ecosystems.
- There is increasing evidence that ocean ecosystems are being altered beyond their range of natural variation by a combination of human activities, including fishing, pollution, and coastal development... Marine reserves have been shown to aid the recovery of species populations and habitats from exploitation, and environmental stresses.”