

# What's the impact?



## Issues covered in this unit

In this unit students consider four issues that aim to build an understanding of the word *impact* in relation to people and the effect they can have on life in and around the sea. There are 6 activities in this unit.

The four issues revolve around:

- people living close to the sea
- seals / kekeno
- Hector's dolphins
- marine reserves

## Achievement objectives

### Science—Ecology

Students will:

- level 2—recognise that living things are suited to their particular habitat
- level 3—explain how living things are suited to their particular habitat and how they respond to environmental changes both natural and human induced

### Social Studies

Students will:

- level 2—understand how people make choices to meet their needs and wants
- level 3—understand how people make decisions about access to and use of resources

## Specific learning outcomes

Students will be able to:

- give an example of a human action that impacts the marine environment
- combine text and pictures to relate important messages to a specific audience about seal behaviour or the rare Hector's dolphin
- show by listing ideas on a t-chart that people are often affected by rules designed to protect marine life and these rules aren't always popular
- plan a special study to help all living things in and around a marine reserve



# What's the impact?



## Activity 1. See the sea

Heaps of New Zealanders live near the sea. That's because our mainland islands are long and narrow.

The widest point of New Zealand is only 450 kilometres from coast to coast. That's not much. It's about 4,000 kilometres across Australia!

### Think, pair, share

Why are so many towns and cities along New Zealand's coastline?

- **think** about that question
- **pair** up with a classmate
- **share** your ideas

Now share your ideas with others in your class and draw a diagram that shows all the different ideas from your class.

## Activity 2. A bit of an impact

This photo shows a rock wall that has been built along a beach to try to stop *erosion*—that's when the surface of the earth is worn away by the action of the waves and wind.

The crashing waves slowly eat up bits of land and on this piece of New Zealand's coastline up to a metre of land can erode away every year.

People build rock walls to try and save the things that they have built behind it. There are holiday homes and a golf course behind this rock wall.



Photo: Mike Tapp, DOC

But people's actions can have an *impact* on the living things around them.

Little blue penguins like to nest at this beach so now they might have trouble climbing the rocks to get to their nesting places. And when they get there, they will have to find a place to nest among the holiday homes and the boats.

### Actions, impact and possible solutions

Try this activity in small groups:

- list some other **actions** that people do
- list the **impact** these actions have on things that live in and around the sea
- list a **possible solution** for each impact

For example, the **action** of building the rock wall will have an **impact** on the little blue penguin. A pathway through the wall and nesting boxes are **possible solutions**.



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## Activity 3. Should we let people build?

Some people like living really close to the sea—the beach could be just outside their door! Houses close to the sea are called *beachfront houses*. When the sea gets too close, the owners of the *beachfront houses* sometimes ask their councils to build rock walls to protect their houses from damage caused by the sea.

Some people like the idea of building *beachfront houses* while others don't because of the *impact* it can have on the environment and other things that live in or close to the sea.



Photo: Mike Tapp, DOC

### Thumbs up or thumbs down?

Would these groups give the **thumbs up** or **thumbs down** to building *beachfront houses*? You decide, compare your ideas with a classmate and then talk about your ideas with the rest of your class.

Groups	Thumbs up	Thumbs down
Land developers (people who buy sections of land to build houses)		
Surfcasters (people who fish off the beach)		
Surfers		
Local councils		
People who live nearby but not right on the beachfront		
Local iwi		
People who want to buy a beachfront house		
Department of Conservation		
Volunteer conservation groups		



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## Activity 4. NZ fur seals / kekeno

People had an *impact* on NZ fur seals / kekeno—they nearly wiped them out! They were hunted for their skins and whole colonies disappeared. Now they're protected. That's good!

### Design a fast-fact box

Fast-fact boxes package up information to present entertaining facts in a hurry. They have a title, at least one picture, some questions and some answers.

- Design a fast-fact box about kekeno that answers the questions below.
- For help you can read the Seal Deal brochure. Visit [www.doc.govt.nz/thesealdeal](http://www.doc.govt.nz/thesealdeal) to download the brochure.



Photo: Rod Morris, DOC



Photo: Dick Veitch, DOC

### Fast-fact box

(Title)	(Picture)
<b>Questions</b>	<b>Answers</b>
We are also known as?	
We are pinnipeds – pinnipeds are also known as?	
We live in?	
We mainly feed at?	
We like to eat?	
We have amazing skills in?	
We rest or “haul out” on?	
We can be harmed by?	
People shouldn't get too close because?	



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## Seal behaviour

Visit [www.doc.govt.nz/thesealdeal](http://www.doc.govt.nz/thesealdeal) to download DOC's the Seal Deal brochure and find out what it has to say about:

Humans getting close to seals	
Feeding seals	
Dogs and seals	
Sneezing seals	
Crying seals	
Lonely pups	
Drifting seals	
Flappy seals	
Sleepy seals	

## Design coasters

Use pictures and clever captions to design some coasters (little place mats for glasses) that explain why seals do certain things.

You could print and laminate them and give a class set of coasters to a coastal café.

## Want to meet some kekeno?

Visit [www.doc.govt.nz/localsnzfurseal](http://www.doc.govt.nz/localsnzfurseal) and watch the Meet the Locals video clip about New Zealand fur seals.



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## Activity 5. A very rare dolphin

People have had an *impact* on Hector's dolphins too!

The Hector's dolphin is:

- the world's smallest dolphin
- the world's rarest dolphin
- *endemic* to New Zealand (that means it only lives in New Zealand)



Photo: Erin Green, DOC

There are two sub-species of Hector's dolphin:

- the South Island Hector's dolphin that lives around the coast of the South Island
- the Maui's dolphin that lives on the west coast of the North Island. Maui's dolphin is *critically endangered*. There are only about 150 left!



Photo: Erin Green, DOC

### They're very rare so learn to share

Hector's and Maui's swim near the shore and close to the surface so they're easily hurt by speed boats.

Boaties can take actions to keep our dolphins safe from harm such as:

- slowing right down to below wake speed. (The wake is the wave behind the boat)
- staying at the same slow speed
- moving in the same direction without any quick swerves
- stopping is even better. The dolphins might come and check you out if you're quiet and polite.

### Design a sticker for boats that will help boaties get the message

Your sticker should:

- combine text and pictures
- use as few words as possible
- help boaties identify the dolphin
- show boaties what to do

### Want to meet some Hector's dolphins?

Visit [www.doc.govt.nz/localshectorsdolphin](http://www.doc.govt.nz/localshectorsdolphin) and watch the Meet the Locals video clip about Hector's dolphins.



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## Nets catch dolphins too

Nets are set to catch fish but the little dolphins can get caught in the net too. Dolphins can hold their breath for about two minutes but after that they drown. They need air to breathe just like people.

Now new fishing rules mean nets can't be set in some harbour entrances or within 7 nautical miles of the coastline in some places (that's about 13 kilometers).

## So who is affected by the new fishing rules?

Recreational and commercial fishers in these places:

- much of the South Island Coast
- much of the upper North Island West Coast

## What's the impact of the new fishing rules about where nets can be set?

Complete a t-chart like the one below to show what *impact* the new fishing rules will have on different groups of people. You can add extra rows as you think of new ideas. You could do this in pairs or small groups.

Impact of the new fishing rules about where nets can be set			
For dolphins	For commercial fishers	For recreational fishers	For fish populations close to shore



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## Activity 6. Marine reserves

Everything is protected in a marine reserve - the fish, the crabs, the seaweed, everything! That means:

- no fishing
- no spearing
- no trapping
- no taking

People can do lots of activities in a marine reserve such as swim, snorkel, dive, kayak and take photos, and after a while:

- more species live there
- they grow bigger
- there is more of each species

Scientists are finding that:

- some of these species produce *bioactive compounds*
- these *bioactive compounds* can be used in human medicines to fight viruses and bacteria

Marine reserves can bring people to an area. 200,000 people head to the Goat Island Marine Reserve near Leigh in Auckland every year. When they visit, people eat, drink and sometimes stay. This creates jobs for local people.

### Want to check out a marine reserve?

Visit [www.doc.govt.nz/localspoorknights](http://www.doc.govt.nz/localspoorknights) and watch the Meet the Locals video clip about the Poor Knights Islands Marine Reserve.

### Think like a marine biologist

- Visit [www.doc.govt.nz/marinereserves](http://www.doc.govt.nz/marinereserves) and look at the list of New Zealand's marine reserves.
- Choose a marine reserve from the list.
- Under the heading **need**, list some special things about the marine reserve that made people think it was worth protecting.
- Under the heading **investigation**, describe a special study you could do that could help all living things in and around this marine reserve.
- Under the heading **equipment** list the tools you would need to do the study.
- Under the heading **peoplepower** list the kinds of people and what skills they would need to do the study.
- Under the heading **impact** grade the positive impact you think your study will have on the marine reserve. You can use a 5-point scale: 5=an incredible impact, 4= a big impact, 3=somewhat of an impact, 2=a small impact and 1=a tiny impact.

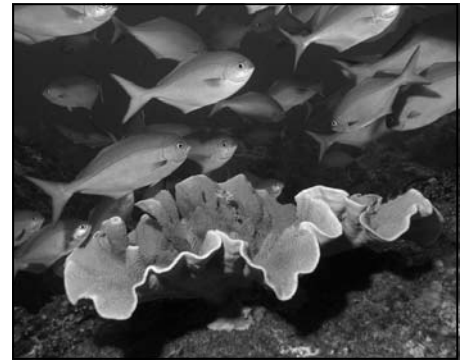


Photo: James Marsden, DOC

