The Sir Peter Blake Trust
Leadership in Action

YEARS 9-10

CARE FOR OUR COAST

TEACHERS' RESOURCE

www.sirpeterblaketrust.org

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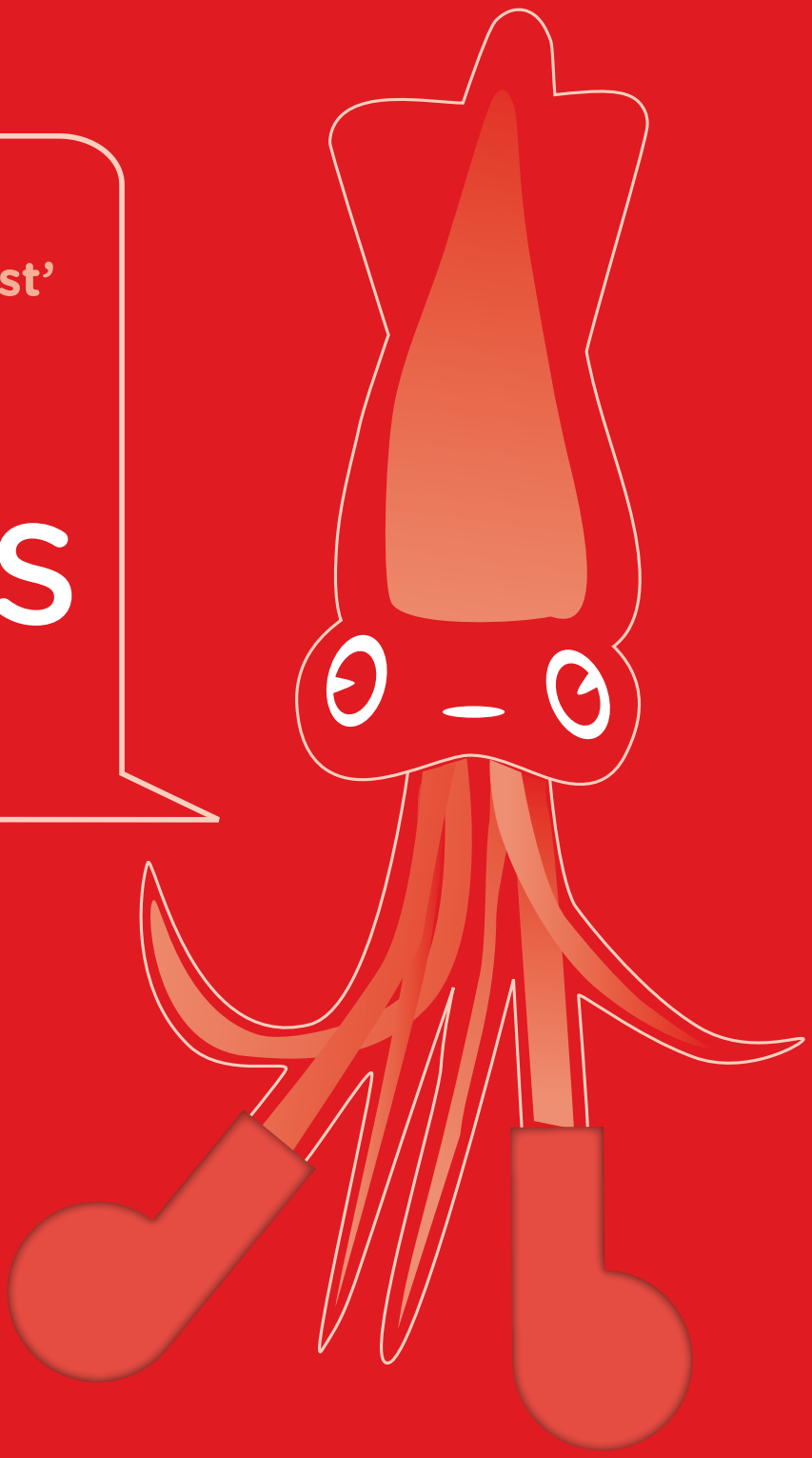
Celebrate
'Care for our Coast'
with a

RED SOCKS DAY



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THE SIR PETER BLAKE TRUST
Leadership in Action

INTRODUCTION

The Sir Peter Blake Trust exists to inspire an awareness of the marine environment and to celebrate great leadership. We hope you will enjoy teaching your students about Sir Peter Blake and how we can all contribute to caring for our coast.

OBJECTIVES OF THE CARE FOR OUR COAST PROGRAMME

* **To promote changes in behaviour through education and action, to ensure the sustainability of New Zealand's marine environment;**
* **To encourage schools and communities to show social responsibility for their local coastal areas and waterways; and**
* **To inspire young New Zealanders to keep the spirit of Sir Peter Blake alive.**

This resource is an educational tool that provides a start in educating towards a more sustainable future and the activity ideas contained within have huge potential for a greater depth of learning.

Students can enjoy researching the various topics while there is also scope for co-learning between students and teachers.

Curriculum links

This resource has been designed to be used for years 9 and 10 within the New Zealand curriculum. Activities can be easily adapted to suit students working above or below these years. The duration of the resource is approximately 4-6 weeks, but each topic can be taught over 3-4 periods.

ORGANISATION OF THE RESOURCE

STEP 1:
Learn about Sir Peter Blake and caring for our coast in the classroom.

STEP 2:
Experience the learning by cleaning up the coast.

STEP 3:
Celebrate the unit with a Red Socks Day to remember Sir Peter Blake.

REFER TO THE TEACHERS' NOTES FOR EACH LEARNING ACTIVITY.

Acknowledgements

Thank you to our leading partners (Westpac, Lion Foundation and Fuji Xerox) and supporters for enabling the Trust to implement its programmes.

Thank you to Lisa Clark (funded by the Ministry of Education) who wrote the teaching resource and to the wonderful team of teachers and advisors who reviewed it. A final thank you to the Minister for the Environment's Sustainable Management Fund, which is administered by the Ministry for the Environment.

Please contact our Environmental Programme Manager at the Sir Peter Blake Trust for further information on the teaching resource, the clean-up activity and organising a Red Socks Day.

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AS SIR PETER BLAKE SAID:

"We want to restart people caring for the environment as it must be cared for, and we want to do this through adventure, through participation, through education and through enjoyment."

WHY DO WE NEED TO CARE FOR OUR COAST?

New Zealand administers the sixth largest marine environment in the world. At about 4.4 million square kilometres, our marine environment is 14 times larger than our land area.

- We use our marine area for many purposes including transportation, energy, fisheries, recreation and tourism, and value it for its cultural and spiritual significance.
- More than 99% of our exports are transported by sea and our marine industries are worth an estimated $3.3 billion.
- As much as 80% of New Zealand's plant and animal species occur in the marine environment and 44% of these are not found anywhere else in the world.
- Most New Zealanders (90%) live within 50km of the coastline.
- Healthy oceans deliver a range of important environmental benefits: they absorb and transfer nutrients and sediments from the land, absorb carbon, regulate heat transfer from the atmosphere and through evaporation, and are the source of fresh water for all plants and animals on land. These functions are critical to sustaining life.
- Marine species make up almost one-third of New Zealand's total number of described native species.
- Less than 1% of the coastal waters around our three main islands are protected by no-take marine reserves.
- About 30% of our marine environment is thought to experience some degree of disturbance from human activities.

References: Ministry for the Environment; Environment New Zealand 2007; The New Zealand Biodiversity Strategy.

LEARN: ABOUT SIR PETER BLAKE AND CARING FOR OUR COAST

ACHIEVEMENT OBJECTIVES

SOCIAL SCIENCES

This section of the resource relates to the following Achievement Objectives taken from the New Zealand Curriculum:

- Understand how exploration and innovation create opportunities and challenges for people, places and environment.
- Understand how people participate individually and collectively in response to community challenges.

LEVEL 4 (approximately years 9-10)

KEY COMPETENCIES

By using the Sir Peter Blake Learning Centre, students will develop the following key competencies:

- Thinking
- Using language, symbols and texts
- Managing self
- Relating to others
- Participating and contributing

VALUES

By using the Sir Peter Blake Learning Centre, students will be encouraged to value:

- Excellence, by aiming high and by persevering in the face of difficulties.
- Inquiry and curiosity, by thinking critically, creatively and reflectively.
- Community and participation for the common good.
- Ecological Sustainability, which includes caring for the environment.
- Integrity, which involves being honest, responsible and accountable, and acting ethically.
- Respect, for themselves, others and human rights.

SIR PETER BLAKE LEARNING CENTRE FACT SHEET

Sir Peter Blake was an exceptional sailor and leader. His achievements included winning two America's Cup trophies and numerous line honours in world-famous sailing races, including five Whitbread Round the World races. Sir Peter Blake was also an explorer and an innovator, both as a sailor and in his environmental work. He thrived on challenge and often said, "If it isn't hard, it isn't worth doing." Sir Peter Blake was a team player; one of his strengths was in his ability to find the right person to fit into the right team.

Sir Peter Blake took on a new adventure after his last America's Cup race. He sailed to two pulse points of the world onboard *Seamaster*, starting with Antarctica and then onto South America. He did this in order to uncover environmental issues and to show the rest of the world what was happening around us.

SIR PETER BLAKE ONCE SAID:

"The bewildering truth in all of this is that while man is the cause of most if not all of the problems, he has the choice whether to influence environmental matters for good or for bad. He has the ability and technology to make immediate and quick changes that will go a long way to alleviating the problems he is causing.
Has he the will?"

SIR PETER BLAKE LEARNING CENTRE CHALLENGE

Your challenge is to see how many Learning Centre activities you can do in the time allocated by your teacher. Like Sir Peter Blake, you must persevere and work hard to reach your goal.

PHOTOCOPY AND ENLARGE ONTO A3 PAPER

BIO-CUBE

- Produce a Bio-Cube to describe Sir Peter Blake's significance, background and personality.
- For help with Bio-Cubes go to **http://readwritethink.org/materials/bio_cube/**
- These interactive cubes can be produced online and printed out, or printed out blank and written on.
- Find out about Sir Peter Blake's life at **http://sirpeterblaketrust.org/sirpeterblake/**

*** How does Sir Peter Blake's life inspire you?**

LOG ENTRIES

- Read some of Sir Peter's log entries at **http://sirpeterblaketrust.org/sirpeterblake/**
- Imagine you have been asked to put all of Sir Peter Blake's log entries together in a book. Design the front and back covers of the book.
- Hints: What will you call the book? Go to **http://sirpeterblaketrust.org/sirpeterblake/** and decide which photo you would put on the front cover. What would you write on the back cover of the book to encourage people to read it?

*** What was Sir Peter Blake trying to achieve on his expeditions?**

CHALLENGE TABLE

- Read about Sir Peter Blake's life at **http://sirpeterblaketrust.org/sirpeterblake/**
- Draw up a table that has two columns. On the left hand side of the table, describe the challenges that Sir Peter Blake faced in both his sailing and environmental work. On the right hand side of the table, describe how he overcame these challenges.

*** What do you think is the biggest environmental challenge facing your local community?**

ALPHABET ORGANISER

- Sir Peter Blake possessed many skills, qualities and values. Use an Alphabet Organiser to think of words that describe his character.
- For help with Alphabet Organisers go to **http://www.readwritethink.org/student_mat/student_material.asp?id=35**
- These interactive organisers can be produced online and printed out, or printed out blank and written on.

*** What skills do you have to help continue Sir Peter's work?**

INTERVIEW

- Imagine you are a reporter working for one of the current affairs programmes. You have been given the opportunity to interview Sir Peter Blake. Make a list of five open-ended questions that you would like to ask him.
- When you have written your questions, interview one of your classmates as if she/he was Sir Peter Blake. They must give the answers that they think Sir Peter would have given.

*** What do you believe was Sir Peter Blake's greatest achievement?**

TIMELINE ACTIVITY

- Draw up a timeline for one of Sir Peter's 'Blakexpeditions' trips.
- For information on his expeditions, visit **http://sirpeterblaketrust.org/sirpeterblake/**

*** How is Sir Peter Blake's environmental work significant to you?**

MAPPING

- Draw a map of the world and then plot Sir Peter Blake's trips on it. Hint: Use different pens for different trips.
- See this site for information about his journeys: **http://sirpeterblaketrust.org/sirpeterblake/**

*** Where would you like to visit to help encourage environmental awareness?**

THINKING SKILLS

1. The Ridiculous: Every New Zealander should know how to sail a boat. Justify this statement.
2. The Prediction: Which country do you think Sir Peter Blake would have travelled to next, in order to highlight environmental issues? Detail why you have chosen this country.
3. Interpretation: Give some reasons why Sir Peter Blake was considered to be a great ambassador for our country?
4. The What if? What if Sir Peter Blake had suffered from terrible seasickness?

LEARN: CARE FOR OUR COAST

ACHIEVEMENT OBJECTIVES

SOCIAL SCIENCES

This section of the resource relates to the following Achievement Objectives taken from the New Zealand Curriculum:

- Understand how people's management of resources impacts on environmental and social sustainability.

LEVEL 5 (approximately years 9-10)

SCIENCE

NATURE OF SCIENCE: Participating and contributing

- Use their growing science knowledge when considering issues of concern to them.
- Explore various aspects of an issue and make decisions about possible actions.
- Develop an understanding of socio-scientific issues by gathering relevant scientific information in order to draw evidence-based conclusions and to take action where appropriate.

LEVELS 4–6 (approximately years 9-10)

LIVING WORLD: Ecology

- Explain how living things are suited to their particular habitat and how they respond to environmental changes, both natural and human-induced.
- Investigate the interdependence of living things (including humans) in an ecosystem.
- Investigate the impact of natural events and human actions on a New Zealand ecosystem.

LEVELS 4–6 (approximately years 9-10)

KEY COMPETENCIES

By taking part in the Care for our Coast programme, students will develop the following key competencies:

- Thinking
- Using language, symbols and texts
- Managing self
- Relating to others
- Participating and contributing

VALUES

By taking part in the Care for Our Coast programme, students will be encouraged to value:

- Excellence, by aiming high and by persevering in the face of difficulties.
- Inquiry and curiosity, by thinking critically, creatively and reflectively.
- Community and participation for the common good.
- Ecological Sustainability, which includes caring for the environment.
- Integrity, which involves being honest, responsible and accountable, and acting ethically.
- Respect, for themselves, others and human rights.

EDUCATION FOR SUSTAINABILITY

The following key concepts of education for sustainability underpin the learning outcomes for this resource:

- Interdependence: acknowledging the interrelationships that exist between life, systems and organisms of the coastal environment.
- Sustainability: using the coastal environment in a way that safeguards them for the future.
- Biodiversity: recognising the variety of life that uses and depends on coastal ecosystems.
- Personal and social responsibility for action: recognising that each of us has a role to play in caring for our coastal environment.

It will also integrate the three key dimensions of education for sustainability:

- Education in the environment.
- Education about the environment.
- Education for the environment.

Suggestions of possible 'actions' can be found at the end of each section.

THE MARINE ENVIRONMENT

LEARNING OUTCOMES

Students will be able to:

- **Describe the different habitats that occur in the marine environment**
- **Describe the factors that affect organisms in the marine ecosystem**
- **Draw some food chains/webs that occur in the marine environment**
- **Understand the effects that the loss of organisms can have on other parts of the food chain**

MATERIALS

- KWL charts – pre-printed if required
- A3 sheets of paper
- Prepared cards with information on marine organisms (provided on page 12)
- Food chain mobile sheets
- String

FOCUSING QUESTIONS

What are some of the different types of habitats that make up the marine environment?

What are the key factors that affect organisms in the marine environment?

What are some ways in which organisms interact with each other in the marine environment?

What are some of the ways that organisms in the marine environment depend on each other?

LEARNING ACTIVITIES

* Introduce the Care for Our Coast unit. Discuss the types of things that the students will be learning. Get students to draw up a three column KWL chart that fills an A4 piece of paper. In the left hand side column of the table, students write 'What we know'. This column can incorporate any facts about the marine environment or pollution. In the second column, students fill in 'What we want to find out'. The last column incorporates 'What I have learned'. This column can be filled in at the end of each lesson or alternatively at the end of the unit.
* As a class, brainstorm as many of the different marine habitats as you can. You may then like to ask students to research others.
* Get students into groups. On an A3 sheet of paper, ask the students to draw the outline of a marine organism of their choice. Inside the shape, get students to write some of the factors that affect organisms in the marine environment.
* Students could make food chain mobiles. In this task, students can research a marine food web and draw or print out pictures of each of the organisms. These pictures can then be organised into a mobile using string and sticks or coat hangers. The completed mobiles could be displayed in the classroom.
* Get students to sit in a circle. Give each student a card with a species on it from the Antarctic food web (provided on page 12). Give the student who has the card saying 'Sun' a ball of string. Ask the other students, "Who has an organism on their card that depends on the sun for its energy?" The student who is the sun passes the ball of string to this organism, but holds onto the end of the string. This student then passes the string to an organism that relies on a producer. The students continue passing the string up the food chain until they get to a top consumer. At this point, the action is reversed and the string is passed to a student whose organism is eaten by the top consumer. Each student may hold more than one piece of string. The activity ends when each student holds a piece of string. Get the students to stand and hold the string above their head to see how interconnected each organism is.
* While students continue to hold their web, they can investigate the effects different events have on food webs. Students need to stand up. Suggest a scenario, for example, a disease affects copepods. Get the copepods to sit down. Ask any student who felt a tug on their string to sit down as well. Alternatively students could cut their string or drop their string in order to show the effects of an event. However, this will make it more difficult for more than one scenario to be played out.

Teachers' notes for each learning activity

- KWL charts document what a student knows, what they would like to know and what they learn during a unit. For a printable version of a KWL chart, visit the following website:
  http://www.teachervision.fen.com/tv/printables/KWL_Chart.pdf
- Some examples of marine habitats are sandy beaches, rocky shores, estuaries, dunes, mudflats, wetlands, open ocean, coral reefs, mangrove swamps and lagoons.
- The following website has excellent information on both the physical and biological factors that affect organisms in the marine environment:
  http://www.seafriends.org.nz/enviro/habitat/intro.htm#factor
- Students will need a basic understanding of food chains and webs and the terms that go with them (e.g. producer, consumer). This can be built into this section or recapped from prior learning. There are many sites on the internet that offer instructions for food web mobiles. At the following website there is a pre-printed Antarctic food chain that can be made into a mobile:
  http://www.aucklandmuseum.com/site_resources/library/Education/Teachers_Guide/Teacher_Resources_Library/Science_Educaton_kits/Science_11Whales_Dolphins_1_.pdf
  At **http://www.windows.ucar.edu/earth/polar/arctic_mobile.pdf**
  there is an Arctic mobile that can be printed for your students. The following website has instructions for a mobile:
  http://www2.dpi.qld.gov.au/extra/nnn/PDF/NNN_Act2.1_SeaFoodChainMobile.pdf
- There are 30 Antarctic organism cards provided. If you have more students than this, then extra producer cards can easily be photocopied. If doing the activity with less than 30 students, it is recommended that you leave out some of the top-level consumers (e.g. orca and leopard seal). This may be a good time to highlight the point that organisms at the lower end of the food web (e.g. krill), are eaten by a lot of organisms. Whereas organisms at the top of the food web have to eat many other organisms in order to survive. It is up to the teacher whether they start every food chain with the sun.
- Some other scenarios that affect food webs could be: an oil spill occurs and affects the sea birds and seals, the sea birds get caught in long-lines, or a toxic algal bloom occurs.

ADDITIONAL LINKS

http://www.albatross.org.nz/Gulp%20and%20Swallow.pdf
Fun food chains game called 'Gulp and Swallow'.

http://www.epa.gov/bioindicators/aquatic/marine.html
Information on the types of marine ecosystems and the physical factors that affect them.

http://www.gould.edu.au/foodwebs/kids_web.htm
Interactive food webs for a range of ecosystems.

http://www.gould.edu.au/foodwebs/secondary/act21.htm
Food chain game.

http://www.windows.ucar.edu/teacher_resources/checkers_20march.pdf
Food chain checkers - game in which students learn about food chains and how they change over time with availability of food.

http://smithsonianeducation.org/educators/lesson_plans/ocean/acrobat/connect.pdf
Card game for food chains.

IMPORTANT NOTE: This resource is available in soft copy on the **sirpeterblaketrust.org** website.
It means you can click on any of the websites mentioned to gain easy access and to save you typing them in again.

NOTES

PHOTOCOPY AND ENLARGE ONTO A3 PAPER

THE SUN	**DIATOMS (PHYTOPLANKTON)** **Eats:** relies on sunlight **Eaten by**: krill, copepods	**DINOFLAGELLATES (PHYTOPLANKTON)** **Eats:** relies on sunlight **Eaten by:** krill, copepods
COPEPODS **Eats:** diatoms, dinoflagellates, green algae, red algae **Eaten by:** krill, emperor penguins, carnivorous zooplankton, antarctic silverfish, mackerel icefish, squid	**CARNIVOROUS ZOOPLANKTON** **Eats:** copepods, krill **Eaten by:** emperor penguins, squid	**GREEN ALGAE (PHYTOPLANKTON)** **Eats:** relies on sunlight **Eaten by:** copepods, krill
KRILL **Eats:** diatoms, dinoflagellates, green algae, copepods, red algae **Eaten by:** patagonian toothfish, antarctic toothfish, carnivorous plankton, minke whales, crab-eater seals, emperor penguins, adelie penguins	**SQUID** **Eats:** copepods, carnivorous zooplankton, antarctic silverfish **Eaten by:** orca, emperor penguins, adelie penguins, leopard seals, elephant seals, sperm whales, humans	**RED ALGAE** **Eats:** relies on sunlight **Eaten by:** copepods, krill
HUMANS **Eats:** sperm whales, minke whales, squid, antarctic silverfish, patagonian toothfish, antarctic toothfish, weddell seals **Eaten by:** none	**WANDERING ALBATROSS** **Eats:** squid, krill, mackerel icefish, patagonian toothfish **Eaten by:** skua	**ORCA** **Eats:** leopard seals, adelie penguins, emperor penguins, squid, patagonian toothfish, king penguins, elephant seals, gentoo penguins, weddell seals, fur seals, crab-eater seals, antarctic toothfish **Eaten by:** none
ADELIE PENGUIN **Eats:** krill, antarctic silverfish, squid **Eaten by:** leopard seals, skua	**ANTARCTIC PETREL** **Eats:** krill, antarctic silverfish, squid **Eaten by:** skua	**SKUA** **Eats:** krill, antarctic silverfish, squid, adelie penguins, gentoo penguins, antarctic petrels, antarctic terns, emperor penguins, king penguins, wandering albatross **Eaten by:** none
ANTARCTIC TOOTHFISH **Eats:** krill, antarctic silverfish **Eaten by:** orca, leopard seals, sperm whales, weddell seals	**MACKEREL ICEFISH** **Eats:** krill, copepods **Eaten by:** fur seals, gentoo penguins	**FUR SEAL** **Eats:** krill, squid, gentoo penguins, mackerel icefish, patagonian toothfish **Eaten by:** orca, leopard seals
LEOPARD SEAL **Eats:** krill, squid, emperor penguins, adelie penguins, crab-eater seals, gentoo penguins, king penguins, fur seals, weddell seals, antarctic toothfish **Eaten by:** orca	**EMPEROR PENGUINS** **Eats:** krill, copepods, carnivorous zooplankton, antarctic silverfish, squid **Eaten by:** orca, leopard seals, skua	**CRAB-EATER SEAL** **Eats:** krill, squid, antarctic silverfish **Eaten by:** orca, leopard seals
SPERM WHALE **Eats:** squid, patagonian toothfish, antarctic toothfish **Eaten by:** humans	**MINKE WHALE** **Eats:** krill **Eaten by:** humans	**GENTOO PENGUIN** **Eats:** krill, squid, mackerel icefish **Eaten by:** leopard seals, skua, fur seals, orca
ANTARCTIC TERN **Eats:** krill, antarctic silverfish **Eaten by:** skua	**ANTARCTIC SILVERFISH** **Eats:** krill, copepods, carnivorous plankton **Eaten by:** antarctic toothfish, humans	**ELEPHANT SEAL** **Eats:** squid, patagonian toothfish **Eaten by:** orca
PATAGONIAN TOOTHFISH **Eats:** squid, krill **Eaten by:** elephant seals, sperm whales, orca, humans	**WEDDELL SEALS** **Eats:** squid, krill, antarctic silverfish, antarctic toothfish **Eaten by:** orca, leopard seals, humans	**KING PENGUIN** **Eats:** squid, antarctic silverfish **Eaten by:** leopard seals, skua, orca

RECREATIONAL USES

LEARNING OUTCOMES

Students will be able to:

- **Describe the way in which New Zealanders use the marine environment for recreation**
- **Compare how New Zealanders use the marine environment to how it is used overseas**
- **Describe some of the environmental impacts that recreational activities can have on the coastline and ways that these can be minimised or avoided**
- **Discuss the importance of marine reserves**

MATERIALS

- A3 pieces of paper
- 'Life's a Beach' PowerPoint show
- Positive-negative chart
- Maps of New Zealand
- 'Protecting our Seas' DVD

FOCUSING QUESTIONS

How do you use the coast for recreation?

How does this differ to how other people use it?

What are some of the problems that can be caused by humans' use of the coast?

Why are marine reserves important?

LEARNING ACTIVITIES

* Take three A3 pieces of paper and label them 'beach', 'water' and 'areas surrounding the beach' (e.g. dunes or parks). Place the pieces of paper around the classroom. Ask your students to visit each piece of paper and write down one recreational activity that takes place in this part of the marine environment. Gather the three pieces of paper at the end and share the answers with your students.

* Show your students the '3f Worldwide examples of the Use of Beaches' PowerPoint from Environment Bay of Plenty's 'Life's a Beach' resource. Ask the students to compare the use of beaches overseas with how they are used in New Zealand.

* Give each student a positive-negative chart and get them to select a recreational activity from the list you compiled in the first activity. Ask the students to write down the negative environmental impacts this activity has and any positive ones they can think of. Get each student to share their work with a partner. They could discuss how some impacts are negative and what the long term impacts of these activities might be. Ask students at the conclusion of the exercise if they felt there were any recreational activities that have a neutral effect.

* Discuss with your students how important marine reserves are as recreational areas for diving, kayaking, visiting and as a way to protect the ocean from other recreational uses such as fishing and shellfish collecting. Get the students to brainstorm what they already know about marine reserves.

* Give students a map of New Zealand. Show your students the 'Protecting our Seas' DVD from the Department of Conservation. Get them to place each marine reserve on their map as they watch the DVD.

* Get your students into groups to imagine that they are planning on setting up a new marine recreation business. As a part of their business plan, they must apply for a resource consent. Part of this resource consent process is to prepare an Assessment of Environmental Effects. In this assessment you must provide a description of your proposed activity, a list of potential environmental impacts caused by your activity and a description of how these effects may be avoided, minimised or worked through.

Teachers' notes for each learning activity

- Recreational activities may include the following:
  Beach: collecting shellfish, walking, playing sport, collecting shells, sunbathing, running, fishing, surfcasting, picnicking, collecting driftwood.
  Water: surfing, swimming, boating, jet skiing, motor boating, collecting shellfish, fishing.
  Area surrounding the beach: collecting material for weaving, motor biking, horse riding, walking, running, picnicking, sand boarding, building houses and car parks.

- The 'Life's a Beach' PowerPoint show can be downloaded at **http://www.ebop.govt.nz/education/lifes-a-beach.asp** It can be saved prior to the lesson and then shown or it can be shown straight from the website. You may wish to view it prior to the lesson in order to think of other focus questions that it may support.
- A positive-negative chart can be downloaded at **http://my.hrw.com/nsmedia/intgos/html/PDFs/Positive_Negative_Chart.pdf** This can be printed out blank or typed on and then printed out.
- **www.marine-reserves.org.nz** contains information and two PowerPoint shows that you may wish to use with your students. One of the PowerPoints particularly looks at the benefits of marine reserves.
- A blank map of New Zealand can be printed at **http://z.about.com/d/geography/1/0/J/H/new.jpg** These maps will need to be enlarged for this activity. Students may need atlases to help them. The 'Protecting our Seas' DVD can be downloaded by chapters at **http://www.doc.govt.nz/templates/MultiPageDocumentTOC.aspx?id=44567** Alternatively the 'Protecting our Seas' DVD can be ordered from the Department of Conservation; email: **marinereserves@doc.govt.nz** If you cannot show the DVD, then marine reserve information can be found at **http://www.doc.govt.nz/templates/summary.aspx?id=33776** The activity could then be used as an ICT task where students can use a computer to fill in their map.
- Information on resource consents is easily found on the internet on regional or local council websites. At **http://www.mfe.govt.nz/publications/rma/aee-guide-aug06/html/index.html** there is a guide of preparing an Assessment of Environmental Effects which you may wish to read for your own reference.

ADDITIONAL LINKS

http://www.nzherald.co.nz/topic/story.cfm?c_id=281&objectid=10482713
Tread softly and stop littering.

http://www.nzherald.co.nz/category/story.cfm?c_id=13&objectid=10486212
Bryan Gould – Beaches resemble car parks and race tracks.

http://www.nzherald.co.nz/topic/story.cfm?c_id=224&objectid=10484943
You asked about – The history of New Zealand's beach culture.

http://www.teara.govt.nz/EarthSeaAndSky/RecreationSeaAndSky/BeachCulture/1/en
A series of articles on New Zealanders' use of beaches.

Marine reserve information on **www.emr.org.nz** and **www.marinenz.org.nz**

Experiencing Marine Reserves, 3rd edition DVD: **www.emr.org.nz**

SO WHAT CAN WE DO ABOUT IT?

Leave nothing on the beach except for your footprints.

If you have to take vehicles onto beaches, stick to the designated access ways, avoid driving over sand dunes and stick to low speeds.

Be sure to keep your boat hull clean, using environmentally friendly products.

Check to see if there is a Beach Care or Coast Care group in your area and get involved with some of its volunteer activities.

Investigate whether there are any potential areas for marine reserves in your locality. Go to Kamo High School's website (www.kamohigh.school.nz) to see how they successfully lobbied for the Whangarei Harbour Marine Reserve.

MARINE DEBRIS

LEARNING OUTCOMES

Students will be able to:

- **Describe the types of material that become marine debris**
- **Name sources of marine debris**
- **Describe some of the problems that marine debris can cause**
- **Describe ways in which to reduce or prevent marine debris**

MATERIALS

- Web diagrams
- A3 paper
- Rubbish logs (provided on page 17)
- Storyboards
- Fact Sheet 2: 'How long to breakdown?'

FOCUSING QUESTIONS

What are some of the examples of marine debris?

What are some of the sources of marine debris?

What are the key problems caused by marine debris?

What are some ways in which we can prevent material becoming marine debris?

LEARNING ACTIVITIES

* Brainstorm with the class what objects they consider to be marine debris.

* Give each student a web diagram. In the centre box, get students to write in the following question: 'Where does Marine Debris come from?' In the six bold outside boxes, ask students to write six places where marine debris comes from. In the smaller outside boxes, students can write what types of rubbish these sources will produce.

* Ask students to keep a rubbish log for a school week. Before they begin keeping their rubbish log, pass a piece of A3 paper around the class. Ask each student to write their name on the piece of paper and to write down their prediction for how many items of rubbish the class will dispose of during a school week. Keep these predictions on the wall in the classroom so that students can see how their actual results compare. Give students the rubbish log. They will keep a record of the items and how many of each item they dispose of each day. At the end of the week, the class can add up the total number of items they have thrown out and compare it with their predictions. Ask individual students to look at their own logs and write down ways in which they could have reduced the amount of rubbish. They could also highlight those items that could have been recycled. Students may wish to statistically analyse their results by working out the percentage of plastic, glass, metal etc.

* Watch the short film 'Plastic Battle' at **http://www.youtube.com/watch?v=Ykd0dvLWKQk** Discuss with students what they think the point of the film is? Students can then plan their own short film to highlight marine debris. They could produce a storyboard for their movie and if possible, film it for themselves.

* Give students the Fact Sheet 2: 'How long to breakdown?' and ask them to produce a timeline to represent how long each of the objects listed takes to biodegrade. Alternatively students could take the statistics and display them graphically.

* Get students into small groups. Ask them to work together to produce a photo essay or poster which shows the effects that marine debris can have on marine wildlife.

* Get your students to take part in a beach clean-up. (Step 2 of the Care for our Coast programme).

Teachers' notes for each learning activity

- Marine debris includes all the objects found in the marine environment that do not naturally occur there. Although objects such as plant material and the bones of land animals can be considered marine debris, the term is usually reserved for rubbish. The most common categories of marine debris are plastic, glass, rubber, metal, paper, wood and cloth.

- A template for a web diagram can be found at: **http://gotoscience.com/Graphic_Organizers/web1.pdf**
  The main sources of marine debris are recreational use of beaches and waterways, rubbish coming from land due to improper disposal, stormwater runoff, shipping, industrial activities, waste disposal processes, farming, fishing and offshore gas and

oil platforms. Each of these activities will produce different types of waste, e.g. fishing can result in discarded nets, rope and hooks, whereas recreational use of beaches will predominantly leave behind plastic and glass products.

- The rubbish log provided may need to be photocopied onto A3 paper or students may need two copies, just in case they run out of room to record their rubbish. At the conclusion, when the class is discussing their rubbish logs, emphasise that all of these items could become marine debris if not disposed of correctly.
- Storyboard templates can be found at **http://freeology.com/graphicorgs/page2.php** There are many other short films on YouTube with marine debris and recycling themes.
- The Fact Sheet 2 can be downloaded at **http://oceancare.org.au/index.php?option=com_remository&Itemid=188&func=select&id=11** This site offers other fact sheets that may be of interest. It also includes a large gallery of images.
- There are many images of effects from marine debris on the internet. Information on photo essays can be found at **http://en.wikipedia.org/wiki/Photo_essay** There are many examples of photo essays on the internet that you could show your students.
- If your class does not have a beach nearby, then they could clean-up a lake, estuary or river edge. A Clean-Up Kit can be downloaded at **http://www.sirpeterblaketrust.org/environment/care_for_our_coast/** Once the clean-up is completed, the class can enter their data at the same website and receive a coloured printout summarising their results and comparing it to other nationwide clean-ups.

ADDITIONAL LINKS

YouTube **(www.youtube.com)** has a range of education videos on marine debris and recycling. A selection of titles follow: Plastics 'poisoning world's seas', Human Impact: Synthetic Sea "plastic in the open ocean", Plastics and Marine Debris, Ocean Trash, Recycling Ad.

http://www.nzherald.co.nz/topic/story.cfm?c_id=272&objectid=10392903
Paul Watson: The plastic sea.

http://www.bestlifeonline.com/cms/publish/health-fitness/Our_oceans_are_turning_into_plastic_are_we_2_printer.shtml
An article for teachers' reference.

http://marinedebris.noaa.gov/marinedebris101//documents/101TurnTide.pdf
A complete learning unit on marine debris.

http://www.bim.ie/uploads/text_content/docs/542marine%20biodegradation%20poster.pdf
A downloadable marine debris biodegradation timeline.

http://marinedebris.noaa.gov/marinedebris101/welcome.html
A site which has many facts and downloadable information on marine debris.

http://www.oikonos.org/projects/oceanstewardship_projects.htm#activities
Free PowerPoint on the effects of marine debris on seabirds.

http://www.latimes.com/news/local/oceans/la-oceans-flash-day4,0,7741594.flash
A site with video, photos and graphics on marine debris.

http://oceans.greenpeace.org/raw/content/en/documents-reports/plastic_ocean_report.pdf
Greenpeace's report on plastic debris in the marine environment.

SO WHAT CAN WE DO ABOUT IT?

Reduce, Reuse and Recycle! Try taking reusable green shopping bags instead of plastic bags when you go shopping; have a look at the packaging that is used on products and choose those with less plastic; find out from your local council what can be recycled and make an effort to put those items in the recycling bin.

Look into using alternatives to plastics and other non-biodegradable products. For example, the Goodwater Company (www.goodwater.org.nz) bottle their spring water in bottles made from natural plant products. Another company, Potatopak (www.potatoplates.com), produce plates, bowls, trays and punnets from potato starch. Eden Enterprises (www.edengreennz.com) also produce many products using cornstarch.

Make sure you correctly discard your rubbish in appropriate closed-top bins.

RUBBISH LOG									
MONDAY		**TUESDAY**		**WEDNESDAY**		**THURSDAY**		**FRIDAY**	
Item	Number	Item	Number	Item	Number	Item	Number	Item	Number
TOTAL:		**TOTAL:**		**TOTAL:**		**TOTAL:**		**TOTAL:**	
Total number of items for the week:									

LAND RUNOFF

LEARNING OUTCOMES

Students will be able to:

- **Describe the important components of the water cycle**
- **Understand what stormwater is and how it differs from wastewater**
- **Understand some of the environmental issues surrounding stormwater**
- **Describe some of the effects of stormwater pollutants on the environment**

MATERIALS

- Water cycles (if needed)
- Activities 7 and 2 from WCC Ecowater
- Venn diagrams
- 5 large beakers or glass jars

FOCUSING QUESTIONS

What is stormwater?

How are stormwater and wastewater different?

What are the key environmental issues with stormwater?

What are some of the ways in which rural communities contribute to marine pollution?

What are some of the ways that land runoff affects aquatic organisms?

LEARNING ACTIVITIES

* Use the animation at **http://www.epa.gov/ogwdw/kids/flash/flash_watercycle.html** to explain the water cycle.
* Brainstorm with students the ways in which humans are adversely affecting the water cycle.
* Get the students to complete Activity 7 from Waitakere City Council's Module 2: 'It's Raining' at **http://www.waitakere.govt.nz/AbtCit/ei/EcoWtr/stormwater/pdf/itr_ls7.pdf**
* Give students a Venn diagram. Ask them to use it to represent the difference between stormwater and wastewater. The comparisons can include things such as where the two types of water come from, where they go to and what type of material is likely to be part of the water.
* Discuss with students that runoff can also occur in rural areas. Get students to write down activities that may lead to runoff in such areas. Get the students to compare and contrast rural runoff with urban runoff, in particular they could discuss the different nature of the pollutants in each of the runoffs.
* Get students to complete Activity 2 from Waitakere City Council's Module 5: 'Stormwater' at **http://www.waitakere.govt.nz/AbtCit/ei/EcoWtr/stormwater/pdf/stw_ls2.pdf**
* Discuss with students that the chemicals that make up stormwater and rural runoff can be harmful to aquatic life.

Write the following food chain on the board: phytoplankton → zooplankton → mohimohi (pilchard) → taamure (snapper) → mako shark

Take five beakers, fill them with water and label them each with one organism from the food web selected. Place them in order of the food chain so that the phytoplankton is at one end, leading up to the shark.

Take a bottle of food colouring and tell the students they are to think of it as a marine pollutant during the activity. Place one drop of food colouring into each beaker, exposing all organisms to the pollutant in the water.

Discuss with the students that the zooplankton eat the phytoplankton, thus taking on more pollutant. Demonstrate this by adding one more drop to the zooplankton's beaker. Now the pilchard will eat the zooplankton. Place two drops of food colouring in the mohimohi's beaker (one for the phytoplankton, one for the zooplankton). Continue up the food chain, adding 3 drops to the taamure's beaker and 4 to the shark's.

Draw the students' attention to how dark the water is in the top predator's beaker. Ask the students, "Do humans eat the top predator?" Place a piece of bread in the shark's beaker and add 5 drops of food colouring to the bread to concentrate it further. Ask the students if they would like to eat the bread? Get the students to work out the amount of toxin humans get if they eat the fish or organism at the top of the food chain.

Teachers' notes for each learning activity

- If it is not possible to show all of your students an animation, then a printable water cycle can be found at:
  http://bogglesworldesl.com/watercycle_worksheets.htm
  An understanding of the water cycle is vital to understand the issues involved in urban and rural runoff.
- There are many ways that humans have impacted the water cycle. These include reducing the number of forested areas so that water no longer soaks in, the removal of groundwater in wells, the construction of dams, taking water from rivers and streams, and altering the chemical composition of the atmosphere.
- Activity 7 is used to discuss the fate of water in urban areas that does not soak into the ground and needs to be dealt with in alternative ways. There are several different systems in urban areas and it is important that your students understand this.
- Venn diagrams are used to compare two things. Shared characteristics are placed in the overlapping sections of the circles. A printable template for a Venn diagram can be found at
  http://www.k111.k12.il.us/lafayette/fourblocks/GOVennDiagram.PDF
- The key to get across in this activity is that wastewater is treated before being dispersed into the environment. Stormwater is carried directly from its source into the marine or aquatic environment.
  The ARC has produced a fact sheet on stormwater that may be a helpful reference for teachers:
  http://www.arc.govt.nz/albany/fms/main/Documents/Environment/Water/Stormwater/Stormwater%20factsheet%201.pdf
  Another fact sheet can be found at
  http://www.suzy.co.nz/SuzysWorld/Factpage.asp?FactSheet=208
- Rural runoff tends to include more biological contaminants, such as animal waste and fertilisers, than urban runoff. While it may not seem as important or damaging as urban runoff, it still has significant impacts on the environment. The Waikato River has shown signs of increased nutrient load from rural runoff.
- It is important that students realise that a lot of the contaminants found in stormwater are invisible but they still have a large impact on the environment. The ARC stormwater education resource (listed on page 20) has a good description of the effects of these types of contaminants.
- The Food Chain activity introduces the concept of biomagnification - that is, that marine pollutants will accumulate as they pass up food chains. This activity can be run as a demonstration or the students could have their own beakers. You may also wish to play some games with your students which illustrate biomagnification. The Marine Studies Centre has one on their website:
  http://www.otago.ac.nz/marinestudies/education/resources/toxins.pdf
  An alternative is
  www.bigelow.org/edhab/tracing_toxins.html

NOTES

ADDITIONAL LINKS

http://www.waitakere.govt.nz/abtcit/ei/ecowtr/stormwater/index.asp#eduresouces
Ecowater Solutions' educational unit on stormwater. These activities contain cartoons that may be of value.

The New Zealand Herald has a variety of articles on stormwater and stormwater pollution. Some examples have been detailed below:

http://www.nzherald.co.nz/topic/story.cfm?c_id=281&objectid=10499855
Urbanisation, farming threaten waters.

http://www.nzherald.co.nz/topic/story.cfm?c_id=250&objectid=10491909
$50m sewer scheme to clean up beaches and harbours.

http://www.nzherald.co.nz/topic/story.cfm?c_id=281&objectid=10455326
Third harbour sewage spill.

http://www.nzherald.co.nz/topic/story.cfm?c_id=221&objectid=10444425
It's money down the drain.

http://www.nzherald.co.nz/topic/story.cfm?c_id=281&objectid=10434975
Waste flows into harbour.

http://www.nzherald.co.nz/topic/story.cfm?c_id=272&objectid=10397302
Paul Watson: Toxic roulette and the revenge of the fish.

http://www.arc.govt.nz/albany/fms/main/Documents/Council/Education/Evibe/E-Vibe%20issue%205%20-%20Stormwater.pdf
Environmental Education newsletter on stormwater.

http://www.arc.govt.nz/albany/fms/main/Documents/Council/Education/stormwater.pdf
Auckland Regional Council's stormwater education resource.

http://managingwholes.com
Contains educational resources on the water cycle, including animations and a PowerPoint show. It particularly looks at the difference in water uptake by bare and vegetated ground.

SO WHAT CAN WE DO ABOUT IT?

Paint the drains around your home and/or school with a message so that people realise that it drains to the sea.

Wash your car on the lawn so that the soapy water is absorbed into the ground and does not run into the stormwater drains. Alternatively, take it to a carwash where they recycle their water.

Make sure your family gets its car serviced regularly. This will make sure that leaking oil does not get into the stormwater.

NOTES

COMMERCIAL ACTIVITIES

LEARNING OUTCOMES

Students will be able to:

- **Describe the different types of commercial activities that occur in coastal environments**
- **Describe some of the environmental impacts of commercial activities on the coast**
- **Describe the issues around fisheries management and the systems in place in New Zealand**
- **Describe ways in which the commercial sector is attempting to minimise their environmental impacts**

MATERIALS

- A3 paper
- Problem solution charts
- Fact sheet: How we conserve our fisheries
- Fish templates
- Debate tips cards (provided on pages 23-24)

FOCUSING QUESTION

Who uses the coastal or ocean environment for commercial gain?

What sorts of environmental impacts do these industries produce?

How are fisheries managed in New Zealand and what are some of the issues surrounding fisheries?

In what ways is the commercial sector attempting to minimise their environmental impacts?

LEARNING ACTIVITIES

* Brainstorm with the class the different types of commercial operations that occur in coastal and marine environments.
* Ask students to get into small groups. Assign each group a different commercial activity that the class has brainstormed above. On a sheet of A3 paper, get the students to write down the possible environmental impacts that they believe this industry will have on the coastal environment. Get students to feed back to the rest of the class.
* Give each group of students a problem solution chart. Ask them to select some of the environmental impacts that they have brainstormed above. Get them to write the possible problem in the table and then to brainstorm and write down possible solutions.
* Discuss with students what types of marine species they consume.
* Give the students the fact sheet on the way in which New Zealand manages fisheries. Read through with the students and discuss with them so that they understand how it works.
* Get students into groups. Give them a fish template. Ask each group of students to investigate one species under the quota management system in New Zealand. Inside the fish, get the students to write relevant information about their species (e.g. its scientific name, where it is fished, how it is fished, how sustainable the fishery is considered to be). The fish could then be placed in a net and displayed in the classroom.
* Students can take part in a fisheries debate. Separate students into six groups. Assign them a group role. The roles are Ministry of Fisheries, The New Zealand Seafood Industry Council, Te Ohu Kai Moana, The Royal Forest and Bird Protection Society of New Zealand, Joe Public, and New Zealand Recreational Fishing Council. Provide each group with a tips card (provided on pages 23-24). Brief the students on the following scenario: "The Minister of Fisheries wishes to cut the hoki TAC (Total Allowable Catch) for this year by 10%. Your group has been asked to present a verbal submission to the Minister of Fisheries to describe how your organisation feels about this issue. In your submission, you need to say whether you agree with the Minister's decision and why. You have been provided with information on your organisation that should help you write your submission." Students will then present their submissions to the rest of the class. You may wish to have a student who acts as the Minister of Fisheries to give a decision based on the persuasiveness of the submissions.

Teachers' notes for each learning activity

- A commercial activity in this sense is defined as an activity using the coast that allows individuals or companies to extract financial gain. A range of

activities your students could suggest are fishing, marine farming (aquaculture), marine mining (for sand, iron and gold), oil and gas exploration, whale and dolphin watching, diving operators, whaling, parasailing, kayaking, boating, boat building and servicing, and jet skiing.

- Encourage your students to think of the environment as a whole. This includes both physical and biological factors. For example, marine farming has an impact on the physical environment by causing an accumulation of nutrients. This of course has follow-on effects to other organisms in the ecosystem. You may wish to turn this activity into an ICT research activity.
- A problem solution chart can be downloaded at **http://www.eduplace.com/graphicorganizer/pdf/probsol.pdf**
- For consumed items, make sure that students include all types of seafood, such as shellfish and seaweeds. Students should also consider where marine organisms appear that they might not be aware of. For example, seaweed has many food uses as the following website details: **http://en.wikipedia.org/wiki/Seaweed#Food** Discuss with students where these species come from. This can also lead to a discussion on how species are harvested.
- The fisheries management fact sheet can be found at **http://www.fish.govt.nz/en-nz/starfish/kids+zone/factsheets/managing.htm**
- Fish templates can be downloaded from: **http://www.kented.org.uk/ngfl/earlyict/pages/rainbow%20fish.htm** or **http://www.pacon.com/projects/FishTemplate.htm** The Ministry for Fisheries website **http://www.fish.govt.nz/en-nz/SOF/default.htm?WBCMODE=PresentationUnpublished** has information on all of the species under the Quota Management System.
- The debate activity can be scaled up or down depending on your students. Some students may wish to do the debate on their own thoughts and feelings about these organisations, while others will wish to take advantage of all of the information available to them. Before they begin the debate, it is important that students have a good understanding of the issue and access to an appropriate amount of information. Hoki limits were actually reduced by the Minister of Fisheries in September 2007 and there are many media comments that can be found on the internet. Actual submissions made by these organisations for the 2007-2008 fishing year can be read in Volume Three: Fish Stock Submissions at **http://www.fish.govt.nz/en-nz/Consultations/Archive/Consultations+from+2007/IPP+Review+of+SM+and+Mgt+Controls+2007+to+08/default.htm?WBCMODE=PresentationUnpublished**

ADDITIONAL LINKS

http://www.blacksands.org.nz/
Kiwis Against Sand Mining. This site has information on the resource consents currently being pursued for seabed mining.

http://www.aquaculture.govt.nz/
Aquaculture resource by the New Zealand Government has both teacher lesson plans and student fact sheets.

http://www.teara.govt.nz/EarthSeaAndSky/HarvestingTheSea/FishingIndustry/1/en
Discussion of New Zealand's fishing industry.

http://www.fish.govt.nz/en-nz/Starfish/Kids+Zone/Games/default.htm?wbc_purpose=Basic&WBCMODE=PresentationUnpublished
Fishing simulation game.

http://www.marinenz.org.nz/documents/Neill_2007_How_to_trawl_for_tuna.pdf
Fishing simulation game.

SO WHAT CAN WE DO ABOUT IT?

When buying canned fish, check to see if it contains an ecolabel such as the Marine Stewardship Council seal or a dolphin friendly symbol.

Go to the following website and either download or order a copy of Forest and Bird's Good Fish Wallet Guide. This guide tells you the best fish to buy and suggests important questions you may wish to ask your fish supplier. http://www.forestandbird.org.nz/bestfishguide/gettheguide.asp

DEBATE TIPS CARDS

PHOTOCOPY AND GIVE TO STUDENTS IN ORDER TO HELP THEM WITH THEIR SUBMISSIONS.

THE NEW ZEALAND SEAFOOD INDUSTRY COUNCIL LTD

The New Zealand Seafood Industry Council Ltd works on behalf of the New Zealand seafood industry. The industry includes many different enterprises including fishermen, aquaculturists, seafood companies, fisheries management organisations and seafood retailers.

Some things to consider when making a submission on behalf of this organisation:

- While seafood companies make more money if they catch more fish, they also have to think carefully about keeping their companies going for a longer period of time, as they have commitments to the many people employed in the fishing and aquaculture industries.
- The Council prefers to see sound scientific evidence for any changes that are made to catch limits.

See their website (**www.seafood.co.nz**) for more information. Reading some of their media releases under News and Events might help you understand how this council thinks.

TE OHU KAI MOANA

Te Ohu Kai Moana (TOKM) is the Treaty of Waitangi Fisheries Commission. It was set up in 1992 to hold fisheries assets returned to Maori by the Crown, and to arrange for their distribution to iwi.

Some things to consider when making a submission on behalf of this organisation:

- In New Zealand, Maori were the first fishers – they depended largely on fish and shellfish for protein. It was also a very important way of showing hospitality (manaaki) and generosity at hui or tangi. The food provided for guests is a great status symbol in Maori culture, and kai moana rates highly.
- Maori have customary fishing rights and are committed to protecting the sustainability of their fisheries for future generations. They believe that 'we do not inherit the earth from our parents – we borrow it from our children'.

See their website (**http://teohu.maori.nz/index.htm**) for more information. Reading some of their media releases under publications might help you understand how this organisation thinks. Fact sheets on Maori fisheries at **http://www.fish.govt.nz/en-nz/starfish/kids+zone/factsheets/customary.htm**

NEW ZEALAND RECREATIONAL FISHING COUNCIL

The New Zealand Recreational Fishing Council is made up of national and regional delegates from many non-commercial clubs and associations. This council represents the rights of those people who wish to fish for recreation and food.

Some things to consider when making a submission on behalf of this organisation:

- The Total Allowable Catch (TAC) includes allowances for recreational fisheries and will be of interest to this council. However recreational fishers do not have quotas, instead they are governed by measures such as restricting the size and number of fish they can catch.
- While the council is committed to sustainability of fisheries, they also feel that the pressure of commercial fisheries has seen the erosion of the public's access to catch a reasonable share of the TAC.

See their website (**http://www.recfish.co.nz/index.cfm/index.cfm**) for more information. Reading some of their media releases and submissions might help you understand how this council thinks.

PHOTOCOPY AND GIVE TO STUDENTS IN ORDER TO HELP THEM WITH THEIR SUBMISSIONS.

MINISTRY OF FISHERIES

The Ministry of Fisheries provides advice to support the Minister of Fisheries and the Government in the development of the policies, legislation and regulations affecting fisheries. They also ensure that people are complying with fisheries laws and provide information on our major fisheries through an observer programme.

Some things to consider when making a submission on behalf of this organisation:

- These are the people who advise the Minister of Fisheries and provide the information the Minister needs to make his/her decisions.
- When providing advice to the government they take into account the Treaty of Waitangi, international legal conventions, research information and the views of groups such as commercial fishers, recreational fishers, conservationists and Maori.

See their website (**http://www.fish.govt.nz/en-nz/default.htm**) for more information. Reading some of their publications might help you understand how the Ministry works.

THE ROYAL FOREST AND BIRD PROTECTION SOCIETY OF NEW ZEALAND

The Royal Forest and Bird Protection Society of New Zealand is New Zealand's largest national conservation organisation. The Society's mission is to preserve and protect the native plants and animals and natural features of New Zealand.

Some things to consider when making a submission on behalf of this organisation:

- The society is committed to the long-term future of our fisheries ahead of immediate and short-term economic gain. They often push the Minister for cuts in the number of fish that can be taken and preventative rather than responsive measures.
- One of the particular issues that the society is involved in is by-catch. This is the number of seabirds and mammals that are killed in the fishing industry. The society calls for our fisheries to ensure that non-target marine life is not harmed.

See their website (**http://www.forestandbird.org.nz/**) for more information. Reading some of their media releases might help you understand what this society thinks.

JOE PUBLIC

This is a member of the New Zealand public who is not involved in any of the groups above. She/he may not fish recreationally but they may be a consumer of seafood or hold an opinion on how our fisheries should be managed.

As well as thinking about how you feel about the Minister's proposal, you could ask people around you (e.g. parents, teachers, grandparents, peers etc) how they would feel about this issue. This may help you write your submission.

MIND MAP SUMMARY

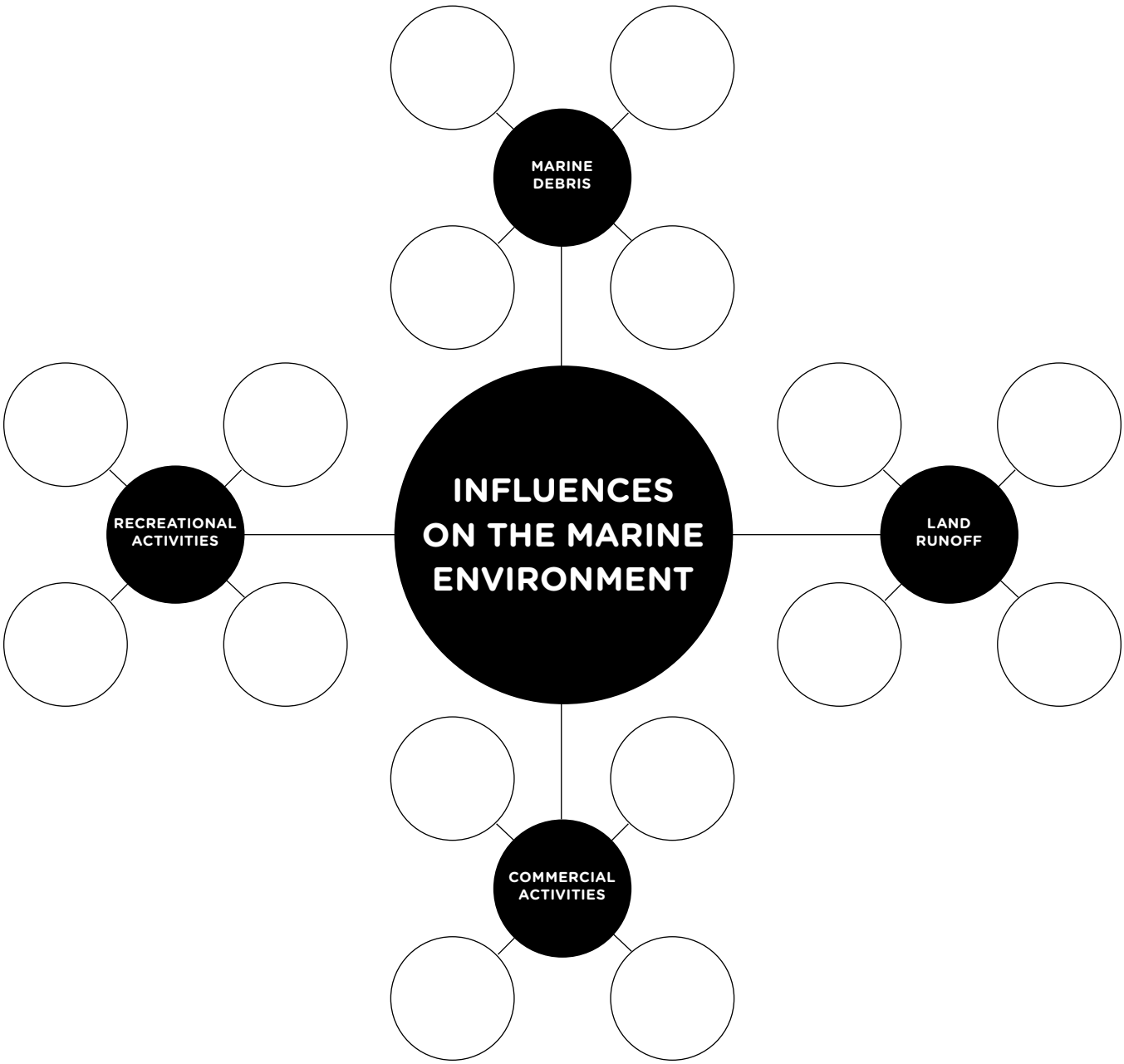
PHOTOCOPY AND ENLARGE DIAGRAM ONTO A3 PAPER

Get your students to use Activity Titles B2 to B5 to produce a mind map that displays the social, cultural, economic and environmental impacts that can occur from these varying influences on the marine environment.

Mind maps can take various forms. One way in which your students could organise their ideas has been included below. This could be used as a template when photocopied onto A3 paper.

For teacher guidance, a suggestion of the impacts of marine debris follows:

- **Environmental impact** – Ingestion of plastic and other materials by marine organisms.
- **Social** – Contaminated debris could pose a public health risk.
- **Economic** – An accumulation of unattractive debris on beaches may have a flow-on effect to the tourism industry.
- **Cultural** – An accumulation of toxins in organisms may restrict the ability of Maori to provide healthy kai moana for significant events such as hui.



RESOURCES

BOOKS

A Guide to New Zealand's Marine Reserves by Jenny and Tony Enderby

Sir Peter Blake: An Amazing Life by Alan Sefton

The Last Great Adventure of Sir Peter Blake edited by Alan Sefton

Sir Peter Blake: a sailor extraordinaire by Alan Sefton

EDUCATIONAL KITS

Environment Bay of Plenty – Life's a Beach:
http://www.ebop.govt.nz/education/lifes-a-beach.asp

Ecowater Stormwater Resources:
http://www.waitakere.govt.nz/AbtCit/ei/EcoWtr/stormwater/index.asp#eduresouces

Auckland Regional Council – Stormwater unit:
http://www.arc.govt.nz/albany/fms/main/Documents/Council/Education/stormwater.pdf

Environment Southland – Reduce, Reuse, Recycle:
http://brucecgull.es.govt.nz/activities/3r.pdf

Department of Conservation – Rocky reef snorkel survey and estuary survey resource kits and teaching guides:
http://www.doc.govt.nz/templates/MultiPageDocumentTOC.aspx?id=45256

Environment Waikato – Coasts and us:
http://www.ew.govt.nz/For-schools/Resources-for-teachers/Classroom-units/Coasts-and-us

Ministry of Fisheries:
http://www.fish.govt.nz/en-nz/Starfish/default.htm

VIDEOS/DVDS

Marine Reserves: Protecting our Seas. Department of Conservation.
www.doc.govt.nz

Experiencing Marine Reserves – 3rd edition DVD:
www.emr.org.nz

ADDITIONAL LINKS

http://www.mfe.govt.nz/publications/ser/enz07-dec07/index.html
The Ministry for the Environment's Environment New Zealand 2007 has statistical information on the state of New Zealand's oceans.

www.ecokids.co.nz
A site for students with lots of environmental tips, movies, games and downloads.

http://www.treasuresofthesea.org.nz
For information about marine animals, fish, plants etc.

http://www.arc.govt.nz/council/sustainability-education/education-resources/education-resources_home.cfm
At this site you can download an order form for Auckland Regional Council's educational resources, many of which are free for schools.

http://www.albatross.org.nz/PDF%20Resources/Environment_Action_Planner.pdf
Contains a good format for an environmental action planner.

FIELD TRIPS

Experiencing Marine Reserves, Northland.
www.emr.org.nz

Kelly Tarlton's, Auckland.
www.kellytarltons.co.nz

Sir Peter Blake Marine Education and Recreation Centre, Auckland.
www.merc.org.nz

The Marine Studies Centre and Aquarium at Portobello, Dunedin.
www.marine.ac.nz

The Department of Conservation has a range of suggestions for field trips across the country.
http://www.doc.govt.nz/templates/summary.aspx?id=40603

Leigh Marine Reserve. Contact **a.cozens@auckland.ac.nz** to arrange a school educational tour.

Island Bay Marine Education Centre, Wellington.
www.octopus.org.nz

The New Zealand National Maritime Museum, Auckland.
www.nzmaritime.org

The Royal Albatross Centre, Dunedin.
www.school.albatross.org.nz

EXPERIENCE: CLEAN UP OUR COAST CHALLENGE

New Zealand is a collection of islands so it goes without saying that the health of our oceans, our land and our people are closely linked. Our coastline alone is about 15,000km long (the distance from Wellington to New York) and is one of the longest in the world!

It is not surprising then that most New Zealanders live within an hour's drive from the sea. The ocean is a large part of our culture, our recreation, our sporting success, our tourism, our industry and even our national identity.

There is no doubt that New Zealanders would benefit greatly from being involved in caring for our coastline. The quality of our waterways really does affect the quality of our life, or as Sir Peter Blake once said:

"Good water, good life. Poor water, poor life. No water, no life."

In keeping with Sir Peter Blake's desire to encourage people to care for our waters, the Sir Peter Blake Trust has created a 'Clean up our Coast' kit. This programme contributes to the conservation of some of our country's greatest natural assets – our seas, coasts and waterways.

Now that your school has participated in the 'Care for our Coast' unit, you'll want to take it one step further and participate in the 'Clean up our Coast' Challenge. Many schools are already cleaning beaches in their area and with other volunteer groups around the country, they have picked up thousands of pieces of marine debris!

Make this a regular event and 'adopt' your local coastal area, whether this is a lake edge, river mouth, estuary or beach. Monitor your chosen area by undertaking ongoing clean-ups, then retain the summary sheets and analyse any changes that occur over time.

DOWNLOAD THE CLEAN-UP KIT
from the Sir Peter Blake Trust website: www.sirpeterblaketrust.org

THE 'CLEAN UP OUR COAST' KIT CONTAINS:

- Information on what is aquatic debris and why we should be concerned about it
- Information on what we can do to reduce aquatic debris
- Suggestions on how to prepare for a clean-up operation
- Information on different clean-up methods
- Suggestions for sorting collected material
- Survey sheets to be completed

After the clean-up, schools can enter the data on the Trust website to receive their own pie graphs and bar graphs summarising their clean-up. They then send a hard copy of the survey sheet to the Sir Peter Blake Trust, who will validate the results (to be included as part of the nationwide clean-up) and send out a certificate.

The combined information about the types, amounts and locations of rubbish is a powerful tool to encourage companies, organisations and individuals to reduce the amount of litter and debris entering our waterways.

To enter data, gain result and check out other clean-up results, go to: **www.sirpeterblaketrust.org**

CELEBRATE:
WITH YOUR OWN RED SOCKS DAY

Sir Peter Blake and Philip Jameson hanging red socks on a clothes line.

Sir Peter Blake liked to wear his red socks for good luck.

During the America's Cup Challenge in 1995, New Zealanders supported the boat by putting on their lucky red socks.

The Sir Peter Blake Trust is encouraging schools to celebrate the end of their Care for our Coast programme with a Red Socks Day to remember Sir Peter Blake!

Complete the Red Socks Day Registration Form on page 29 and then order your red socks in support of the Sir Peter Blake Trust's environmental programmes.

Or wear your own red socks and fundraise with a gold coin donation for the Sir Peter Blake Trust.

FOR MORE INFORMATION ON ORGANISING A RED SOCKS DAY, CONTACT:

Programme Manager
info@sirpeterblaketrust.org
Phone (09) 307 8875

Please allow at least two weeks to order your official socks.

QUICK STEPS

- **Book your date in the school calendar (last day of term?)**
- **Complete the registration form (page 4)**
- **Individual collection envelopes are received and distributed to students**
- **Order sent to Sir Peter Blake Trust for your official Red Socks at least two weeks before your day**
- **Poster (page 2) copied to promote Red Socks Days to students and parents**

Thank you to the ASB Community Trust for their assistance and support for this resource, and our Care for our Coast programme.

ASB Community Trust
Te Kaitiaki Putea o Tamaki o Tai Tokerau

Photograph taken by Ross Giblin (EP/1995/4820/30). Photo credit Alexander Turnbull Library, Wellington.

REGISTER: YOUR OWN RED SOCKS DAY

RED SOCKS DAY REGISTRATION FORM – FAX TO (09) 309 3350	
School	
Physical Address	
Postal Address	
Contact Name	
Email	
Phone	
Our school is holding a Red Socks Day on:	
Please send us envelopes to collect red socks orders or donations from our students. Write in the box to the right how many envelopes you need (one for each student).	

NOTE: Orders for red socks need to be faxed to the Sir Peter Blake Trust at least two weeks before your Red Socks Day.

Fax to: (09) 309 3350

FOR MORE INFORMATION ON ORGANISING A RED SOCKS DAY, CONTACT:

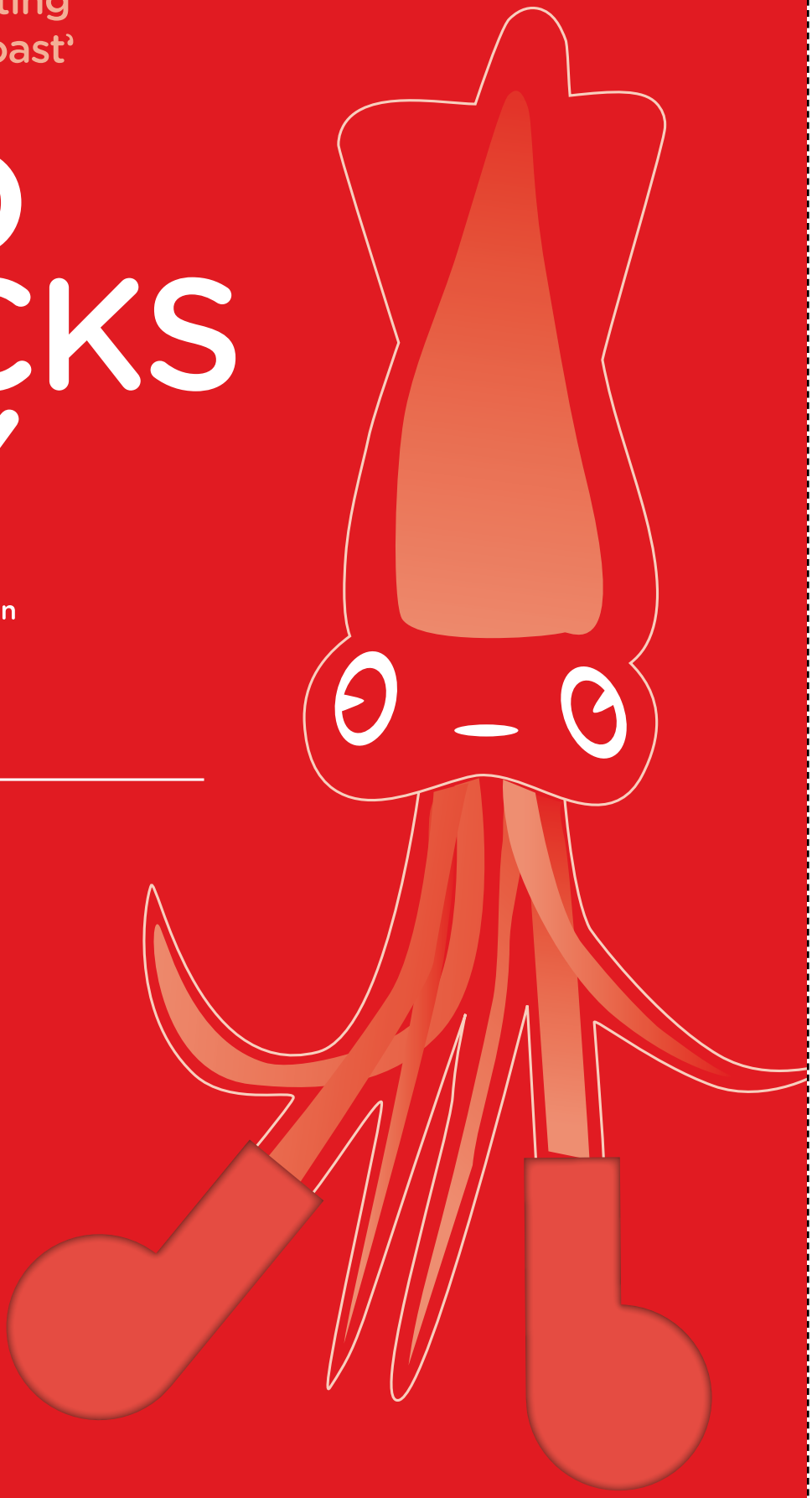
Programme Manager
info@sirpeterblaketrust.org
Phone (09) 307 8875

We are celebrating
'Care for our Coast'
with a

RED SOCKS DAY

Our Red Socks Day is on

_____



THE SIR PETER BLAKE TRUST

Sir Peter BLAKE ENVIRONMENT

WE'RE AFTER THE ENVIRONMENTAL LEADERS OF TOMORROW, TODAY.

Represent your region at the Sir Peter Blake Youth Environment Forum.

If you'd like to meet other students who share your passion for caring for the environment, apply to represent your region at the annual Sir Peter Blake Youth Environment Forum. You'll be hosted for four days to participate in hands-on workshops and fieldtrips, culminating with a presentation of your environmental project to invited guests. It'll cost you nothing to participate, but give you valuable skills to continue your environmental work and to lead others in environmental stewardship. So if you're between 15-17 years, visit our website for more information and application details for your region.

www.sirpeterblaketrust.org

Ministry for the Environment
Manatu Mo Te Taiao

THE SIR PETER BLAKE TRUST

"Having vision is not enough. Change comes through realising the vision and turning it into a reality."

– Sir Peter Blake

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