TARGET TAUPO

A newsletter for Taupo anglers

DECEMBER 2009, ISSUE 60

Department of Conservation
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Front cover A favoured passime, Retiring Fishery Area Manager John Gibbs on Lake Taupo
Photo by: Kim Alexander-Yuta

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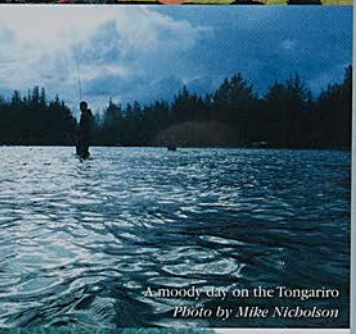
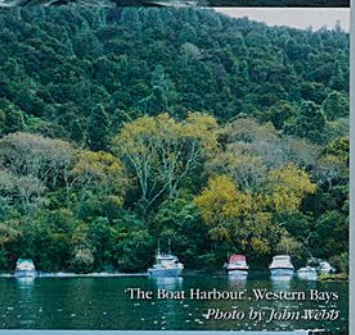
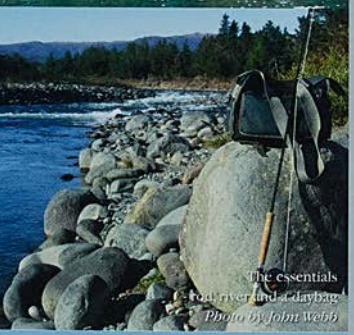
Summer Angling Seminars
Photo by Kim Alexander Turia


A moody day on the Tongariro
Photo by Mike Nicholson


'The Boat Harbour', Western Bays
Photo by John Webb


The essentials
- rod, reel and a daybag
Photo by John Webb


Lake Taupo on evening
Photo by John Gibbs

Target Taupo

A newsletter for Taupo Anglers

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Fishery Forward

By John Gibbs
Taupo Fishery Area Manager

WELCOME TO TARGET TAUPO

This issue marks a few milestones for the Taupo fishery. First, this is the 60th issue of Target Taupo, which has come a long way from the 27 black and white A5 pages we published in July 1989. Now formatted as 70 to 80 full colour A4 pages it is a totally different magazine and a credit to its successive editors and writers. I hope you continue to enjoy it.

Tucked away on the last page of Volume 1, Issue 1 was the first of our Manager Profiles which set out to introduce local DOC staff to readers. Coincidentally, that page was occupied by a couple of hairy, bearded, relatively youthful blokes called Dave Lumley and John Gibbs. At that time, Dave was the manager of the Kaimanawa sector of the Taupo DOC district and I was responsible for the management of the Taupo fishery. Dave is now the TurangiTaupo Area Manager for this conservancy and over the years we have worked closely together where conservation land management and fishery issues crossed paths as they often do.

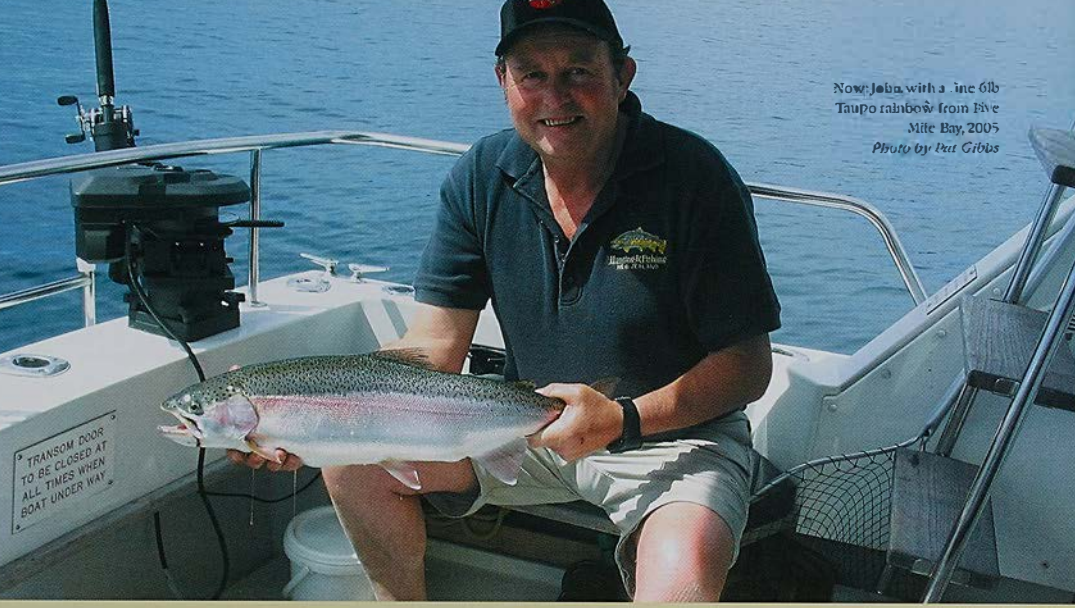
Well time has passed and now, after 46 years in the conservation and trout fishery business, 27 of those managing the Taupo fishery, I have decided to retire. About the time you read this I will be walking out the door for the last time. But, in keeping with our long-time double act, Dave Lumley has been seconded to replace me for the next six months. The Department of Conservation is going through a period of change as it adapts to changing government policies and the economic realities of today's world. Rather than appoint a permanent replacement immediately, the department has chosen to keep options open until the outcomes of its strategic and business reassessments are clear.

Dave is a lifelong hunter and keen angler so I know he will relate to the aspirations of Taupo anglers. I'm sure you will give him the support and encouragement you have given me over the years.

The decline in licence sales and thus the revenue needed to manage the fishery appears to have at least halted. For the first four months of the year sales are 14% up on the same time last year and revenue is ahead of budget. We are cautiously optimistic for the rest of the year and are now recruiting to fill two of the three vacant positions in the fishery team.

In a later article I have reflected on some of the highlights of my time working in the Taupo fishery on and off since 1964. This spans the period prior to the construction of the Tongariro and lower Hinemaiaia hydro schemes, the establishment of major plantation forests and intensive pastoral farming in the catchment, not to mention a massive increase in the urban development of the district. One thing that repeatedly strikes me is the amazing resilience of the fishery and its ability to spring back from adverse effects. The recent decline in trout quality is a good example of this and I hark back to some of the cautions I wrote in recent forewords to this magazine. It is essential to keep a broad perspective on changes in the fishery and learn from the past. The current improvement in trout condition confirms that resilience, as has been demonstrated so many times in the past 100 years.

I am confident that given careful management of land use and water quality in the catchment and prudent harvest limits, the Taupo trout fishery will continue to be one of the world's best. Farewell and tight lines.



Now: John with a fine 6lb Taupo rainbow from Five Mile Bay, 2005
Photo by Pat Gibbs

Reflections in the River of Life

By John Gibbs

Then: John with a fine 8lb Taupo rainbow from Mission Bay, mid 1950s
Photo by Bruce Gibbs

By the time you read this I will have walked out the office door for the last time. After 46 years in the business, most involved with the Tanpo fishery, it's time for me to move on to a much-anticipated life after work.

I developed an affinity for Lake Taupo and its fishery very early in life. As a Taihape farm boy I spent summer holidays in the 1950s camping at the lake. I caught my first trout from Taupo at the age of 7 or 8, followed by thousands more in the ensuing 50-odd years. I'm sure there'll be many more to come.

Growing up in a farming, hunting and fishing environment, I developed a love of nature in general and a desire to work in the outdoors. So, in my early teens I decided that I wanted to be a Wildlife Ranger and duly applied to the Department of Internal Affairs and was appointed as a Technical Trainee in the Wildlife Branch, later to become the NZ Wildlife Service.

On 13 January 1964, three months to the day before my 17th birthday, I walked through the doors of the Bowen State building in Wellington to start my working life.

Wildlife Trainees spent four years undertaking mostly practical field-based training in all aspects of the Wildlife Service's work. This included endangered bird conservation and management, gamebird, trout and salmon fisheries management, law enforcement, wildlife research. So I was privileged to work all over the country and on many offshore islands from the Southern Ocean to the Kermadecs, with people who were or became world leaders in wildlife conservation.

I soon realised that sports fishery management was the avenue I wanted to concentrate on. Down south I worked with trout and Atlantic salmon in the Southern Lakes. Much of this work was undertaking fisheries surveys of the tributaries of lakes Te Anau and Manapouri as part of the investigations of effects of the massive Manapouri hydro electric scheme which was just beginning construction.

In the North Island I had a brief taste of the Taupo fishery while attending a

Wildlife training course at the Tongariro hatchery, now the Tongariro National Trout Centre near Turangi in early 1964. Turangi itself barely existed. A few baches, a couple of fishing lodges and the trout hatchery just down the road. Tokaanu was the social and commercial hub of the district and I clearly remember as a 16 year old when the legal drinking age was 21, sitting alone in the Land Rover outside its only pub while my colleagues were inside making the most of the 6 o'clock swill.

I spent much of the following year back in the North Island working in the Taupo and Rotorua lakes fisheries. This was in the very early stages of the construction of the Tongariro power scheme and again, much of my work was assisting with field surveys assessing the fishery impacts of this huge project. These surveys and a lot of earlier work lead to the incorporation of very expensive and for those days quite high-tech measures to minimise the negative impacts on the world-famous Taupo fishery. Features of the scheme such as the Wairehu canal drum screens, the Pouru intake velocity barrier, the Tokaanu Stream aqueduct over the tailrace and the now-abandoned fish screens across the Tokaanu tailrace resulted. But most importantly, the minimum flow set for the Tongariro River as a result of strong advocacy by anglers' organisations and the Wildlife Service probably saved the fishery in the face of the autocratic and sometimes capricious politics of the day.

At that time the Taupo Borough Council was embarking on its second dam on the Hinemaiaia River. Unlike the original dam built in 1952, this one was set to block access to trout migrating from Lake Taupo to two important spawning tributaries of the Hinemaiaia. Against much opposition from anglers and the Wildlife Service, the Marine Department decided not to require a fish pass for the dam. As something of a last ditch effort we decided to trap the spawning runs in Pahikohuru Stream, the larger of the two tributaries, even as construction of the dam had started. My boss, Norrie Ewing and I backpacked loads of timber battens and rolls of wire netting several kilometres through the Hinemaiaia gorge in the winter of 1965 and camped on the site while we built the trap. While we were unsuccessful in gaining any concessions to protect the fishery then, the information gathered proved invaluable nearly 40 years later.

The final year of my traineeship included part-time university study - the closest I ever got to a tertiary qualification. But nevertheless, I found the ecology component invaluable in giving structure and context to the natural processes and consequences of human intervention that I saw in my field work. Finally I was appointed as a Fishery Officer with the Wildlife Service in Rotorua in 1968. The Taupo fishery was managed from Rotorua at that time so I maintained an

John presenting boat fishing seminar to holidaymakers
Photo by Kim Alexander-Turia

active involvement with it, as well as working on the Rotorua lakes, Bay of Plenty, East Coast, Waikaremoana and Kaimanawa fisheries

While much of my work focused on the high-use Rotorua lakes and Taupo fisheries, the early 1970s saw an emerging awareness of the value of and threats to less well known fisheries. Energy interests were eyeing up pristine rivers like the Motu, Mohaka, Rangitikei and Manganui a teao for future damming. The new provisions of the Water and Soil Conservation Act provided an opportunity for these special places to be afforded a measure of protection through water conservation orders. So we began a new period of surveys and inventory aimed at measuring the values of these rivers, not just for fishery protection, but also other natural, intrinsic and recreational features such as whio (blue duck) and native fish habitat and recreation. Although it took well into the 1990s and the efforts of many individuals and organisations, parts of all four of these rivers now have conservation orders over them.

The Taupo catchment was undergoing significant change, not just from hydro development but also from accelerating agricultural development under the government's land settlement scheme. Vast tracts of land were broken in from native vegetation to pasture. The scale and intensity of this development was more than the light fragile pumice soils could stand and massive erosion washed hundreds of thousands of tonnes of soil and nutrients into the lake. Many of the smaller but nevertheless very important spawning streams were almost wiped out as trout habitats. A few far-sighted people, including the late Pat Burstall the-then Conservator of Wildlife, mobilised local, regional and central government into developing the Lake Taupo Catchment Control Scheme. Under this scheme, virtually all permanent and many ephemeral watercourses were fenced off, permanently retired from grazing and replanted. While it is a pity that so much damage occurred initially, this has been arguably the most effective response to reversing large scale environmental degradation on a catchment-wide basis this country has seen.

In late 1975 I took a position as Wildlife Fishery Officer in Te Anau. Fiordland, and indeed the whole Southern Lakes region, had always been special to me since my earliest days there as a trainee. The final stages of the Manapouri power scheme were under construction and I was involved in some of the last fishery protection measures there, including the regulation of flows in the Waiau River and the Mararoa dam fish pass.

Highlights of this period were rescuing and establishing in captivity the last population of Atlantic salmon in New Zealand, although it was something of a frying pan and fire outcome, and the first investigation and monitoring of the emerging chinook salmon fishery in the Paringa River catchment of South Westland.

1982 brought another of those can't say no moments. The Wildlife Service had decided that it needed to base the management of the Taupo fishery in Taupo rather than in the conservancy office in Rotorua. So I was asked to take up the new role of Senior Fishery Officer in Taupo.

Back in the North Island it seemed as if not a lot had changed. While the soil conservation issues caused by agricultural development had been largely resolved, similar impacts were now being seen from large-scale afforestation. However, these were much more short-lived, being essentially due to the initial forest establishment and more readily addressed with careful roading design and subsequent management. Hydro power construction impacts had largely resolved, leaving only the more permanent consequences of diverted and altered river flows.

One thing that had changed though was

It was worth waiting 40 years. John with Nortie Ewing (right) releasing one of the first spawning trout above Hinemaiaia dam, 2004
Photo by Petrina Francis

the huge increase in fishing pressure that had occurred over the preceding 16 years. Total licence sales had increased 70% from 43,745 in 1965/66 to 74,500 in 1981/82. Adult whole season licence sales had increased from 3,026 to 10,816 (257%) in the same period. We were slowly beginning to question whether the carrying capacity of the fishery was as limitless as we earlier thought. This brought about a fundamental change ro managing the fishery. It was apparent that a much more scientific approach was necessary if we were to understand its dynamics and seek the right answers to the right questions. Initially by sponsoring post-graduate students, commissioning consultants and increasingly, developing in-house technical and scientific capability, we delved into the mysteries of the biology, ecology and habitat of Taupo trout.

The rapid increase in fishing pressure also highlighted the need to understand more about anglers, their impacts and the economic benefits of the fishery. In the mid-1980s a study was completed which, for the first time, demonstrated the value of a resource that now generates some $80M annually into the regional economy.

Hydro generation still demanded much of our efforts. Settling resource consent conditions for the Tongariro and Hinemaiaia power schemes made major gains for the fishery. Little did I know that trapping work we had done in 1966 would be crucial in achieving a consent condition that now sees lake trout spawning above the Hinemaiaia dam for the first time in 40 years and will lead to the restoration of a substantial amount of angling opportunity.

In 1987 the Department of Conservation was formed incorporating the functions of the Wildlife Service. This brought big changes. The fishery now has a specific mandate to be managed in the recreational interests of anglers. It is financially independent, relying solely on licence revenue. Our scientific and technical monitoring programmes are bedding in as the foundation of management decisions. And I acquired the grand title of Taupo Fishery Area Manager.

The last 20 years have seen continued change and development. Licence sales have dropped from their peak but paradoxically, angling effort and catch has remained high. We have had our first fishery management plan and are about to embark on its replacement. The effects of declining water quality are starting to become visible. The Crown has returned title to the beds of Lake Taupo and its tributaries to Ngati Tuwharetoa but the public and anglers have retained their unique access rights. Trout bag limits have dropped from 8 to 3 per day. Minimum trout size limit has increased from 35cm to 45cm and dropped back to 40cm. Nymphing has taken off in the rivers and downriggers and jigging on the lake. The visitor centre at the Tongariro National Trout Centre has emerged from the partnership with the Trout Centre Society. The wonderful education programme Taupo forTomorrow has been created with the support of Genesis Energy. The number, size and condition of trout has continued its century-old cycle of highs and lows but still the Taupo fishery remains one of the best wild rainbow trout fisheries in the world.

It's a lot to reflect on.

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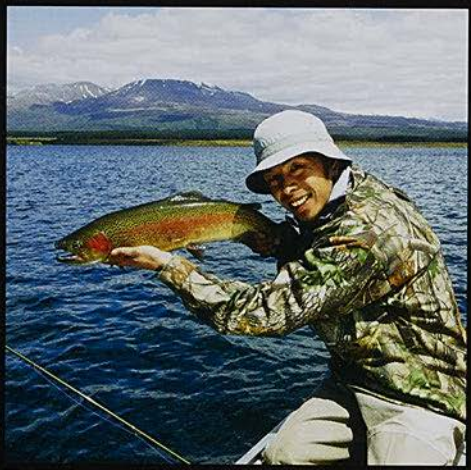
Takahiro Koike. Yoshi, who fishes with many different Sage rods, talked me into buying one for myself. As you can see, I am very pleased he did.



Kiyoshi Nakagawa. NZ Champs Silver and Bronze, Oceania champion 2009, NZ Rep twice, Japanese Rep 3 times, Umpqua endorced fly-tying instructor

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Fish this year are generally small, but in good condition.
Photo by John Webb

A season of Improvement

By Glenn Maclean
Glenn is our Programme Manager,Tech.nical Support and manages the research and monitoring work done in the Area

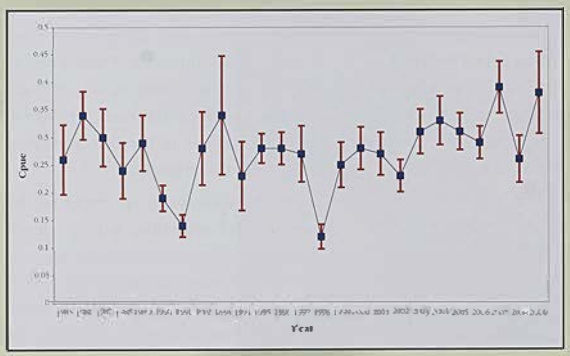
After the low point in the fishery in 2008 the spawning runs this winter have reflected the start of the long awaited recovery.Trout size is still generally small though there are some very nice fish amongst them and their condition is much improved.

On the Tongariro River this winter we measured an average catch rate amongst the 760 anglers surveyed of 0.38 large trout per hour or 1 fish every 2.6 hours. Table 1 shows that consistent withrecent years the fishing was slow over May and June before picking up through July to September. Note that the October catch rate is a much smaller sample calculated from only a couple of survey days before we focused our attention on the lake for the summer.

This catch rate is as good as it gets over the last 25 years as highlighted in figure 1. However I don't think any of us would suggest the run was that big.

Instead this catch rate along with the one in 2007 highlight some of the issues with using catch rate as an index of fish numbers. Undertaken in a robust way it is a good estimate of angling success, after all it is a measure of how many fish anglers actually catch. However, success is influenced by many variables, not just how many fish are present. We suspect the nature of the lower Tongariro in particular means that what fish are there have been especially vulnerable over the last couple of seasons. Even more important is the influence of the internet and our ability to find and share information. Put simply there aren't too many secrets these days. Fishing reports are updated daily and information on the hotspots, how to access and fish them ,what to use and how to fish that secret fly is readily

Figure 1: Estimated catch rate per angler on the Tongariro River 1985 to 2009 with 95% CI



MONTH	NO. OF INTERVIEWS	CATCH RATE PER HOUR
May	112	0.14
June	168	0.20
July	118	0.46
August	169	0.53
September	155	0.58
October	38	0.23
TOTAL	760	0.38

Table 1: Estimated catch rate per angler on the Tongariro River May to October 2009

found. Similarly it is the norm to see an angler talking on their cell phone to their mate somewhere else on the river and exchanging information. In the past there was a strong correlation between angler success and the number of days the angler had already fished the river that season – now that local knowledge is just a key tap away. It all highlights how complex the relationship is between people and fish numbers which Michel Dedual's article explores further on page 41.

The large width of the 95% confidence interval associated with the estimated catch rate for this winter indicates that there was a high degree of variability in the catch rates measured. Catch rates are always very variable as a few anglers catch most of the fish but it appears this was accentuated this winter. As an aside it is also evident in figure 1 how quickly the fishery rebounded from the low point in 1991 and the effect of the eruptions felt in 1998.

On the Hinemaiaia the estimated catch rate was 0.44 fish per hour which reflects that this river fished very well this winter, perhaps the best of all of them. The Waitahanui also had a much improved season and the Tauranga Taupo while slow to fire then fished well late in the season with an overall catch rate of 0.35 fish per hour. What was noticeable this winter was an apparent return to the traditional pattern of fishing success on the Tauranga Taupo, Waimarino and other south eastern tributaries. Strike the rivers just after a fresh with some colour and increased flow and the fishing could be red hot. However within a couple of days as the rivers cleared and dropped and the fish had moved through, very much how it used to be but not the pattern of recent years.

Given the obvious issues with using catch rates as an index of trout numbers this is why we also undertake a number of other monitoring programmes as well. A key tool is our monthly counts over winter of spawning trout in selected stretches of the Hinemaiaia, Tauranga Taupo, Waimarino, Waiotaka and Whitikau rivers. This winter these indicate slightly below average to average runs, the exception being the Whitikau run which is much smaller. Low counts have been the trend over the last couple of years in the Whitkau and mirrors the trend to date in the nearby Waipa Stream as measured by our fish trap.

To date the actual run through the Waipa trap is slightly higher than the actual run at the same time last season, a run which ultimately was the lowest recorded. However until we adjust the run to take into account any fish missed when the trap is flooded (by using the percentage of unclipped fish when they return back downstream after spawning) we won't know the exact size of the population, though clearly it isn't going to be large. Obviously the Whitikau and Waipa results are contrary to the conclusions we might draw from angler catch rates but overall it appears the run in the Tongariro is at the low end this winter.

Coinciding with this it appears that the trend of later spawning is most developed in the Tongariro system, and we wonder how much influence the winter river angling has on this. The bottom line is that most anglers still fish the

river hard over May and June when relatively few fish are present, so there is strong pressure on what is left of the early part of the run. This doesn't occur to anything like the same degree on the other rivers. Is later spawning a bad thing for the success of the trout population? – we may speculate given the apparent trend in trout numbers in the Tongariro system. However at this stage we need to wait and see if this trend continues now the fishery is rebounding on the back of much improved feeding conditions in the lake.

The improved food (smelt) in the lake is reflected in the improved condition of the trout recorded through the Waipa trap. The average size of the rainbow trout this year is still small at 470mm and 1.2kg with a condition factor of 42.2. Perhaps more revealing is the average condition factor of the maiden rainbow females on their first spawning run, which at 45 is much more like it should be. Similarly the average size of trout kept by anglers across all the rivers was 485mm and 1.3kg, slightly bigger as we would expect as anglers tend to select for the larger fish. These anglers rated their overall satisfaction with the size and condition of the trout at 5.3 out of 10, up from 4.8 last year. The general comment was that the condition of the trout was much improved but they were still small. Interestingly anglers rated their overall success at 5.3 despite the high catch rates recorded. However, just as their catch rate was highly variable when we interviewed them, so to was their rating of their success. Nevertheless this relatively low average score reinforces a message we have seen previously; that our perception of success for many of us is not just influenced by how many fish we catch but also the quality of what we catch.

That the fish are generally small but in good condition suggests they struggled when they were younger but in recent months have done much better. This improvement is even more obvious on the lake this spring. There are large number of young trout, many berween the legal length limit of 40cm and the old limit of 45cm. This is exactly what we would have expected to see a decade ago, after all the old limit was designed to protect the fish through until about December or January. Even more pleasing is the condition and colour of these fish. Once again the maiden fish are bright orange, almost red with fat all through their body cavity. It's not surprising given all the smelt they are regurgitating when bought to the surface. Nevertheless fish in this condition can't help but grow and we expect some very nice trout to be taken in the lake next autumn and to make up the winter spawning runs. About time I reckon!

The colour of maiden trout in the late spring.
Photo by: Cam Maclean

A Gentle Reminder

By Jill Larsen-Welsh
Jill is the Area Compliance Officer

Did you know... that nothing in this country is illegal unless there is a law specifically against it? Well, it's true, although I'm not so sure you'd find many aspects of our society that have not been legislated some way in modern times.

Of particular interest to DOC staff is the Acts and Regulations that govern our activities within the Department of Conservation. Being a warranted officer for the Department carries with it a myriad of powers and obligations that allow us to uphold relevant laws; and as a Department there is a great deal we need to consider. DOC is responsible for administering many provisions of such legislation as The National Parks Act, The Wildlife Act, The Conservation Act, The Dog Control Act, The Litter Control Act, The Marine Reserves Act, The Freshwater Fisheries Regulations 1983 and The Taupo Fishery Regulations 2004, among others.

With most legislation there is also a need for public awareness about what it means and sometimes legislation is difficult to read or interpret. However, legislation is the primary source if you want to know whether something is illegal or not. If you want to view any Acts or Regulations, they are readily available on the internet through www.legislation.govt.nz. Alternatively most major bookshops around the country will carry them or be able to get them in for you. Bear in mind that legislation is amended often. Having recent copies or referring to the website above is important and will ensure what you are reading is accurate.

DoC is responsible for implementing the provisions of many pieces of legislation
Photo By John Webb

Conservation rangers who are Warranted Officers are appointed under Section 59 of the Conservation Act 1987. Most Rangers, and many management staff that work for the Department are Warranted Officers, and as such are empowered under legislation to conduct different duties specific to each Act.

For example, if a Ranger has reason to believe that someone is committing or has committed an offence under the Conservation Act (which includes the Taupo Fishery Regulations), then he or she has the right to search their vehicle, coat, any bag and request their personal details. They also have the right under certain laws to search a holiday home, caravan, campervan, aircraft or boat. They can also seize certain items – either to prevent someone from continuing to offend, or simply as evidence of an offence. This can include their car, boat, fishing gear, hunting gear and so on.

A refusal to supply a name and address can, in some cases, see a person charged with obstructing a Warranted Officer, or failing to comply with a request by a Warranted Officer. These offences carry harsh penalties under the Conservation Act and up to a $10000 fine or a year of imprisonment may be handed down.

The Taupo Fishery Regulations 2004 are made pursuant to the Conservation Act and the Maori Land Amendment and Maori Land Claims Adjustment Act 1926 and provide many of the finer regulatory points of law that are specific to the Taupo Fishery. Although there are many anglers who fish within the Taupo Fishing District on a regular basis, there equally many more who only venture here occasionally, often during holiday periods, or over the summer months.

With summer and the boating season upon us it seems timely to remind people of a few of the basic regulations and courtesies that make using the lake an enjoyable experience for everyone.

- You must not fish from a boat within 300 metres of the centre of most river mouths. These are marked by yellow and black marker poles that are there merely to indicate the river mouth is nearby – they are not markers from which you should measure the 300 metre distance. At the Tongariro or Tauranga Taupo delta's however, you may fly fish from an anchored vessel within this 300 metre zone. Trolling, down rigging and jigging are not permitted in any of these areas.

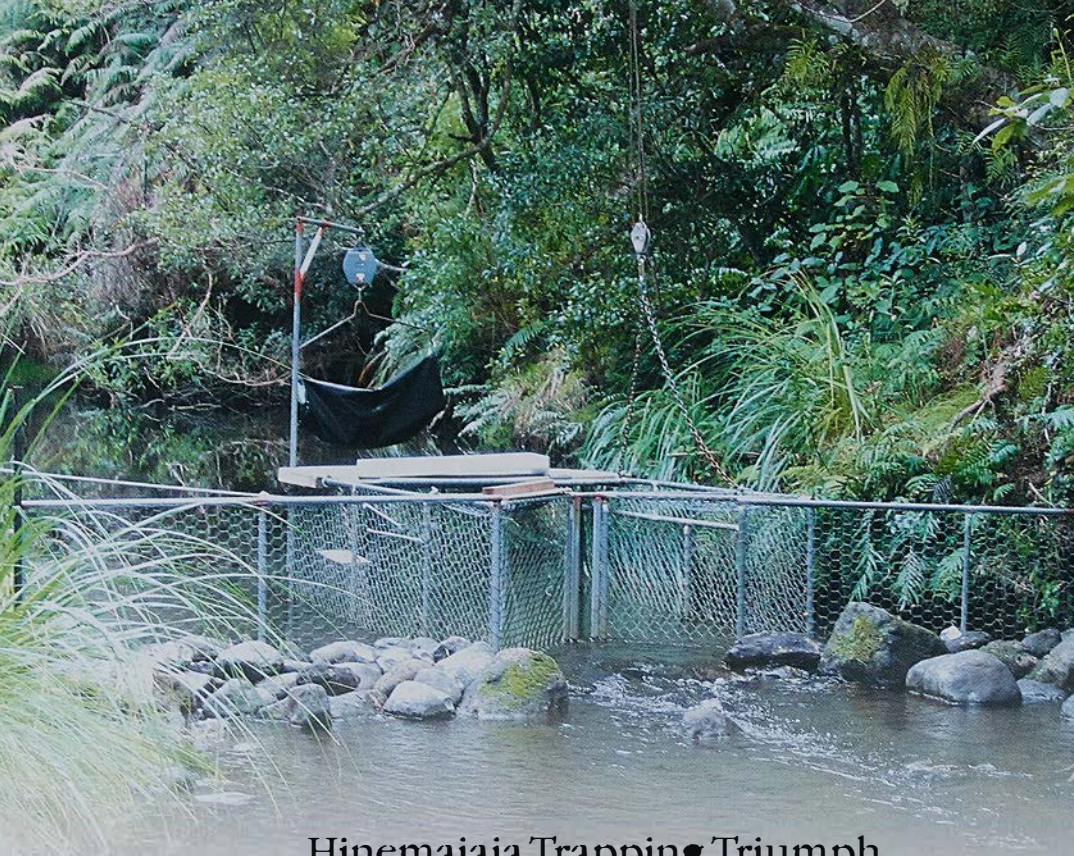
Marker posts like this one at the Tauranga Taupo river indicate that a river or stream mouth is nearby
Photo By: John Webb

- If you approach a moving boat that has fishing lines out, then you should allow plenty of distance so that you do not drive over the lines. Some lines can extend up to 100 metres or more behind a vessel.
- You can use up to three lures on any one line, but you cannot use bait or any plastic bait that is chemically scented.
- You may use a sinker or lure to get your jigging line down to the bottom. There is no weight restriction when using sinkers or lures for jigging.
- You are allowed to have more than one rod assembled, but a person may only use one of those rods at any one time.
- Any person (children included) who has a fishing rod in their hands is deemed to be fishing and must hold a current Taupo District Fishing Licence. Child Season licences are not expensive, so if you want to give the kids a shot at fishing, buy them a licence first – this way they will be legal, and you will be sending them the right message.
- Previously there was a regulation that prevented down rigging lines going deeper than 40 metres. This has now been changed, and there is no longer any depth restriction for down rigging.
- The maximum daily bag limit is three trout. Once you have caught and killed three trout you must stop fishing for the day.
- The minimum size is now 40 cm measured from the tip of the nose to the fork of the tail.

The speed limit is 5 knots when passing within 50m of another water craft.
Photo By: John Webb

- There is plenty of water around and enough room for everyone to have a great time. Always be considerate to other boaties out on the lake and be mindful of the 5 knot speed restriction that applies within 200 metres of the shore or within 50 metres of any other water craft.
- Always check the water well as you head in to shore or to the ramps. There are often swimmers, sometimes small children in the water near ramps and beaches.
- If you clean your fish on the lake or around the lake shore then put the offal into an ice cream container or similar and take it home to dispose of there. Don't litter the lake.

You just need to apply a little common sense, abide by the fishing rules and regulations, be safe and then we will all get to enjoy this summer period.



Hinemaiaia Trapping Triumph

By Callum Bourke
Callum is a ranger in our field operations work

This September saw the completion of the sixth consecutive season of the Hinemaiaia trap and transfer program, in association with TrustPower Limited. The trap was operated for 54 days between mid July and mid September to transfer adult trout upstream of the Hinemaiaia HB dam, so they could spawn in the Pahikohuru and Kakapo Streams as they had done prior to the construction of the dam in 1965.

This season a total of 480 trout (equating to 9.4 trout per day) were trapped of which 277 were transferred above the dam and 203 were released back into the bypass channel above the trap either because they were spent (had already spawned), were immature or were considered to be in poor condition. Due to the large size of the run this season we were able to be quite selective ensuring only mature trout in good condition were transferred.

In contrast to last seasons trapping period which was characterised by long periods of inclement weather and high rainfall, this year proved to be the opposite with relatively settled weather. As a consequence, the HB dam rarely exceeded its carrying capacity and on only two occasions did the dam spill necessitating the removal of the trap to prevent it washing away or getting damaged in the impending flood. Overall, the trap was inoperable for only three of the 54 day trapping period which was considerably less than last season when the trap was inoperable for 31 of the 62

Top: The Hinemaiaia trap
Photo by Callum Bourke

Above: Fish are captured in the Hinemaia trap and gently released above the dam (above right). *Photos by Rob Hoyer*

day trapping period. As a consequence, we were able to meet the target of 200 trout transfers with ease.

Of the 277 trout transferred above the HB dam, 227 (82%) were classified as maidens (spawning for the first time) while the remaining 50 trout (18%) were previous spawners (spawning for at least the second time). The higher number of maiden fish this year combined with the apparent large size of the run indicates a strong year class entering the fishery. It is also pleasing to note that the average condition factor of trout transferred above the dam has progressively increased over the last 3 years. This winter the condition factor increased to 45.5 compared with 43.4 in 2008 and 42.5 in 2007. This indicates that the fish are in significantly better condition this year and is in keeping with the improvement seen across the fishery generally.

During the trapping operation, the number of dead trout that had collected on the HB power station screens was also recorded. Overall, 28 (10%) of the 277 were recovered. Half of these fish had spawned before dying which was an encouraging sign that significant spawning was occurring from the transfer process. A further eight had not spawned before dying while six were too damaged to make a definitive assessment.

This season we amended our fin clipping procedures by removing the adipose fin and half of the left pectoral fin for all fish transferred above the dam. Any fish deemed unsuitable for transfer had only their left pectoral fin clipped. Previously we would only clip their pelvic or pectoral fins so returning fish could be identified. By removing the singular adipose fin we will now know with certainty whether a fish returning to spawn in future years has been released above the dam previously. This is because the adipose fin does not re-grow (unlike other fins that have been clipped) and so transferred fish that make it back to

Below: Fishery Area Manager John Gibbs strips Hinemaiaia fish (takes eggs and milt). Fish from these eggs will be marked and used to research the Hinemaiaia run. *Photo by Julie Greatrex*

the Lake then return to the Hinemaiaia River to spawn the following season are easily identified. Incidentally, many trout released above the dam will make their way down through the dam penstock and powerhouse and survive going through the turbines.

From 2005 to 2007, several thousand fry were released in the Pahikohuru and Kakapo Streams (tributaries of the HB dam) in addition to the adult trout trapped and transferred each winter. These fry were the progeny of ripe (ready to spawn) trout that were trapped in the bypass channel. The object of this exercise was to further assist the re-establishment of the spawning runs in these streams so fry that survive to become adults will return to spawn where they were released helping to generate a self sustaining population. Through regular visual inspections we have seen some sign of spawning activity taking place but it is difficult to accurately assess whether juvenile trout reared in the Pahikohuru and Kakapo Streams are in fact contributing to the subsequent spawning runs in the lower Hinemaiaia River.

In order to answer this question we have embarked on an exciting new project to assess the spawning recruitment and subsequent survival to the adulthood in the Hinemaiaia population. In late August we extracted 12,000 eggs from ripe parents as part of the trap and transfer operation. These eggs will be reared at the Tongariro National Trout Centre until they are seven to eight centimetres in length with the aim of releasing at least 10,000 juvenile trout in these two HB tributaries. However, before we release these fish they will be marked using calcein which is a fluorochrome compound that binds to calcified structures such as otoliths (ear bones), rays and bony structures around the opercular (gill covers) and jaw areas. Immersion marking of fish using calcein results in a brilliant green fluorescence in these structures. These marks are easily detected in fish using a hand-held fluorescent detector which excites the marks with blue lights. Starting in the winter of 2012 (when these fish will be adults) we will scan all fish we trap or see as part of our routine angling surveys on the Hinemaiaia River to establish whether they have been marked and therefore recruited into the adult population.

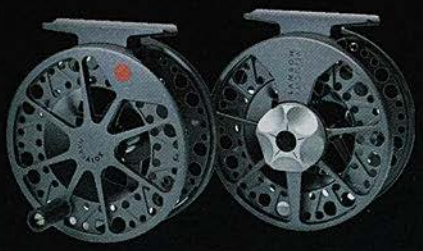
Now that the trap and transfer program has been running for six seasons and we have trapped a significant run of 480 fish suggests that the program is starting to "bear fruit".

As a consequence, next year, all going to plan, the winter fishing limit will move from its current position at the State Highway Bridge to the Cliff pool extending the fishable water available to anglers by approximately 2.75 kilometres or 50%. This fits very well with one of our key objectives - to maximise angling opportunity. However, a close eye will be kept on the catch rates and spawning runs up the Hinemaiaia River to ensure the sustainability of this special resource.

THE WATERWORKS LAMSON

Lamson Litespeed Reels

Not long ago we introduced a Limited Edition Series 1 Litespeed with great success. With more extensive frame and spool porting, the 2007 Litespeed is based on the Series 1 development. Lighter without sacrificing strengths, the new Litespeed will come in a close second to a corresponding Force reel in terms of retrieve rate and weight, and each shares our patented maintenance-free super smooth conical drag.

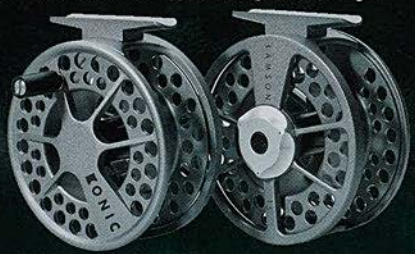


Lamson Velocity Reels

Velocity: only the name remains the same. Totally redesigned and machined using a unique "3 plane" pocket milling technique, every aspect of performance, strength-to-weight ratio, line pick-up speed and storage has been improved. And as is often the case, the distinctive new engineered "truss" wall structure give Velocity a personality all its own. Bigger, faster, lighter and stronger.

Lamson Guru Reels

We're pleased to introduce the new Guru, an enlightening reel. Guru enters the family as our lowest–priced fully machined reel. The signature arm–style element on the frame combines with open spokes to maximize structural strength and minimize weight. As with our other reels, Guru features true large arbor ratios. Guru is available in 4 weight through 10 weight, and shares identical drag design and components with our most expensive reels. Guru is finished with a clear type 2 anodize.



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Konic delivers smart design and high performance in Lamson's most affordable reel. The same super-smooth, fully sealed conical drag system and stainless roller clutch used in our more expensive reels are matched with machined components and pressure cast ALDC12 aluminum alloy spool and frame. Konic is anodized then finished with a 100% solid polyurethane coating to resist gouging and abrasion. Affordable reels just got a whole lot better.

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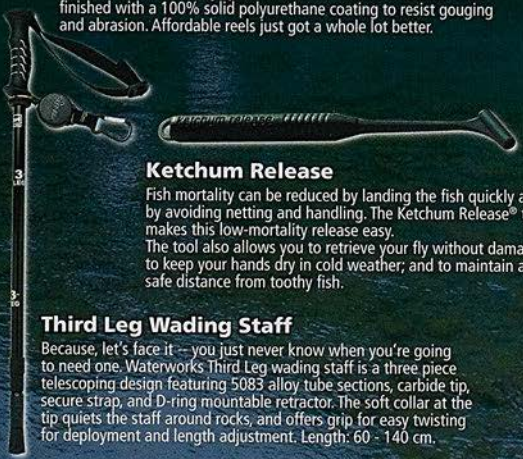
Force LT represents the world's lightest full-drag true large arbor reels. The conical drag, first developed for this reel in 1996, allows the structure of the reel to maximize the large, wide line storage format pioneered by the Waterworks, without the mass of a disc-dedicated structure. The F2 LT can pick up line quickly, store it without coiling, provide a consistant drag torque and still weigh in at an incredible 3.25 oz.



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Fish mortality can be reduced by landing the fish quickly and by avoiding netting and handling. The Ketchum Release® tool makes this low-mortality release easy.
The tool also allows you to retrieve your fly without damage; to keep your hands dry in cold weather; and to maintain a safe distance from toothy fish.

Third Leg Wading Staff

Because, let's face it -- you just never know when you're going to need one. Waterworks Third Leg wading staff is a three piece telescoping design featuring 5083 alloy tube sections, carbide tip, secure strap, and D-ring mountable retractor. The soft collar at the tip quiets the staff around rocks, and offers grip for easy twisting for deployment and length adjustment. Length: 60 - 140 cm.

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We're Not Quackers

By Kim Alexander-Turia
Kim is the Programme Manager, Community Relations for the Tuangi Tupoarea

Whio (Blue Duck) are increasingly making the Tongariro River their home. With whio living on such an accessible river, anglers and other river users have the opportunity to see this rare and threatened native species close up.

Whio are endemic to New Zealand which means this is the only country they are found, and one of only four torrent ducks in the world. They are adapted to living in one of the most challenging environments - a fast flowing river. They are the central North Island white-water specialists and ducklings are born to surf, able to negotiate white water almost straight out of the shell. They have several unique physical features which are adaptations to this fast flowing environment. Their webbed feet collapse like a folded umbrella to create less drag, which allows the ducks to pull themselves forward through fast water. They also have a special soft lip on the end of their bill, which acts a bit like the head on a vacuum cleaner and allows them to scrape off insect larvae that cling to rocks.

There are approximately 2500 whio left in New Zealand, which some are surprised to learn is a lot less than the numbers of kiwi. Whio are generally nesting between August and October and can lay 4-9 creamy white eggs at a time. The female incubates the eggs for 35 days, and after hatching both parents look after the young until they fledge at around 70 days old. By then the ducklings have learned to fly and will then leave their parents to find a mate and territory of their own. Whio can defend territories up to 1km long on the river and are with the same partner right throughout the year - some even mate for life. They are very aggressive and have even been known to tackle Canada geese that stray into their territory.

Loss of habitat through changing land

Top: Keeping the family together is a full-time job
Photo: Bubs Smith

Above: Bio-diversity Ranger Alison Beath giving a health check
Photo: Bubs Smith

Below: Ducklings can negotiate white water almost straight out of the shell
Photo: Bubs Smith

and water use has been a major threat to whio over the years. They also nest in burrows and caves along the river bank which make them highly vulnerable to flooding. However, their biggest threat is introduced predators, and in particular the stoat.

Local business people, lead by Garth Oakeh of Tongariro River Rafting and Craig Morey of Parklands Motel have set up the Blue Duck Project Charitable Trust (Trust) to protect whio on the Tongariro.

The project began in October 2008 with 160 DOC200 traps which comprise of a strong steel trap in set a wooden box. The Taupo Fishery Area has had many enquiries from anglers about these traps and what their purpose is. These are set along both sides of the river from the Major Jones footbridge to the Fence pool in the first part of a two stage process to trap the entire length of the river from the Poutu intake to Turangi Township. Volunteers check the traps regularly and catch data is sent back to Garth. To date they have accounted for over 270 pests including rats, stoats, weasels, hedgehogs and even a couple of wild cats. If you are interested in clearing and setting some of the traps, contact Garth at www.trg.co.nz.

Stage two which has recently been completed includes the installation of traps from the Fence Pool to the Poutu Intake and funding for this stage has been

Whio nest in burrows and caves along the river bank
Photo: Bubs Smith

received from the Waikato Catchment Ecological Enhancement Trust. This has enabled the Trust to purchase over 60 new 'Henry' self setting traps. The advantage of the self-setting traps is that it traps, kills and releases the predator and then re-sets automatically. They are powered by a small CO_2 cartridge which will enable a minimum of 12 kills before it needs to be replaced. The Henry will be able to be installed further upstream in the river gorge area where access is particularly difficult and will only need to be checked twice a year.

The Trust has been very pleased with the results so far and would like to acknowledge the Pharazan Trust and Rayner Bonnington of Turangi New World and various other local businesses. In particular, the Trust acknowledges Nick Singers, who as one of the Trustees of the Blue Duck Project Charitable Trust has been instrumental in getting the project off the ground. The Department

Top: The whio or blue duck is one of only 4 torrent ducks in the world
Photo: Bubs Smith

Below: Whio females can lay 4-9 creamy white eggs at a time
Photo: Bubs Smith

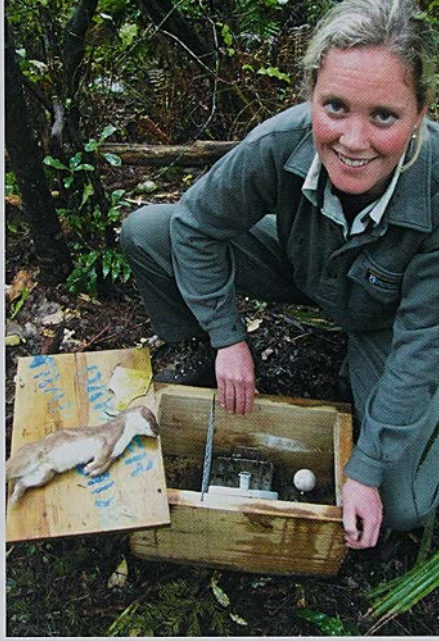
supports this programme and without community involvement like this the work often won't happen. It's important to acknowledge their persistence, hard work and dedication they put into this project which has the objective of protecting the values of this important river.

If you're looking for whio they are most active during early morning or late evening. They have unique calls and are definitely not quackers. Instead the girls growl at the guys and the guys whistle at the girls. Sound familiar?

Whio may seem tame and unafraid, but for their safety we would be grateful if people would give them space and watch the birds from a distance, particularly when walking their dog. Dogs find the scent of ducks quite attractive, and can easily disturb a nest. Keeping your dog on a lead particularly during the breeding season is an excellent step towards helping this threatened bird.

Sightings this year on the Tongariro River have been in the Fence Pool, Major Jones Pool, Boulder Pool, Blue Pool, between Kutai Street and the Major Jones Bridge

Right: Bio diversity Ranger Fiona Maguire with a DOC200 predator trap. Traps similar to these ones are protecting the whio
Photo: Kim Alexander-Turia



and at the Rangipo Intake. Ducklings have been seen at the Boulder Pool and the Blue Pool.

If you see any whio on the Tongariro River please call DOC Turangi/Taupo 07 384 7106 to report your sighting as they are entered into a database which can be used to map the distribution of whio in this area.

Monitoring of whio on the Tongariro is due to begin this year and will be part of a 5 year monitoring plan. Whio can't live in just any old waterway, they need fast-flowing, high water quality, plants along the bank and lots of invertebrates – if you find whio you find a healthy river and that's good news for anglers.

A Trophy Fishery or Not?

By Glenn Maclean

This winter we completed our 16th year of trapping the spawning run in the Te Whaiau Stream. The run in this stream and that in the nearby but much smaller Papakai Stream which we also trap, comprises almost the total spawning run from Lake Otamangakau. Therefore by trapping these fish we are able to accurately measure the characteristics of the adult brown and rainbow population. Over the 16 years of trapping, the fishery has undergone a major change from very low catch rates of some truly trophy rainbow trout, to much higher catch rates of smaller fish. By analysing the trends in the data we can explain what is happening.

The rainbow run through the Te Whaiau trap this winter was estimated at 3,375 trout, second only to the estimated 4,330 fish last winter (Figure 1). This is 7 to 8 times larger than the run in the mid 1990s. These trout averaged 1.9kg (identical to last winter) with a condition factor of 44 so very nice fish by most standards including Lake Taupo, though much smaller than the 3kg plus average in 1995 and 1996. By contrast the brown run was 1,165 trout compared to a run in the 1990s of approximately 800 trout.

The smaller average size of the rainbow trout tells a story but it is even more graphic when we compare the number of trophy sized fish. In 1996 we weighed 42 rainbows in excess of 4.50 kg (10lb) or 9.3% of the run, and 92 fish (1 fish in five) weighed 4kg or larger. This year we didn't have a single fish over 4.5kg - in fact only 1 rainbow exceeded 4kg.

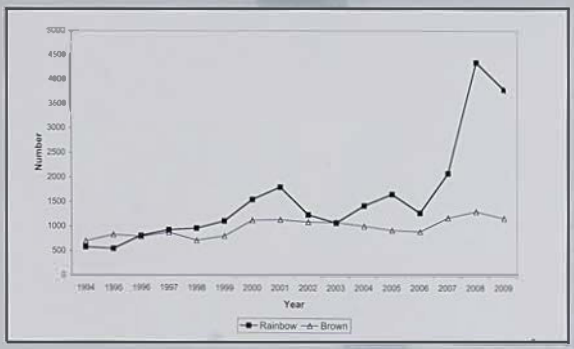


Figure 1: Estimated brown and rainbow run through Te Whaiau Stream 1994 to 2009.

So in terms of size the trout are now clearly much smaller, however equally there are many more of them. To put this in perspective, the biomass of adult rainbows is now in the order of 7 tonnes compared to about 1.5 tonnes in 1994. When the increased run in the Papakai stream and the brown trout population is also taken into account then the total biomass has increased from about 1.6 to over 10 tonnes, a 6 fold increase. When we consider the relatively small size of lake Otamangakau then we might intagine that increased competition for food in recent years may be affecting trout growth.

Countering this is the relatively high average condition factor of the rainbows in the last two years which at 44 reflects trout in pretty good nick. We decided to look at the trend in average size and condition of trout classed as maidens (first time spawners) by the trap operator over the past 16 years (Figure 2). By only looking at maiden fish we removed any effect of having older fish in the analysis which we might expect to be tired and not to be in great condition anyway. This graph tells a story. The two big years for trophy fish since trapping began were 1995 and 1996 co-inciding with the condition factor of maiden female rainbow trout exceeding 50. This is an outstanding average condition factor, especially for fish averaging 2.5kg because it is more difficult for large fish to have very high condition factors. Interestingly the only other year this occurred was 2002, the 3rd best year for trophy rainbow trout when 20 were recorded albeit from a bigger population. When they are in this condition we would expect them to grow quickly and perhaps not surprisingly their average size was significantly larger in 1995, though not in

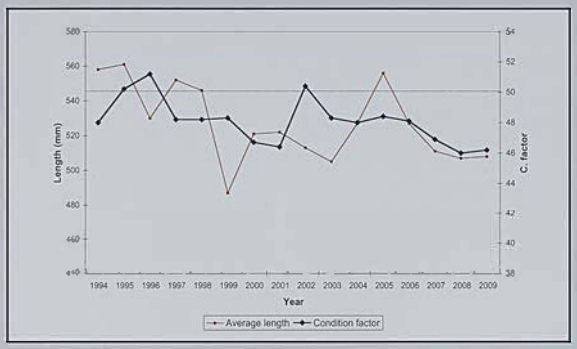


Figure 2: Average length and condition factor of maiden female rainbow trout through Te Whaiau trap 1009 to 2009

1996. However it is apparent looking at the data from 1996 that there is a big number of very large fish which the operators classified as unknown maturity rather than maidens and so were not included in this analysis. It many instances it was likely a case of they looked like maidens and probably were, but were so big that the operator felt they couldn't possibly be.

This data suggests that making rapid growth was the key to producing trophy rainbows in Lake Otamangakau. However this is contrary to our understanding that the trophy fish were long lived, reaching very large size not by unusually fast growth but rather by continuing to grow steadily after each spawning. Indeed scale analysis indicates Ron Burgin's legendary 8.5kg fish in 1983 was an old fish that had spawned a number of times.

To investigate this we looked at the age of the trophy fish in the 1996 and 2002 spawning runs by using the incidence of previous trap clips. Each year the fish passes through the trap we clip a different fin which regrows leaving a distinct scar. We can therefore determine how many times a fish has spawned previously from the clips it carries, albeit that occasionally they may bypass the trap in a flood and so miss a year. In 1996 and 2002 60% and 53% respectively of fish 4.5kg or larger had no clips, that is they were most likely on their first spawning migration.

More interesting in 1997 there were 8 trophy fish of which 6 had no clip. However, the year before there were 42 large fish - so what had happened to rest of these in 1997? In fact there were another 24 fish which were at least 700mm long so potentially 'double figure' fish but which weighed less than 4.5kg in 1997. Of these 21 either had trap clips or were clearly previous spawners judging from their low condition factors. This suggests that rather than many of these large fish kicking on and growing even larger, they were in fact lighter than they had been the previous year.

We are also starting to get significant information on the growth of trout from one spawning to another from our pit tagging programme. This has been underway for 3 years now and lets us track the growth of individual fish when they return through the trap. 35 rainbows tagged last year were re-measured this winter having grown on average 24mm but only gained 0.1 kg in weight. The largest individual increase was a fish which grew 50mm and 0.8kg. Similarly 25 trout were recaptured which were tagged two years ago and on average had grown 36mm and still only gained 0.1kg in weight. The largest gain was a fish which grew 125mm and 1.35kg over the two years.

This tends to confirm that the key to the trophy fishery is how well the maiden trout grow, that they need to at least get close to 4.5kg before they spawn for the first time. For this to happen it would appear there needs to be relatively few trout and a surfeit of food.

So what has caused the increase in trout numbers? Firstly it is important to realise that in the early days following the establishment of the lake in 1971 the fishery was characterised by very high catch rates of smaller fish. One ex-colleague described to me how it was a great place to take his kids because they could spin fish and invariably catch a number of trout in an afternoon. So in many ways it has gone back to what it was. The change is unlikely to be linked to a reduction in angling harvest for

Fish like this rainbow female measured by Marc Milne have been rare in recent years.
Photo by: Kim Alexander Turia

even in 1995 70% of legal sized rainbows were released by Lake Otamangakau anglers. Similarly brown trout numbers have increased slightly and so predation of small trout is unlikely to be any less. Nor are there any reasons to believe that the spawning and juvenile rearing habitat is any more favourable than in the past. One possibility however is that operational changes made by Genesis at our request to minimise the magnitude of spill events has resulted in less fish lost over the Te Whaiau spillway and into the Whanganui system during large floods. Almost certainly poaching in the Te Whaiau Stream is also greatly reduced since we installed the trap and had staff permanently in the area over winter.

What this suggests is that anglers are faced with a choice. We can have few fish but of very large size, or many more that are smaller but still very nice trout. After all the average size this year was 1.9kg or just over 4lb. In 1995 the average catch rate of rainbow trout was 0.09 fish per hour (1 fish every 11 hours) or a combined catch rate with brown trout of 0.15 fish per hour. It could be a long time between fish but the odds were it would be something special.

Currently the Taupo Sports Fishery Management Plan requires that we manage the Lake Otamangakau fishery as a trophy fishery. If we are going to achieve this policy then it would appear we need to significantly reduce the size of the trout population. There are likely a number of ways we could achieve this, some more brutal than others. The key question is though 'is this still what anglers want?' What we do need to be explicit about is you can't have both; the choice is either low catch rates of very large fish or high catch rates of smaller trout.

This plan is currently under review which is a formal process that will occur through 2010 and include several opportunities for you to make your views known on the draft plan. As it stands the initial draft suggests Lake Otamangakau continue to be managed as a trophy fishery. If you are on our database for Target Taupo you will receive notification and updates as to where the plan review is at and how you can participate. Similarly we will be asking anglers we check on the lake this summer what their thoughts are. This is a very timely opportunity for anglers to debate what you want from this fishery, and determine the future management direction.

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There is More in Lake Taupo than Trout!

By John Webb
John is the Programme Manager, Community Relations

Taupo is famous for its trout and people are drawn from all over the world for the angling experiences Taupo presents. However, there are many other species of fish, crustaceans and molluscs that inhabit Lake Taupo and its tributaries. Some of them are indigenous although over the years a number of exotic species, other than trout, have also made their way into the Taupo catchment. In some ways all of these species could be considered 'introduced' as almost certainly no species survived the major eruptions of the lake as recently as 1800 years ago. Therefore all species that are present today are likely to have been introduced by either Maori or Europeans. This article is a synopsis of these species and their significance to the Taupo fishery.

INDIGENOUS FISH

Koaro *(Galaxias brevipinnis)*

Koaro (Galaxias brevipinnis) Photo by: Stephen Moore

From a family known as galaxiids (which are commonly known as whitebait), Koaro are one of the few indigenous fish to inhabit Lake Taupo and are widespread nationally, a key component of whitebait runs. Adults tend to favour swiftly flowing rocky forest streams of small to moderate size or tussock streams. Traditionally Koaro go to sea as part of their life cycle but in some places, such as Lake Taupo, they have established lake populations that undergo their entire life cycles within freshwater. Many Taupo tributaries are excellent places to see adult Koaro at night while juvenile forms are common in Lake Taupo mixed among the smelt.

In early times the average size of Koaro was much larger than it is today. Maori fishing nets used a mesh size of 4cm to catch them. Koaro were netted and dried during the late summer and stored for later use. Juvenile (whitebait) forms of the fish were and still are highly prized.

Koaro have some interesting characteristics. Firstly they can live out of water for a considerable period of time. This is very fortuitous because they can also climb wet surfaces. For example Koaro have been seen climbing well above the water line in some of the power scheme water canals in the district. If Koaro are kept in captivity they have to be housed in special tanks with lips or lids to prevent escape.

When trout were first introduced to the Taupo region at the end of the 19th century, Koaro were one of their primary food sources. As the trout population grew through the early part of the 20th century, Koaro were almost predated to collapse. In fact the decline in the populations of Koaro and bullies caused two significant collapses in the size and condition of trout in the fishery – the first around 1913. After the first downturn in the trout population, Koaro numbers recovered and so too did the fishery for a short time but the same phenomenon happened some years later. To try and mitigate this cycle, trout netting operations were undertaken in an attempt to reduce their numbers and pressure

on the food resource. But it was the introduction of smelt in the 1930's that allowed the trout fishery to rebound and flourish long term. Today smelt have taken over as the primary food source for trout in the lake and unwittingly this has also saved the Koaro. Although the average size is smaller now, Koaro are common the Lake Taupo catchment.

Adults can reach 180mm in length and the longest known is 288mm

Bullies *(Gobiomorphus cotidianus)*

The common bully *(Gobiomorphus cotidianus)* *Photo by Stephen Moore*

Also known as Toitoi the common bully is probably the most widespread and well known of the New Zealand native fishes - and they are common in the Taupo region.

There are two types, firstly 'river' bullies which have open pores on the top of their heads making them slightly different to their 'lake' dwelling cousins. River bullies were thought to have been accidentally introduced to Lake Taupo (and Rotorua) with smelt. The two types can inter-breed.

They occupy lakes and wetland margins, gravelly rivers and they are often seen as they are not particularly secretive. They eat a wide variety of insects, small fish and crustaceans. Larger bullies will eat small smelt and they can be cannibalistic.

They are another primary food source for growing trout and brown trout seem to be particularly partial to them, perhaps because they occupy similar river and lake margin environments to bullies.

They can reach 150mm but are seldom found in lakes (including Lake Taupo) more than 70-80mm.

Smelt *(Retropinna retropinna)*

Common in coastal streams, smelt were introduced to Lake Rotorua from Port Waikato. Such was their success, they were then introduced to Taupo in the 1930's to supplement the food supply for trout. Like Koaro, smelt have managed to establish totally freshwater populations despite the juveniles normally needing to access the sea. Smelt have become a well established, major player in Lake Taupo ecology and food chains.

They spawn on the sandy benches and just inside the river-mouths around the lake in spring (noted as smelting time). Smelt eggs and larvae provide food for Koaro, bullies and even adult smelt them-

Common smelt *(Retropinna retropinna)* *Photo by Stephen Moore*

selves. In more productive environments smelt will often spawn three times over the spring/summer period at age two and many live for an additional year. However, at Taupo most only spawn twice and then die which is why Taupo smelt are often smaller than those found elsewhere. The incubation period for smelt eggs is short - around 9 days so a great number of smelt may arise from any one spawning season. This has not only ensured their own survival but allowed for the ongoing support of the large Taupo trout population over time. However, it also means that there are too many smelt for the available food (plankton). Starvation each winter is the main limitation on the size of the smelt population.

Adult smelt are an attractive fish. They are sleek and streamlined with an almost shimmering silver appearance - much what you would expect from 'bait fish' in the sea. As juveniles they are almost clear, reminiscent of whitebait. Although often touted as such they are not of the whitebait family. Smelt are also a very fragile fish which made them notoriously difficult to transport on the early roads and vehicles from Rotorua.

Early in their lives (as larvae) they feed on phytoplankton (microscopic plants) but begin to feed on the larger zooplankton as they get older. Mature smelt have gone through a number of physiological changes which allow them to do this over time.

Smelt can grow up to 110mm long, but rarely past 60mm at Taupo and are edible although they are often referred to as 'cucumber fish' in reference to their particular odour. They can only be harvested under permit in Taupo by members of Ngati Tuwharetoa.

Catfish
(Ictalurus nebulosus)
Photo by: Mark Venman

INTRODUCED FISH (OTHER THAN TROUT)

Catfish *(Ictalurus nebulosus)*

Catfish were first reported in Lake Taupo in 1985 and are now in stable numbers. Considered to be a pest fish, they inhabit quietly flowing weedy environments around sandy bottoms or lagoons. As a consequence they predominate at the southern end of Lake Taupo and can be caught fairly easily from Motuoapa to Waihi in weedy areas although there are small populations in other areas of the lake such as Whakaipo Bay. A license is not required to catch catfish although all catfish are required be killed under recent changes to the Amateur Fishing Regulations 1986.

There are many theories as to how they were introduced, some quite spurious but the most likely scenario given how hardy these fish are is that they came in on weed carried by a boat trailer. Quite conceivably they could have hidden in the box section of a trailer and as long as it stayed moist, survived several days until the trailer was brought to Taupo. This highlights the importance of the Check, Clean, Dry message.

They are very hardy and can cope with a wide variety of temperature and water quality conditions. This makes them very adaptable and a threat to most of New Zealand's waterways. Interestingly they can also live out of water for long periods of time if kept moist.

They are a bottom dwelling fish, scavenging and predating by ambush. They are opportunists and eat a diverse range

Goldfish
(Carassius auratus)
Photo by Stephen Moore

of foods including crustaceans, small fish and detritus (rotting vegetation). However their eyesight is poor and they are cumbersome in pursuit of their prey. This means they are not good predators of smelt. Smelt are simply too fast (unless unwell). Obviously this is good for the trout because their primary food source is unaffected. However they do have an impact on koura (fresh water crayfish) particularly small koura as they occupy similar weedy lakebed environments. In this way there is an ecological impact arising from their presence.

They are edible if prepared properly and requests have been made to the relevant authorities to capture them commercially with a view to selling into a number of export markets. To date, these ventures have not been successful.

Department of Conservation monitors catfish populations in Lake Taupo on a regular basis. Extensive research has also been done on their diet and spread dynamics.

They can grow up to 500mm long and 2kg in weight but in Taupo they rarely get above 350mm and 1.5kg.

Goldfish (Carrassius auratus)

Goldfish were introduced to Lake Taupo in 1873 and were found in various parts of the lake within 5 years, particularly where swamps bordered the shoreline. Soon after release they were particularly prevalent between Waihi and the Tongariro River delta. Known as morihana after Sub-inspector Morrison who released them, they became a valued food source.

Goldfish still exist in Lake Taupo in the weedy areas - a few large specimens were caught at a recent Motuoapa fishing tournament. Their impact is minimal and as such they are considered to be a relatively 'benign' fish in New Zealand waterways. Furthermore, particularly when small, goldfish do provide another food source for trout and shags.

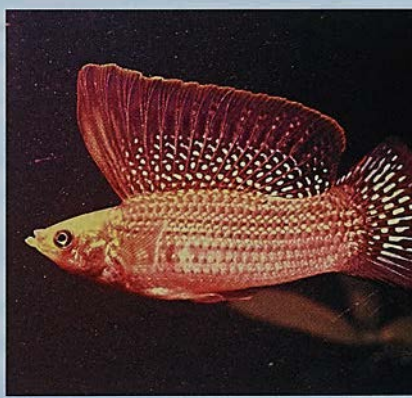
They feed on a variety of aquatic plants and detritus as well as small aquatic insects, worms, snails and crustaceans.

Commonly they get to a maximum of 150-200mm and around 500g in weight.

Sailfin Molly *(Poecilia latipinna)*

This fish occurs in a geothermal wetland near Tokaanu at the southern end of Lake Taupo. As with its cousin the guppy, it did once occur in the Waipahihi Thermal Stream near Taupo but disappeared from there many years ago.

It exists in the turbid, sulphurous water present at Tokaanu and its survival is totally reliant on the warmth of the water generated by the geothermal activity there. When lake levels are high and cold lake water enters the wetland, the habitat for this fish can become very limited.



Far right: Sailfin Molly
(Poecilia latipinna)
Photo by: D.W.N Kleth

It eats small aquatic insects and crustaceans and it also eats algae and organic detritus.

Its attractiveness makes it a very desirable fish for aquariums, especially the males that have the greatly exaggerated dorsal fins that give the fish its name.

It commonly reaches 60-70mm in size.

Swordtail ***(Xiphophorus helleri)***

This is a very attractive fish with the males having an elongated lower edge on its tail fin creating the 'sword'.

Swordtail male
(Xiphophorus helleri)
Photo by: Martin Gombitsley

This fish is only found in the geothermally heated Waipahihi Stream on the northern shores of lake Taupo where it lives in weedy pools and slow moving margins. As with the sailfin molly above it is totally reliant on the heated geothermal water for survival.

It has very similar eating habits to the molly.

They can reach a reasonable size, with males reaching 80mm (without sword) and females up to 120mm.

MOLLUSCS AND CRUSTACEANS

Koura ***(Paranephrops planifrons)***

Koura, or freshwater crayfish as they are commonly known are widespread in Lake Taupo and its tributaries. They seek the cover of rocks, logs and branches on the lake floor.

However, at night they move into the shallows to feed in the weed beds where they are omnivorous scavengers and will feed on small invertebrates and organic debris. They provide a key role in the ecology of the lake in that they recycle nutrients and are a predominant member of the food chain.

They are a food source for shags, trout, catfish and people (although only members of Ngati Tuwharetoa are allowed to harvest them in the Taupo catchment). They get to around 15cm in length.

Koura (freshwater crayfish)
(Paranephrops planifrons)
Photo by: Stephen Moore

Kakahi or Freshwater Mussel *(Hyridella menziesii)*

Kakahi *(Hyridella menziesii)*
Photo by: Sjaan Charteris

This shellfish grows to around 70mm long and is abundant in Lake Taupo and many other freshwater lakes throughout New Zealand. They tend to congregate just below the wave/ripple zone in littoral areas as the waves stir up organic particles which they feed on.

Early on Kakahi were food for local Maori although they are seldom eaten today. They have quite a different physiology and require different preparation to their sea borne cousins.

Their life cycle is very interesting, particularly in the early stages when the tiny larvae of Kakahi attach themselves to the head fins and mouth of small native fish (Koaro, bullies) and then later drop off to continue developing. This is likely the primary mechanism for their spread although as adults they leave distinctive tracks in the sand marking their progress as they move around.

Pisidium *(Pisidium sp)*

Pisidium or 'pea clams' are another species of mussel present in Lake Taupo. Smaller than Kakahi, Pisidium seldom grows to more than 5mm, is very delicate and has an almost clear shell. Sometimes the shells have a degree of phosphorescence. It is found in deeper environs at around 20m-100m depth in the lake and is most common around the Waitahanui basin in spring. Their deep habitat is probably why it is seldom seen and relatively little is known about it.

Psidium *(Pisidium sp)*
Photo by: Stephen Moore

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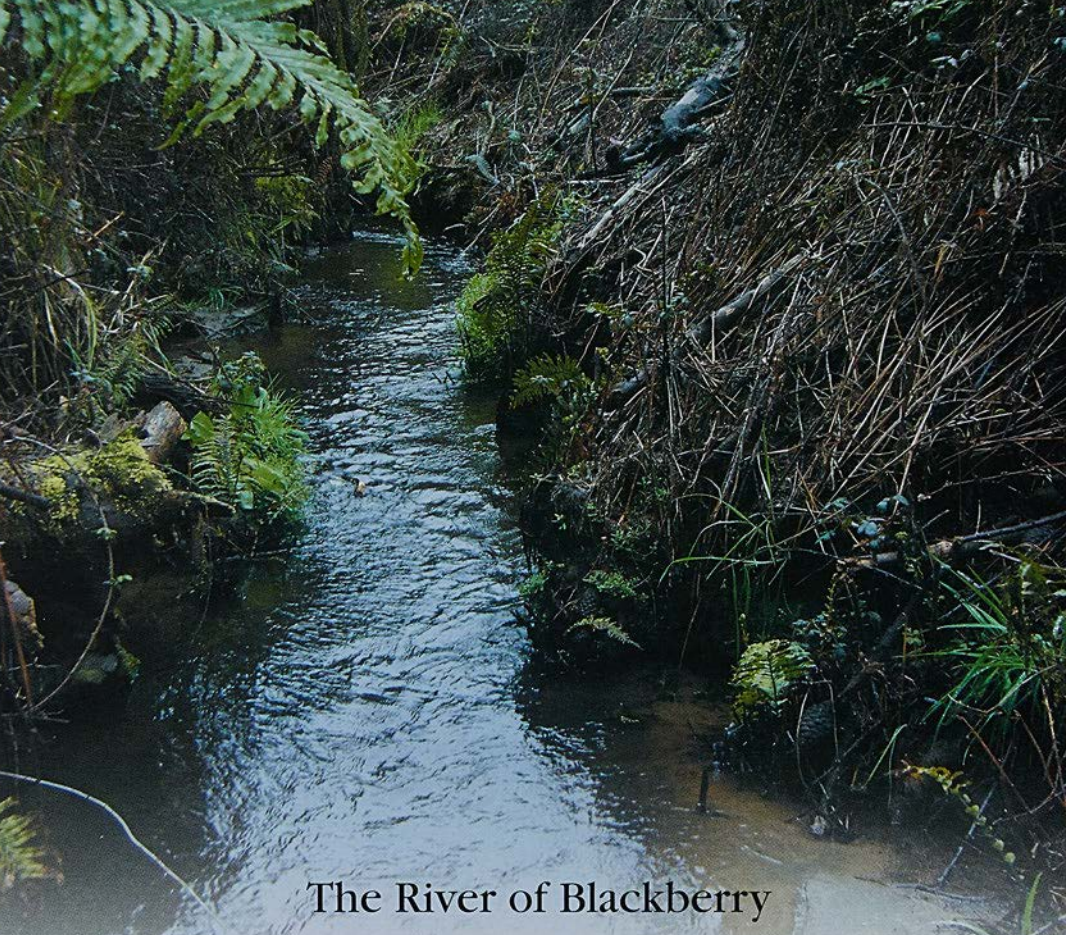


The River of Blackberry

By Mark Venman
Mark is Programme Manager, Field Operations for the Taupo Fishery Area

The Mapara Stream clearance which began in early 2008 has finally come to an end. The initial phases of project were first described by Nathan Walker in the article 'Mapara Mayhem' in Issue 58 of Target Taupo. However, at that time the big challenges this task would present were a bit of an unknown.

The Mapara Stream is a small spring fed stream that enters northern Lake Taupo on the eastern side of Whakaipo Bay. The stream had become very overgrown since it was retired from grazing approximately 20 years ago. In fact, one could be forgiven for not realising there even was a stream down in the gully as you drive along Mapara Road. Although the stream is generally no more than 1 metre wide and relatively shallow throughout, it provides ample gravels and flows for both spawning and juvenile trout. When combined with the nearby Whangamata Stream these small tributaries account for some good recruitment of trout at the top end of Lake Taupo.

The Mapara Stream is somewhat prone to flash flooding. In early 2008, this caused some damage to the mouth of the stream and left a number of trout stranded on the beach. Work was completed to restore the mouth but further investigation upstream revealed that the Mapara was being choked by a combination of blackberry and a series of fallen trees. In mid 2008 work commenced

Top: The Mapara Stream provides ample flows and gravels for juvenile and spawning trout
Photo by Mark Venman

on improving fish passage by cutting back the blackberry and removing any logjams encountered. With dense blackberry well over 2 metres high, tidying up a 2 kilometre stretch of stream was not going to be an easy task. After the first couple of days progress was slow, morale was dented and we realised just how big the job was. Blackberry was cut using scrub bars fitted with metal blades right down to the water level and runners under the water were also cut to prevent them from trapping flood debris. Chainsaws were used to remove fallen branches and logs. The cut vegetation was then lifted out of the stream and heaped up high on the banks. It wasn't long before we could see the odd trout making the most of some daylight and freedom in the stream.

Over the next year or so we would send a team out to Mapara on a regular basis to continue with the job but it was slow going and opportunities to continue the work were hampered in the 2009 winter due to staff shortages and other work commitments. At one stage we had one team cutting upstream from the lake and one team cutting downstream in an attempt to try and 'double time' it and meet in the middle somewhere. However, the lack of good landmarks and visibility through a mass of tangled blackberry meant it was hard to gauge exactly how much was left to cut. We even tried shouting down the valley to see if we could hear each other but on most days we couldn't even hear the other scrub bar – at these times it was a fair bet that we still had a reasonable way to go.

However, we were keen to finish what we had started and kept chipping away. On the 29th of September 2009 we finally finished one of the more challenging jobs encountered in the Fishery Area. The sense of achievement was clear on everyone's faces as we finally

On a soggy day the Fishery area team deal to blackberry and fallen trees in the Mapara
Photo by Mark Fenmen

completed what had turned out to be a massive undertaking. It was a team effort and good to get most Fishery staff involved in such a rewarding project at one time or other.

Although tough, these types of job are rewarding because you can see how much progress you have made at the end of the day as the distance from the truck gets progressively longer. It was also encouraging to see the bank side vegetation coming away during the spring with grasses and native ferns making the most of the light. With a bit of attention each year we should be able to keep on top of the blackberry and ensure that it never gets that overgrown again. It will also be great that it is usable to trout of all ages into the foreseeable future, after all, this is what the project was all about.

Eureka! Rangers Callum Bontke and Mike Hill finally complete the job
Photo by Mark Venman

What's Up Small Fry?

THE AMAZING J●URNEY FR●M EGG T●ADULT AT THE HATCHERY

By Mike Nicholson and John Webb
Mike is the Teacher of our education programmes at the Tongariro National Trout Centre

Whenever people visit the Tongariro National Trout Centre, whether it is school groups or the general public, there is always a great deal of questions about the hatchery process. The following photo assay explains.

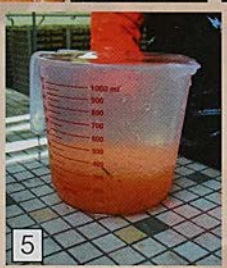
1. Well conditioned ripe hens are carefully stripped of their eggs (ova) and then released.
Photo by Julie Greaves

2. Milt (sperm) is added to the eggs from adult Jacks (male fish) and life begins instantly.
Photo by Julie Greaves

3. Different hens can have ova that come in a range of different hues and colours.
Photo by Kim Alexander-Turia

4. The fertilised eggs are then carefully placed into buckets for transporation to the hatchery building.
Photo by Kim Alexander-Turia

5 and 6. The total number of eggs is estimated by measuring their volume and counting a small number in the Bayer egg counting trough.
Photo by Kim Alexander-Turia



7 and 8. Into the incubator they go. Some eggs will die and need to be removed. These are easy to identify through the change of colour. Eggs stay in the incubator for about 18 days. For five of these days they are extremely fragile. When nearly ready to hatch they are placed into baskets in small troughs.
Photos by Kim Alexander-Turia and Dave Conley

9. At around 28 days the eggs hatch into alevins with a yolk sack attached. After living on the yolk for about three weeks they will swim up to the surface and be given food for the first time.
Photo by Dave Conley

10. Now known as fry, they get fed regularly and put on condition rapidly. As their size increases so does their feed and the size of the trough they are kept in.
Photo by Mike Nicholson

11. At around 8 months old and 7-10cm they are known as parr fry and they are transferred outside to the burrows raceways or rearing ponds.
Photo by Mike Nicholson

12. At around 18 months old and 20cm the final transfer is made to the kids fishing pond.
Photo by Julie Greaves

Have you Enjoyed Reading Target Taupo

By Carolyn Newell
Carolyn is our Programme Manager, Service and is responsible for licensing and co-ordinating services for the Taupo Fishery Area

If you have enjoyed this issue and would like to receive the next one then read further From the start of the new season (1st July 2009) we have changed the way in which we collect the postal information we need to distribute Target Taupo.

Previously we used to compile the address list from the duplicates of all our whole season licences sold. However due to major ongoing issues of illegible scribe, incorrect or incomplete addresses and in conjunction with the very considerable staff resources to transcribe the 11,000 or so names and addresses, we have looked at new ways to collect this information.

Instead we are requesting that you send your comact details in via email or phone us. Receiving your postal information this way will also give us a point of contact to follow up on any vital information that may be missing, increasing the likelihood of you receiving your valued issues of the magazine. We need your full home postal address rather than your holiday home address. Similarly if you are Rural Delivery, as many homes are, please remember you have to be registered for Rural Delivery with New Zealand Post to receive mail.

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to targettaupo@xtra.co.nz or if you do not have access to a computer, call Taupo Fishery Area office, 07 384 7123 upon purchasing your adult season or adult week licence. Registration will entitle you to receive the next 2 issues of Target Taupo. These contact details will also be printed on your license.

What do we Learn from Interviewing Anglers and Trapping Trout in the Taupo Fishery?

By Dr Michel Dedual
Michel is our Fishery Scientist

Any resource can only be well managed if data and information of sufficient quality are available. For example, the fishing activity in the North Norwegian fishery off the Lofoten islands is extremely well managed because it has been monitored and controlled for more than 200 years to avoid problems occurring during periods of high fishing density.

Any fishery needs three ingredients: habitat, fish, and anglers. All three components are intricately intertwined and if a single one is missing there is no such thing as a fishery. In the Taupo fishery which is resourced exclusively by the sale of fishing licences, managers set stringent goals to do all we can to ensure the sustainability of the fishery while maximising angling opportunity and success within this constraint.

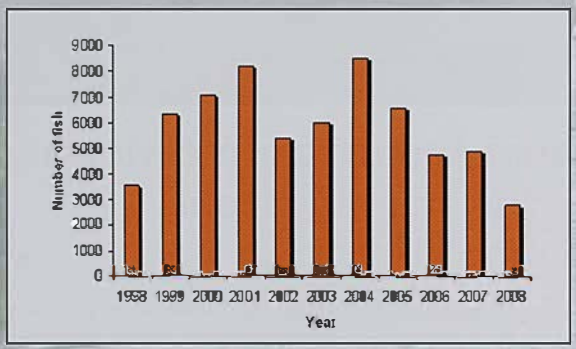
To achieve these goals we collect an extensive assortment of numerical information on many of the organisms present in the system but principally on rainbow and to a lesser extent on brown trout. Fish like trout lend themselves to quantitative study because of their mass migrations such as the spawning migration from Lake Taupo. These migrations provide an opportunity to count the entire population as they move past a fixed point in a river i.e. through a fish trap. The most important data sets we have relate to these "spawning runs" or more simply the "runs" of fish that return from Lake

Top: Information collected at the Waipa trap is some of the most important in the fishery
Photo by: Glenn Maclean

Taupo to reproduce in the Waipa Stream - a tributary of the Tongariro River. The ability to use data collected at the Waipa trap is essential in understanding how the fishery functions. To predict the number of adults returning to spawn is a corner stone of our research and our management of the fishery.

Fish traps are generally installed upstream of legal fishing limit or in streams closed to angling. Therefore, the number of fish trapped reflects the number of fish that have survived all sources of mortality including escaping capture by anglers - this is referred to as the "escapement". Escapement data and more importantly trends in escapements from one year to the other provide an excellent tool to monitor the state of the fishery.

The exploration of trap data on its own

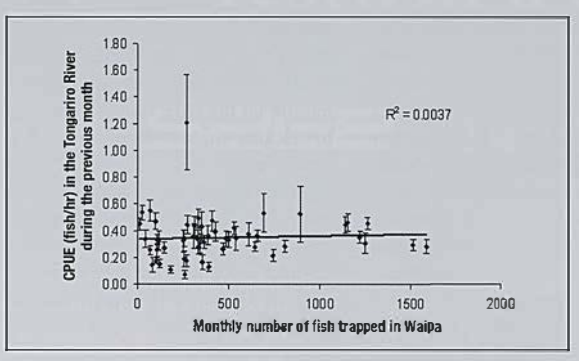


Graph 1: Total number of rainbow trout recorded at the Waipa trap 1998 to 2008.

is a powerful tool in understanding some of the biological processes of the fishery but when supplemented with the human dimension of the fishery it provides a true picture of what is happening. The human dimension is provided by the responses anglers give when interviewed during our routine angling surveys. In this article we will try to interpret the results of the trap data gathered in the Waipa Stream and angler interviews on the Tongariro River during the last 10 years. This will unveil some of what we can learn about the Taupo trout fishery from these activities.

The first and most obvious information that trap data provides is the size of the total run of fish that are spawning in the Waipa Stream upstream of the trap. It is important to remember throughout this article that Taupo is a wild fishery and that fish production is reflected by the natural conditions that exist in the rivers during spawning, incubation and rearing of the juveniles and in the lake during the growth toward sexual maturity. As these environmental conditions vary from year to year we expect the number of fish that reach maturity and return to spawn is also highly variable. Indeed, the graph left (Graph 1) indicates the number of fish that have returned to spawn in the Waipa Stream during the last 10 years has varied by as much as by a factor of three between the lowest run in 2008 and the highest run in 2004. Even though there is not much point in describing an average run we could say that in a typical year there are about 4000 fish that have escaped capture and returned to spawn.

To explain such a large variability in fish numbers from one year to another we have to look at the survival probability of each egg produced by the females. The number of eggs produced is positively correlated with the size of the female. A female rainbow trout 500mm long will produce about 3400 eggs but a female 600 mm long will produce abom 4800 eggs. Now if the eggs laid by each female produces two adults which is realistic, the population will remain stable. This means the female trout 500mm long will have 3398 or 99.941% of her eggs that do not survive to adulthood. Because the numbers of eggs produced are large in relation to the number of adults produced, a very small change in survival will cause large departures from a stable population. For example, if the average mortality increases from 99.941% to 99.949% then the population will drop by half. If on the other hand the mortality drops from 99.941% to 99.933%



Graph 2: Average number of rainbow trout caught per hour in the Tongariro River between 1998 and 2008 and the number of rainbow trout caught in the Waipa trap the following 30 days.

then the population will increase by half. This means that a change of mortality of only 0.016% is sufficient to explain a three fold difference in the numbers of adults returning to spawn! Considering these numbers it is actually quite incredible that the numbers of adults returning to spawn doesn't fluctuate by more than by a factor of three. This very high sensitivity of adult production to the minute changes in mortality rate supports the premise that the reduction of the lake productivity in 2005 provides the best explanation for the poor condition and low numbers of fish trapped (or seen in the fishery in general) since then.

But what about fishing, how much can fishing affect the number of fish returning? Well we have to remember that rainbow trout have evolved in parts of the world where they have to face not only harsh environmental constraints but also many natural predators including eagles, bears, otters, seals, and other fish species. In New Zealand however, rainbow trout have far fewer natural predators. The most serious predator is the angler and we'll explain later some of the impacts that anglers can have on the number of fish returning.

For quite some time we have assumed that fish production in the Tmpo fishery is primarily determined by the conditions that exist in the spawning and rearing tributaries and that their condition and size is mainly dictated by conditions existing in the lake. However, if we compare the number of fish versus their size it appears that generally speaking, the years where many fish return also coincides with years where fish have a good average size. This indicates that the conditions existing in the lake may actually be responsible not only for the quality of the adults returning but also their numbers. This is a big U-turn in our understanding of the fishery. More research on juvenile trout behaviour and biology in lake Taupo is necessary to shed some light on the matter. Having information on the processes occurring in the lake will help us to identify what parameters are most important with the hope that eventually we can predict the number and condition of the fish running next year. This is the Holy Grail of fishery management.

CATCH RATE AND FISH ABUNDANCE

All the fish that run through the Waipa trap must first swim up the Tongariro where they can get caught by anglers. Therefore we would expect to see the catch rate per unit effort or CPUE (number of fish caught per hour) to be related to the number of fish passing through the trap at Waipa. From two radio-tracking experiments that we carried out in 1995 and in 2003 we know that it takes on average about a month for a trout to swim up the Tongariro River from the Delta to the Waipa Stream. Therefore, we can explore the relationship between the number of fish caught and the abundance of fish present in the system by plotting the number of fish trapped each month in the Waipa with the CPUE measured on the Tongariro during the previous month (Graph 2 above).

The first striking thing is that there is no clear relationship between the average CPUE and the number of fish present. Regardless of the size of the run the average CPUE per angler has been varying between 0.2 and 0.5 fish

per hour except the outlier for October 2007 where it reached 1.2 fish per hour.

When the CPUE remains high despite a low abundance of fish scientists talk about "hyperstability". Hyperstability occurs when the search for fish is highly efficient due to communication amongst anglers and the effort is concentrated in areas of high densities. Some Canadian research reveals that anglers experience high CPUE of chinook salmon during periods of low river salmon abundance because both fish and anglers concentrate in small areas of the river.

Our combined data for CPUE in the Tongariro River and fish abundance recorded in Waipa trap suggest that hyperstability of CPUE for rainbow trout also exists in the Tongariro River system and probably in other Taupo rivers as well. For example the pool immediately below the Bridge on Highway 1 currently doesn't provide much refuge for the fish that hold here apart from the cover provided by the piles of the bridge and a few snags. The fish remain concentrated and are obvious to anglers nearly all of the time – therefore catch rates at this location tend to be high.

It now appears that trout running early are genetically different than those running late.

Not only are they genetically different but they also behave differently as they migrate up the river. We have observed by tracking rainbow trout during their spawning migration that until about September fish remain stationary during stable flow conditions waiting for the next fresh to move further. The radio tracking results also tell us that later in the year fish run more quickly through the system and don't rely as much on freshes to migrate. Trapping operations also indicate that early in the season most fish reach the trap at night but can enter the trap at any time of the day later in the year. This suggests that the potential impacts of hyperstability are more pronounced in the early phase of the run. In effect the longer a spell of stable flows early in the season, the more pronounced the impacts of hyperstability.

There are important management consequences of higher capture vulnerability at low fish abundance. If hyperstability is occurring and there is no change in the number of fishermen then we would expect the mortality rate (or number of fish caught as a percentage of the total) to increase at low fish abundance. This process is called depensatory mortality.

'Hyperstability' occurs when the search for fish is highly efficient and the fishing effort becomes concentrated in areas of high fish density.
Photo By John Gibbs

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Testfish a Sage this Summer. Pictured – Jeremy Burke, Hunting & Fishing New Zealand, Christchurch.

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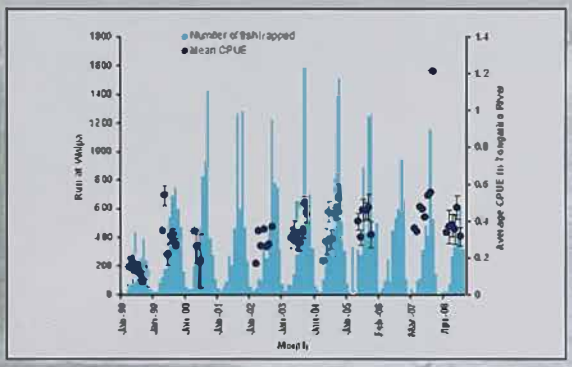
The depensatory mortality means that the attempts of management to keep small stocks from going extinct will be made more difficult because angling effort will have to be controlled much more severely. Another implication of the relationship between catchability of fish and CPUE means that a decrease in CPUE underestimates the decrease in fish abundance. Therefore we have to be extremely cautious in the interpretation of CPUE especially as an estimator of fish abundance. For example in Graph 3, some of the lowest CPUE measured were in the winters of 2002 and 2004. In 2002 the run was not exceptional but it certainly was in 2004 as it was the second highest run since the trap was established. Conversely as discussed in 'A Season of Improvement' on page 9, the catch rates this year were among the highest recorded, though all other indications are that the run is at the low end of the scale.



Graph 3: Trout run at Waipa trap (bars) and mean CPUE by month

Another explanation for the lack of clear relationship between CPUE and fish abundance may be a level of exaggeration by anglers during our creel surveys. The exaggeration is not reflected in the number of fish kept, as these are counted and controlled, but in the number of fish reported caught and released. Studies overseas reveal that generally anglers are more likely to exaggerate when the fish abundance declines.

Recreational anglers don't have any financial incentive to over-exploit the fishery and can be expected choose another place to go fishing when their expectations are no longer met. The level of satisfaction below which anglers are likely to go elsewhere is difficult to quantify, however, if they go somewhere else then that part of the fishery they left should recover. If this is the case then recreational fisheries should not suffer the dramatic collapses seen the commercial fisheries. Nevertheless, fishing pressure can drive recreational fisheries to collapse and that pressure doesn't have to be extreme if it occurs simultaneously with a dramatic drop in the overall productivity of the system. However, it is complicated by what defines a collapse but dramatic reductions in CPUE have been used previously to declare that the fishery has collapsed.

For example, the Committee of the Status of Endangered Wildlife in Canada rates a species as endangered or critically endangered if within 10 years or 3 generations the average CPUE drops by 50 and 80% respectively. However, as already explained we cannot use the trend in CPUE as an indication of the status of the fish population for Taupo because CPUE is not necessarily related to the fish abundance. Consequently, we must find another avenue to identify the status of the fishery and if it is on the verge of collapse, how much is caused by over fishing and how much is caused by natural events. Both causes will probably be involved for the Taupo fishery posing the first big hurdle of how to separate the impacts. In other words: at what level of productivity does the fishing then have a dangerous impact? This is a complex problem as we illustrate below.

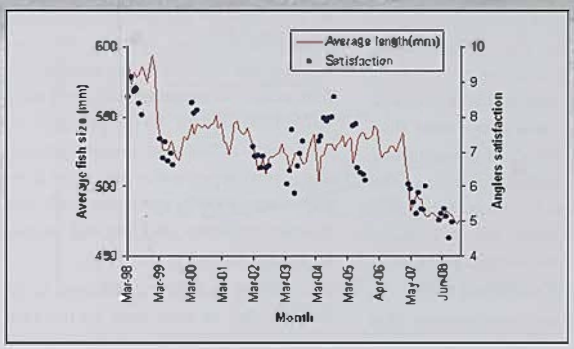
The runs of trout in the Taupo catchment have previously been monitored for many years in the Waihukahuka and Tokaanu streams (Graph 4). These two streams are spring fed and therefore their flow and temperature don't fluctuate significantly from one year to another providing a stable environment. On the other hand the Waipa Stream is a run-off

When managing fisheries there is nothing much that can be done to control the forces of nature; the same can be said for fish trapping. Waipa trap in flood
Photo by Mark Milne

stream and its flow is largely dependent on rainfall. Even though the runs in the Waihukahuka and Tokaanu streams were not monitored over the same period as in the Waipa it is still possible to use them to highlight the complexity of weighting the impacts of fishing versus the impacts of nature. It is important to note at this point that it is possible to address the problems associated with fishing but there is nothing much that can be done to rectify nature.

For example, when comparing Waipa to Tokaanu/Waihukahuka Streams, one obvious difference is that the fluctuation in the size of the run is much larger in the Waipa than in the other two streams. In essence this reflects the variable recruitment of juvenile fish created in part by the conditions that existed in the stream during the riverine phase of their life cycle. It is well known that floods and or extended periods of low flows during drought conditions can affect the number of juveniles produced in a stream and that ultimately will affect the number that will return as adults. These large natural fluctuations complicate the identification of the impacts of fishing because there is no constant baseline to assess against.

Graph 4: Average length of rainbow trout captured monthly in the Waipa trap since its establishment in 1998 and angler's perception on fish quality reported during interviews along the Tongariro River during the previous month.



ANGLER SATISFACTION

Another of our key objectives is to provide angling opportunity. In part this requires that we have to count how many fish get caught and harvested. This estimation is made by series of surveys which record fishing effort and catch rate. During these surveys we also seek feed-back from anglers about their perceptions on the state of the fishery. We ask anglers using a ranking system of 1 to 10 (1 terrible, 10 excellent) to rate the quality of the fish they are catching, their catch rate, and their level of satisfaction. The remainder of this article will look at how anglers perceive the status of the fishery through our interviews and how this measure compares to the reality obtained via data collected at Waipa trap.

Just as fish condition and size varies from year to year we expect to see a close relationship between the feelings of anglers and the size/quality of fish that are actually present (Graph 4). Indeed, the highest level of satisfaction regarding the condition of the fish caught was recorded in 1998. This is not unexpected as the average size of the fish caught in 1998 was exceptional – similar to what they were in the 1920's. However, the extraordinary average size was still not sufficient to reach 10 on the satisfaction scale. This highlights that perhaps it is an ambitious goal to completely satisfy anglers. Most of the anglers who fished in the 1920's are now fishing other, more celestial waters but there are plenty of us who fished in 1998 and who use the 1998 fish as the benchmark of quality, even though 1998 was clearly an "abnormal" vintage. The nostalgia of 1998 was over in 1999 when fish returned to "normal" size and satisfaction quickly dropped. However, in 2000 the satisfaction level increased in concert

with the increase in fish size. Perhaps anglers thought the fish were about to return to the glorious size of 1998 but unfortunately they didn't.

Between March 1999 and the end of 2006 the average size of fish varied little and the satisfaction of anglers mirrored this However, in June 2004 something strange happened.The perception of the quality of fish by anglers suddenly and significantly increased despite the fact that no increase in fish size was noticeable. The quality of fish substantially declined in 2007 and 2008 in response of poor growing conditions that existed in Lake Taupo post 2005. This translated into a decline in the overall satisfaction level

An interesting question to come out of all this is can consistency of fish size over an extended period be perceived as a desirable feature of the fishery and hence increase overall satisfaction?

STOCK-RECRUITMENT

Recruitment of young fish into adults is necessary to sustain any fishery population. Recruitment failure, due to overfishing, habitat alteration, or other events, can lead to reduced adult abundance and reduced angling satisfaction. If severe, recruitment failure can ultimately result in severe population declines and collapse of a fishery. Recruitment will influence the egg-to-adult mortality and therefore, is it a very strong influence on fish populations

As discussed recruitment success varies from year to year in most populations due to a number of factors. Some trout from certain water bodies may display fairly constant recruitment each year. whereas others display highly variable recruitment that will cause wide fluctuations in the number of fish returning to spawn. The variability in size of the run in the Waipa Stream suggests that the recruitment trend may have many average and below average years interspersed with periodic strong ones.

The processes and mechanisms that cause recruitment variation and the protection of adult fish stocks from overexploitation have been intensively investigated for many years primarily for commercially important marine fisheries. Loss of critical habitat and migration barriers in conjunction with overfishing has been cited as the cause for the decline of many Pacific salmon populations in North America.

To determine if a relationship exists between recruitment and spawners, long term data collection relating to both is necessary and the longer the period of data collection the better. The scientific literature suggests having at least 20 years of data to make robust analysis.

Recruitment in wild populations is limited by environmental constraints at relatively high densities, and therefore the rate of recruitment may stabilize or even decrease at high levels of spawner abundance. So the first type of model assumes that competition among early life stages for any limited resource (food or/and space) will cause recruits to increase initially then to reach a maximum that will not increase even if more spawners are present.

The second more dramatic type of model, assumes that the number of recruits can actually decline at higher levels of spawners abundance due to a phenomenon called "overcompensation". Overcompensation may arise from such obvious processes as cannibalism but more importantly can be induced by predation on juvenile fish, including predation by other species. Scientists believe that overcompensation is prevalent in lake ecosystems that are potentially food and/or habitat limited. In salmonids it has also been proposed that overcompensation may arise from superimposition of spawning redds and disease outbreaks affecting egg mortality at high spawners densities.

Recruits are generally considered to be juvenile fish or even eggs. In the case

of the Waipa we consider recruits as being maiden fish returning to the trap to spawn for the first time and this is an important thing to monitor. Each data point in Graph 5 consists of a ratio of the number of females that spawn on a particular year versus the number of maiden fish of both sexes returning 3 years later. The period of 3 years coincides with the age at first maturity based on tagging-recapture experiments. This approach is slightly different in a sense that the number of maiden fish returning has already been affected by the fishing in the lake and rivers and by the environmental factors that may have affected the recruitment at any stage during the 3 years of the fish life (mortality caused by floods etc).

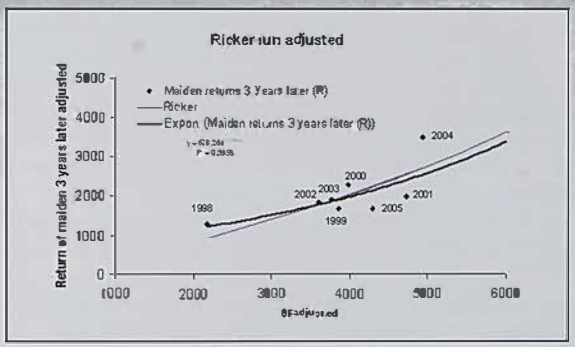
The Waipa trap has been in operation since 1998 and the data collected indicates that the recruitment of maiden fish returning has again varied by a factor of three. However, the combination of fishing pressure and growing conditions is complex and it becomes very difficult to identify what factor contributed the most to the trend observed.

Nevertheless, it is possible to explore if the fishing induced mortality is the principal factor. This is a useful management tool as fishing mortality can be substantially controlled by regulations. Therefore, one of our main interests is in assessing if the fishing pressure is sustainable or not.

The impacts of fishing pressure are reflected by two distinct patterns of the run that have to occur together. If one occurs without the other we won't be able to be totally confident that the mortality caused by fishing is excessive. Firstly if the fishing mortality is increasing then we expect to see the proportion of maiden fish in the total run to increase as well. This is simply because removing more and more fish over a size at which they spawn will leave proportionally more smaller fish that are likely to be maidens. Secondly under such an intense fishing induced mortality we expect that not only the proportion of maiden fish in the run will increase but that also the total size of the run to decrease.

To muddy the water, poor growing conditions in the rivers and the lake can also lead to exactly the same patterns, as was the case in 2005 and 2006. When conditions are poor a suite of may occur. Initially the number of fish may not necessarily be greatly affected as fish can survive for a long period without any food. This prolonged period of starvation will eventually reduce their body condition, however their size may not be immediately affected. If the conditions remain then the impacts of the poor conditions will snowball. The spawning run will be smaller, the proportion of maidens will increase, the condition of the fish will be bad, and lastly the decreased fish size means a lower number of eggs produced. Under these circumstances fish are faced with a big trade-off. Ultimately it is preferable to spawn even if you are small, particularly if the risk of mortality for trying to grow larger gets too high. An additional increase in the proportion of maidens can be further caused by a reduced post spawning survival.

This natural suite of events is one way that the trout population self regulates and adjusts to the existing conditions. Under these conditions, the dynamics of the population becomes very cyclic. The run will get smaller because of a drop in prey (smelt) density, but over time the predator population (trout) will also



Graph 5: Females spawning vs number of maidens (both sexes returning three years later)

Loss of critical spawning habitat like this has been cited as a main reason for the decline in some salmonid populations.
Photo by Callum Bourke

decrease and allow for the prey to recover. We are in now in a recovery phase in the Taupo fishery and the time taken for the trout numbers and condition to rebound may take several years. However, under current circumstances there will still be a great number of juvenile trout produced by the rivers that will keep the pressure on smelt, retarding the speed of the trout recovery. Even though trout have been relatively small and in poor condition in the last two years there is every chance that full recruitment of the population has occurred. Unfortunately we don't have sufficient data yet to ascertain if the runs are indeed cyclic and at what rhythm this occurs. This information would be very helpful as it could help us to anticipate and take possible management decisions that can accelerate the recovery of the prey during periods of downturn.

This model fits very well with what has happened in 2006, 2007, and 2008 when the fish were not in good condition and there was not many of them. The data on fish condition and size this year is encouraging even though there are still some scars of what happened in 2005. This is attested by the continuing mediocre condition of some fish. However, in contrast to last year there are also some very nice fish being present.

Why have some fish have done very well and other not so well? This discrepancy may reflect the patchy distribution of smelt in the lake. When conditions are bad the patchiness increases making the location of smelt by trout more difficult. For the trout that managed to find them things are bright but for those that haven't life will still be tough. Therefore we anticipate that the recovery will be reflected not so much by an average increase in size but rather by an increase in the proportion of good quality fish. Similarly it needs to be constantly reviewed as our information and knowledge increases.

To provide angler satisfaction we require information on many aspects of the fishery – some of which we still don't understand. This includes how recruitment is determined; how the food availability is influencing the production and quality of trout; how competition and predation influence production; how regulations influence fish population structure; how anglers perceive and comply with regulations; how these issues change through time and across systems. So designing a cost effective, informative monitoring program is difficult and priorities need to be set to acquire the information necessary for management.

We can do our best but it is important to acknowledge that uncertainty is an omnipresent force and that, as we have seen earlier, natural variability often compromises the precision of results.

The Dreadnought Bridge Removal and other Capers

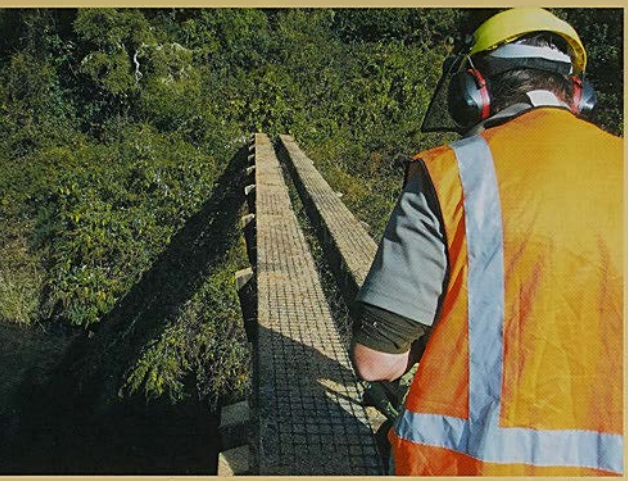
By Julie Greaves
Julie is the Technical Support -Area Asset Planner and looks after visitor assets and structures for the Area

This winter has been an eventful time for removing structures, obstacles, and upgrading tracks, starting with the difficult task of removing the Dreadnought Bridge. The removal raised some concern with anglers who have traditionally used the bridge to access the true left of the Tongariro River upstream of the Poutu Pool. However, over time it became increasingly obvious the bridge had reached the end of its life.

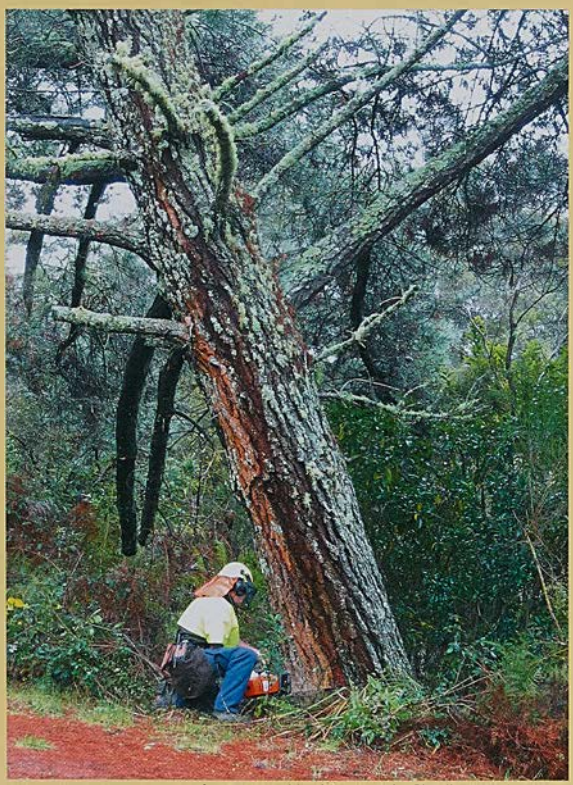
Initially constructed in 1980, the Dreadnought Bridge replaced the Poutu swingbridge over the Poutu Stream and continued to give access to anglers fishing the upper pools of the Tongariro River. Prior to the 1958 flood, access to the famous Dreadnought Pool, hence the name, was afforded by the Poutu swingbridge. Unfortunately the flood of 1958 redirected the river and although the swingbridge remained, the Dreadnought Pool did not. Today, this section of the Tongariro can also be accessed by vehicle via the Blue Pool road.

Although well constructed, the bridge was compromised when two large floods (1998 and 2004) progressively undermined the concrete foundations. Consequently, the stability of the bridge increasingly posed a health and safety risk to the public. Furthermore, the track to the bridge became completely washed away at the Tongariro River end, turning it into a flood channel. So short of diverting the Tongariro River, and given that anglers now had access via the Blue Pool road, it was a much more logical decision to decommission the bridge and remove it.

Heavy equipment was needed to remove the steel beams
Photo by Julie Greaves



Removing the Dreadnought Bridge needed some careful consideration
Photo by Julie Greaves



Big leaning trees like this one at the Blue Pool are dangerous
Photo by Julie Greaves

The Bridge was closed for some months before work commenced. The task of removing it required careful consideration as its construction included two large steel beams that were too heavy to lift by most helicopters. A team comprised of Fishery and Visitor Assets staff from Whakapapa removed the wooden parts of the bridge while Kernohan contractors came in with machinery big enough to pull the beams off their foundations and drag them to the nearby carpark opposite the Boulder Reach pool. We were then able to cut the beams into thirds and load them onto a truck. In some ways watching this happen was a sad end for the bridge as it had been an important and historic part of the fishery, providing access to much loved fishing posies for many years.

Another potential access obstacle nearby became a priority for removal. The Blue Pool road is a vital access point to the Tongariro River not only for anglers but also for other recreational users. This access was put in place in 1983 with the goodwill of the Department of Corrections who are the landowners. Previously, the only access to this upper section of the Tongariro River was a relatively long walk from State Highway 1 via the Poutu swingbridge.

Two dangerous, heavily leaning old Pine trees near the old Breakaway Pool were threatening this access and posed a health and safety risk to parked cars and river users - especially as they were leaning towards the road. As the saying goes what goes up must come down and the first of these trees was felled in September 2008 by experienced logging trainer Mike Hohneck. The second was felled by Ray Packer of the DOC Turangi/Taupo Area in October 2009. Ray had 25 years experience in felling and forestry and part of that time he was an assessor for E.I.T and Waikeri Polytechnic, so he was the perfect teacher to demonstrate to the rest of us how to fell these dangerous trees. We had to close the road off for several hours but this minor incon-

venience allowed us to permanently remove these threats to ongoing access and safety for anglers.

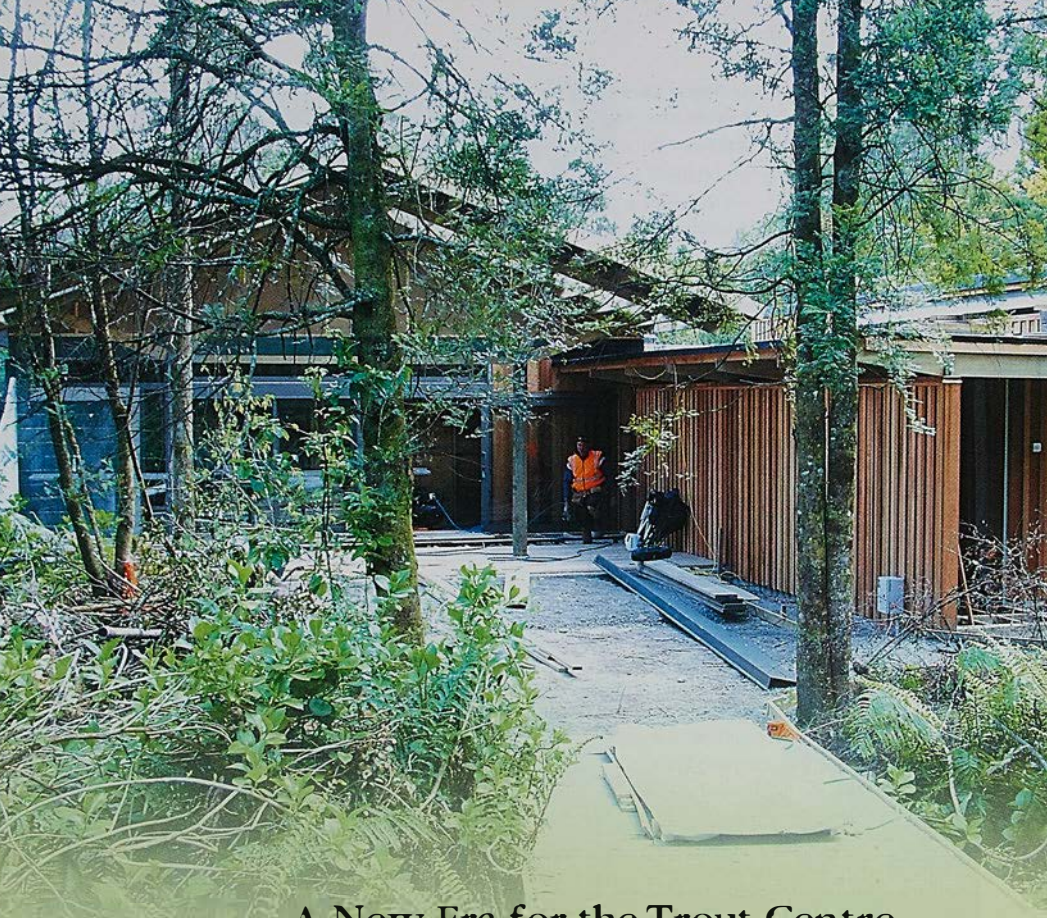
The latest project that has kicked off recently is the upgrading of the Waitahanui anglers tracks. Some of the pools along the true right of the river have undergone a renaissance in popularity in recent seasons. Poor traffic to the river from the main track in low lying areas has also caused boggy, muddy patches making access difficult.

This project was undertaken in conjunction with the Waitahanui Anglers Improvement Association (WAIA). The Association contributed much needed man hours helping us to shovel dirt, lay pumice and raking to form the track. On a very bleak spring day in October these volunteers braved the cold to turn up with shovel in hand and get stuck in- literally! It didn't help having one of the heaviest rainfalls of the year the day prior but the weather held out until we had finished for the day. The work completed included removing the organic topsoil down to the hard soil/pumice layer, laying geotextile cloth and adding compacted pumice over the top. The geotextile cloth prevents water coming through and degrading the formed track.

We managed to get 2 power barrows from the Turangi Taupo Area for the longer pumice carries and I think the volunteers agreed that they were excellent value. These carriers can transport up to 500 kg of pumice at a time making light work and frankly a mockery of push wheelbarrows. In just one day we were able to get 15 tonnes of pumice on the track-what a great effort! Another day has been planned in November, hopefully when the weather is kinder and the track a bit dryer.

A huge thanks goes to the WAIA volunteers for making this day possible. We are looking forward to working with them again.

The Waitahanui Anglers Improvement Association volunteers help do the hard yards
Photo by: Julie Greaves



A New Era for the Trout Centre

By Rob Lester
Rob is the Chairman of the Tongariro National Trout Centre Society

During the late 1990's, a small group of Department of Conservation staff discussed the possibility of a fresh water aquarium at the Tongariro National Trout Centre. This vision included enclosed aquariums, full of indigenous fish and crustacea on exhibit in an environment as close to reality as possible. At the time a supporting paper for the venture was put together. Simultaneously the Tongariro National Trout Centre Society was planning the first stage of a Visitor Centre Museum, themed on trout and conservation values.

Given that DOC and the Society were closely aligned, both in terms of facility development and common purpose, it was a given that the Aquarium project would become part of any development considerations for the future once planning and funding had been achieved.

The first 'River Walk' Museum and Visitor Centre was opened in 2003 – the result of a prodigious effort by Tongariro National Trout Centre Society volunteers and benefactors – on land made available through a Management Agreement with the Department of Conservation.

The success of this venture, due in no small measure to the enthusiasm of volunteer support, generated further interest in expanding the delivery of

Top: The expansion of the visitor centre and museum is well underway
Photo by: Ken Cummins

Far right: Conceptual drawing of the proposed aquarium complex
Courtesy Thorburn Consultants and John Grose

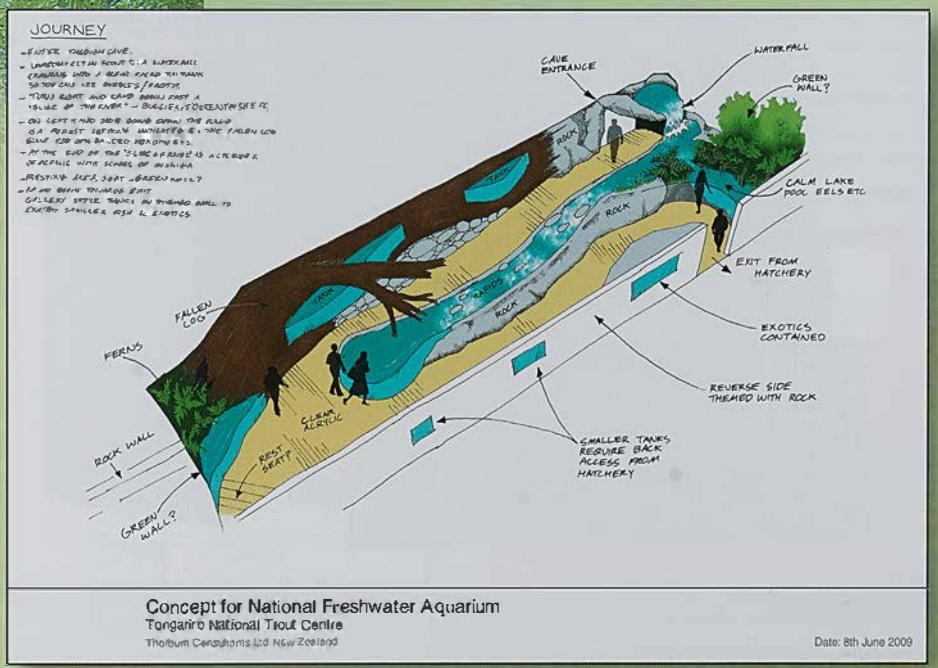
conservation and bio-diversity programmes to young New Zealanders. With generous support from Genesis Energy, DOC and the Society directed their combined efforts towards a school room - and in 2006 the 'Whakapumautanga (Darkie) Downs' Learning Centre was put in place complete with a full-time Educator, a part-time assistant and support from Society volunteers.

Concurrent with this activity, the Society began working in earnest on the expansion plan for the Museum, which was running out of space for exhibits – and the possibility of bringing into reality, the aquarium development that had been first raised some years before.

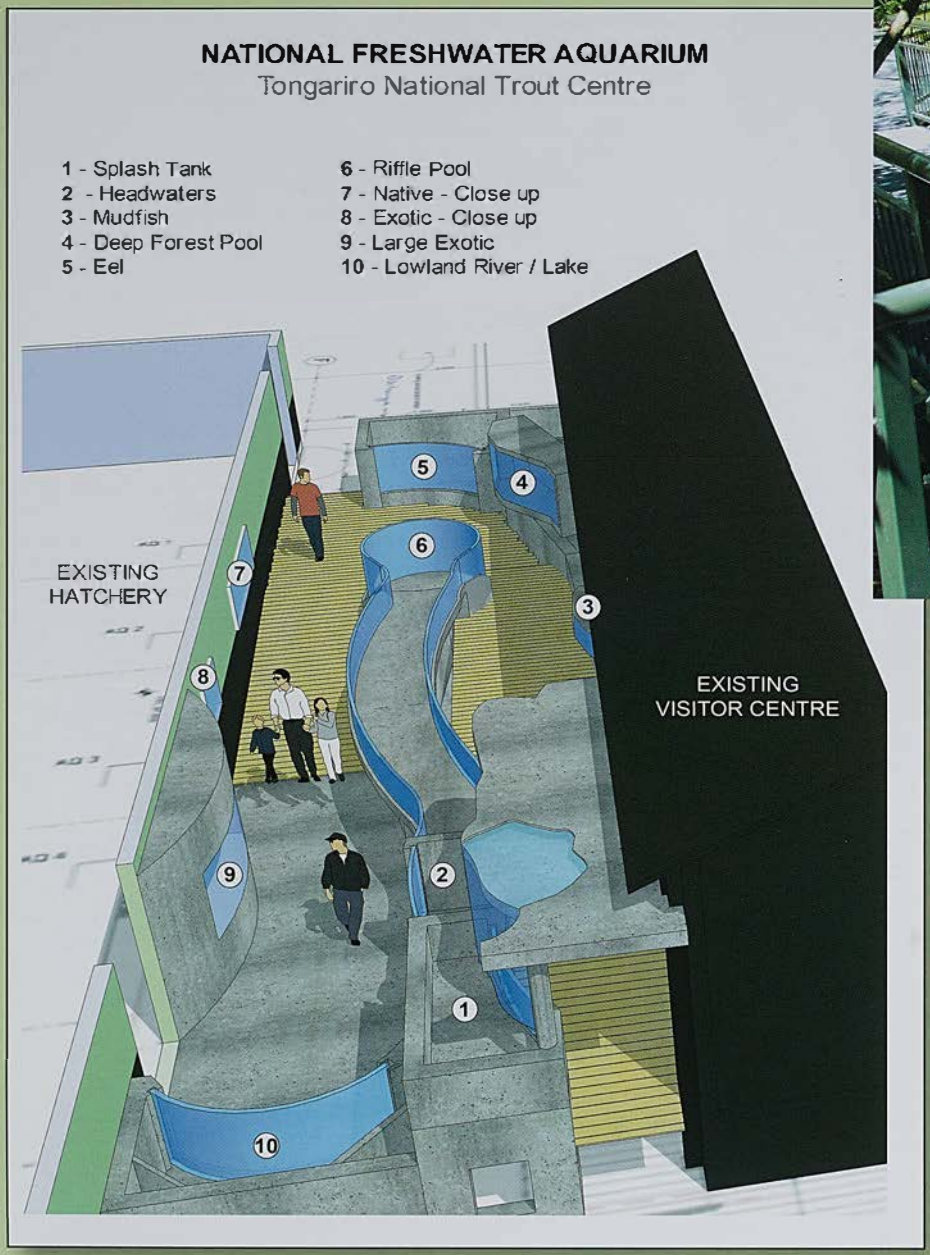
After four years of discussion and $155,000 spent on architectural drawings and building consents, the dream of DOC staff and Society volunteers is now close to becoming reality. The Tongariro National Trout Centre has entered a new era in its bid to become a premier attraction for tourists and the public of New Zealand alike. This includes the integrated education programme, teaching young people about the importance and sustainability of fresh water and conservation values.

Work began in early 2009 with the installation of a sewage reticulation system and the construction of a more scenic and user friendly entrance pathway to the facility, both of which are now complete. The first stage of the visitor centre expansion at the end of the new entrance pathway is now well underway and the final stages of planning for the aquarium project are being worked through. These facilities will eventually all be integrated make a spectacle for visitors to the site.

It doesn't end there though. In the medium term there are plans to house the captive breeding programme for the rare Whio or blue duck on site which will also be a fantastic addition to an already vibrant and active facility.



Concept for National Freshwater Aquarium
Tongariro National Trout Centre
Thirtum Consultants Ltd New Zealand
Date: 8th June 2009



Computer generated graphic of the proposed aquarium complex. *Courtesy Thornburn Consultants and John Grose*

The new entrance pathway is now complete
Photo by John Webb

The major players in this endeavour – Genesis Energy, the Department of Conservation and the Tongariro National Trout Centre Society will be well rewarded by being acknowledged over future generations for making this happen.

New Zealand will have a valuable asset, a national fresh water aquarium, for indigenous species and pest fish, which will be 'state-of-the-art in both presentation and substance.

ARE YOU INTERESTED IN BECOMING A MEMBER OF THE TONGARIRO NATIONAL TROUT CENTRE SOCIETY

If you are email us troutcentre@reapor.gnz
Or visit the website www.troutcentre.org.nz

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

Trout; The Teacher

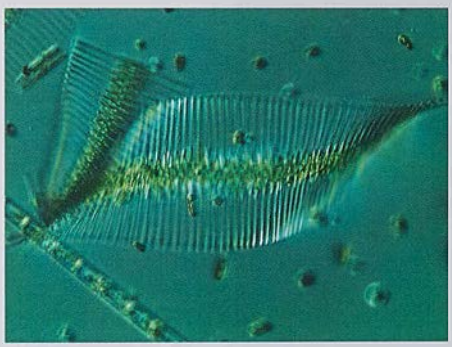
Taupo trout are fascinating things. For over a hundred years trout at Taupo have been prized by anglers for their true wild fishery characteristics. Hard fighting, silver flanked Taupo trout are sought after by anglers from around the country, many endeavouring to build on their fishing success incrementally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

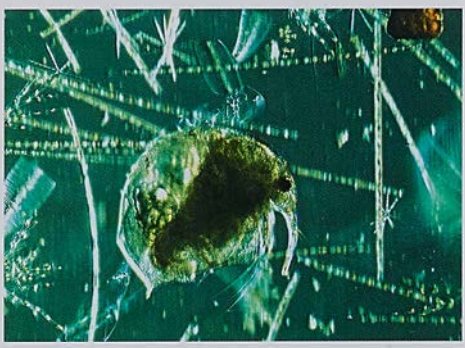
sure the answer would be because they enjoy doing it. Anglers actively engage with the trout and their environment and when doing so are constantly learning. So how can engaging with trout also encourage young people to learn, particularly those with little interest or experience of fishing?

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 Deunal*

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 reach 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

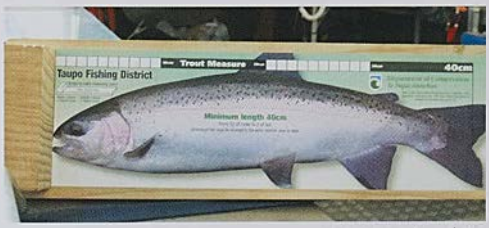
THE SEQUENCE IS AS FOLLOWS:

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 posidriven 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 'posidriven' (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.

PETITJEAN
FISHING EQUIPMENT SA

Come and join us as we welcome, MARC PETITJEAN, CDC Master Tyer...

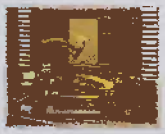
If CDC is known around the world, it has alot to do with Marc Petitjean. Marc started in 1985to create a complete new range of no-hackle flies made out of Cul-De-Canard (CDC). Marc developed various innovative tying techniques and patterns for fresh and saltwater. As a professional tyer, Marc has developed an entire range of fly tying tools, including his "Magic Tool," scissors, bobbins and even probably the best machined vises in the world. Marc has been in the industry for over 20 years and his work has been recognized by 11 International Design Awards.

Marc will cover the following area during the demo:

1- The history of CDC in fly tying from the origin in the 1920's to the present.
2- Various techniques of Marc's including the use of the "Magic Tool"
3- Magic heads for flies or streamer (fresh or saltwater), that will amaze you.

Magic Tool

Master Swiss Vise



Magic Head

Date	Location	Time	Entry Fee
December 7th	Rod & Reel 22 Melrose Street, New Market, Auckland	5:30pm ph: 09 520 0307	$35.00
December 10th	Tongariro Trout Centre Turangi	7:30pm ph: 07 386 9241	$20.00
December 19th	Wai-Ora Trust 48 Watsons Road, Harewood, Christchurch email: ricky@waioratrust.org.nz	9:30am ph: 027 251 4091	$35.00

www.petitjean.com

Marc Petitjean

Space is limited at each venue, so contact the venue you wouldlike to attend and make your booking. Bookings are on a first come first serve basis. This is not an event you will want to miss. If you have any other questions, please contact Nate Jarvis at 07 378 8119 or 0275 588 719. Hope to see you there...

A Piece of Paradise

By Mike Hill
Mike is a ranger in our field operations work

Situated on the western shores of Lake Taupo is a small settlement known as Whanganui Bay. The families that live and holiday in the bay are primarily descendents of the original Ngati Tuwharetoa inhabitants of the area. I feel grateful and privileged to say that I am also one of these descendants.

We are the hapu (subtribe of Ngati Tuwharetoa) known as "Te Maunga" and to us Whanganui Bay is a place that is sacred. The tall bushy cliffs that surround the bay personally hold some awe for me as I look upon them. This is because these cliffs are of great spiritual significance and are incorporated into many of the values and beliefs of Te Maunga. They are therefore held in very high regard.

In many of the caves and fissures amongst the cliffs are ancient grave sites or urupa where early Maori settlers of the bay would place our tupuna (past family). Because of this, entry to the standing bluffs directly behind the bay on the northern side stretching back to the waterfall is prohibited. It is important that people who come into the bay observe and respect this. Many Maori believe that everything in the universe is one created by the spirit Io and that we come from Papatuanuku (the earth mother), thus the term tangata whenua which means people of the land. In this way it is understandable that the deceased were returned to Whanganui Bay, the place they came from. It is also respectful and fitting for them to rest

Top: The waterfall at Whanganui Bay – truly a piece of paradise
Photo by: Callum Bourke

undisturbed in such an outstanding environment.

As a youngster I would be brought to Whanganui Bay by my parents for most holidays. We stayed in tents and then later a caravan. Mum would cook the best meals on a camp fire, she had a real knack for preparing food without the comforts of home. After all, this is what camping is all about in many ways – and fishing all day makes you hungry.

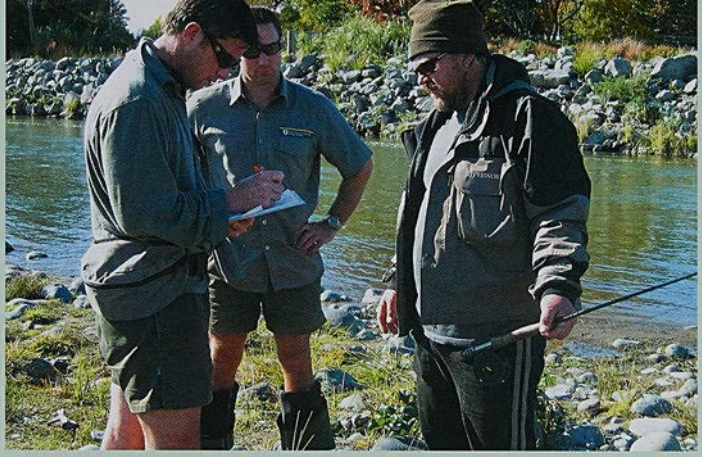
Whanganui Bay has a small stream that enters it and the water is of exceptional quality. The sandy shore provides excellent smelt habitat and spawning which makes for fabulous angling at times. The smelt here can congregate in their masses which attracts the trout. My father introduced me to trout fishing early in my life and I have been lucky enough to experience how exciting the fishing can be in Whanganui Bay. Simply trolling along the drop-off or fly-fishing the stream mouth could keep you entertained for hours, especially when the fish were on a smelting frenzy. At times it was amazing to watch trout darting in all directions chasing smelt. I would tie a Grey Ghost, Jack Sprat or Green Orbit to my line, just small ones - size 10, and some days pull the fish out one after the other. I specifically remember one day standing in the stream mouth and the trout and smelt were so abundant that for the entire time I was there fish would be continually leaping and jumping, it felt like I was out at sea watching a kahawai work up. If you time it right you can still experience these moments.

Boats can beach at Whanganui Bay but the land above the beach is private property
Photo by: Callum Bourke

One of the more identifiable landmarks at Whanganui Bay are the prominent bluffs out in the front of the bay on the southern side. Unlike the sacred cliffs further back, they can be climbed and are a real hit with rock climbers. Those who are granted access permission, enjoy climbing this cluster of bluffs. To access these cliffs, climbers are required to pay a small fee which goes towards construction and maintenance work at the Marae and keeping the lawns mowed. They may also be allowed to camp in a designated camping area. Permission to undertake this activity must be sought and details of how to go about this are given on the website:

http://www.climb.co.nz/Places/Taupo/WhanganuiBay/Whanganui-Bay-Rock-Climbing.htmAnyone can legally land on the shore of Whanganui Bay via boat but it is important to note that the land above the beach is private property and should not be entered. A road accesses the bay and traverses down the side of a canyon to reach it. It is quite rugged and steep and for safety reasons really needs a 4WD – especially during the winter. The road is private and anyone wishing to use it needs to seek permission from the Whanganui Bay Maori Reservation Trust.

Whanganui Bay is just one of the magic spots that the Western Bays has to offer. There is a lot of untold history in this area of Lake Taupo and taking a trip there is always something I look forward to. For me, going there is a chance to get back to reality – or non-reality depending on how you look at it. So if you get the chance to get away on the lake, go west.



The information anglers provide is important to us
Photo by: Kim Alexander-Turia

Who's Been Sneaking Around Then

By Jill Larsen Welsh

Well another winter/spring fishing season is over - somebody just forgot to tell the weather gods judging by the cool temperatures we've had recently - and it's also been a busy season for fishery staff.

You may have been one of the 'lucky' ones that had your licence checked by a ranger while you were fishing on one of the rivers in this area. We are out and about regularly. In fact, sometimes you see anglers almost cringing at the sight of 'another ranger doing a blasted licence check', but at the end of the day licenses are the lifeblood of the Fishery.

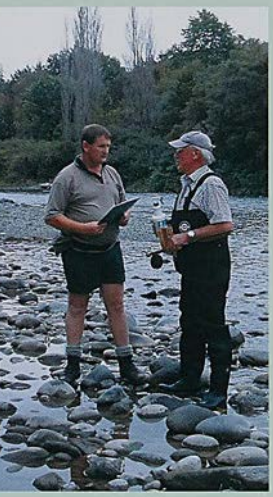
When we conduct surveys and licence checks we gather some very good information from you, the angler, about the fishery in general. This information you supply is important to us and doesn't just fall into a big black hole somewhere, or get left on a desk to gather dust. It provides extremely useful data about catch rates, angling opportunities and problems as several other articles in this issue of Target Taupo highlight. Surveys are also an opportunity for anglers to have their say, share concerns and raise questions with the management of the fishery.

Surveys and licence checks are full of contrasts. Sometimes anglers waste no time in telling us he has already been checked twice this week and yet in the same pool there will be another angler who proudly boasts that he has been fishing in this area for forty years and has never even seen, let alone been checked, by a ranger. Well, we are out there regularly both on the rivers and on the lake in the summer. If you haven't stumbled across either a Ranger from the fishery or 'Didymo Dave', then you must have a really good, and secret, fishing spot!

Apart from the routine licence checks and normal daily field operation duties, we are often out and about looking for those involved in more clandestine activities. For the protection and future of the fishery it is a necessary task to get out in the open air and scout around for people with ill intent. In some ways it beats sitting in the office all day ploughing through that never-ending pile of paperwork. Fishery staff are heavily involved in proactive law compliance, and enjoy opportunities to get out and meet people while at the same time protecting the fishery from would-be offenders.

Sometimes though the best deterrent is to successfully apprehend other poachers and we made some good progress through the latter stages of the season with seven people facing action for netting fish in locations designated as closed spawning waters. In one of the hauls a total of 22 trout were taken, in another 27. That's 49 fish now unable to spawn. If half of these are female that is in the order of 70,000 eggs lost. These are only two incidents

A successful CLE operation in the Waimarino River 2009. Netting of spawning fish like these is very damaging to the fishery
Photo by Glenn Maclean



Didymo Dave (Dave Cade) advocates the prevention of water borne nasties
Photo by: Kim Alexander Turin

but unfortunately there were others and poaching is an ongoing problem From this perspective it is easy to appreciate how these acts have the potential to be so devastating to the fishery.

Indiscriminate killing of fish on spawning grounds that are in prime condition is despicable, to say the least. In this regard the fishery team has spent long hours in remote areas over the last few months to stifle those greedy individuals that ruin our prime spawning grounds and effectively, the fishing for future generations.

Using a net or a spear to catch trout in a spawning stream, or even just disturbing spawning grounds can attract penalties of up to a year in prison or a fine up to $10,000 Few people realise that even riding a quad bike or driving a vehicle through such a spawning stream can attract the same penalties. This type of offending is at the more serious end of the scale and the penalties reflect that. It is really not worth the risk.

One trend observed this season is the growing number of people taking more than the daily bag limit. Sometimes other anglers see these things and report them. If anglers continue to take more than the limit and are caught they could well be looking at a fine of up to $5,000. All that risk for just one or a few extra trout.

Something that really surprises me is the number of undersized trout that are brought into the weigh-ins at fishing competitions. This is something we will definitely be clamping down on. Anglers need to take more care when measuring fish. Incidentally, there is no such thing as "allowance for shrinkage". Really clever people have a fish measure sticker somewhere on their vessel. How to use these stickers to make a simple measuring board is described on p63. Just a tip for those newbie's – make sure your sticker or measuring device is on a proper measuring board or flat, level part of the boat. If it's not, then this can alter (sometimes severely) the final measure of your fish. The Taupo Fishery or your local angling shop usually has a good supply of fish measuring stickers. Also, if you see us out on the lake over the summer months, don't be afraid to ask our rangers for one.

It is very likely if you've been out fishing in this district a couple of times, you will have met Didymo Dave. He's likely to just pop up somewhere when you least expect it because he's always out there somewhere educating people about the importance of checking and cleaning their gear. The processes of check, clean and dry are not only to prevent Didymo from spreading into our pristine waterways, but also to help prevent the transfer of other aquatic nasties – of which there are a considerable number. For this reason anglers are reminded that fishing in felt soled waders is now illegal. So, if you do encounter Didymo Dave on your travels, give him a big pat on the back for all of the great work he does for your fishery.

As always we appreciate the timely passing of information. Law abiding anglers do not have to put up with law breakers. We can do something about them but we need your help. Just a simple phone call is all it takes and you can remain completely anonymous if you wish. The important part of passing any information is the timing though. If you see something suspicious then call the Duty Officer phone number below. We have someone on call round the clock including weekends – day and night – so don't be afraid to call – that's what we are here for!

FISHERY DUTY OFFICER: 027 290 7758

Restoration of a 'Classic'

By Mark Venman

After he had read my previous article on the small wooden dinghy that I built, a friend approached me to say that he had an old wooden boat hiding in a garage at Motuoapa and asked me if I would like it. He explained that he had been given the boat by an older lady after doing some building work for her. She had lost her husband and no longer had a use for the boat. I arranged to meet him and view the boat as I wasn't sure what to expect.

We arrived at the house and opened the rustic garage doors to reveal an old 15ft wooden boat on a very old trailer complete with two flat tyres. The trailer had the old black number plate and a registration sticker from the 1970's. The boat itself looked like it needed some work and was in desperate need of a good clean before assessing what else needed to be done. It was certainly going to be a big job to get it useable but I guess there is no such thing as a free boat.

Before making the final decision about whether to take the boat I enlisted some help from a local marine expert who kindly offered to come out and inspect the boat to make sure that the hull was sound and that the boat wasn't full of dry rot. After climbing in he set about checking the timber for any soft spots and ended up filthy from dust and cobwebs but emerged saying that the boat seemed in good health and just needed a little TLC. So I decided to take the boat, but given the condition of the trailer I could see it wasn't going anywhere in a hurry.

So the first job was to jack the trailer up and remove the tyres get them checked for leaks and get some air into them. We took both wheels off and took them along garage who inflated the tyres and got them useable again. However, when I put the wheels back onto the trailer it still wouldn't move as the hubs had seized solid. Thankfully we weren't far from the garage and so the mechanic helped get the boat and trailer back to the garage where he could work on it there. A few phone calls later and he had tracked down some new hubs and bearings from Auckland at the cost of $300! As it turns out the wheels and hubs were from an old Vauxhall car. This free boat was now costing me and I hadn't even got it wet yet.

Top: The boat really needed some work at first
Photo by: Mark Venman

Now that the trailer was mobile we carefully drove it back to Turangi and took it straight into the shop so that we could have a good look over it. Overall, the boat was in good condition and we did some basic fibreglass repairs on the outside while the hull was still extremely dry. Although I was keen to see whether the boat would float, it was better to do what work was needed while the timber was completely dry. It was interesting to hear the comments from customers that the boat generated while we were working on it. Despite its condition many were fascinated by the boat however no one could identify exactly what type it was. The discussions it generated while in the workshop certainly made it clear that I had inherited something special and this provided me with some more inspiration to make a good job of restoring her. While it was still at the boat shop I got Eric to fit a second hand fish finder and a couple of drainage bungs to the rear transom.

The interior was completely stripped.
Photo by Mark Venman

When I finally got it home a few days later, the real work began and I started to completely empty the boat so I could strip it back ready for more repairs and at some point, fresh paint. I was intrigued to find an array of harling flies, tassie devil lures and metal spinners hidden under the floor boards and under the front seats. There was also a metal spring hanging on the side of the boat to hold lures while they were wet and it was eerie to see the boat left just as it was when the last owner had taken it out many years before.

The interior design of the boat looked awkward with the seating arrangement not very fishing friendly and so I decided to remove all of the seating and start again to maximise fishing space onboard. As I started to remove and strip back areas it became apparent that the boat had gone through several changes in its long history and the colours of paint being unearthed testified to this. However, after every stripped section, I would find another little area needing attention. At times I became a little hesitant to remove too much as I was unsure about what I would discover underneath!

I spent quite a bit of time stripping the paint back to the timber but good preparation is 90% of a good finish. There were a few areas that I patched with fibreglass that had the potential to be problems in the future and I also coated some areas with Everdure to help preserve the timber further. Holes from the old seating were filled with epoxy filler and sanded smooth and new timber was added where necessary. After several cans of paint stripper and a heap of sandpaper and the inside of the boat was finally prepped but I wanted to redesign the seating before applying the paint.

For the front seat I decided on a simple bench seat which would run across the full width of the boat and be supported in the middle. Without a back to the seat I could sit with my legs either side while trolling and maximise the space that I had on board. I kept the other folding seat at the back. The boat easily seats 3 adults with this design and leaves an open space in the centre for walking around and fishing. Using a staple gun and some stainless steel staples we stapled vinyl over an old foam mattress

Getting this tyre became a quest
Photo by Sloan Wenmoth

to ensure that the seats were comfortable which worked well.

After a good vacuum out and a wipe down the inside was finally ready for some paint. I used an enamel undercoat and finished with a couple of coats of light grey enamel exterior house paint. I chose the grey to reduce the glare but it will also look cleaner for longer.

A similar sanding job occurred on the exterior and I was glad to see the bright yellow paint coming off the boat. The outside was in reasonable condition and so I did not have to strip the exterior to the same extent but still removed all of the old flaky paint before giving it a couple of coats of the enamel undercoat. Painting the boat while on the trailer required a bit of work but it turned out well in the end. The bulk of the exterior I painted with white enamel but I chose to paint the sides blue as I had some left over from the little dinghy that I had built previously. The grey, white and blue looked great together and the existing yellow canopy didn't look too out of place once it was re-installed.

With the new higher seating arrangement, it was hard to see through the windscreen and so I a clear plastic window sewed in above the windscreen to help improve forward vision while still providing me with some shade while on the lake.

With the boat now looking a lot more respectable, it was time to restore the trailer and make it a bit more user friendly. The trailer itself doesn't have any rollers and so works by floating the boat on and off. The short draw bar wasn't ideal for this and so first on the list was an extended draw bar and a new coupling tow hitch. There also wasn't a winch for retrieving the boat and so a winch post and winch was added to the newly extended draw bar. Given the uniqueness of the wheels I also thought a spare wheel and tyre combo would be handy but tracking down one of these wheels proved harder than I initially thought. Finally someone mentioned that I should check out the scrap yard at Horopito better known as "Smash Palace".

So one wet day I ventured out to the small town of Horopito. This place certainly lived up to its name! I spoke with an older guy at the front door and showed him the rim that I was after. He said straight away that it was from a 1957 Vauxhall. I followed him through sheds full of old vintage car parts to a massive pile of rims out the back. Within minutes he had found a rim exactly like the one I was looking for and I was on my way! Back at home, all three rims were wire brushed back to remove any rust and treated to some kill rust epoxy paint. Some special tyres were ordered and the trailer was officially mobile again. The lights on the boat were old and still came with the old two pin plug and so these were removed and replaced with a light board. The remainder of the trailer was cleaned up and treated to a coat of grey epoxy paint. Once the trailer was registered with a new plate she flew through a warrant and was good to go.

The next big job was to find an outboard motor to power the boat. The boat came set up to drive from the front with an old steering wheel and a rope and pulley

system. I wanted to keep that set up and we found an older 9.9HP Yamaha 4 stroke complete with remotes and set it up to work with the steering. It was then taken for a quick rest run at the Tokaanu tailrace and came back in one piece. The mechanic voiced his approval that it handled really well. I couldn't wait to try it for myself.

With some final touches such as rod holders and cup holders we were almost ready to launch but we had to find a name for the boat. Although we thought of a few names, given the history of the boat and the discussions it generates, there was only one name we could call it and that was "Classic". She truly has the classic lines of an older boat and at approximately 60 years old, she is still going strong. We got some stickers made up and applied them to the boat. To make it official and stick with nautical tradition, we got a virgin to wee on the hull and poured a bottle of beer across the bow – a classic was reborn.

The boat was loaded with anchors, lifejackets and other equipment including fishing gear ready for the maiden voyage and in November 2008 down at Tokaanu and we managed to float the boat off the trailer without too much hassle thanks to the extended draw bar. With the boat off the trailer we took the opportunity to add some synthetic carpet to the centre board of the trailer which holds the keel to help reduce the friction when sliding the boat on and off the trailer. This was held in place with some stainless steel staples and proved very useful when retrieving the boat in particular.

The boat really did handle well and was very stable with the family on board. We trolled along to the Tongariro Delta and picked up one nice rainbow on the lead line within 10 minutes. To ensure that we remained lucky we released this first fish caught from the boat and decided to call it a day as the wind was picking up around midday. Nevertheless I was really impressed with the boat and it handled beautifully on the lake and was relatively easy to retrieve. Even at the boat ramp it received a lot of attention and several people came across to talk about it.

After using the boat throughout the summer and having a lot of fun and success with it, we decided to show the previous

Ready for the maiden voyage
Photo by: Mark Venman

'Classic' sits nicely in the water and handles well
Photo by Mark Venman

owner what I had done with her late husband's boat and arranged a meeting with her at her holiday home in Motuoapa. She couldn't believe the changes but still recognised the boat underneath the fresh paint. I asked her how long her husband had owned it and she said that he had it when they first got together back in the early 1950's and so that makes the boat approximately 60 years old. She was glad that someone else could get some enjoyment out of it and could see that a lot of time had gone into her restoration. She then invited me into the new garage and told me that I was welcome to take the old auxiliary outboard that used to be on the boat for trolling – an old 1950's British Seagull 4HP outboard, another classic. I didn't know too much about these at the time but got the old motor going with just a tank of fresh gas and a play with the throttle. Not bad for about 20 years of sitting dormant.

Despite taking almost a year to restore, it really has been worth the effort and the final result is just what I was after for fishing on Lake Taupo. It was also great to restore a boat that has been based in the area for half a century and one that has taken its fair share of fish. I was pleased to get some history of the boat and establish roughly when it was made. Although the boat was free initially, the cost of doing a thorough job did slowly mount up but being able to do most of the preparation work myself certainly saved on the total cost. I can't thank all of those enough who helped throughout the whole restoration and kept me on the right track. It was also a nice family project with my partner Shar for putting up with me disappearing into the garage every night and being busy most weekends. Shar was also a big help when it came to painting and adding the finishing touches. I'm looking forward to using the boat again this summer and so if you see me out and about feel free to come over and talk about the classic boat that she really is.

Tongariro Delta Fishing

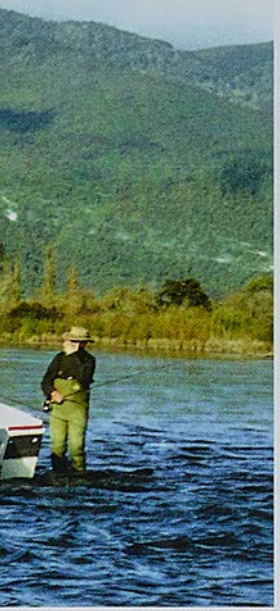
By Graham Hamilton
Graham is a keen angler and guide in the Taupo fishery

The Tongariro River delta is a special part of Lake Taupo and it can also be a very productive place to catch trout. One of the reasons for this is the concentration of superbly conditioned fish that gather at the river mouth prior to spawning. At the Tongariro delta this happens to a certain degree year round. These fish often put up a good fight for their freedom, twisting and turning in the depths of the lake. Some of these fights can be memorable on a fly rod and all of this from the comfort of a boat, surrounded by the splendour of Lake Taupo, whose moods change with the weather and time of day.

While it is possible just to walk to the main mouth of the Tongariro River, by far the easiest way to get there is 15 minutes by boat from Tokaanu, Omori or Kuratau. Once there, and if you are fishing inside a 300m radius from the mouth, your boat must be anchored as determined by the Taupo fishing regulations.

Anchoring the boat in the correct position is essential. The recognised practice is to anchor both the bow and stern and no more than 2 anchors are permitted. You need to be in the 'river' water entering the lake which is usually cooler than the lake itself and a darker colour, the stern of the boat over the 'drop off'. The drop off is clearly distinguishable on a sounder but is also generally visible with the naked eye.

My preference is to position the boat in the centre of the rip where the current is strong and then any line is taken straight out over the stern of the boat. The general technique to achieve this is to run the boat up over the drop off into very shallow water, ensuring you lift the motor before doing so, and also taking care not to ground the boat. Throw the bow anchor over and reverse the boat until in 3-4 metres of water or the desired position. Secure the bow anchor then drop the stern anchor on the windward side of the boat and tie off. Adjust the bow anchor rope until the boat is firmly held. The boat will now be steady in any changing current or wind conditions. When leaving, loosen the back anchor rope, retrieve the front anchor and



Above: The Tongariro Delta can be fished from a boat or by wading
Photo supplied

Top right: Bring fish to the side of the boat away from anchor ropes and other obstructions
Photo supplied

then pull back into deeper water using the stern anchor rope, start the engine and finish retrieving the stern anchor before moving off. Doing this manoeuvre in reverse may find you stuck on the hard. The best anchors for fishing the Tongariro delta are sand anchors with at least 3m of heavy chain at the bow and 1m at the stern.

Of course it is also possible to wade the edge of the drop off while fishing – at least at a lower lake level. This has the added benefits of an easy change of position, rip fished or depth fished. However, care must be taken when wading as the water flow is substantial and the drop-off abrupt.

At the Tongariro delta there is often a number of rips that can be fished and which one is largely a matter of personal choice although it usually involves previous success, weather conditions and the number of anglers. I prefer an early morning start as the fish are usually active at this time and the wind conditions are normally much calmer than later in the day.

Within the 300m zone around the Tongariro River mouth only flyfishing is permitted. Most anglers use a 'shooting head' or fast sinking flyline which is cast out into the current and/or over the lip of the drop-off. It is not uncommon to follow the cast with a

Miyuki Ishikawa from Japan with a nice fish from the Delta
Photo by: Graham Hamilton

Fish on!! Note the clearly definable 'drop-off'
Photo supplied

reasonable quantity of loose line as this will straighten in the current as it sinks. I use a 3 minute egg timer as a gauge of how long to leave the line before commencing the retrieve which is also around the 3 minute mark. As such, one cast should take you around 6 minutes to complete. This delay before starting the retrieve is very important. There is an old saying among delta anglers "only a fool ignores the 3 minute rule". Alternatively a floating or slow sinking line fitted with a smelt fly and retrieved in a series of quick jerks just after casting can attract a strike particularly when fish are evident on the surface. The shallow water should not be ignored either and casting off the front of the boat along the shallow edges of the drop off can be productive particularly very early in the day. Trout can and do strike at any time so remember to have the rod held firmly either in the hand or a rod holder.

Fly patterns are largely of personal choice and you want the flies to float up in the water profile as there is lots of small wood debris right on the bottom. I prefer to use a large globug with a dropper of choice usually a booby or smelt pattern. Success with each is usually around 50/50. With time the globug will become waterlogged, heavy and lethargic in the water so renewing them after about every 6 casts is a good idea. Allow the wet ones to dry before re-using them. While nothing is guaranteed in fishing I have found this regular change of fly is probably the single most important aspect to Tongariro delta success.

Length and weight of leader is again personal choice. I tend to use around 1.5-2m of 4.5kg (10lb). As you want the fly to float up through the water profile renew the leader if it becomes shorter than a meter.

Once hooked, I bring fish up to the side of the boat away from the anchor ropes and other obstructions. This allows a good view of the size and condition. There are also a number of other advantages. Firstly, it is easy to perform a quick release of the fish while it is still in the water. Further, the current will open the net and allow the fish to be guided into it rather than swooped at as is the case over the stern of the boat. Indeed it is one of the special aspects of fishing the Delta watching a prime hard fighting rainbow come up from the depths.

There are a number of spots at the southern end of Lake Taupo that can be fished using similar methods including the Tokaanu hole, Kuratau spit and the Tauranga-Taupo river mouth. This 'arm chair' method of fishing is relaxing and particularly suited to learners who are not able to cast or more mature anglers who find wading difficult. It also requires less concentration than fly-fishing in the river. Delta fishing is also very social, the other boaties you meet and the tall stories you share are legendary.

As a final thought remember this "time spent fishing is not deducted from a person's life" – so spend quality time on the lake and live forever!

Fishouts are family days

Fishout Frenzy

By John Webb

2009 has been another great year for children's fishouts at the Tongariro National Trout Centre. Kids come from all over the country either as part of a school group or on public fishout day, often to catch their first trout.

Although DOC is responsible for the raising and welfare of the fish, the Tongariro National Trout Centre Society volunteers do an incredible job at fishouts. Many give up their time freely to do a variety of tasks including helping young ones to fish, issue licenses, man the sausage sizzles and food stands, weigh and measure the catch or even gut, fillet and smoke the trout. Their input is essential and greatly appreciated.

There have been five public fishouts so far this year and they have become extremely popular with most heavily booked. In fact with some there has been a frenzy to get kids booked and participating. This enthusiasm continued even when the weather didn't play ball. At the 4 October event for example the weather was atrocious, some of the worst seen on a fishout day, but the volunteers and kids still turned out to make a great day of it.

Below: Freya Williams and family. *Bottom:* Bronwyn Licence of Auckland. *Bottom right:* Kelly Bruce from Palmerston North holding up her brother's fish as well. He was able to fish again for catching a tagged one. *All photos by John Webb*

Fishout days are family days and if the weather is nice families are encouraged to bring down a picnic, find a nice piece of grass to sit on. Many will be able to munch on the freshly smoked trout caught by the kids.

There are going to be fishouts on 3, 10 and 17 January 2010 as part of the DOC summer programme. So if you want to participate get in touch with the TNTC Society. Bookings can be made by phoning the Tongariro National Trout Centre Society volunteers at the River Walk visitor centre on (07) 386 8085 between 10am and 3pm (1 May to 30 November) and between 10am and 4pm (1 December to 30 April) or by email troutcentre@reap.org.nz, by website www.troutcentre.org.nz or by fax (07) 386 8490.

TENTATIVE DATES FOR 2010

SUMMER PROGRAMME

Sunday 3 January

Sunday 10 January

Sunday 17 January

ANNUAL PROGRAMME

Sunday 4 April (Easter)

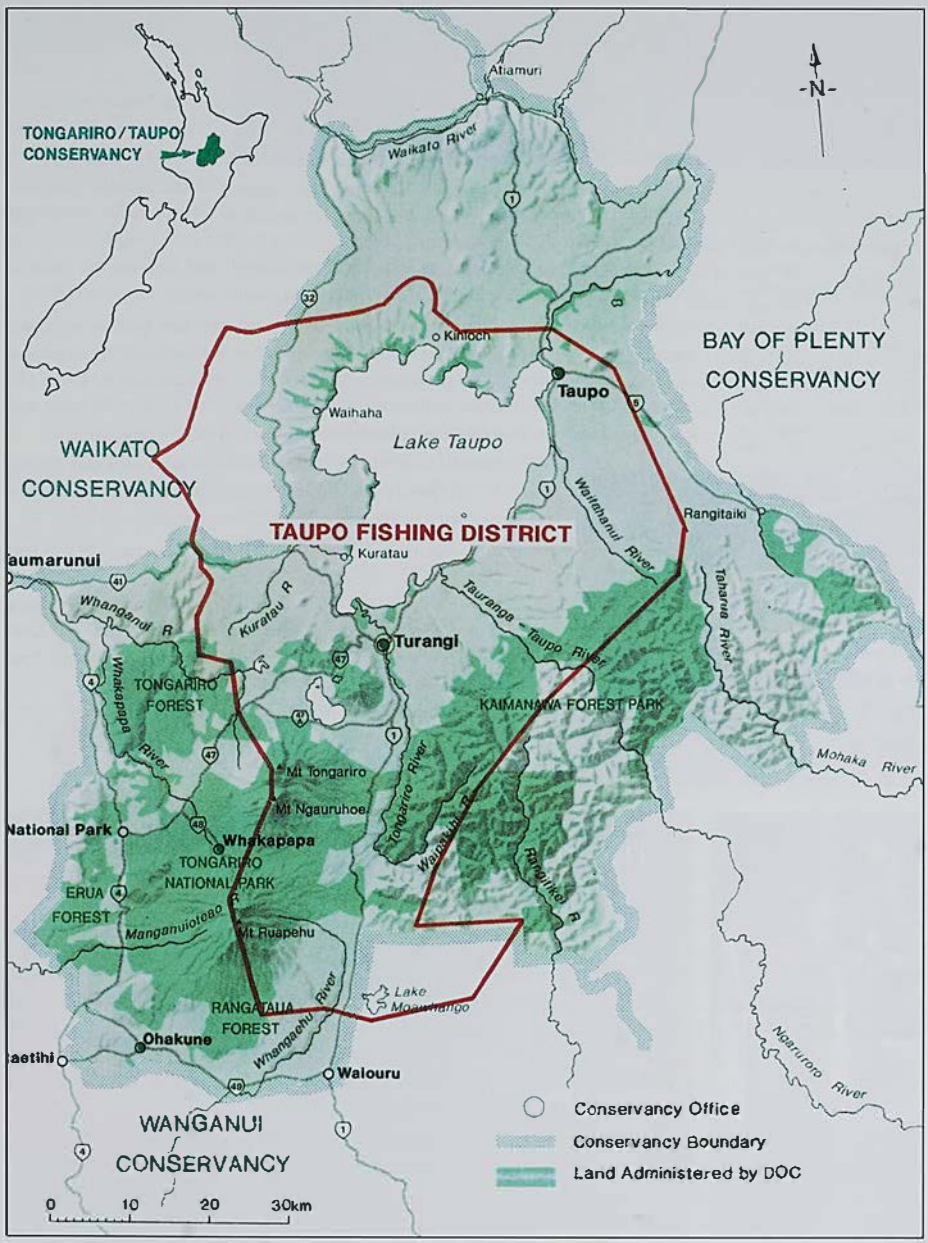
Sunday 6 June (Queens Birthday)

Sunday 11 July (School Holidays)

Sunday 3 October (School Holidays)

Sunday 24 October (Labour Weekend)

Tongariro/Taupo Conservancy



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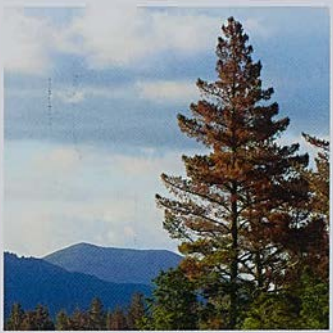

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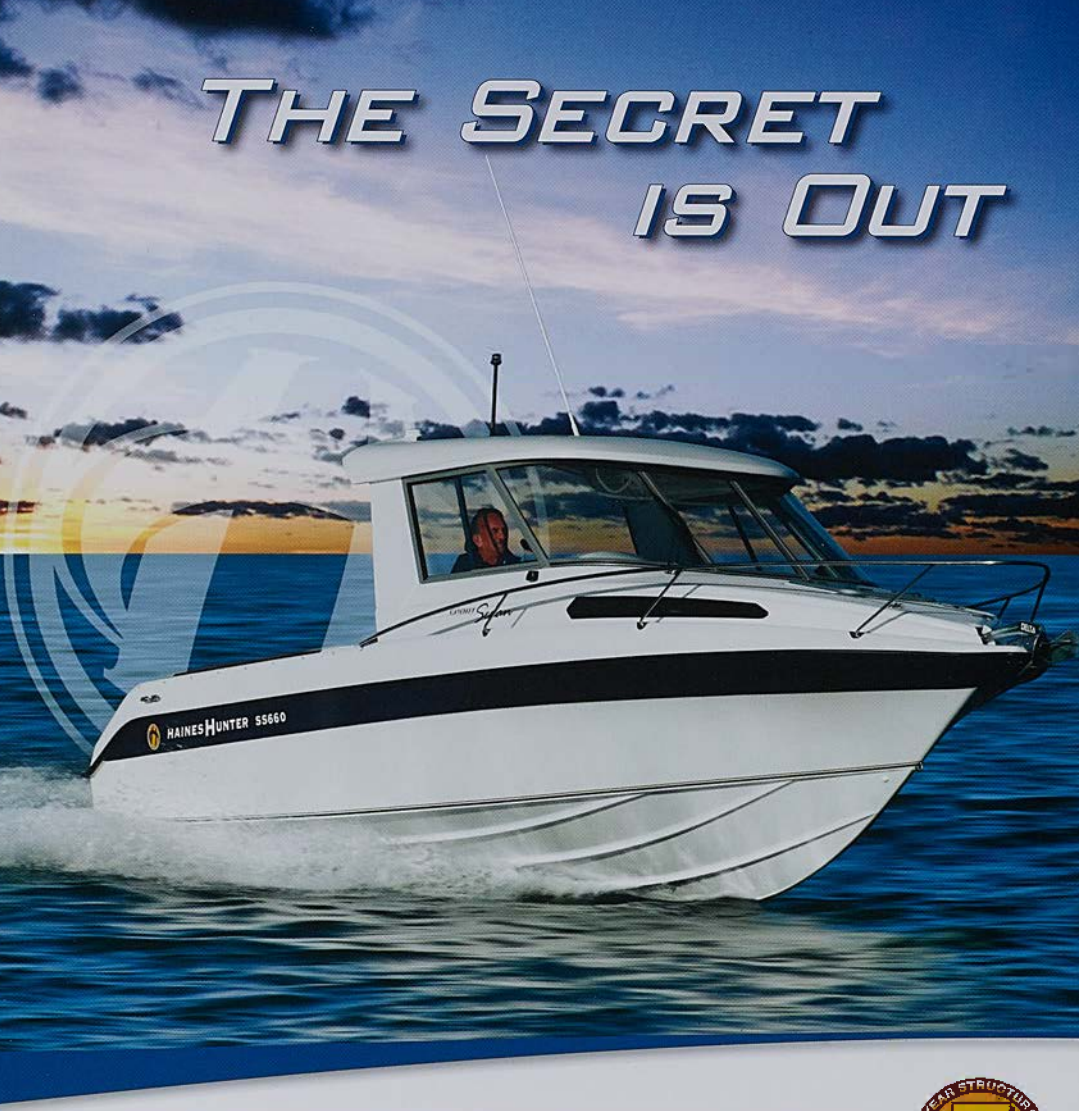

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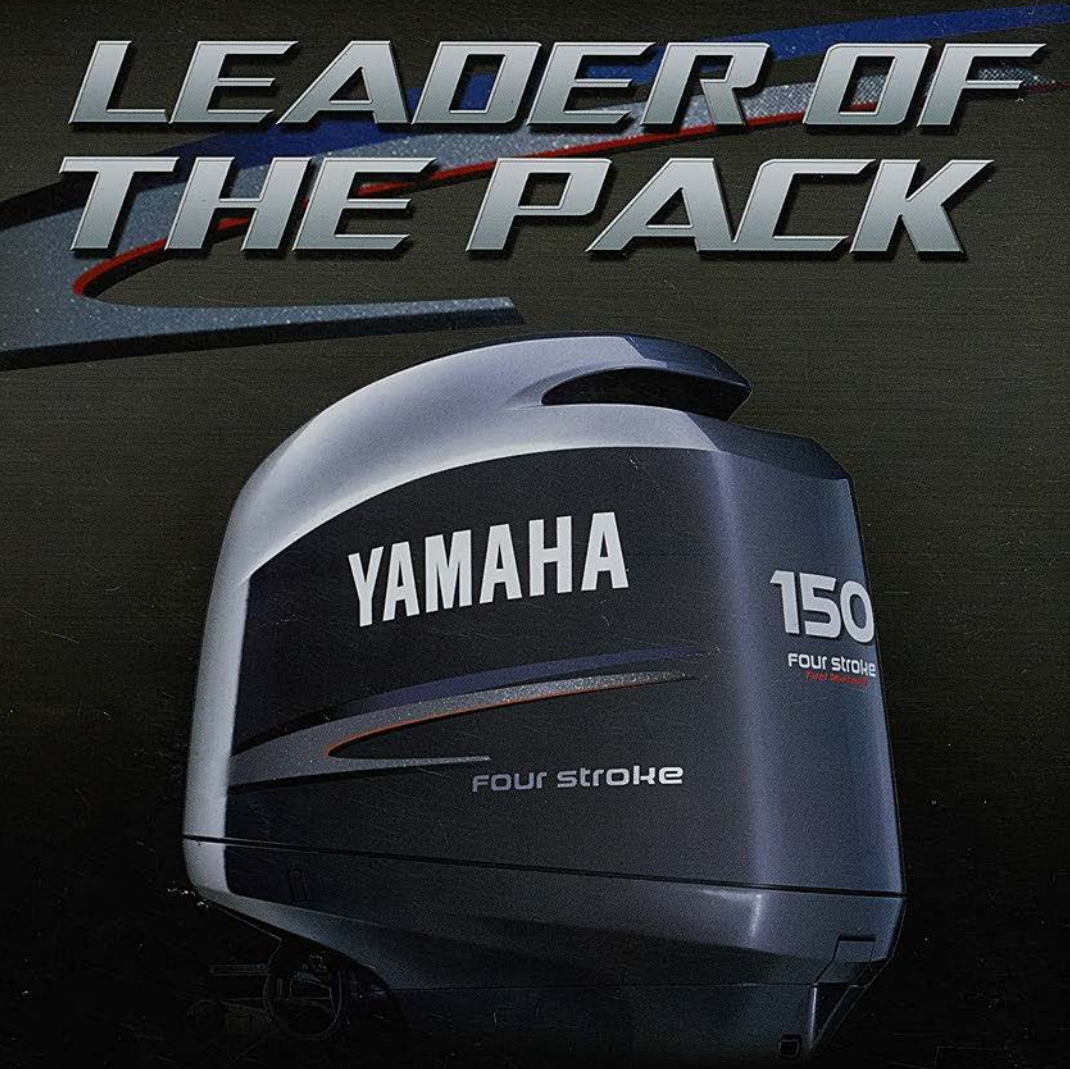

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