

# Activity 1: Introducing marine reserves



What are marine reserves and what is their purpose?



## CURRICULUM LINKS

### Learning areas

#### Science: Levels 1–4:

- Living world: Ecology
- Planet Earth and Beyond: Earth systems
- Nature of Science: Participating and contributing

**Science capabilities:** Engage with science

**Te Marautanga o Aotearoa:**

**Pūtaiao:** The natural world

### Learning intention

#### Students are learning to:

- Understand what a marine reserve is and how they protect marine environments.

### Success criteria

#### Students can:

- Communicate which activities are allowed inside a marine reserve through a poster or other representation.

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# BACKGROUND NOTES

## WHAT IS A MARINE RESERVE?

A marine reserve is a protected area of the sea. Marine reserves have clear, defined boundaries. They can include any area from the high tide line on the sand and in an estuary out to 12 nautical miles from the shore. Marine reserves include habitats such as estuaries, rocky and sandy shores, mangrove forests, reefs and open ocean. Animals and plants within a marine reserve are protected by law, and can't be fished or taken from the reserve. Non-living features such as sand, shells and rocks are also protected.

## WHY ARE MARINE RESERVES IMPORTANT?

Marine reserves protect our unique New Zealand habitats, natural resources, plants and animals. They are safe environments where native animals can live, breed and grow.

Marine reserves help to:

- protect biodiversity
- boost the numbers of fish and food species (increase productivity)
- allow us to study untouched marine environments, which can show what the marine environment once looked like, before human modification/impacts.
- preserve the natural services of the marine environment (e.g. flood protection, water filtration, geological processes)
- protect ecosystems from any threats (ecosystem resilience)
- increase recreation and tourism opportunities for New Zealand.

As protected marine ecosystems recover, we continue to learn more about the value of marine reserves.

## Who looks after our marine reserves?

The Department of Conservation (DOC) is responsible for looking after the marine reserves in New Zealand. Other organisations, such as local councils as well as volunteers, help DOC to protect, maintain and care for these important places.

## Where are our marine reserves?

There are marine reserves dotted around the coast of mainland New Zealand and some offshore islands. View the locations of marine reserves here: [www.doc.govt.nz/marinereserves](https://www.doc.govt.nz/marinereserves) and [www.doc.govt.nz/marine-reserves-map](https://www.doc.govt.nz/marine-reserves-map).



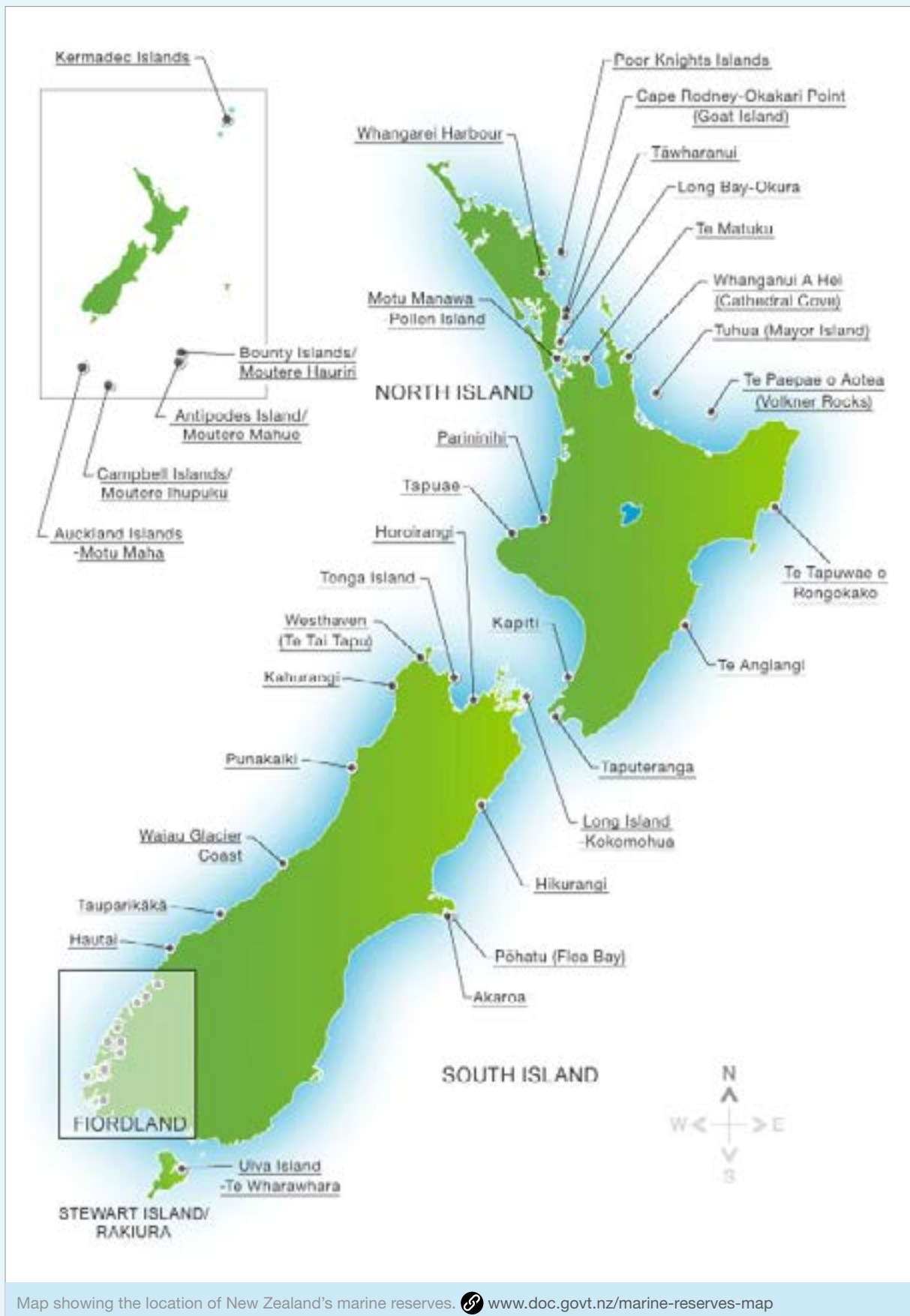





Photo: Darryl Torckler, courtesy of EMR (Experiencing Marine Reserves)

## The first marine reserves



New Zealand was one of the first countries in the world to create protected areas of ‘no-take’ marine reserves. ‘No-take’ means that people cannot fish, gather shellfish or take any objects (living or non-living) from the reserve.

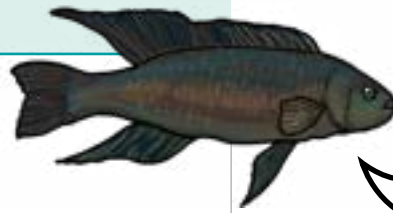
Individuals such as Bill Ballantine and Professor Valentine J Chapman from Leigh Marine Laboratory at the University of Auckland had key roles in establishing the first reserves. For more information, see  *Activity 6. Marine reserves for everyone.*



# LEARNING EXPERIENCE 1: INTRODUCING MARINE RESERVES

## Resources for this activity

- Introducing marine reserves slideshow:  
 <https://goo.gl/Vkt1Dg>
- Protecting our seas DVD introduction:  
 [www.doc.govt.nz/protectingourseas](http://www.doc.govt.nz/protectingourseas)



Focus question:  
What do we already  
know about marine  
reserves?

## Vocabulary

Marine, reserve, protection, knowledge, experience, manaaki.

*Note: These are suggestions only. Teachers are encouraged to adapt and change material to suit their students.*

## INTRODUCING STUDENTS TO MARINE RESERVES



### Inquiry stage 1: Dive in

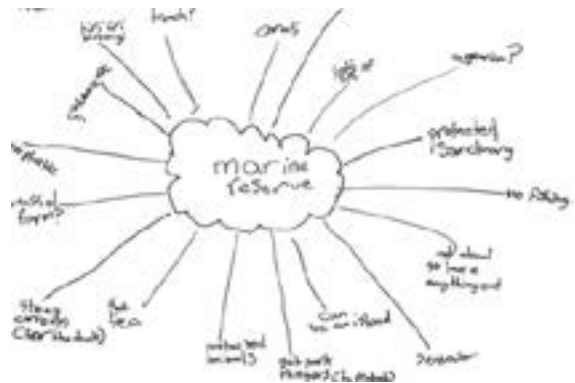


### What is a marine reserve?



#### Exploring prior knowledge and experiences

- Students can record their ideas about what they already know about marine reserves on the Student Worksheet on  page 9. Use mind-maps or other graphic organisers to establish your students' prior knowledge.
- Students could also share their prior experiences of marine reserves by forming into groups and sharing their stories. They could then write recounts. Alternatively, use the ideas from *Marine reserves ideas and experiences* ( page 9) to record students' prior knowledge and experience.
- Use the information about the prior knowledge and experiences of your group to make decisions about where you will begin the inquiry.
- After establishing prior knowledge and experiences, you can immerse students in the subject of marine reserves using one of the resources above. See *Resources for this activity* (above).




#### Introducing knowledge


- Students view the *Introducing marine reserves slideshow* (see *Resources* above).



### What can I do in a marine reserve?



- Students can discuss, in pairs or groups, which activities are allowed, and which activities are not allowed in a marine reserve.
- Explore what is allowed in a marine reserve through slides 10-11 of the *Introducing marine reserves slideshow* and/or the student activity worksheet: *What can or can't I do in a marine reserve?* on  page 10.

### Connecting to your marine environment


- If possible, visit a local marine reserve to begin your inquiry. This forms a personal connection between students and the natural marine environment. This connection can form the foundation and motivation for a learning inquiry. Ideally your students would revisit this place later in their inquiry, to collect data and then plan for action. See also  *Activity 8. Visiting marine reserves* for guidance about visiting a marine reserve.



Student snorkelling at Cape Rodney-Okakari Point Marine Reserve (Goat Island). Photo: Lorna Doogan/EMR

- If visiting a marine reserve is not possible, view a LEARNZ virtual field trip such as *Marine Reserves*, 2011 here:  <http://rata.learnz.org.nz/summary.php?vft=marine111> and  <https://vimeo.com/album/4576155>.

### Manaaki

- Explore the concept of manaaki (looking after/caring for our environment). In this video clip Joe Harawira, DOC's Kaihautu Te Putahitanga/Director Strategic Partnerships/Treaty, explains manaaki here:  <https://youtu.be/wv93iV6z8qw>.
- DOC has responsibility for caring for marine reserves in New Zealand, however, it is important that we all take an active role in conservation. It is the responsibility of all New Zealanders to manaaki/care for our marine environments to ensure they stay healthy into the future.



## Inquiry stage 2: Ask



- After exploring these ideas, now ask students about any questions and wonderings. In groups, students could share what they would like to know next about marine reserves.
- Ask each group to develop a rich question for their inquiry about marine reserves. For younger students, a rich question may need to be developed as a class. Older students could research their own inquiry question.
- Use the ideas from *Marine reserves ideas and experiences worksheet* (📄 page 9) to gain information about students' prior knowledge, experience and the questions they may have

## REFLECTING ON LEARNING



- Students can now use their new knowledge to create a sign, brochure or blog post which demonstrates which activities are and which are not allowed in marine reserves.
- Use the following online tools to record students' ideas, questions, prior knowledge and experiences.

Inquiry focus	Teaching/learning experiences	Digital tools
'Dive in' and 'Ask' inquiry stages	<ul style="list-style-type: none"><li>▪ Sharing and recording prior knowledge and experiences in marine environments</li><li>▪ Introducing key concepts</li><li>▪ Determining and recording research questions</li><li>▪ Sharing online resources that will support student research</li></ul>	<ul style="list-style-type: none"><li>🔗 <a href="https://padlet.com">https://padlet.com</a></li><li>🔗 <a href="https://socrative.com">https://socrative.com</a></li><li>🔗 <a href="https://quizlet.com/en-gb">https://quizlet.com/en-gb</a></li><li>🔗 <a href="https://www.wordclouds.com">https://www.wordclouds.com</a></li></ul>

## EXTENDING LEARNING



- Learn more about why we need marine reserves from ecologist Robert Richmond in this video by New Zealand Geographic: ▶ <https://www.nzgeo.com/video/why-do-we-need-marine-reserves>.
- Think about your local marine environment:
  - Are there any areas in the local marine environment that have been studied by classes at your school, at other schools or by universities?
  - Are there local areas that might need protection from overharvesting of kaimoana/seafood, from overfishing or habitat disturbance?
  - Is there a marine reserve in your area already? Are there any places that might be suitable to become a marine reserve? Consider different people's viewpoints and how the area is used by individuals and groups. Why do you think the area you have chosen would make a good marine reserve?

There are many areas in New Zealand where there are no marine reserves and where there is the potential for more marine reserves in the future. However, choosing sites for marine reserves is a complex process and needs to have a basis in science as well as public opinion.







## Marine reserves: ideas and experiences

We think ...	We know ...
Our experiences of marine reserves:	We wonder ...

### Useful vocabulary

Allowed	Future	Ocean	Sea
Changes	Habitat	Protected	Understand
Fishing	Healthy	Safe	Visited













Google Docs version:  <https://goo.gl/zSB2pC>.





## What can or can't I do in a marine reserve?

Use these ideas to share information about what people can and can't do in a marine reserve

	Swimming		Sailing
	Walking		Diving
	Kayaking		Fishing
	Boating		Dumping rubbish
	Disturbing animals		Collecting shellfish and kaimoana
	Playing		Building and construction

