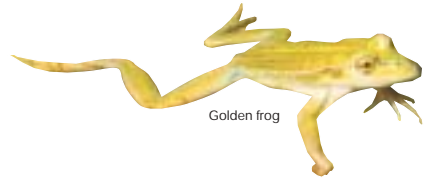




## AMPHIBIANS

The most common amphibian in New Zealand ponds is the frog. Frogs have



Golden frog

loose-fitting skin which must be kept damp as they breathe partly through their skin. Frogs are carnivores and have powerful hind legs for swimming and jumping.

The egg to frog stage takes about three months. While at the tadpole stage the diet consists mainly of vegetable material but changes to animal matter at the frog stage.

The frog lays eggs in the water where they are surrounded by a jelly which sticks them together and protects them from injury and attack.

Native frogs do not lay eggs therefore there is no Maori term for frogs eggs or tadpole.

## BIRDS

Birds can be classified into three groups - waders, divers and swimmers.

### Waders

Waders have long legs and usually have long necks and bills that can grasp their prey. The pied stilt is one of the most common waders.



Pied Stilt

### Divers

Divers catch their prey under water and their specially designed bills enable them to hold on to slippery prey. The most common diver is the shag of which there is twelve New Zealand species.



Black Shag

### Swimmers

The swimmers are most easily recognised by the native paradise duck. They swim in ponds where they eat the water weeds.

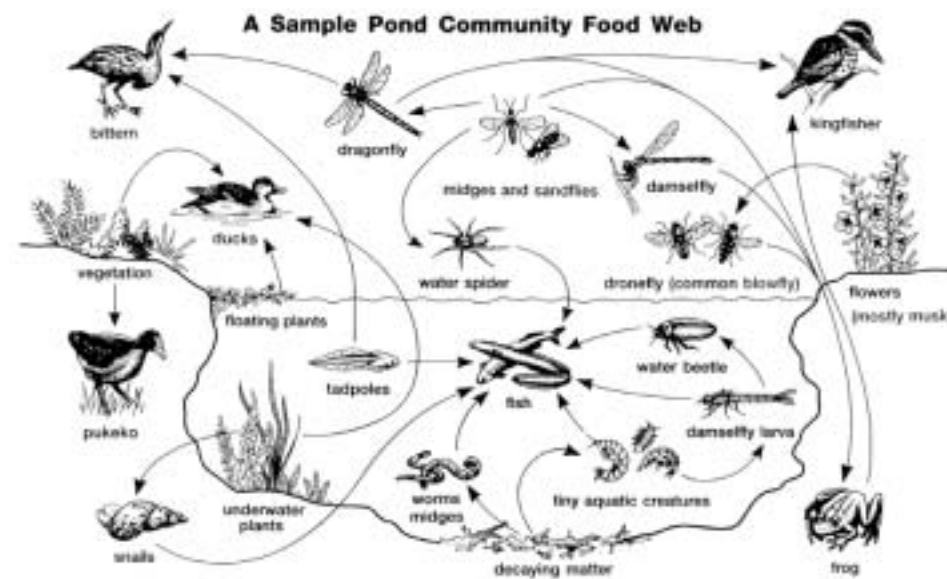


Paradise Duck

## FISH

**Eels** - our largest freshwater fish. There are two species in New Zealand, long fin and short fin. Eels are scavengers and feed on fish and other animals when the opportunity exists. Eels are capable of travelling over wet land to reach running water.

**Kokopu** - member of the whitebait family. Several species of kokopu have found their way into ponds. They are a very secretive fish.



The Food web below gives an indication of the inter-dependence of the creatures which rely on a pond environment. If any one creature is removed then the other members of the web are affected.

## Bits'n'Pieces

### World Wetlands Day

The Taranaki Regional Council is holding an open day on Sunday 2 February to recognise this day. The venue is Nowell's Lakes, off Manawapou Road, Hawera from 1-3pm.



### Biomonitoring Kits

I have two full kits available for invertebrate sampling whether it be a stream or pond study. If you would like to borrow these kits give me a call and book them in.

### Rock Pool Study

Teachers thinking of undertaking a Rock Pool Study this summer can access a folder of information and worksheets from the Taranaki Regional Council. Give Graeme a call and he will mail the folder to you.

### Answers from page 3:

**Compound words:** 1-i, 2-d, 3-f, 4-g, 5-j, 6-a, 7-c, 8-b, 9-e, 10-h.

**Word change:** feed, seed, send, lend, land (other answers are possible)

**Crossword: Across** 2-least, 4-water, 7-peril, 10-duck, 12-shelter, 13-organisms, 14-sediment, 16-pet, 17-storage.

**Down** 1-vegetarian, 3-slip, 4-waders, 5-tadpole, 6-recognise, 8-protects, 9-prey, 11-fish, 15-eel.

Graeme Phillips - Information Officer  
Taranaki Regional Council  
Private Bag 713, Stratford

Ph: 06 765 7127 Fax: 06 765 5097  
E-mail [graeme.phillips@trc.govt.nz](mailto:graeme.phillips@trc.govt.nz)  
[www.trc.govt.nz](http://www.trc.govt.nz)



TARANAKI REGIONAL COUNCIL

TARANAKI REGIONAL COUNCIL  
NEWSLETTER TO SCHOOLS

### Kia ora katoa

Welcome back to the start of another full-on year.

It has been great to see the profile of Environmental Education receive some much warranted support with the appointment of Advisors to Schools attached to the Colleges of Education. Further support was generated with the Environmental Education Guidelines implementation and the selection of a number of 'Pilot' schools in all regions. This impetus is set to continue with the extension of training for the implementation of the Guidelines and support for further pilot schools. More detailed information will be sent directly to your school when dates and venues are finalised.

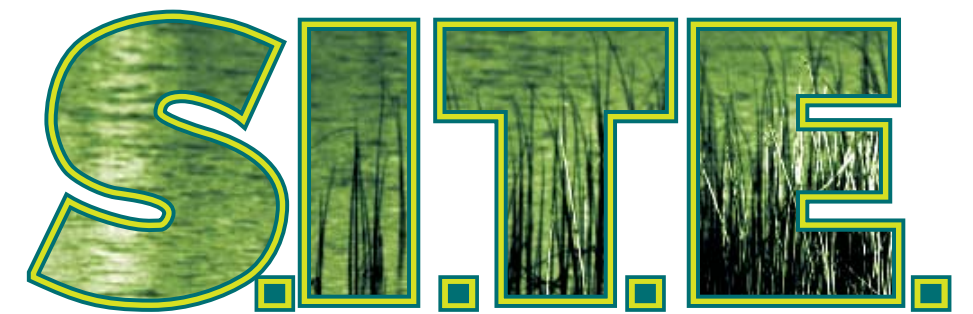
'Seaweek - Celebrate the Sea' is to be held from 9-16 March 2003. A local group has been formed to try to co-ordinate the various activities being held during this week. If your school is planning an activity, or would like to participate in a planned activity give me a call and I will put you in touch with the appropriate people.

Details of the 2003 Teacher Development Programme are also included with this edition of SITE. Once again there is a variety of themes and courses for either an afternoon, after school, or one full day. The enclosed sheet gives schools an outline of the year's themes. Full details about each course, along with registration details will be sent out closer to the actual days. Once again, places will be strictly limited so early registration is advised.

Finally, if you are planning any environmental field trips or themes and would like my assistance, please remember to contact me as early as possible as my diary has a habit of getting full at popular times of the year.

Enjoy your year!  
Ka kite ano

Graeme



Schools in the Environment

No. 24



# THE POND Community

Achievement objective - 'Making Sense of the Living World'; Science in the NZ Curriculum

The summer months are an ideal time to visit a local pond area. The water will generally be alive with abundant life and many examples of plant life will be present. With minimum equipment needed, classes can fairly easily catch and identify the creatures which frequent this type of habitat.

This issue of SITE examines the pond community and provides an impetus for an additional area of study to the stream community.



Check out the competitions inside



## Seaweek 2003

Seaweek - Celebrate the sea  
9 March - 16 March 2003



As an island nation, we are lucky to host such a wide variety of coastal and marine species, many of which are totally unique to New Zealand. It is no wonder that people come from all over the world to visit us and enjoy what our coast has to offer.

Taranaki residents have many fine examples of these native species as well as some magnificent coastal scenery.

Schools in the region who wish to be involved in any activities related to Seaweek are encouraged to check the national website

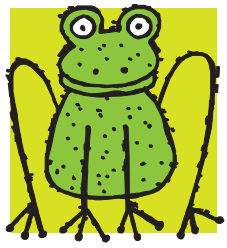
[www.nzsee.org.nz/seaweek](http://www.nzsee.org.nz/seaweek)

Local events will be listed on this site so if you are planning something special let Graeme Phillips at the Taranaki Regional Council (Ph 06 765 7127) know and he will forward it on for the website.

Look also at the Junior Environmentalist page in this newsletter for a colouring competition for primary and intermediate students and a slogan competition for secondary school students.



Cape Egmont lighthouse - 2002 Seaweek venue.



# THE POND Community

Achievement objective - 'Making Sense of the Living World'; Science in the NZ Curriculum

## PHYSICAL FEATURES

A pond is generally an area of water which is shallow enough for plants with roots to grow completely across it. They are formed by:

- a natural low lying area of land that collects water
- a stretch of river left after the river has changed course (oxbow pond)
- human intervention - generally as an artificial water storage

The pond environment has distinct zones where various organisms establish themselves in specific habitats.

These zones are:

- banks where rushes and grasses are common
- area sheltered by the bank where small free-floating plants gather
- deeper water where underwater plants attach their roots to the bottom and reach up to the surface to flower.

## BEETLES

The largest New Zealand aquatic beetle is the common diving beetle. It can grow up to 12 mm in length. The beetle holds an air bubble under its wing covers to enable it to stay underwater.

Diving beetles are carnivores and will eat prey larger than themselves.



Diving beetle



An example of a water storage pond.

## MOLLUSCS

Molluscs are soft bodied animals which usually have a hard shell as protection. Snails are the most common mollusc. Snails glide along on a muscular foot. Their eyes are located by the tentacles on the front of the body. There are over ten common molluscs in New Zealand.



Water snails

## PLANTS

Several species of plants are happy to be blown about by the wind on the surface of the pond. These plants prove to be a favourite food of water fowl. Duckweed is an example of such a plant. A floating fern called Azolla looks like fish scales. Although each plant is very small they clump together to form large red-brown mats on the surface.

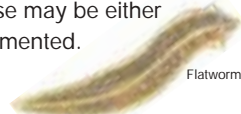
Other plants attach themselves to the bottom with strong root formations and grow all the way up to the surface.

Finally, another group of plants grow under the water. The decaying plant and animal matter sinks to the bottom and provides a healthy habitat for new growth, much like compost in our home gardens.

## INSECTS

### Worms

Both round and flat worms are found in pond debris and these may be either segmented or unsegmented.



Flatworm

### Midge

These tiny fly-like creatures swarm over the water areas. Their larvae are red segmented creatures which inhabit the muddy pond bottom.



Midge

### Caddis

Insects found in the vegetation around the edge of the pond. Eggs are laid in the water and hatching larvae build shelters to protect themselves. When they mature they quickly move to the surface, and fly away.



Damselfly

### Damselfly

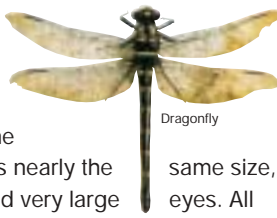
Two species are common in New Zealand (red and blue). Female damselfly will lay eggs under the surface of floating plants. Damselfly adults and larvae are carnivores and prey on smaller animals. Damselfly larvae are recognised by the three tail gills which they breathe through.

### Backswimmer

A water bug named because of the way it swims in an upside down position. The large hind legs are its oars, while the two smaller pairs are used to hold prey or underwater plants while resting. Backswimmers prey on small water creatures and tiny fish.

### Dragonfly

Belong to the Odonata order. Recognised by the two pairs of wings nearly the same size, narrow bodies and very large eyes. All dragonflies hunt on the wing. Dragonfly larvae live in the mud in the bottom of ponds.



Dragonfly

### Waterboatmen

Found in ponds and quiet areas of rivers and streams. Hairy hind legs are used for swimming while the middle pair hold the insect in position when it is not swimming otherwise it will float to the surface. The short front legs are used for gathering food. Waterboatmen are vegetarians. Their strong wings enable them to fly from pond to pond.



Waterboatman

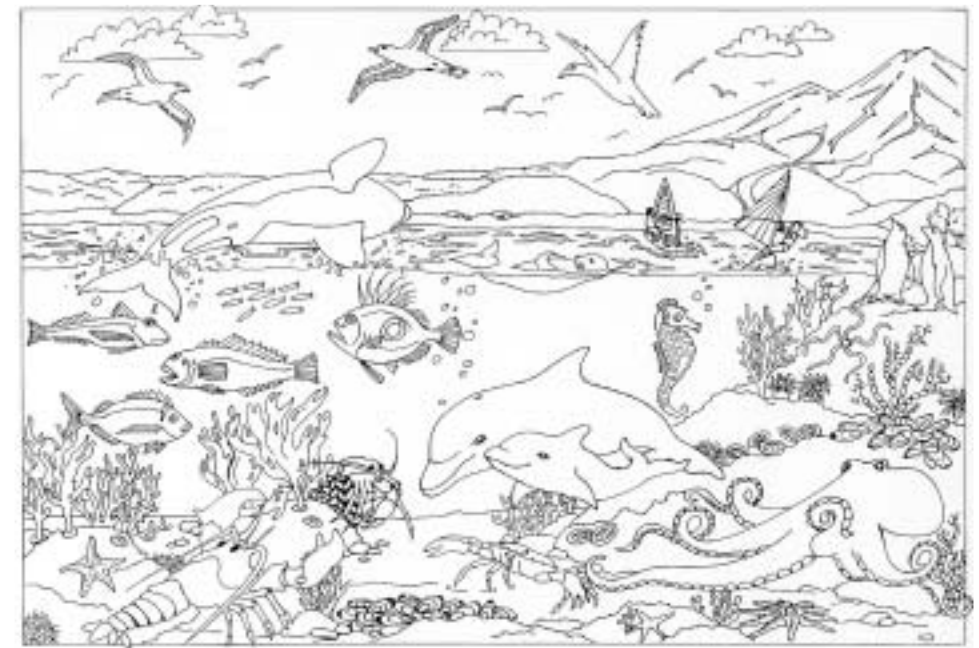
# Junior Environmentalists Page

## Compound words

Words formed by joining two words together are called compound words. Match a word from Column A with another word from Column B to make a compound word.

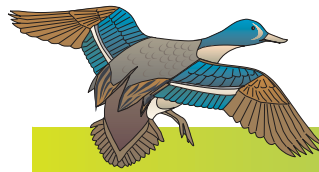
- |          |           |
|----------|-----------|
| 1 under  | a man     |
| 2 back   | b time    |
| 3 any    | c fore    |
| 4 white  | d swimmer |
| 5 duck   | e one     |
| 6 boat   | f where   |
| 7 there  | g bait    |
| 8 day    | h board   |
| 9 some   | i water   |
| 10 black | j weed    |

## Colouring competition



Colour in the marine scene included with this newsletter. The competition is open to **primary and intermediate age students**. There will be two sections (5 - 8 years and 9 - 13 years) with two prizes in each section. **Entries close Friday 28 February 2003.**

**Send your entry to:** Colouring competition, Taranaki Regional Council, Private Bag 713, Stratford. *Please write your name, age and school on the back of your entry.*



## Crossword

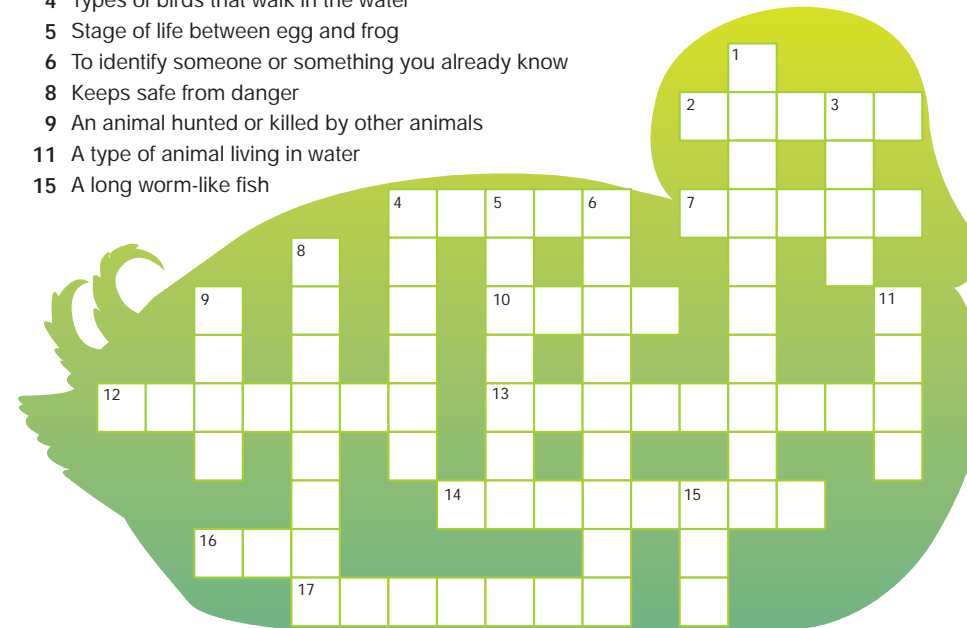
### Across

- Another word for smallest
- H<sub>2</sub>O
- Danger
- An aquatic bird

- Something which provides cover and protection
- Scientific name for an animal or plant
- Small loose material on the bottom of a pond
- A tame animal
- A pond performs this function with excess water

### Down

- A name for something which does not eat meat
- Be careful you don't do this on the muddy edges of the pond
- Types of birds that walk in the water
- Stage of life between egg and frog
- To identify someone or something you already know
- Keeps safe from danger
- An animal hunted or killed by other animals
- A type of animal living in water
- A long worm-like fish



## Slogan competition

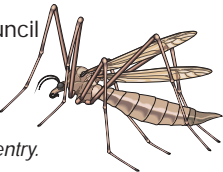
Make up a slogan to promote Seaweed. The competition is open to all **secondary school students**. There will be prizes awarded to the three best entries.

Entries close Friday 28 February 2003

**Send your entry to:**

Slogan Competition  
Taranaki Regional Council  
Private Bag 713  
Stratford

*Please include your name, school and level with your entry.*



## Word change

Change **feed** to **land** in four moves. You can only change one letter at each step and each step must be a proper word.

f e e d

— — — —

— — — —

— — — —

l a n d

