

Term two is here already!

Term one seemed to vanish in front of my eyes as I was heavily involved supporting teachers in their programmes, predominantly in rock pools, rivers and at Pukeiti Gardens. I was very happy to do so, as only teachers know the pleasure we get when we see our students involved and enthusiastic about whatever activities we have asked them to do. Thank you so much for asking me to support you; and my apologies if I couldn't help for the simple reason that the dates and times you wanted were already booked by others. Our programmes can be adapted to suit all learning levels and it has been fun supporting teachers from early childhood centres through to year 13 science classes. Bookings continue to be heavy, with the first half of this term already completely booked out and it may surprise you that many bookings for 2015 have already been secured. Please don't leave your request until the last moment as you are certain to be disappointed.

Many thanks to those teachers who attended the four professional development sessions we conducted last term, two at rock pool sites and two at the Rainforest School at Pukeiti Gardens. The latter two received overwhelmingly positive feedback from the 46 teachers involved. Our programmes at Pukeiti are proving to be very popular with all age levels. Indeed it doesn't stop with classes of students. Recently two Wellington gentlemen, both of whom I suspect were in their eighties, were so fascinated with what was happening with one school group that they asked if they could 'tag along' when the group headed off on the rainforest walk. This request was granted by the teacher involved and at the end of the walk the gentlemen could hardly contain themselves, such was their enjoyment from seeing so many young people, so enthusiastic about being in a rainforest. The recently written Pukeiti study unit 'The Rainforest School' can be downloaded from our website www.trc.govt.nz or I can provide you with a copy on request.

Have a terrific term everyone.

Kevin Archer

Native freshwater fish

This issue of SITE looks at native freshwater fish, why many are not particularly well known and what is being done to enhance their chances of survival.



A brown mudfish found in a stream near Oeo

Action at the Rainforest School at Pukeiti



Council Education Officer Kevin Archer is asking a question to this focused group during the rainforest walk.



Seamus Green and Alex White from Woodleigh School are all concentration as they endeavour to identify their seedlings during a recent pot-a-plant session.



Marie Atkinson, a Year 8 student from Puketapu School looks happy as she emerges from inside the Giant Rata.

NATIVE Freshwater Fish

Native fish migrate from Stratford to the Rainforest School at Pukeiti.

Over the years, many schools visited the Council in Stratford to view the native freshwater fish display. But the numbers of classes doing so lessened in recent years. As a result of this and in line with the Council shifting its environmental education base to Pukeiti, we have relocated the fish display there. Viewing numbers have increased dramatically, particularly with the general public, the great majority of whom have never seen them. In addition, many classes visiting the Rainforest School at Pukeiti are now including a native freshwater fish lesson as part of their selected programme or are using the lunch break to view them on an informal basis. We apologise if you had planned to view them at Stratford but we hope you get the chance to see them at Pukeiti.



There are 34 known species of New Zealand native freshwater fish and several marine species that occasionally wander into our rivers. At least 18 freshwater species can be found in Taranaki's rivers, streams or wetlands although others might be present that we are unaware of.

Species found in Taranaki include longfin and shortfin eels, inanga, koaro, three species of kokopu, brown mudfish, six species of bully, black flounder, lamprey, smelt and torrentfish.

At least 15 of the above species are diadromous – meaning they have a marine or estuarine stage in their life-cycles.

Why don't we always see them even though they may be there?

- Most are nocturnal, so the best time to spot them is at night using torches.
- Many are quite small with the obvious exceptions being the eel species.
- Many use camouflage as a means of staying unnoticed.
- Most are very secretive - they hear you coming and hide.
- Most are happy to live in isolation, unlike many marine species that prefer to live in large shoals.



Koaro (*Galaxias brevipinnis*)



Short-jawed kokopu (*Galaxias postvectis*)



Redfin bully (*Gobiomorphus huttoni*)



Giant kokopu (*Galaxias argenteus*)



Inanga (*Galaxias maculatus*)

Extinct or endangered

Unfortunately one of our native freshwater fish, the grayling is extinct (gone forever) while many others are endangered. Loss of habitat is a major reason, as well as man-made barriers such as dams, weirs and culverts which prevent many fish from migrating upstream to their preferred habitats. Some native freshwater fish are excellent climbers and can climb steep channels even up as far as the National Park, others are poor climbers and must live in the lower reaches of the rivers.



The good news

- Many structures or barriers in rivers now have man-made fish passes which allow migrating fish to continue their journey upstream.
- Farmers are fencing streambanks to prevent stock access to waterways.
- People understand the importance of freshwater habitats and are preserving or improving river, stream and wetland ecosystems.
- Millions of trees have been planted on Taranaki river banks to improve water quality and provide better habitats for native freshwater fish.

Council assistance

- Include a native freshwater fish lesson as part of your visit to the Rainforest School at Pukeiti.
- Invite the Council Education Officer to talk to your class about native freshwater fish in general or specifically about the mystery of eels in our rivers.
- Download from our website www.trc.govt.nz SITE (Schools in the Environment) numbers 14, 27, 28, and 55, all of which contain useful information on this topic. Download the mini unit 'Native Freshwater Fish' from our website www.trc.govt.nz



A bucket of elver ready to be transferred upstream past the Patea Dam.



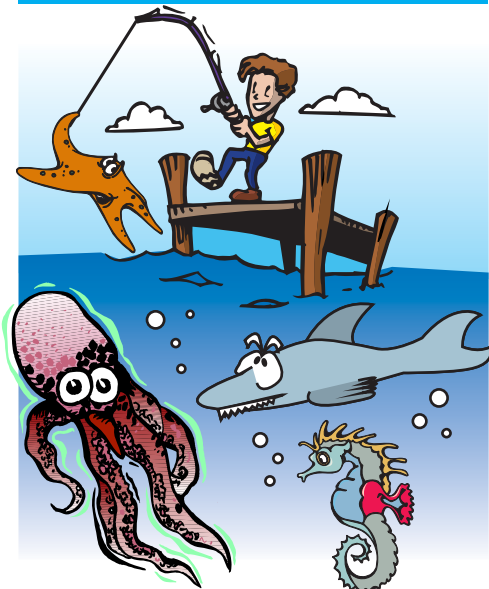
Hidden fish

In each of these sentences there is a hidden freshwater fish. See if you can spot them, number 8 is very difficult. Good luck.

1. The spinning reel was turning furiously.
2. "That is a very large bull," yelled Thomas.
3. Janet was very pleased to get her ring back.
4. Sam was popular with his Mum when he offered to Hoover the carpet.
5. The horse was floundering all over the place in the wet conditions.
6. "That joke was a real ripper," chirped Billy.
7. Unfortunately, the best route out of here is now blocked.
8. Neither Tom nor Felix are good swimmers.
9. "Let's pan for gold, fish for fun and run up all the hills for our exercise this week," the teacher said to her class.
10. The ship was in trouble as it had lost its rudder.



Spot the 10 changes



Who am I?

The fish listed are the answers to the clues below. See if you can work out which one best fits each of the clues. Kahawai, longfin eel, black mudfish, grey mullet, mosquito fish, grayling, rainbow trout, sockeye salmon, lamprey, inanga

1. Although many of New Zealand's freshwater fish are classed as being endangered, I am the only one classified as being extinct.
2. I live mostly in or near the sea. I can venture a long way inland but I seldom live there permanently. I am grey in colour, abundant in the north and can weigh up to 5kg.
3. I am shaped like a cigar. Despite my name I am smokey-grey to black in colour, found only in northern New Zealand and I like living in muddy conditions.
4. I am the most common of the whitebait species.
5. I am a mixture of colours, found all over New Zealand, a valuable food source for Maori (who called me piharau or kanakana) and my adult mouth is a large, sucking disc.
6. I am a large and popular game fish, found only in rivers and lakes in Otago.
7. The female of this species is easily New Zealand's largest freshwater fish.
8. I am mainly a lake fish, often silvery blue or olive-green with dark spots all over me. I am a very popular game fish throughout New Zealand.
9. I am strongly built, have a large mouth and small eyes, and found throughout New Zealand. I am classed as a marine wanderer, often found in large numbers at river mouths and popular with fishers.
10. I was introduced into New Zealand to control mosquitoes but have failed in that and I am now something of a nuisance having been reported as being responsible for the reduction of dragonfly numbers and some small native fish species.

Jumbled sentences

The following sentences are made with words that have their letters all jumbled up. See if you can unjumble each word and make the sentence make sense. The first word in each sentence is not jumbled to make it a bit easier for you.

1. Some sfih sseicp vile lony ni fsher trwae.

2. The linggray si won ttexcinc.

3. Five fo rou sfih sseicp rea lony dfoun ni wen landeaz.

4. The plamrey si a revy tivesecre sfih.

5. Eels nac eb revy lnog.

6. Trout rea fdoun ni namy rrvesi.

7. Whitebait eentr uor rveis rfom het ase ni het srinpg.

8. Koaro klie eacl,ftswi ingflow rrvéis.

9. Canterbury dumhsfi pawns ni prinsg dan tale terwin.

10. Guppy rea ttsou tllie shif.

What is the difference between a piano and a fish?
You can tune a piano but you can't tuna fish

What did the fish say when he swam into the concrete wall?

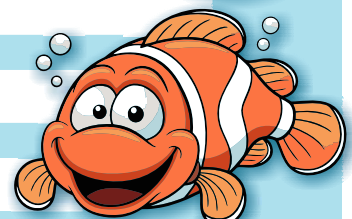
Dam

What part of a fish weighs the most?

The scales

Where do fish keep all their money?

In river banks



Students from the middle team at West End School had an exciting time at their camp last term. Included in a wide range of activities was a study of the Mangaotuku Stream at the Ratapihihi Reserve. A clear indication of how dry things were in March is shown here, as several groups decided to do their work from within the stream itself. It is hard to believe that this stream once caused a major flood in Devon St in New Plymouth.



This and That

Fonterra Taranaki Science and Technology Fair

The annual Fonterra Taranaki Science and Technology Fair will be held at the Pukekura Raceway function Centre in New Plymouth from 28-30 July. The fair is open to all students over Year 6.

Taranaki Kiwi Trust

If you are thinking about a kiwi study, a great contact is the Taranaki Kiwi Trust which has resources and personnel available to assist you. Contact can be made at schools@taranakikiwi.org.nz

Lepperton School



Students from Lepperton School are studying the invertebrates that live in the Waiongona River which flows alongside the school boundary. The study was part of a wider river study which included raft making and how to cross a river safely. An excellent study.

Heads down and looking

This instruction, often heard prior to a game of bingo, could apply to these industrious students from Pembroke School during their visit to the Kawaroa rock pools in March. Pembroke was one of a large number of schools that explored Kawaroa and other rock pool areas throughout the first term.



Bus Transport Unit ... and free books!

Bus transport plays an important part in our understanding of how our community works. This study unit offers 16 activities with great opportunities to cover many key competencies, skills and values in relevant curriculum areas. Research, using bus timetables, solving fictitious bus issues, creating PowerPoint presentations, art projects and using different types of writing, are just some of the elements in this study.

A highlight of the unit is a book written by New Plymouth-based Adam Thurman, who has a passion for buses. He has a disability that requires the use of a wheelchair and his book is fun to read, is informative and pictorial – a wonderful group reading activity.

Request up to 12 copies, free of charge, of Adam Thurman's book, *On The Buses! Just email Kevin Archer and he will send the books to you!*



NPGHS studies the Waiwhakaiho River

Two groups of NPGHS Year 12 geography students spent a day studying this important river in March. The students are pictured testing the water flow at Peters Rd (Kaimiro), one of five sites each group visited. In addition to the water flow, measurements were taken of pH, conductivity and water clarity plus the river was sketched at the various sites: on the mountain, at the Meeting of the Waters, at Merrilands Domain and at the Waiwhakaiho Valley.



Answers from page 3

- Hidden fish:** 1-eel 2-bully 3-herring 4-carp 5-flounder 6-perch 7-trout 8-orfe 9-goldfish 10-rudd
Jumbled fish sentences: 1-Some fish species live only in fresh water. 2-The grayling is now extinct. 3-Five of the fish species are only found in New Zealand. 4-The lamprey is a very secretive fish. 5-Eels can be very long. 6-Trout are found in many rivers. 7-Whitebait enter our rivers from the sea in the spring. 8-Koaro like clear, swift flowing rivers. 9-Canterbury mudfish spawn in spring and late winter. 10-Guppy are stout little fish.

For assistance or information on environmental education contact:

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