



Department of Conservation
Te Papa Atawhai

Tuesday, 7 October 2008

The Secretary
Sargood Bequest
PO Box 5540
Moray Place
Dunedin

Dear Sir / Madam,

My name is Mike Nicholson and I am the educator for the Taupo for Tomorrow learning programme operated out of the National Tongariro Trout Centre, Turangi. I am writing to express my sincere gratitude for the funding allocated by Sargood Bequest this year. This has allowed the LEARNZ programme to undertake a three day fieldtrip focusing on the Taupo fishery area incorporating associated water quality issues and wider environmental sustainability themes.

The value that learners from throughout New Zealand get from being able to participate in these virtual field trips is meaningful and lasting. The fieldtrip attracted many participating schools and garnered much interest, particularly during audio conferences and post fieldtrip 'ask an expert' sessions. The themes covered in the fieldtrip are applicable throughout New Zealand with South Island students taking the opportunity to make links between their own local natural environment and that of the Taupo region.

For learning to be lasting and meaningful the context needs to be real and engaging. We were certainly able to take many school children to places they would normally not visit and talk with a number of people they would otherwise never meet. Although not conversing face to face, the high quality question and answer sessions and the level of interest in the trip indicated a very high level of engagement.

I must also thank Michael Ewen for his contribution to allowing the LEARNZ visit to take place this year. Many learners from around the country have benefited from a fantastic learning experience.

Thank you so much for the opportunity to present this fieldtrip to some of the future leaders and decision makers of New Zealand.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'Mike Nicholson'.

Mike Nicholson



Teacher Mike Nicholson shows students that trout can teach us a great deal.
Photo by: Glenn Maclean

Trout; The Teacher

Taupo trout are fascinating things. For over a hundred years trout at Taupo have been prized by anglers for their true wild fishery characteristics. Hard fighting, silver flanked Taupo trout are sought after by anglers from around the country, many endeavouring to build on their fishing success incrementally from trip to trip and year

to year. Anglers are constantly developing their fly fishing technique, learning to read the water, discovering new or existing lies, and refining the approach to their favourite pastime in an endeavour to ultimately be more successful. If you were to ask anglers why they bother to continue to test themselves and develop their fishing ability, I am

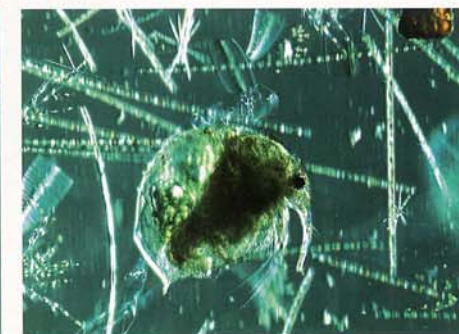
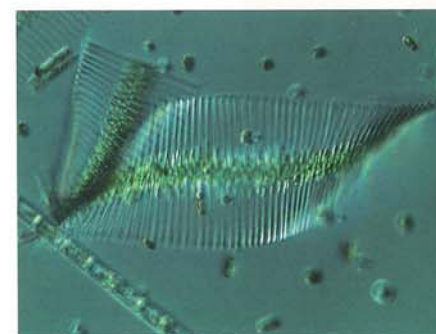
sure the answer would be because they enjoy doing it. Anglers actively engage with the trout and their environment and when doing so are constantly learning. So how can engaging with trout also encourage young people to learn, particularly those with little interest or experience of fishing?

The answer to the above question is in fact fairly simple, again, trout are fascinating. For students visiting the Taupo for Tomorrow learning programme, being able to engage with live trout inevitably and very quickly stimulates interest. The trout are real, fun, and importantly very relevant to the environment the learners are studying. In other words, without wishing to sound too fishy, the kids get 'hooked'. The key here is that learning can happen pretty easily if we are having fun and the reason for it is real. Think about how easily you learn the words to a song on the radio when you like it and engage with it. So the trout hook the kids alright, however in reality what of any importance can trout really teach them?

Interestingly, trout can teach children a myriad of things. With a little planning we can apply Taupo trout to many areas of the school curriculum that is required to be delivered to students in New Zealand schools. A good example of this is life cycles. We could of course stay in a school classroom and ask our

learners to try and remember the life cycle of an animal that has little actual relevance or meaning for them, or alternatively we could access a programme like the Taupo for Tomorrow where students can view eggs (ova), feed and observe fry (juvenile trout) and clearly observe trout on their spawning redds. Remembering the specific lifecycle of Taupo trout may not be the important context in every instance, recognising the importance of understanding animal lifecycles in general, as a management, scientific, or sustainability tool most certainly is. The hope is that students take this kind of learning into their futures with a much deeper understanding than being asked to remember something for no particular reason.

The same rational can be applied to many areas. Food chains become exciting and interesting when actually capturing invertebrates (mayflies, stoneflies) as a key part of a trout diet or viewing the beauty of phytoplankton and zooplankton under a microscope. Smelt depend entirely on the availability of zooplankton in Lake Taupo for their survival and we all know how important smelt are for the trout population. A key understanding for learners is that invertebrates and plankton are also important indicators of water quality in our rivers and lakes. Like the canary in the coal mine, macro invertebrates tell us a lot about the health of



As kids learn about food chains, they realise that nearly all organisms in Lake Taupo depend on tiny phytoplankton (Left) and zooplankton (right) for their survival. Photos by: Dr Michel Dedual



Primary sponsor:



Invertebrates like this Mayfly nymph tell learners a lot about the health of waterways
Photo by: Mike Nicholson



our waterways. The list is almost endless. Trout can teach us about the importance of healthy riparian habitat to animal reproductive success and of course the anatomy and physicality of a trout lends itself superbly to observing how animals adapt to the fresh water environment they live in.

For learners, observing how a group of people work together and ensure the sustainability of a highly valued resource is of great value. The work of the fisheries team for example is varied and unique in nature, so provides a fantastic case study for students looking at vocational opportunities, management science, and even statistics (data collection). Mathematics plays a hugely important role in understanding the fishery, particularly the use of fish traps and catch data (math can sometimes be disregarded by students as having little relevance in the real world). The same can be said of the role trout had in the development of something as substantial as the Tongariro Power Scheme. The trout did not build the hydro stations, however their well being

and sustainability was a major factor in the design of the day to day operation of the scheme as we see it today.

When addressing issues like pollutants affecting the long term well being of Lake Taupo, students that have engaged with trout, invertebrates and other animals on site then have a very real reason for taking an active interest in becoming an advocate for sustainability, much more so perhaps than if the context was presented to them in a school classroom. For instance, every child with a little help can make the link between storm water drains and the biodiversity potentially affected by their discharges, particularly when they have been actively engaging with many animals that depend entirely on the availability of high quality water for their survival.

So in summary trout are pretty darn good teachers. When students visit the site they are encouraged to not only learn about the trout themselves, but more importantly recognise the bigger ideas that trout are able to deliver. Anglers learn a lot from pitting their skills against

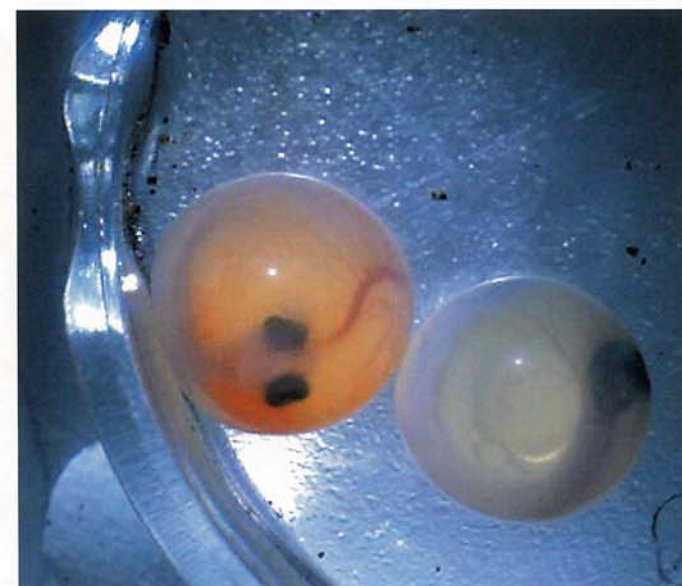
our Taupo trout. They learn because they enjoy fishing and they want to get better at it. Students engaging with trout learn because they enjoy the animal. Trout are

fun, they are real, and they can teach learners an awful lot about the natural world we all live in.

This alevin or newly hatched trout can teach learners about organism life cycles
Photo by: Mike Nicholson



Children can learn about differences between individuals by looking at the colour range of trout ova
Photo by: Mike Nicholson



Size does Matter!



Materials for a measuring board are simple
Photo by: John Webb

By Harry Hamilton
Harry is a ranger in our field operations work

With summer not far away, boat anglers will be preparing their boats and gear for a summer of fishing on Lake Taupo. An essential piece of equipment is a measuring board and this article shows you how to make a cheap, simple but functional measuring board for your boat.

MATERIALS

- 1 wooden board 150mm x 20mm x 550mm
- 1 wooden block 50mm x 50mm x 150mm
(although slightly shorter is ok if it is centred properly)
- 4 30mm brass or galvanized screws
- 1 Taupo Fishery Area measurement sticker
(free from most fishing shops in the district)

TOOLS

- Screwdriver or cordless drill
- 1mm drill bit
- Countersink bit if you have one
- Hand saw



Mark the position of the block on the board
Photo by: John Webb

THE SEQUENCE IS AS FOLLOWS:

1. Make sure you choose good timber for the board and block and cut it to the required dimensions. Treated timber is good and will last longer but is not essential as the measuring board can be painted or varnished for protection. Although overall appearance of the timber is not important, it needs to be straight and 'dressed' which just means planed or sanded smooth. Rough sawn timber may damage fish and the fish sticker sits nicely on a smooth timber surface.



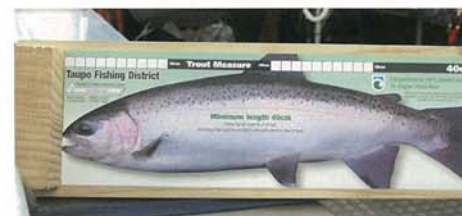
Drill out the screw holes for the block
Photo by: John Webb



Ensure the screws are posi-driven or countersunk below the timber surface
Photo by: John Webb



Use your hand or a cloth to remove any air bubbles
Photo by: John Webb



Ready to measure fish!
Photo by: John Webb

2. Drilling holes in the board before fixing it to the block will avoid splitting of the wood. To do this, mark the position of the block on the underside of the board at one end. Make sure it sits square to the board.

3. Now mark the position of the screw holes and using a small 1 - 1.5mm bit, drill them out. The position of the holes is of personal choice but two for one end of the block and two for the other is generally best and most secure. Make sure the holes are at least 1cm from the edge of the block.

4. Reposition the block over the drilled holes on the upside of the board and secure them together in a vice. Insert two of the screws from the underside through the board and into the block. It is important that the screw heads are either countersunk (usually for harder woods) or 'posi-driven' (for softer woods) below the wood surface. This will avoid scratching when placed on the boat.

5. The next step is to apply the sticker and this can be a bit tricky. It pays to put a pencil line along one edge of the board as a guide to make sure it is applied evenly and not crooked. Trim the 3-4mm off the front of the sticker so that the nose of the fish picture on the sticker sits right up against the block when stuck on. Peel the front half of the sticker and stick it against the block then work backwards, slowly applying the sticker to the board all the while rubbing your hand or a cloth backwards and forwards to remove any air bubbles.

That's all there is to it! Of course measuring boards can also be beautifully made. Using high quality timbers with proper bevelling and stainless steel rulers during construction, they can be a nice addition to a boat. However, the basic construction principles are still the same and at the end of the day it is all about ensuring the fish are a legal size.

If you don't have a sticker a shallow saw cut at 40cm along the board will suffice. The fish is legal if the 'V' in the tail goes past the saw cut. Another variation is that you may want to trim the sticker to the 40cm line. If the 'V' in the tail is past the end of the sticker - it is legal and can be destined for the smoker!

Finally, and as mentioned earlier, if you want your board to last a long time and not absorb moisture consider painting or varnishing the board first. A varnish finish is particularly nice if high quality timbers are used.