Introduction

The suggested aim of this section is for students to learn and understand the importance of water quality and the environmental conditions that effect it. Students will have the opportunity to study, observe and test water quality in and around Pekapeka.

This resource provides information about water quality and contributors, water levels and controls, as well as a list of books and websites suitable for students to further their knowledge of these, and other water topics.

Activity sheets can be manipulated and adjusted to suit the intended learning outcomes and photographs can be used as teacher aids or included in classroom activities, powerpoints and for other curricular activities.

The following activities are based on 'pre-visit', 'on site' and 'post visit' categories and can be chosen according to ages, levels, interests or needs.

IMG704

IMG701

WATER
Water quality

700

Wetlands play an important role in improving water quality. Wetlands absorb water like a sponge as it flows through it. They also act like a filter to make the water cleaner before releasing it again. Dirty water in - clean water out! Pekapeka gets its water from Lake Poukawa (ground water) and surface water runoff from the surrounding hills.

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Water flow rates

Water flows very slowly in wetlands which means particles settle to the bottom making the water clearer. Vegetation like Raupo that grows in the wetland helps to slow down the water flow.

Cleaning the water

Wetland plants such as harakeke and raupo help to remove nutrients in the water such as excess nitrogen and phosphorous. They also provide shade that cools the water temperature down to prevent algae blooms.

Threats to water quality

The main threats to water quality are caused through draining the wetlands, clearing vegetation and grazing stock. Increased nutrients in the water come from animals, pollution and fertiliser runoff from the surrounding hills. These increased nutrients cause algae and decrease oxygen levels in the water.

Wetlands are like kidneys, they clean the water as it flows through them

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Pekapeka WETLAND

STUDENT INFORMATION SHEETS

A set of Student Information Sheets have been prepared covering basic information on the main birds present at Pekapeka wetland. This list is by no means exhaustive and we encourage additional research through the provided links and information sources listed on the following pages.

INFO700   **Water quality**
INFO701   **Water levels & weirs**
INFO702   **Fish passage**
INFO504   **Mud Snail**
INFO505   **Waterboatmen**

Activities

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PRE-VISIT ACTIVITIES

- Have a discussion about water quality – why is it important to us? Is it important to wildlife? What affects water quality?
- Investigate the different water sampling devices available and choose and make your own device.
- Look at water samples from around the school. Analyse the pH and dissolved oxygen. (Contact a facilitator from National Waterways to help).
- Learn how a wetland filters and cleans water.
- Use Activity Sheets ACT007, ACT008, ACT010.

### FIELD DAY ACTIVITIES

- While at Pekapeka, make a list of words to describe the water.
- Have a look around Pekapeka and take note of all the things that increase and decrease water quality. Make sketches of each of these things.
- Take water samples from Pekapeka.
- Use Activity Sheets ACT007, ACT012.

POST-VISIT ACTIVITIES

- Make a poster about water quality. Use the sketches you made on your site visit as a starting point. Are any present at your school? Is there any thing that can be done to help or ways to teach people about it.
- Analyse the water sample taken at Pekapeka by testing its pH and dissolved oxygen levels. (Contact a facilitator from National Waterways to help).
- Make comparisons with the water samples taken from around the school. Make graphs showing the results. (Remember to compare the surrounding environments as well).
- Use Activity Sheet ACT009.

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Pekapeka
WETLAND
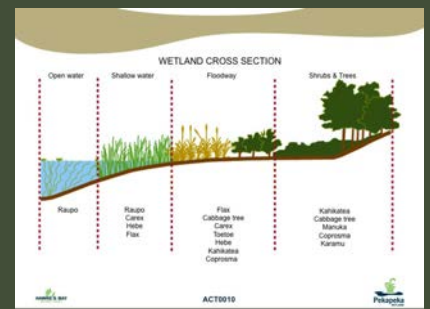
Additional Resources

BOOKS
Water Quality
By Michael Pelusey
Pub Macmillan Library 2006
ISBN: 978-1-42020-311-0
This book explains the water cycle and how vital it is to look after our water resources, how important it is to keep our water clean and safe to drink.

A Land of Water : Rivers and Lakes of New Zealand
By Pamela McGeorge
Photographs by Russell McGeorge.
Pub David Bateman 2007
ISBN: 978-1-86953-616-9
This book tells the story of our waterways and of our enduring relationships with this marvellous life-giving resource. Along the way McGeorge retells Māori legends and stories of the past.

From the Mountains to the Sea
By Nic Bishop
Reed Books 1994
Birkenhead, Auckland
ISBN: 0790003473 9780790003474
The secret life of New Zealand's rivers and wetlands
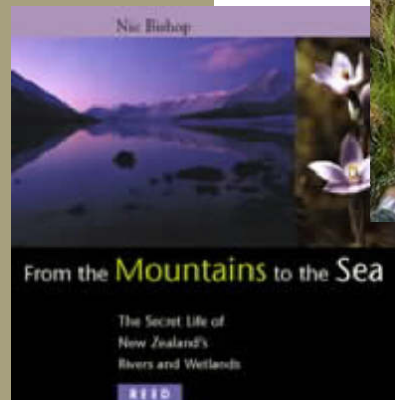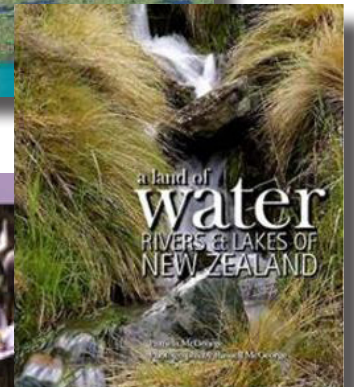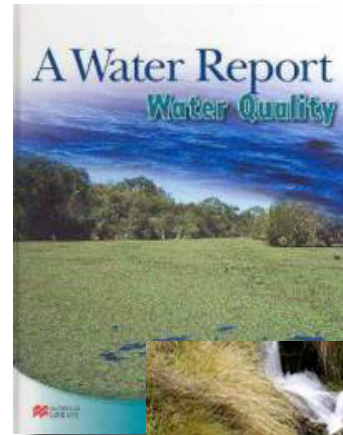
WEBSITES

www.teara.govt.nz
www.doc.govt.nz
www.hbrc.govt.nz
www.fishandgame.org.nz
www.cawthron.org.nz
www.niwa.co.nz
www.wikipedia.org
www.sciencekids.co.nz/water
www.sciencelearn.org.nz
www. seakeepers-nz.com

OTHER INFORMATION SOURCES

School Journals:

Level CN No.3, 2004. Wonderful Water, story by Philippa Werry. Many local authorities run projects in which students take direct action in monitoring and protecting local ecosystems.

Level CN No.2, 1998. Testing the North River, article by Elizabeth McCabe. A group of children and adults spend a day doing scientific tests on the water of the North River. The tests for colour, smell, suspended solids, turbidity, and velocity are described and can be reproduced at any appropriate site.

Water testing kit available to loan from Hawkes Bay Regional Council

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Pekapeka
WETLAND

Images

4
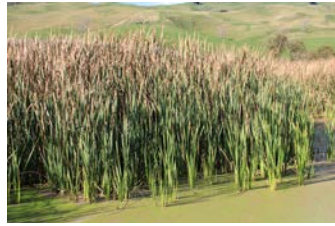
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