# **TARGET TAUPO**

A newsletter for Hunters and Anglers in the Tongariro/Taupo Conservancy

MARCH 2005, ISSUE 48



Department of Conservation *Te Papa Atawbai* 



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MARCH 2005, ISSUE 48

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Front cover: An early summer morning at the mouth of the Tauranga-Taupo River. Photo: Daniel Morard

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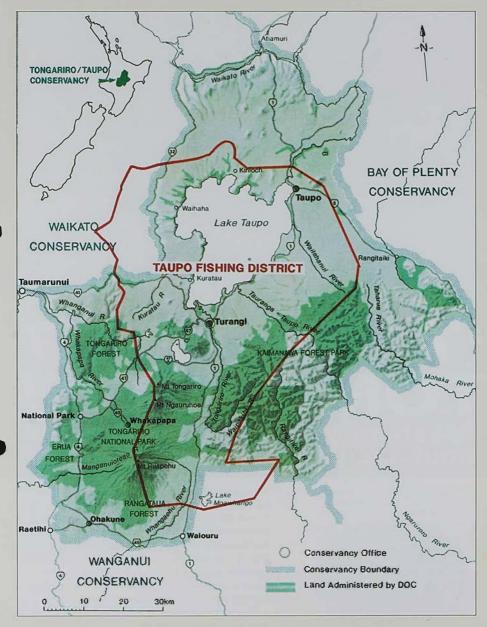
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#### Tongariro/Taupo Conservancy



# **Teaching young people to value trout and their environment**

by Thea DePetris - Thea is the new Educator at the Tongariro National Trout Centre,



When we picture Taupo we imagine clear water, blue skies, green trees and glistening trout but will it have this magic in fifty years time? Prime Taupo trout epitomise everything that is good about this environment. Studying the multi-million dollar fishery, the environment which sustains it and the challenges facing its management provides a fascinating insight into the world of utilizing and sharing New Zealand's natural resources in a sustainable way. Now this opportunity exists through 'Taupo for Tomorrow', a new education programme at the Tongariro National Trout Centre. The Tongariro National Trout Centre, on State Highway 1 just south of Turangi, has been the "window" to the Taupo trout lishery ever since the site was transformed from simply a functional hatchery to a centre to educate people about trout, in the late 1980's. Through the years, it has been

used to convey important messages about trout, angling, fishery manage ment and ecology to the general public, as well as providing a place for weary travellers and tourists to rest and enjøy the tranquil native bush setting. Withoutany specific promotion, a large number of school groups have also become regular visitors. learning importa and usi way. He applicat the gov provides

Rather than students purely visiting the centre to see trout, they could be provided with a more in-depth learning programme which bightights the importance of tooking after the environment and using natural resources in # sustainable way.

In 2003, Heurisko Ltd, a company special izing in learning experiences outside the classroom (LEOTC), was asked to assess the suitability of the centre as a place for children to learn in a situation completely differem from their normal school environ ment. They were also asked to ascertain the relevance of the Taupo fishery and its management to the New Zealand curriculum framework. Heurisko concluded that the trout cemre would provide an excellent environment for both classroom style teaching and 'hands on' learning by utilising the facilities already on site and natural aspects of the centre, including the Waihukahuka Stream and the adjacent Tongariro River. The report stated that "the high quality natural features in a confined area, good accessibility and the safe, child friendly design of the centre's facilities make the site ideal for student learning experiences". Heurisko's report concluded that the centre could facilitate quality education programmes based around social science, science and geography topics as well as having opportunities for learning in mathe matics, health, technology, history, and environmental education.

This supported the laupe Fishery Area's belief that there was significant opportunity to expand the educational aspects of the mout centre for school age children. Rather than students purely visit ing the centre to see trout, they could be provided with a more it depth cessful which left the Taupo Fishery Area looking for an interest group in the local area to provide sponsorship for what they saw as an essential programme for the long term viability of the fishery. The Tongariro National Trout Centre Society, who organise the hugely popular childrens' fishing days at the centre and have a strong band of volunteers, were also interested in being a partner in education

at the centre. The society felt that this would fit very nicely with their objectives to educate the public about trout and the fishery, and interest young people in fishing as a recreational sport. In mid 2004, Genesis Energy stepped in to become the primary sponsor of the education programme in partnership with the society and the Department of Conservation. With funding now assured, the programme could begin to be developed.

The first step was to employ a registered teacher part-time who would be responsible for the development and delivery of the programme last November, I was hired as the educator who would implement this. With a secondary teaching background in geography science and social studies, as well as being a keen outdoors woman, this job suited me down to the ground?

#### AIMING FOR A SUSTAINABLE FISHERY

The term sustainable has become a common catch phase for those concerned about the future of our planet. We see it being used in official documents like the '2020 Taupo aui a-tia Plan', anintegrated sustainable development suategy for the Take Taupo catchment, The New Zealand Parliamentary Commissioner for the Environment has used the term in his 2004 report 'See Change Learning and Education for Sustainability', a report written to explain the concept of

Chlidren lote the underwater viewing chamber. The centre provides an opportunity for students to observe trout up-close and learn about the ecology of living things. Photo: Petrina Francis



Thea talks to a group of students anti-teachers from Karaptro School The Tongariro River provides an Interesting case study for students on the life cycle of trout and managing water as a natural resource Photo: Petrina Francis sustainability and how people can learn to live in sustainable ways. This year even marks the start of the 'United Nation's Decade of Education for Sustainable Development'. Western cultures are awak ening to the fact that globally we are living in an unsustainable manner as we clear landscapes, burn fossil fuels, fill landfills and pollute waterwaysyear after year As anglers, we place an extremely high value on the

Through educating the youth of today, we are influencing the leaders of tomorrow and therefore, we hope, guaranteeing the long-term existence and quality of the trout fishery.

ecology of lake Taupo and its surrounding rivers and streams, which support the wild trout population. Sustaining the fishery for future generations is of viral importance for social, cultural, economic and recreational reasons Through educating the youth of today, we are influencing the leaders of lomorrow and therefore, we hope, guaranteeing the long-term existence and quality of the trout fishery In practical terms, what we are talking about is ensuring future decision makers, whether they are working with the land or in government or industry, have an affinity with the fishery and the need to look after the environment. We hope they will then incorporate this into their future decision making in the Taupo area.

The overall objective of the education programme is to deliver meaningful, relevant

experiences for all school children. These must meet objectives from the New Zealand curriculum framework and will seek to:

- Raise awareness of the importance of protecting fresh water habitat
- Develop a better understanding of how natural resources are shared while protecting their quality and sustainability
- Examine the Department of Conservation's work in management of the Taupo fishery and the issues of human impact; and
- Promote angling as a recreational activity

There are many quality learning experiences that can be examined by using the Taupo fishery as a case study. The fishery provides a real-life opportunity for students to observe the ongoing, sustainable management of a natural resource. Students can see the application of scientific methods and principles being used in a practical sense, rather than just imagining a theoretical example. Technology students, for example, can study the radio tracking and acoustic technology that enables lishery managers to estimate the number of fish in both river and lake envirorunents and better understand their lifecycle. Science students can investigate how people apply biological principles to manage the fishery

## That's some serious big fish with ay over there. Just look at that cutbank.

# It's a long cast,

Ha<sub>lf I</sub> can just get a little closer...

oops, too deep.

Brrrr. Got to make the cast.

Okay, Mr. Brown, meet Mr. Woolly Bugger.

That's some serious big fish water ...

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Thanks to Genesis Energy, the education programme is now becoming a reality with funding assured for the next five years Here the key partners in the programme are pictured together: From left. Dean Carroll. General Manager, Generation and Trading Genesis Energy, Eddle Tonks. Chairman Tongariro National Trout Centre Society, Paul Green, Tongarlro Taupo Conservator. Department of Conservation and Thea DePetris Educator.



The Department of Conservation Taupo Fishery Area team would like to acknowledge Genesis Energy as the primary sponsor for this education programme. For more information or hookings, PIEASE CONTACT: THEA DEPETRIS AT 07-386-9246. and further study the factors that affect the ecology of trout. Students of social science can use the longariro Pawer Development scheme as a tool for understanding how and why a resource must be managed and how competition for resources can be balanced.

#### PROGRAMME STRUCTURE

Currently, school groups visiting the trout centre are given a tour of the site by the duty langer, during which they observe wild trout in their narural environment, and visit The River

Waik display centre. At certain tintes of the year, the Tongariro National Trout Centre Society volunteers provide assistance with basic casting techniques resulting in every child catching a fish from the childiens pond.

The troutfishery provides a real case study module that can be developed for the National Certificate of Educational Achievement (NCEA).

To date this has been all that we have been able to offer However, a quality education programme giving school groups key messages about sustainability, along with hands-on activities that reinforce these messages, will bring education at the centre to a whole new level.

From June 2005, school groups will be able to book a 'Taupo for Tomorrow' education programme. They will have three options to choose from when booking, ranging from a onehour guided walk with some hands-on learning, to a full-day, tailor-made programme that is designed to meet the teacher's curriculum requirements. The best option will depend upon the group's timafiame and desired learning outcomes. Most programmes will have both an outdoor and classroom component. A small building situated by the childrens pond will be used its a temporary classroom until the permanent room arrives later this year. Stimulating, interactive activities such as stream safaris, water quality testing or fishing will be major opmponents of the programme A unique feature of "Taupo forTomorrow" is that the setting is f.exible and can utilise natural features of the environment, including the Tongariro River and Waihukahuka Stream as well as the lake. **Professionals and specialists working in the area can assist to enhance learning For** 

> example, students may be taught while raling down the Tongariro River, working with Department of Conservation fishery staff, or during a site visit to a hydro-energy power station.

> The future of the education programme looks very bright.

Once the programme commences in June, we look forward to developing other aspects. We envisage a website with on-line resources, so schools can participate in a virtual learning programme no matter where they are in New Zealand. And the trout fishery provides a real case study module that can be developed for the National Certificate of Educational Achievement (NCEA). This is a huge step forward for the centre, and a crucial way of reaching thousands of children every year with very important messages about protecting, valuing and looking after not only the Taupo trout fishery. but the whole Taupo environment so that they too can enjoy it when they grow up.

by Glenn Maclean Glenn is our Programme Manager Technlad Support and manages the research and monitoing work done in the area.

Mark Vennan (rígbí) and Røy Baker (left) conducting one of many angler surveys ou the lake over summer. Pibota Elliot Baker

# the real picture

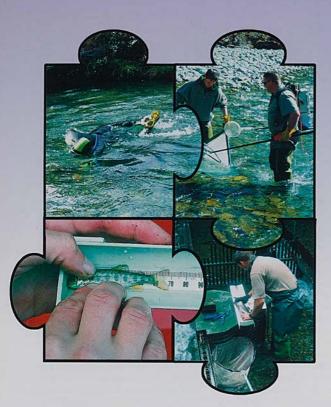
I jou have read previous issues of Target Taupo or had contact with our staff you will have seen or even been pirt of our various lishery monitoring pro&minnes. We routinely check and assess all sorts of things including the number of spawning fish, their size and condition, juvenile fish in the rivers, adult trout in the lake, their principle prey smelt, angling success and harvest and the catfish population. But do the results of all these programmes make any difference to how we manage the lishery?

Monitoring has been a buzz word for a decade or more and the merefact that something is monitored is often taken as being a significant step forward in reality nothing could be further from the truth. Too often monitoring programmes either don't reveal the true picture or ne used as an excuse to avoid tackling the underlying issues. We learnt the consequences of flawed monitoring the hard way in the late 1980's.At the time the fishery was in decline but our monitoring programmes did not show it. Fortunately staff were sufficiently in touch with the fishery to realize there was a major problem developing and an extensive research project into the trout production in the lake coupled with the results of our first yearlong harvest survey gave us the information we needed. The conclusion was that angling harvest, or kill, was having an excessive impact.

As a consequence we completely redesigned our programmes, and these have continued to evolve into what we use today. It also confirmed the value of taking note of the instinctive feel of experienced managers, something which is not very fashionable in this age of 'scientific' management.

No single monitoring programme can provide all the information we need. Rather each programme is like a piece of a giant jigsaw which when all fitted together finally reveals the complete picture An example of this is the average catch rate of anglers trolling on Lake Taupo over the summers of





1999/00 and 2000/01. Their measured catch rates were almost identical and were exceptional. Taken on their own as a description of the fishery as often happens, they indicated the fishery was at an absolute peak. In reality there was little comparison between the trout population over the two seasons The first summer did reflect what was to be an outstanding season but the second summer catch was dominated by old poorly conditioned fish which were feeding hard along the shore to recover from spawning and were easily caught. The large numbers of these fish was hardly surprising given the record spawning the previous winter and a consideration of the size and tirning of the 2000 spawning run, along with a comparison of the average fish size and condition between the two years, made it clear that the fishery was then well past its peak.

The approach we adopted and still follow when designing new monitoring programmes is to say "so what?". What will we do differently as a consequence of any results the programme might give? More than a few times having coming up with what we

thought was a bright idea we have been frustrated by this question and the realization that the plan didn't add anything in terms of the practical management of the fishery.

Related to this is a second question: "If this programme gives results I don't like, am I prepared to make hard management decisions on the basis of these results?" How often have we heard when a study indicates dire straits, the results explained away as a flaw in the sampling methodology. If you can ignore results you don't like using this justification then you can equally ignore the good results on the same basis.

Never heless an effective programme is invaluable. Of en we can develop impressions of aspects of the fishery based upon our own experiences, but these are not necessarily an accurate reflection of the overall picture./\ timely example is the concern over the perceived effectiveness of jigging Anglers who spend their time at the southern end of the lake around the Tongariro Delta and Tauranga-Taupo River mouths often see numerous anglers jig fishing and catching a lot of fish. These anglers commonly express concern over the inpact of jigging on the trout popula. tion. However our monitoring of angling effor. over the whole lake shows jigging is relatively insignificant. Routinely it comprises less than 10% of the total efflort expended on fishing the lake, reflecting that what occurs at the southern end is not repeated everywhere.

To see the big picture, ultimately we have developed a monitoring plan made up of several programmes, that look at various aspects of the lifecycle of Taupo trivial and their utilisation. By bringing each piece of information together, a consistent picture emerges. But on occasion the results of one programme will seem at odds with another. This is when it is essential that we have confidence in the validity of each programme so that tather than disregarding the apparently wayward results, we set to explain them. In coming up with an explanation we often take another step forward in our understanding of how the fishery functions.

In order to be confident in the results, the monitoring programmes must be carefully designed and statistically robust. However, such a scientific approach does nor readily allow for the experienced judgments of managers based on an intuitive 'feeling' for the fishery. In much the same way as an experienced faruer can



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		Overali Longth; 27,4m (90')	Stample: WESE	
	C			
and the second	12.8m (42)	3.2m (10.5) 6.9m (2.5)	3 4m (11) • 1m (83) (8)	
	Sal A Martin Strange	Head Length: 14.6m (48')		

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RIO Products are distributed by Tight Lines Ltd. www.tightlines.co.nz cast an eye over stock in a paddock, the instinetive feel of skilled managers should not be totally ignored. Good farmers will makeuse of science these days but their feel for what is happening also counts for a lot. The challenge is to meld the two together so each supports the other rather than decision making being totally dominated by either approach.

While a lot of our monitoring programmes do not involve anglers, there is a very significant one which relies on your input. As an angler you may well have been stopped by our rangers cither on the rivers in winter, or out on the lake over summer and asked a number of questions as part of our routine angling surveys Perhaps you have wondered how this information was used. You may also have wondered why we were out at unexpected times rather than concentrating on times when there are peak numbers of anglers In reality we are also out when it is busy but to ensure the data we collect is robust it is essemial we measure a cross section of anglets across the season. For example it is quite conceivable that those anglers who only ever harl for the first hour or two in the morning have quite different success to someone fishing through the heat of the day, In fact the angling surveys we conduct with you cover a number of bases at once Firstly, there is a compliance component checking that you

have a current license and are following the regulations. Once again mixing up when and where we do the survey means every angler has a chance of being stopped. Secondly, information is collected on your catch nite. The average catch rate is one of our measures of how many fish are present but is also a reflection of angler satisfaction with the fishery However a major influence on catch rate is local knowledge, which is why we ask how many days you have fished the particular water in the current season. Having happy and satisfied anglers is very important to us. In the survey we ask you to rate your view, on a scale of 1 - 5, on aspects of the fishery such as fish quality, size, angling success and enjoyment. In reality we know how big and in what condition the fish are from our trap data and by measuring fish anglers have crught, But asking this of you tells us how happy (or not) you are with what you have been catching For example, an angler visiting for the fast or second time to Taupo may not have seen very many fish, but has what they have viewed lived up to their expectations? In many ways the three questions relating to how satisfied anglers are with the size and quality of the fish, their angling success and how much have they enjoyed their fishing, is the ultimate measure of whether or not we have been successful in managing the fishery, as a recreational resource.



The final question asked on these surveys is whether anything detacts from your fishing experience. This is designed simply to elicit these issues which are sufficiently concerning to you that they are on the tip of your tongue. If an issue crops up as a regular concerning the weathing we can address then we will. However requests to change the weather, area little beyond our control!

As you can see, there are many pieces of information gleaned from our angler surveys. Combined with our other monitoting programmes the data helps us to keep tabs on the fishery and make strategic decisions. Next time you are approached by a anger and asked some questions as part of our surveys remember you are making a valued contribution to your fisheary, and ultimately its management.

### FISHING PROSPECTS STEADILY IMPROVE

#### by Glenn Maclean

t first glance our annual estimate of the size of the adult trout population in Take Taupo it early November was not very promising. The survey involved couming trout larger than 35 cm in length using a sophisticated echosounder and has been repeated every November since 1988. The count is an instantaneous estimate of the number of trout in the lake. However it represents only a proportion of the total number of lish available to anglers over the whole season as there are always new fish entering the adult population to replace those dying or being caught

Last year's count of 60,000 trout was as low as we have recorded with the count typically fluctuating between 60,000 and 150,000 trout on a 4 to 5 year cycle. Such cycles are typical of wild trout populations and reflect the variable environment they live in.

However comparing last November's count with previous counts is not like comparing apples with apples As a consequence of the late spawning overrecent years the offspring in the lake this November were several months younger than usual and so smaller in size. Therefore: a smaller proportion of these lish were of sufficient size to be included in the lake countThis is also reflected in the unusually high propertion of fish less than the legal size (one in four) in anglers catches since Christmas.

Compounding this, the spawning run was once again late with 69% of the run through the trap on the Waipa Stream (a tributary of the Tongariro River) occurring after 1 September and more than 900 trout passing through the trap in December As a conse quence many adult fish were not included in the count because they were still in the rivers. We can conclude then, that the count was nowhere near as bad as it would first appear and the fishery has been subsequently further assisted by the atrociotis weather over spring and early summer This is normally a time of year when fishing is relatively easy and a lot of fish are caught and killed. The inclement weather precluded almost all boating and as a result, saved a significant number of trout.

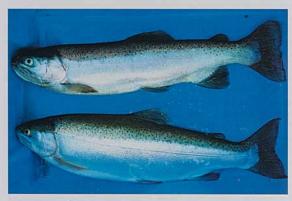
Since the weather settled in early January the fishing has been very good at a time when typically it is hard. The overall catch rate recorded for 134 anglers in February was one fish every three hours (0.34 fish per hour) mirroring the catch rate in January. Such catch rates are normally associated with the months leading up to Christmas and compare to a catch rate last February of one fish every five hours (019 fish per hour). In par: it seems that like many other aspects of the environment the cool spring has caused the typical pattern of seasonal behavior to be delayed by several months. For example it was noticeable that unusually largenumbers of smelt were close inshore post Christmas and shallow trolling and smelting was unusually good for this time of year, particularly in the Western Bays.

Nevertheless, by February the shallow trolling methods (harling and lead lines) only produced an estimated catch rate of 0.22 fish per hour compared to a catch rate 2.4 times

Mr Peters from Australia, en joys the fishing on Iakee Itamangakau Photo: Rob McLary



Two respectable brown tront in the 816 - 101b category catght early March on the Tongariro River. Browns are steadily moving upstream in their spawning migration. Photo: Rob McLay better (0.53 fish per hour) for the deeper methods (wirelines downriggers and jigging). This highlighted theneed to fish deeper as the lake warmed with the senled weather. Unfortunately though, many anglers stick to the shallow methods that work through spring rather than follow the fish into deeper water. For these anglers it has not been a great summer's fishing as they have missed out on the success they would normally have had in spring due to the weadher.



The variance of the summer catch on Lake Taupo. The top JIsh is a kelt siruggling to regain condition after spawning, and the lower fish is a maiden in good condition. Bollo fish were caught one after the other, by the same angler in March. As a consequence of the late spawning, once again there were a large number of kelts that returned to the lake late in the year and were readily caught by anglers as they fed hard to regain condition. Some anglers see these lish as reflecting a lack of food in the lake but in reality they a just a symptom of the late spawning. In fact the young maiden tish in the lake (fish that have not yet reached maturity to spawn) are in excellent condition and we are now seeing prime maiden fish of approximately 2 kilograms regularly during our lake surveysAU in all given the large numbers of young fish only now entering the legal sized population, the very limited harvest over spring and the executent size and condition of some of the tish, it is shaping up to be a much better winter on Taupo rivers thm it originally might have appeared.

For anglers lishing the Tongariro River over summer it has generally been a much quieter evening rise than last year, as the combination of the cooler than usual spring conditions and several freshes prior to Christmas curtailed much of the insect activity. However on the plus side it has been a good summer for cicadas and when there has been sufficient wind to blow them on the water anglers have had some good fishing. There has also been a lot of comment about the number of large brown trout in the lower river which have been very visible but equally instituting to hook. These lish are on their spawning migration slowly moving their way up the river over the next 4 to 6 months in what is a much more passive nigration than that adopted by the rainbows. While trying to hook and land these fish below the highway bridge is largely a lesson in futility, once they move above the bridge from now on they are much more vulnerable, especially at night.

Since Christmas the fishing on Lake Otamangakau has also been very consistent with an overall catch rate of 0.3 fish per hour recorded over February. This is a very good catch rate for this particular lake. While the vast proportion of fish caught are subsectuently released here, the average size of the few fish our staff have measured is currently 3kg. llowever as in recem seasons, while there appears to be a large number of fish in the 3kg to 1kg range we are aware of only a handful of truly trophy sized fish caught. Nevertheless with another couple of months of growth there should be some very good fish through the trap on the Te Whaiau Stream, which feeds into Lake Otamangakau, this winter.

All in all, after a slow start to the summer it is now shaping up to be a good winter on Taupo rivers. One piece of advice though. Given the large numbers of young fish only now reaching legal size it is very likely that these fish will mature late in the winter and the bulk of the spawning runs will again be September. October and even later

# CHILDROENS FISHING DAYS 2005



Tongarire National Trout Centre Society



Tania Greaves (left) and ber younger brother Rovce were ecstatic with the fish they caught at one of the early fishing days beld at the trout centre in 1983. Tunia would never bave realised back then that she would end up with a cureer in the Toubo fishery. She is now our Ranger Service, responsible for licence administration Pipole courtesy of Ian

and Manifyn Greaves.

•ts of keen little anglers will be happy to know that the Tongariro National frout Centre Society are junning childrens' fishing days again this year The days are held at the fishing pond at the Tongariro National Trout Centre, State Highway 1, Turangi.

The pond will be open for fishing from 9 am on these days Bookings are essential as the days are hugely popular, and often book out in advance Please plan ahead and book by phoning the society volunteers on (07) 386 885. Or you can email troutcente@reaporg.nz or fax (07) 386 8490.

Up to 30 children can be taken each hour from 9 am, and the volunteers will let you know when you book what times are available on the day.

The fishing is available to children aged 6 to 14 years and a fishing licence is required. This can be bought on the day or if your child already has a Taupo fishing licence, bring that along.

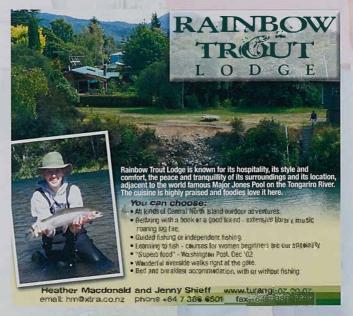
All children will be assisted to catch a fish by a volunteer of the society. Fishing gear is provided and children will take their catch home.

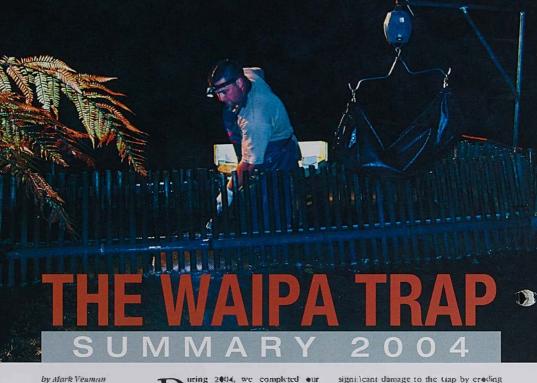
While you are at the centre, have a good look around. There is plenty for the whole family to enjoy including picnic areas, the under water viewing chamber. The River Walk display centre and a pleasant easy walk by the Tongariro River.

Donations to the society are appreciated to assist with development of the centre, and there are a number of places around the site where donations can be made.

#### THE DATES ARE:

- Sunday 24 April (ANZAC weekend)
- Sunday 15 May
- Sunday 5 June (Queens Birthday weekend)
- Sunday 17 July
- Sunday 14 August
- Sunday 25 September
- Sunday 23 October (Labour weekend)





by Mark Veuman Mark Is our Technical Support Officer

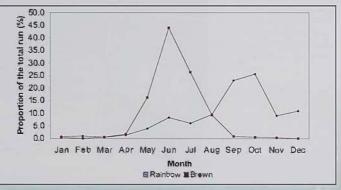
Top :Trap operations at peak sprawning times often nequine working at night. Here Rob Hood nets fish in the Waipa tap before weighing, measuring, findlipping and recording their details. Trap operators work alone, and Rob was able to get this photo by having a camera and tripod set upstream.

Figure 127 Iming of the rainbow and brown trout runs during 2004 uring 2004, we completed our seventh consecutive season trapping trout in the Waipa Stream, a tributary of the Tongariro River on the boundary of Kaimanawa Forest Park. Since 1998, fishery staff have weighed, measured and marked a total of 3,371 brown trout and 32,419 rainbow trout. This article summarises the trapping results from 2004 and compares them with recent years. The Waipa trap was operated from the 5th of January until the 18th of December 2004. The large flood at the end of February caused

significant damage to the trap by creding away part of the true right bank. But nevertheless, the trap has new withstood the second (February 2004) and third (July 1998) largest floods in the Tongariro in the last 50 years without major damage.

#### Timing of the runs

Some rainbow trout were trapped every month between January and December although the main run began during May, one month earlier than 2003, and continued right through until December (Figure 1). During



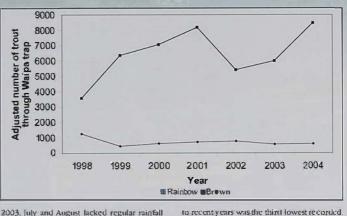


Figure 2: The adjusted number of rainbow and brown trout running the Waiba Stream since 1998

Each trout trapped is marked by removing balf lbe fin, which regrows to leave a distinct scat Photo: Rob Marshall which resulted in the runs being slightly later. The rainbow trout runs peaked during September and October 2004 and remained unusually high until mid December 1 appears that late runs are well established now and anglers should plan their fishing trips later to tie in with this new peak in the spawning run. The run of brown trout was much narrower, with almost all browns being trapped between April and September. The peak was in June, with 33% of brown females and 62% of brown males trapped in this morth.

#### Size of the run

The actual runs are adjusted for those months where a flood occurred to account for any fish that may have by passed the trap without being caught/The size of the brown trout run was estimated at 603 fish, and although similar to recent years was the third lowest recorded. The largest run of brown trout (1,246) was in 1998 (Figure 2).

The rainbow run on the other hand, was large with an estimated 8,479 fish this year. interestingly, this is three years after the previous peak recorded during 2001 suggesting the number of trout which spawn are an important influence on the future size of the trout population. With such a large run it is not surprising that the Tongariro River provided excellent angling for much of the winter with an overall estimated catch rate of 0.34 fish per hour (1 fish every 2.9 hours) equalling the highest recorded since 1985.

#### Size and condition of fish

In 2004 rainbow trout averaged 530mm in length and 1.7kg in weight, significantly heavier than the previous two years. Though still much smaller than the peak of 2.4kg in 1998. This 1998 average is an anomaly reflecting temporary changes in the ecology of Take Taupo following the 1995 and 1996 eruptions of Mount Ruapelue.

Brown trout trapped during 2004 averaged 590mm and 2.5kg and were significantly shorter and lighter than all years, bar 1999 and 2002.

Four trophy brown trout (greater than IOlbs) were trapped during 2004. This is a slight increase over the one IOlb (4.54kg) brown trapped during 2003. No rainbow trout exceeding 10lbs have been trapped over the past three years, but it was encouraging to see a total of 19 brown trout and 8 rainbows weighing 8lbs (3.6kg) or more trapped in 2004.



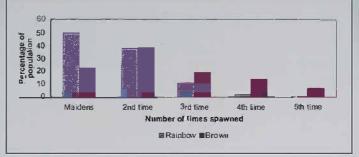


Figure 3: Age structure of the Wai pa Stream trout pointation based on fin clip data from 2004

#### Age structure of the population

The age structure of the population can be estimated from the amount of repeat spawning that occurs Each year a fish passes through the trap, a different fin is clipped. This fin regr we but with a distinct scar By knowing the number of times a fish has been trapped (indicated by fin clips) and the fact that Taupo rainbow trout mature when they are three years old and subsequently spawn every year thereafter, we can estimate their age.

The fin clip data for 2004 indicated that almost half of all minbow trout trapped were maiden fish (3 year olds spawning for the first time). A significant percentage (37.2%) were returning to spawn for the second time while 11% were shawning for at least the third time (Figure 3). Less than 2% survived spawning and evaded capture to spawn for a fourth time while less than 0.5% spawned for a 5th time (approximately 7 year olds). Such a high incidence of repeat spawners (half of the run) is very unusual compared to previous trapping programmes and may indicate that with the low daily bag limit, larger minimum size limit and increased practice of catch and release, more fish survive to old age rather than being caught and killed. For example in the low point in the fishery in the late 1980s when the angling harvest: was excessive, the run of previous spawners through the two taps operated at the time was less than 6% and 12% respectively. However, it is also possible that the late sbawning over recent years also aids their survival.

Overall, 50.4% of rainbow trout trapped during 2004 were repeat spawners which equates to more than 4000 jsh. This highlights the importance of these four-year-oldplus minbow trout to the fishery and the need for anglers to handle them with care if

> releasing them. With almost 80% of browns trapped being repeat spawners, it is even more critical implets release these fish carefully

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Conclusions

It is typical for a wild fishery to fluctuate through extremes but when good conditions exist, the fishery and the f shing can be exceptional. This was the case during 2004, when the largest run of rainbow trout in the Waipa Stream recorded since 1998 coincided with the largest overall estimated catch rate on the Tongariro River since 1985. Interestingly, our young trout monitoring programme





Above: TheWaipa trap underwater following the February 2004 flootl, Photo: Rob Kirkwood,

Above right:The differmation of the flood Photo: Rob Kinkurood throughout the Tongariro River has shown that when large juvenile counts are low, the run through the Waipa trap also tends to be low two to three years later. The catch rate of larger juveniles during the summer of 2002/03 was high in comparison to recent years and if the relationship between juvenile catch rate and trap run holds, then we would expect another decent run of rainbow trout through the Tongariro River during the winter of 2005 on the back of the 2004 peak Waipa run,

The hut our rangers use when working at the Waipa trap has recently had a makeover with new palm inside and out and solar lighting installed. Along with new mattresses and an arm chair, it ip operators are a lot keener to spend nights out there. We shall see if this trend continues as the cold, wet nights of winter are just a few months away!



# **HAVE YOU SEEN THIS FRESHWATER ALGAE?**

#### Background

Didymosphenia geminata was found in the lower Wajau and Mararoa rivers in October 2004. The natural distribution of this algae is northern Europe and northern North America. Its presence in New Zealand may be the first in the southern hemisphere.

It is not considered a significant human health risk but is considered an invasive species overseas,





#### Description

EYY. BIOSECURITY. GOV Didymosphenia geminata is a freshwater diatom (a type of algae).

It can form massive blooms on the bottom of streams. rivers and lakes.

The algee attaches itself to the streambed by stalks and can form a thick brown laver that smothers rocks.

submerged plants and other materials. It forms flowing 'rate tails' that can turn white at their ends and look similar to tissue moder.

Although the algae appears slimy, it feels like wet cotton wool.

#### Stop the spread

It is important that this algae is not transported into

waterways that are not affected. If possible try to avoid using affected waterways or moving between affected and non-affected rivers.

If using these waterways please ensure that all boats, fishing equipment and

other materials that may have come in contact with the algee have been thoroughly cleaned before entering other rivers. At the very least, ensure all obvious debris is removed. The risk of spread can be further minimised by:

- cleaning with 10 percent bleach solution; or
- soaking items in 10 percent salt solution for two hours.

#### THE THREAT

Overseas this algae is considered an invasive species that can form massive blooms. Thick growths can adversely affect fresh water fish, plant and invertebrate species by reducing the number of suitable habitats.



If you require more information please visit: www.biosecurity.govt.nz/didymo





November 2004

BIOSECURITY NEW ZEALAND

# **CARING FOR THE HINEMAIAIA RIVER**

By Petrina Francis Petrina is our Programme Manager Community Relations

#### -AN EXAMPLE OF HOW COMMUNITIES CAN HELPTHETAUPO TROUT FISHERY

In the factor of the second se

take advantage of the excellent fishing in the river and on the lake.

The story of Hatepe is a great example of how much can be achieved with vision and pensistence Through itshistory and in association with the landowners, the Opava Rangitoto 2C Incorporation. (the hapt that owns much of the land on which Hatepe is built) two very dedicated and

enthusiastic community groups have sprouted, the Hatepe Residents Association and in more recent times, the Hinemalaia River Care Committee. The residents association has been dedicated to ensuring the village itself remains as intended by the owners, and that the relationship between the landowners and the residents is mutually agreeable to all. The Hinemaiaia River Care Committee has been formed to be the care takers of the Hinemaiaia River, because they realise the value and the importance of the river to the village and to anglers.

I have had the privilege of learning about Hatepe and being involved with the Hinemaiaia River Care Committee over the last 18 months. I recently spoke to John Nott, Chairman of the Hatepe Residents Association, about what motivated the River Care Committee to start and what they have achieved. The committee represents a model of what could be achieved elsewhere within the Taupo fishery by community groups passionate about the trout fishery and environment.

John explained in depth the history of

T be Hinemaicia River Care Committee bas been formed to be the caretakers of the Hinemalaia River, because they realise it's value and importance to the village and to anglers. Hatepe and how the village came to be. This is because there is an underlying philosophy that was adopted by the original landowners for the area and that continues today, that has shaped how die village developed, the concern and care for the environment that exists within the village, and the passion and desire to protect the fishery.

Hatepe means "witted out, faished". Robert (Bob) Tuhekengarangi Morchu, kaumatua of the village today and descendant of the original owners explains how this name came to be "This land has been occupied for a long time. A very long time. Many hundreds of years. And the bones of the ancestors of the Morchu family are buried in the village soil, the rivervalley, and the hills around ..... One day over a hundred years ago, Te Kooti came with his warriors down from Northland, looking for Te Rawiri Kahia, the eldest of four brothers, a chief who fought for Queen Victoria in the land wars and who later was commander of the Maori Battallion Te Kooti wanted to kill him. The pa was deserted. Tuwharctoa had heard Te Kooti was coming and all gathered at Waihi at the southern end of the take. Only one old man was left there. Honu. He refused to tell Te Kooti where Te Rawiri Kahia was, so he was killed, and the pa was buint to the ground. That is where the name Hatepe comes from. It means wiped out, finished".

Reverend Hoeta Te Hata and his wife Haromi inherited the leadership of the family and settled at Hatepe before the turn of the 20th century. The area became a thriving Maori community based on the surrounding farmland. A large area by the river was used as a stockade for beef cattle and sheep being driven up the side of the lake for buyers. The poplar trees that are a feature of Hatepe grew from the original stockade fences. Robert Morehu, (Bob's father) a grandson of the Reverend and his wife had a special affinity to flatepe and after serving the army in the First World War, returned with his wife Bella to the area to settle in 1938. They found a wilderness that had been neglected over time, and in the difficult and rough conditions they raised 13 children.

Around the same time the excellent trout fishing of the Hinemaiaia River beam me well known and many discerning anglers would make the difficult trip via a dusty road to fish the river and mouth. With a small payment to the landowners people could also camp by the river, an enjoyable and secturded area for holidays.

Robert and his wife Bella had extraordinary vision for the area. Robert was determined not to sell the land, which at the time would have been an easy option. And so over time, the land has remained in the ownership of the Opawa Rangitoto 2C Incorporation with

sections leased to holiday home owners, most of whom have had their holidays there for many many years. Robert and Bella insisted that the area didn't lose it's environmental charm and so sections were marked out to take into consideration the preservation of natural surroundings and trees. The Hatepe Residents Association was formed in 1956 to assist with the need to formalise lease agreements in association with the Opawa Rangitoto 2C Incorporation. The desire and philosophy to keep Hatepe village unobtrusive and to care for and protect the ambience, surroundings and river are reflected in the lease agreements which have clauses that protect trees and vegetation as well as restricting the proportion of the year that houses can be let to non-winers.

This strong association has existed now for close to 50 years and it is from this background that the Hinemalia River Care Committee sprung. Over the years the Hinemalia River had become filled with debris and many of the banks crode-d, raising fears that the river would break out to the lake, shifting the mouth away from the village. Much debate ensued between various parties as to how much change in the ilver could be attributed to nanual processes, what was exacededed by the operation of the hydro scheme and what impact the removal of willows in the early 1980s had.

51

After five years of work by a group of enthusiastic residents the Hinemaiaia River Care Committee was eventually formed. The principal parties to the committee were the Opawa

Robert (Bob) Morelau fishing the months of the Hinematatia River The Hinematatia River Care Committee are dedicated to looking after the lower river acknowledging its value to anglers, the trout fishery and the village Photo: Len Birth Rangitoto 2 C Inomportation, the Department of Conservation, the Hatepe Residents Association, and Environment Waikato. In later times the committee has welcomed a representative from TrustPower limited, which owns the Dower stations on the river. Other organisations were consulted and agreed to the formation of the group; these included the Tinwhatetoa Maori Trust Board, the Taupo District Council, the Taupo Fishery Advisory Committee, Forest and Birk(Taupo Takes and Waterways Forum and Transit New Zealand.

Members of the committee were keen to see the same philosophy that had been shown to the village environment actended to care and

protection of the river, and a catalyst for action was when 'I'rustPower' sought the renewal of resource consents to operate lheir hower scheme on the riverA strong residents association along with the Fishery Arca team of DOC, presented information on the importance of the iiver to the village, for trout spravning and habitat, and its value to the

Taupo lishery. This resulted, among other things, in a requirement for TrustPower to facilitate fish passage above the HB dam and trials are underway to achieve this.

At the same time as the formation of the Hinemaia River Care Committee the group drafted a management plan for the river. As well as being the binding document between the parties it is the reference point for all work envisaged for the river. The objectives of the plan are to keep the mouth of the river at its present location immediately north of Hatepe, minimise erosion to the banks of the river, improve angling opportunity, provide trout habitat and preserve the character and environment of the river, its banks and

#### ripalian margins.

Along the way, the residents association has raised a lot of money for river protection work. The landowners have also contributed significant funding.

The breakthrough achieved by the managemem plan is that it identified all the work intended for the river and how any proposed work should be undertaken. As part of the plan a general resource consent for particular work has been obtained through Environment Waikato. As long as future work is consistent with the plan, there is no need for separate consents each time work is

The breaktbrongh acbieved by the management plan is that it identified all the work intended for the river and botv any proposed work should be undertaken. undertaken All planned work must take into consideration the effects on the river itself, the village, the trout fishery, the surrounding habitat and the aesthetics of the area. The committee regularly meets and inspects the river to determine what works are needed to achieve their objectives. The plan provides very clear guidance on the

criteria for removal of trees and the method to be used, replanting of river banks including species selection, removal of in-river debris and snags, and maintenance of walking tracks and angler access. From a lishery perspective, any work to remove logs or debris from the river to increase angling opportunity needs to be balanced against the value of leaving some snages as habitat for juvenile and adult trout. If possible, the use of machinery in the river is avoided, but where it is required to do work, this must be done in the summer when it will have the least impact on spawning trout. Ideally the work should be coordinated so that it is only necessary to have machinery working in the river every few years,

The committee is focused on preserving the

Before and after photos of a section of pathway that the residents have sprayed and cleared of blackberry, with amazing results Photo: Len Birch mouth of the river as it is important to the character and aesthetics of Hatepe. A concern is that crosion from the lake edge, combined with the crosion of the Hinematia River at a critical bend could see the mouth brack through to the lake some distance upstream of the current river mouth. As a consequence, the committee funded and oversaw rock armouring of part of the bank, in the lower river to address this threat. There are plans to erect another rock group nearer the river mouth in the next twelve months. The committee is currently overlaying aerial photogmphy of the Hinematia River to monitor how the channet has moved over the years and predict future movement.

The Residents Association has now taken up another environmental challenge. A project to form a residents group for weed and pest control in the Hatepe area has started and once again they are working closely with the owners, Environment Waikato and DOC on this major project. Japanese honeysuckle, climbing spinileberry, blackberry and other weeds threaten the native plant species. Pests likewise are a constant threat to the wonderful native birdlife at Hatepe.

John Nott says it is crucial that residem groups drive these projects. "They are independent, flexible and pragmatic, whereas organisations natu-

> rally tend to be bound to their particular areas of responsibility. The great success of the Hinemaiaia River Care Committee is that the members can work together in one group and achieve common goals so easily<sup>\*</sup>.

> The Hinemaiaia River is definitely advantaged by having a caring and passionate community surrounding it. Anglers who enjoy the beauty and challenge of fishing the Hinemaiaia Gm test assund a keyn committee is doing what they can te protect and enhance the trout fishery not only for today's anglers, but far future generations.

> With thanks to John Nott, Hinemataia River Care Committee and Hatefte Residents Association. Bob and Judy Monebu and Len and Stasfe Birch.

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# HARVEST SURVEY TO BE REPEATED NEXT SEASON

by Glenn Maclean

ANGLING HARVEST IS A TERM USED TO DESCRIBE THE NUMBER OF FISH CAUGHT AND KILLED BY ANGLERS. s we discovered when the fisherydeclined in the late 1980's, it is possible for the harvest to be sufficiently large that the fishery is significantly impacted. It simple terms the chances of a trout avoiding being caught in the lake long enough to reach maturity are severely reduced and the spawning run is much diminished. As a consequence the daily bag limit was cut from 8 to 3 trout in 1990 and the minimum size limit increased from 35cm to 45cm in 1997 to reduce the harvest.

These measures have a significant impact but nevertheless it is essential we keep close rabs on the angling harvest. Ideally we would estimate it every year but the logistics and cost preclude this option. Instead we repeat the season-long survey of harvest every five years. The first survey was undertaken over the 1990/91 season, followed by surveys in 1995/96 and 2000/01. Once again it is time to undertake the survey over the 2005/06 season starting 1 July.

In 2000/01 we estimated anglers caught 240,000 large trout keeping 160,000 of them. In catching these fish they spem 750,000 hours fishing This effort has increased significantly over the 10 years since the first survey despite facence sales remaining very similar This reflects that anglers are generally spending more time fishing than in the past. To some degree this is a concern because the total harvest is essentially a product of effort and eatch rate. Catch rate is linked to the number of fish available so tends to be self regulating but if the effort continues to increase then the fishery will come under ever increasing pressure.

The survey follows a well proven methodology. On a series of days throughout the season the number of anglers fishing on the lake or on the rivers will be counted at intervals through the day from a light aircraft. On the same days anglers will be interviewed about their angling success as they return to the boat ramp or while fishing on the rivers. If you are fishing next season and see a small plane buzzing overhead it is probably us counting you and your fellow anglers. Similarly if you are approached by an interviewer please give them 5 minutes of your time so they can record how you have got on. If you fish frequently liten some of those occasions will likely fall on the 68 survey days through the year and vixi may be stopped several times. However the information you provide each time is essen tial to us obtaining an accurate estimate of the harvest, with all of the management implications that go with this. Your assistance in this large project will be greatly appreciated.

SIL



It is important to closely monitor the barvest of prime malden fish from the lake to ensure the sustainability of the fishery. Photo: Mark Vennan



by Petrina Francis and Glenn Maclean

Callum Bourke cuts part

Tauranga-Taupo River:

Photo: Rub Kirkwood

of the track on the

second most popular river in the Taupo fishery attracting 18% of all the river angling enjoyed at Taupo The mouth can be fly-fished all year around either by wading or from an anchored boat, and over whiter many anglers enjoy fishing the small but relatively open stream for the large numbers of spawning trout that use this river.

the Tauranga-Taupo River, on the

eastern side of Lake Taupo is the

Over recent years access up the river has been restricted after the local land owners closed vehicle access adjacent to the quarry on the true right bank. Many anglers were initially indignant about this as they had had access up to and past the vicinity of the old Crescent Pool for many years. This was actually part of the problem, because some people had come to treat what is private land as though it were their own. Anglers wandered everywhere as they took shortcuts, created new vehicle and foot tracks. parked their vehicles on the river bed, pushed down fences and generally showed little respect for the opportunity provided by the owners. What many anglers overlooked was that even foot access to the upper river was with the goodwill of these owners, because tuilike many other Taupo rivers the 1926 Act right of way does not extend all the way up this river.

However despite all of this history and these problems, the owners remain very happy for anglers and others to have foot access along the banks so that they can erjoy the chann of this special river. It is a wonderful stance they have taken and anglers should be very approxitive of their willingness to share the river with them.

Recently we developed a new access plan for the river with the agreement of the surrounding owners It is designed around the premise of providing quality foot access along the river as far ubstream as the winter lishing limit at the Rangers Pool. Unlike the Tongariro River where anglers can drive to many of the pools, access on the Tauranga Taupo will be based around providing an opportunity for anglers who want to put their backpack on and spend the day walking along the river The walking track will follow the true left bank of the river and anglers can either follow the track or lish up the river channel linking back to the track as they require. The track will be clearly marked (see photo) and will be maintained to a standard that you can quickly walk along. The key is to remember that the track follows the river, so as long as you are close to the river



The access track is marked ckarly with these pasts Anglers should follow these to ensure they stay on the formed track and d'on't deviate onto private property. Photo: Rob Kirkwood

you are welcome to be there. However if you come off the track or riverbed and take a shortcut you will trespassing. The fishery team will be actively checking that anglers keep to the marked tracks and we are simply not going to tolerate some selfish angler putting this access at risk for everyone else. Along with new walking tracks the siting of the carparks will also be changed. Rather than continuing with the existing access road through Tuki Reserve on the true left bank which is being badly damaged each time the river foods, a new carpark is being put in the corner of the area known as Taylor's Lease. These are the paddocks to the south of the Tauranga-Taupo garage (see map) An entry off Sli 1 mid way along the straight has been agreed with Transit NZ. The new road runs south adjacent to SH I before turning cast and running along the edge of the pines following an old road alignment. The new road will be fenced off from the rest of the paddocks and end at a large carpark adjacent to the stop bank An advantage of this site is that, for security, any vehicles will be in open view. A second smaller carpark will be sited at the



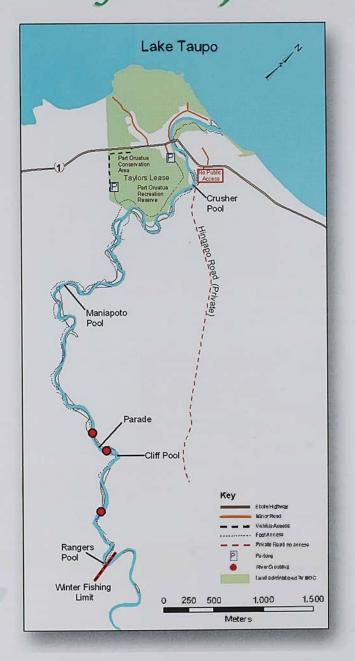
end of Juki Street at the start of the reserve. It is expected that this will be used less than the one in Taylor's Ucase. A third carpark may also be created in the medium term at the start of Hingapo Road depending on the wishes of the various owners on this side. Anglers should take note that Hingapo Road on this true right bank is a private road with no right of access.As part of this plan we will be upgrading the fencing along Hingapo Road to close the quarry and other informal vehicle tracks to the river and the only way into this area will be with the permission of the owners through a locked gate at the quarry. However there will be a walking track from SH I following this bank upstream.

This new access plan involves a significant amount of work but we are hopeful of having the majority of it completed by early April in time for the winter fishing season. Already the alignment of the new track has been cut and the contract for the full cutting of the track is currently being let. Similarly the creation of the new carpark and access road in Taylor's Lease is scheduled for later this month.

Attached to this article is a map of the river showing the new access tracks and major fishing pools. The map also indicates where river crossings in the upper river are required. These are part of the back-country style fishing experience on the Tauranga Taubo, and anglers can expect to get wet if they want to reach the upper pools. By the same token there is a lot of water available below the first crossing at the Parade if the tiver is running too high to cross safely.

Remember much of the access is at the good will of the owners. Please respect this opportunity Access is on foot only, no motohikes, four-wheelers, or mountain bikes are to be used on these tacks. Stick to the river bed or follow the tracks which are clearly marked by posts with blue and white bands. The new access will be slightly different to what anglers were used to in the past and will create a different opportunity to that provided on other Taupo rivers. For those of you who like to walk and get away on your own, this is a chance to enjor a very special river.

For further information on access please contact: Errol Cudby, Programme Manager Visitor Assets, Department of Conservation Taupo Fishery Area, (07) 386 8607. Tauranga – Taupo River



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# GETTING READY FOR WINTER FISHING

#### IN THIS ARTICLE, DAVE GIVES PRACTICAL TIPS ON CHECKING YOUR FISHING TACKLE BEFORE THE BUSY WINTER SEASON ON THE RIVERS.

by Dave Hurt

Dave is our Tautoo based rangee: As well as being our entbusiastic angles; The bas also worked in the tackle tudinstry;

Inspect your fly lines for damage or cracking Gracks are sometimes difficult to see on darker lines, but can be detected by running your fingers along at lant line. Photo: Daw llart The amount of effort put into fishing gear maintenance varies greatly from site anglet to another. For some, a regular and patient rituel of cleaning and service ing is all part of the pleasure of owning and using quality tackle, while for others it's a task only to be done when something has broken. This article is intended to provide anglers with some useful pointers on how to prolong the life of your gear and increase your angling enjoyment by ensuring that it functions as it should. As we caproach the winter seasen on Taupo rivers we will took specifically at fly fishing gear with a view to pre and postseason preparation and maintenance.

#### STORAGE

Before placing summer fly rods and reels into longterm storage take a few basic steps to prevent corrosion, rot and blank thanage from occurring. Rods don't need much



cleaning but if cosis grips are stimy from accumulated grime they can be safely scrubbed clean with a nylon scouring pad and toothpaste. Before placing them into cloth bags or rod tubes ensure that the rods are fully dry. Avoid storing rods with sections still joined as the ferrules may bind over time and become difficult to separate later withon damage. An ideal method of storage is to hang the rod bag vertically from a hook, but if storing them in tubes ensure the end of the tube is left off to allow air to circulate. If storing rods horizontally on a rack ensure they are supported along the full length of the blank to prevent any sugging which may over time create a permanent bend or 'set' in the rod. Most importantly never store any type of rod leaning against a wall as it will visibly. curve under its own weight and certainly risk developing a set or twist in the blank.

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When cleaning and drying reels prior to storage strip off the fly line and allow the backing sufficient time to thoroughly dry or rot may occur during storage. The airing cupboard is a great place for drying reels but if used for longterm storage can cause lubricants to dry out or solidify; not to mention a bit of strife for the owner if reel oil appears on the family clothest. With disc diag reels loosen the drag completely off to prevent any permanent compression that can affect the drag performance.

Once the root and hacking are fully dry the fly line can be wound loosely back on the spool or as an alternate measure to prevent line



When lubricating your reel, only lightly grease the main spindle. Keep the drag components laid out in sequence of removal to make reassembly easie: Photo: Davi Hart "memory" occurring - patticularly with stiffer monofilament-cored lines - detach the line from the backing entirely and hang it in lage loops over a peg in the wall. If separating lines in this manner ensure that you attach a label for later identification, including which end is no be reattached to the backing.

#### **PRESEASON CHECKS**

When checking rods pre-season look for any visible signs of damage or decay. In particular check ferrule joints for any cracks in the

female ends, and look closely at the guide feet for signs of cracking in the epoxy over the bindings that can result in water entering to corrode the guide foot. The guides themselves should be checked for any rough spots that may damage the line such as nicks, rust spots or cracked inserts in ceramic guides. A useful way of checking guides is to run some line material through them as it will snag and leave a tuft on any imperfections - cotton buds or a strip of nylon pantyhose work well for this. At the same time, check that the cork grip and reel seat have not loosened on the blank, and apply a light coating of paraffin wax on the thread of the reel seat to keep it turning smeethly without binding.

Fly reels should be checked for any losse screws or fustenings, including between the reel foot and the frame as this can loosen slightly with use and cause an annoying vibration during casting. Reels puled from storage arc likely to be in need of fresh lubrication but don't go overboard as too much isn't a good thing. Only the main spindle upon which the spools sits should be regularly lubricated using a specialised reel lube. Keep the amount to a minimum to prevent any excess lubricant from fouling the disc drag components or coming into contact with and risking damage to f y inc coatings.



An example of good rod storage. Vertical rod racks protect them from contact and developing d bend over time. Flyrods can be bung by their ctoth bags or left in a rod tube with the end open to prevent trapping moisture inside. Photo: Dave Hart



Over-lubrication will also attract dust and dir, which in Yaupo is a major problem due to the ever-present pumice dust that can turn grease or oil into a gritty paste that will wear on moving parts.

Anglers often bemoan the expense and limited liftspan of fly lines but invariably when asked have seldom if ever bothered to clean them. Lines will suffer clamage from heavy use, rough casting and contact with hard

G WOR

surfaces, as well as UV light and heat exposure. When checking out last season's line have a good look for signs of cacking, particularly in the forward section of the line. A cacked lint will significantly hinder your casting, as well as allow entry of moisture that will affect floatation and cause weakening of the core. How do the connections between backing and fly line, and fly line and leader look? Better to renew those now than worry about it when you hook the next big one.

Run the fly line off the reel so that it can be cleaned and the backing can be checked.

Moisture thapped in backing can cause mildew and rot to set in and will appear as dir y or discoloured patches on the line. If it looks in doubt, replace it, otherwise not only will you lose a fish through having your backing snap but you will be up for a whole new fly line as well.

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Floating fly lines need to be clean to perform properly. Soak the line in warm soapy water to soften dirt and grit before pulling it through a clean soft cloth to dry. Use natural soap for this job as detergents can have a detrimental effect on line coatings.

Similarly some old types of line dressing prod-

ucts containing mucilin can remove plasticizers in modern fly line coatings. It's important to realise that most products marketed as line cleaners are line 'unessings' which increase floatation by adding to or creating a water repelle'to barrier, but don't actually clean the line thoroughly first.

Many filoating fly lines are now constructed with silicon dressing material incorporated into a porous coating so that they self lubricate' during the life of the line and simply need to be cleaned regularly to prevent the hydrophobic coating from being compromised by a film of dir. After cleaning and drying the line it's casting and floating performance can be furcher enhanced by applying a suitable line dressing, doing so be sure to go lightly with the dressing and wipe off any excess or you will simply provide

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For the latest info check www.greigsports.co.nz a sticky coating for further dust to adhere to. Remember that sinking fly lines don't need this treatment.

Lastly with fly line preparation attend to any memory that has developed in the line, which will be largely dependent on how it was stored. Memory in the fly line will reduce casting distance, accuracy and affect floatation, but unless the line is severely affected can be removed simply by stretching it. An effective way to do this is to strip off the line and loop it around a curved object such as a smooth pole, and then apply tension to both ends of the loop simultaneously. The key to success is to release the tension slowly and don't let it snap back. Continue this process until you have worked through the length of line that needs straightening and then wind back onto the reel under gentle tension.

### SMALL DETAILS

The final stages of pre-season preparation are

attending to the small details. Give last season's leader material the'tug'test to check for strength as monofilament can rapidly deteritrate from UV exposure Remember to dispose of any unwanted monofilament carefully. Another area of your tackle worth casting a critical eye over is your fly collection. Most anglers will be loath to throw away perfectly serviceable looking flies but take a closer look to check for rust particularly at the bend of the hook where it disappears into the body of the fly. This is the classic place for rust to sit unnoticed until the hook snaps on that next big fish. Check out your favourite patterns and if they jook tired, it's time to buy or tie some more.

And lastly while you're in your favourite tackle store stocking up on new gear for the winter season, don't lorget to invest in a wading bell for safety. We certainly want anglers to have a memorable fishing experience on Taupo rivers for all the right reasons!

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# HINEMALAIA TROUT PASSAGE TRIAL RESULTS

By Dr Michel-Dedual and Glenn Maclean Michel is our Fishery Area Scientist Hailing originally from Swimerland, he is also a very enthusiastic engler.

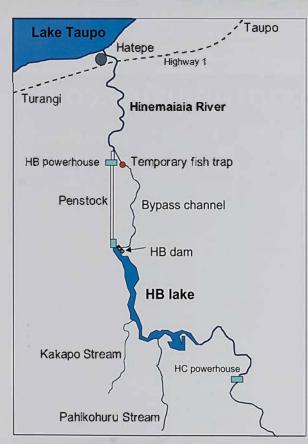


Figure 1: Lower Hinemaiaia calchment

s part of Resource Management Act consents issued in 2003 to operate the Hinemaiaia Power Scheme, TrustPower Limited are required to facilitate passage for spawning trout upstream past HB dam. This was so trout could once again access the Pahikohuru and Kakapo Streams which were key spawning tributaries prior to the construction of the dam. There are a number of ways this could potentially be achieved tanging from trapping the trout and physically lifting them above the dam to fish passes and ladders and the use of lifts on the dam wall. In order to assess the feasibility and practicalities of the trap and transfer option the consents allow TrustPower to trial this approach first.

Linked to this there is no point increasing the spawning success upstream of the dam if the juvenile trout produced cannot successfully pass back downstream past the dam. Ideally they will be able to pass alive through the turbine as part of the normal operation of the power scheme but if this is not the case then the consents require TrustPower to provide an alternative route past the dam. The first step is obviously to assess the mortality of juveniles passing through the turbine.

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In discussion with lifustPower we agreed to undertake a trial to lift spawning minbow trout above HB dam using a trap and transfer approach. We would also investigate the mortality of juvenile trout passing downstream through the IBB powerhouse turbine. Both of these trials were undertaken on contract over 2004 and the results reported to Environment Waikato, the consent authority.

This atticle details the two trials and presents what are very promising results for the Hinemaiaia fishery.



Upstream fisb trap in the Hinematata River bypass fune 2004.

Photo: Norrie Ewing

Table 1: Numbero frain bow trout wapped in each period during 2004 and the average number trapped per day

### UPSTREAM PASSAGE OF SPAWNING TROUT

A temporary trap was installed in the bypass channel near its confluence with the tailbace of HB power station on the 8th June 2004.

Trout migrating upstream encountered the barrier and worked their way along it seeling a way past. The 'v' entrance naturally led them into the trap from which they were unable to escape. While in operation the trap was manned continuously to ensure the trap and barriers were kept clean of debris which would otherwise cause the trap to scour out in high flows. Having someone present also ensured security and discouraged powerhers, 'lite trap operator lived in a canvan adjacent to the HB power house.

The normal procedure was to process any fish present first thing in the mounting or whenever any fish entered during the day. The fish were weighed and measured, their sex and maturity



In the upstream trial, fish were transferred in a tank mounted on a 40% D ute.

Month	Rainbow female	Rainbow male	Total rainbow	Trout/ day
June	6	18	24	2.2
July	18	29	47	3.6
August	47	64	111	10
September	24	30	51	4.5
Total	95	141	236	5.0



recorded and half a fin clipped to recognise that the fish has passed through the trap. If the fish were of reasonable condition and size they were placed in a tank mounted on a truck and transported to 11B lake where they were released approximately 100 metres upstream of the intake structure.

Trout which had already spawned or were too small were released into the bypass channel immediately above the trap.

The trap was operated for 4 periods between June and September of up to 13 days at a time The controlled discharge in the bypass channel made the trapping operation relatively straightforward but it was necessary to remove the trap and barriers when the dam was spilling significantly However it was possible to operate on a reduced scale through small spill events by using the trap and a couple of screens only-

Over the 47 days of trapping a total of 236 rainbow trout were captured (table 1).Of these 223 fish were transforred and released into HB lake and 13 fish were unsuitable and returned to the bypass channel.

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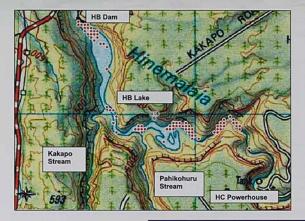
Invariably the most successful days occurred when there was additional flow in the bypass channel as a consequence of the dam spilling. Usually this was due to heavy rain but the run on the night of 13th July was stimulated by an artificial surge when the station tripped out.

The average length and weight of the minbow trout trapped was 503mm and 1.55kg. These averages tend to refute the common perception that Hinemalaia trout are on average larger than spawning trout in other streams.

Of the 236 trout trapped 93 were classified as maidens (spawning for the first time), 108 trout as previous sbawners (spawning for at least the second time) and 35 trout were of unknown maturity. The smallest fish captured was oily 310 mm long and 400 grims and the largest 595 mm long and 2.65 kilograms.

Over the course of the trial 17 trout were also fixed with radio tags which were surgicially implanted before the trout were released The locations of these fish were determined every few days by tracking them from a small boat or from the escarpment surrounding HB lake Neither approach gave complete coverage of the upper teaches of the Pahikohum and Kakapo Streams due to the deep ly ine sed and tortoous nature of the terrain and as a consequence on any given visit some fish could not be located. Over the 21 surveys a total of 89 tagged trout locations were recorded and are presented in figure 2.

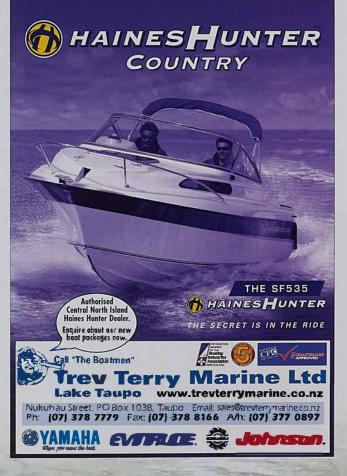
The most intensively used area was the gorgy section between HB lake and HC bower station although per-



haps surprisingly no fish was detected in the vicinity of HC tailrace. The second most popular area was the section of water between the island in HB lake and the start of the gorge underneath the swing bridge where there is an obvious current. The locations recorded just upstream of HB Dam largely represent trout just starting to move upstream and/or moving back downstream after they had spawned.

No radio-tagged trout were detected in the Pahikohuru or Kakapo streams. However in September and early October we also walked the lower Pahikohuru Stream on 5 occasions and recorded any trout present, seeing up to 7 fin clipped trout (fish from below the dam) on one visit.

Figure 2: Location of radiotagged rainbow brout upstream of HB lake. July to September 2004.



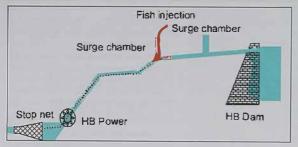


Figure 3: The experimental setup for fuwenile rainbow trout passage through the turbine at the (1B hydro scheme on the Hinemaicda River

Top right The Francis turblue displayed outside of the 11B power station. The turbine used in this trial was virtually identical to this one. Over the oburse of the trapping programme 46 of the adult trout put upstream of the dam were subsequently recovered dead on the trash rack at the HB powerhouse inside. The majority of those tish (29) had spawned before dying.

### Was the upstream trial successful?

The trial successfully achieved the target of "an average of at least five rainbow trout are transferred for a minimum of 40 days during the months of July to October inclusive" as required by condition 9.1 (a) of the Hinematia HEPS General Conditions. Thapping was most successful when flows were increased in the bypass channel following heavy ruin

The results of the radio tracking and stream surveys indicate that the lish readily moved upstream once released but that few accessed the Pahikohuru or Kakape streams. Many of the fish favoured the upper lake where there is a more defined flow and this is probably where most of them spawned.

That fish spawn in this area may reflect that spawning conditions were suitable and/ or the difficulty of finding the entrance to the small spawning streams. Most of the fish released in HB lake were likely to have themselves been spawned downstream in the bypass channel and so be totally unfimiliar with the lake and the tributary streams. In this situation the fish will follow the strongest cue i.e odour and current in search of suitable spawning areas.

This is likely to also explain those fish which were still unspent when they were caught on the trash rack. In the radio tracking project we undertook in 2003 on the fongatro River, numerous trout were observed to swim upstream past particular tributaries only to return and enter the tributary and spawn some weeks later. It is possible that these fish missed their natal tributary but on realising



they were in unfimiliar waters returned downstream until they located it again. In this case the unspent lish on the trash tacks were probably lish spawne'd in the bypass charunel which were attempting to return back downstream after having spent some time in the unfamiliar environment of HB lake.

The occurrence of spent fish on the screens was expected as Taupo trout attempt to return to LakeTaupo once they have spawned While it is disappointing to see dead fish on the screens the najority of these fish would have died anyway as only a minority of Taupo trout survive spawning to breed a second time. However other fish will have reached the lake passing over the dam during spill events. It is also hoped that some spent fish will remath in HB lake and provide a summer angling opportunity.

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Given the uncertainty as to how successful spawning in the main lake may be and also the incidence of unspawned fish on the trash tack, it is preferable that any fish lifted above the dam were fish that were spawned themselves in IB lake and so likely to return to viable spawning locations.

This can be achieved by adopting two strategies. Firstly if the trap is sinated close to the dam wall then the tuajority of fish trapped will be fish which are trying to return upstream past H8 dam rather than fish spawned in the bypass channel. Secondly if production was enhanced from the Pahikohuru and Kakapo Streams then this would speed up the development of a significantspawning run homing to these streams. This could be achieved relatively simply by stripping and fertilizing eggs from some of the fish tapped, hatching these in the Tongarie National Trout Centre and then transferring the fisy into the headwaters of the streams using a helicopter and monsion bucket.

### DOWNSTREAM PASSAGE AND SURVIVAL OF JUVENILE RAINBOW TROUT

There are two possible ways that juvenile trout growing in the HB lake could migrate downstream to lake faupo. They can either pass through the turbine at the power station during normal operations, or pass over the dam when water is spilled during a flood. This trial was to assess the survival of fish that pass through the turbine.

Survival of fish passing through turbines can range from 0 to 100% depending on the characteristics of the turbine (runner velocity, number of blades, blade angle, and area of water passage). The size of fish will also affect the chance of survival with larger fish having a higher likelihood of contact with turbine blades and injury or death.

To estimate the survival of fish passing through the turbine, we used four groups of 200 juvenile rainbow trout with an average length of 81 mm. These were reared in the Ngongotaha hatchery in Rotorua. Each group of fish was marked with a different fin clip. Three groups were used to obtain experimental replicates and another group as a control to measure the mortality associated simply with recapture in the net and not passage through the turbine.

Juvenile rainbow trout that move downstream

from HB take into the power station must pass through two surge chambers (Figure 3) and fish may remain in the surge chambers for days before going further downstream. This potential delay prevented the release of fish directly into the penstock entrance.

To overcome this problem an open pipe was inttoduced to the penstock via the top of the last surge chamber above the power station (Figure 3). The fish were elevated to the top of the surge chamber using a hydraulic crane and each group was released into the pipe under normal openting conditions. The venturi effect created by the water current at the end of the pipe sucked the fish into the penstock where they were forced to pass downstream through the turbine. The flow was kept constant for five minutes following the release of the fish to allow sufficient time for the fish to move through the powerstation.

Fish that had passed through the turbine were collected by a stop net sealing the tail race approximately 8 metres downstream of the turbine outlet. The absence of any draft tube and difficult access to the mrbine outlet presented the installation of the net directly, to the outlet of the turbine. The net had a rectangular opening of  $12.5m^3$  and tapered over a length of 12 metres to finish in a fyke net. The net was kept open by an external aluminium frame.

Once the turbine had stopped and no current was present, the net was closed using a choker rope, and the bag lifted without removing



The team place the oversized fyke net downstream of the turbine outlet Pboto:John Gibbs the mouth of the net so that any fish that may have remained upstream of the net were contained and had another chance of being caught. After each trial we checked the contents of the bag and counted the numbers of dead and live fish. This methodology was repeated three times and all fish collected were identified by the type of fin clip.

Finally control fish were introduced between the turbine and the stop neuthrough the same pipe used during the experiment so that the mortality due to handling and net contact could be estimated and used to adjust the turbine mortality estimates. The control fish were subjected to the same turbulent flow conditions for a similar period of time as the experimental fish.

After the final trial, two divers searched the space between the turbine and the stop net to recover any dend fish and to assess how many live fish might have been missed. The live fish were mustered by the divers into the net in an attempt to recapture them.

For each of the experimental and control usals the fish recaptured alive were transferred

> to the Tongariro National Trout Centre in Turangi for monitoring of any subsequent mortality at 24, 48 and 96 hours after the trial.

### What was the verdict?

Some fish were not recaptured immediately following their passage through the turbine but were recovered after subsequent trials. The majority of fish that escaped recapture were live fish as observed by divers at the completion of the trial. These fish evaded recapture by remaining between the net and the turbine outlel. It was a pleasant surprise that 84% of fish that passed through the turbine were alive when necaptured. A few lish died later at the trout centre and after 96 hours the survival had decreased to 80%. Nevertheless this is a much higher survival rate than anticipated

Furthermore, in reality the survival rate of fish passing through the turbine at the HB power station is higher than presented. No dead fish were found during the inspection dive following the experiment, but many live fish that had eluded recapture were observed swimming between the net and the turbine. The successful recapture of these fish would have enhanced the recovery rate but more importantly the number of fish recaptured alive increased the survival rate estimation.

One diver estimated there were 150 fish swimming upstream of the net. If these fish were included in the analysis then in the order of 87% of fish of the size used could survive the passage through the turbine. A value of 50% mortality of juvenile rainbow trout passing from HB lake into the Hinemaiaia River was deemed to be acceptable for the resource consent renewal application by Trustbower Itd. Therefore, the results of our experiments clearly indicate that this condition is unequivocally satisfied for the fish migrating downstream through the turbine and that the passage through the turbine is a safe toute for juvenile rainbow trout migrating from the INB lake into the Hinemajaja River.

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This is a great result for the fishery, because this is the route that the juvenile trout naturally want to follow. It would have been a much more difficult problem for TrustPower Ltd had they had to exclude the flsh from the penstocks and create a new more attractive pathway around the power station.

The results of the two trials are very encouraging and a major step to reestablishing the runs in the Pahikohuru and Kakapo Streams. This winter we will repeat the tap and transfer programme using a new site closer to the dam. This should increase the likelihood that the lish we lift upstream are fish which were themselves spawned above the dam. Coupled with seeding the spawning tributarics with newly hatched fry, it should only be a couple of years before we start to see the results with an increase in the overall size of the Hinematiaia trout population.

The fish were elevated via a crane to the top of the surge chamber and released itto the pipe Photo:Tamia Greaves

## KOARO TROUT AND SMELT IN TAUPO

Koaro from the Waipebi Stream on the eastern side of fake Tratpo. Pholografip y courtes y of Bob Mc Dowal!

by Dr Michel Dedual

An adult smelt Crown Copyright: Department of Conservation Tc Papa Atawhai, Pbolographer; Stephen Moore The popular perception is that with such a large population of trout in Lake Taupo, the indigenous koaro fishery must have been decimated. In this article, fishery scientist Dr Michel Dedual looks at the status of koaro and the impact that the introduction of trout and smelt has had on this species.

Koaro (Galaxias brevi plunis) belong to the family of Galaxiidae. These are scaleless tishes with an elongated cylindrical body. Galaxiidae are confined to the southern hemisphere and are found in Australia, New Zealand, South America, South Africa, New Caledonia and some subantarctic islands There are many more species of Galaxiidae in Australia than anywhere else and in New Zealand there are ten species. Most are confined to freshwater but a fe ware diadiomous (lish which undertake migration from fres h water to scawater or vice versa) in their life cycle, with a juvenile stage spent at sea. The young of these diactromous species are known by the more common term white-



bait, and avidly sought after in many places around New Zealand as a delicacy.

In Taupo the only galaxiid presem is kearo. While koaro is usually a diadromous species, in Taupo it has adapted a totally freshwater lifticycle and is common in the lake ind most tributary streams. However, because of their secretive habits, they are not often see t

The adults probably spawn during summer and autumin in the rivers, the larvae then migrating downstream to the lake. Once in the lake the larval fish field on zooplankton in the open waters until they reach 30 to 35 nm in length when they move closer to the shore At this stage you might recognise them as whitebuit, with a translucent body.Without the benefit of a magnifying glass it is very difficult to different ate them from smclt(*Retorpinua retropinua*)

The easiest way to identify the difference between juvenile koaro and smelt is that koaro do not have an adipose fin just in front of the tail Another difference is that smelt are very fragile and will die in less than 30 seconds when out of the water, whereas koaro are much more resilient. Smelt also have a tendency to jump and bounce when out of the water and they have a distinct encumber smell. During winter, juvenile koaro are most abundant in the shallow writer along the beaches where they feed on midge larvae and small lavval bullies. In spring when they are 45 - 50 mm long they migrate into the streams and settle in the swifter bouldery reaches, with adults generally remaining in these streams. As adults the exaternal appearance of kooto is very different to smelt, and it is easy to identify each species.

Koaro diet in stnams is similar to juvenile trout, comprised mainly of invertebrates (insects). Most of the studies carried ont in New Zealand conclude that there is a strong overlap in diet and habitat use between koaro and trout, particularly just after dusk when most of the aquatic insects are likely to be on top of the rocks where fish can catch them. However, in most cases koaro are not seriously affected by trout through competition for food and space but rather by predation. In streams where they cohabit, both koaro and trout cat smaller koaro. In 'faupo the feeding population of trout in streams is largely comprised of small javenile trout less than 15cm in length. As a consequence some of the large koaro in the streams are too big to be eaten by the rainbow trout present.

There is no doubt that where the density of larger juvenile trout is high the population of koaro is low, for example in the Waimarino Stream. However in other streams like the Hinemaiaia, rathbow trout have a shorter period of spawning and the juveniles grow quickly and move downstream to larke Taupo early. This combination of biological traits results in a less extensive use of this stream by juvenile trout and better opportunities for koaro. This probably explains the healthy population of koaro in this river.

Historical records indicate that know were seasonally an important food source for Maori. In Taupo, trapping of koato hegan in September and was continued through to January, mainly targeting adults returning to the streams to spawn, while netting in the lake was conducted in a scason extending from September to March focusing on the igwenile koato moving close to the shore.

The original equipment used by Maori to catch koaro in streams, such as the 'poura-ka'', have a mesh size allowing only fish of substantial size to be caught. This would indicate that large koaro were migrating in the rivers in profusion. The koaro sustained a fishery of unknown size but there is little doubt that the numbers of koaro then were much larger than today. Using some energetic transfer equations, we can estimate the biomass of koaro may have been in the vicinity of 4,500 tonnes.

Being the largest most obvious prey present in the take when trout were introduced, large koaro became the prey of choice for trout and were intensively targeted. The original plethora of large koaro readily explains the exceptional size of the trout during the irst decades of the 20th century, and many readers will



Smelt at different stages of development from tartae (bottom right) to adult (top left), Crown Copyright Department of Conservation Te Papa Atawhai. Pbotographer: Theo Stephens recall having seen black and white photos of huge trout taken at that time. The subsequent decrease in average size of trout was conconitant with the inevitable decrease in the population of koaro, particularly the large ones living in the lake

Ultimately, the average size and condition of trout crashed, recovered and then crashed again as koaro became insufficient to sustain the trout population. It would be interesting to know what the main prey of trout was in the lake during these periods. Koura (freshwater crayfish) and bullies must have been more important than now. However, considering the poor condition of trout, they were not sufficiently abundant on their own to sustain a large trout population. As a consequence, the decision was made to try and increase the trout food supply by introducing snielt taken from the Waikato (via the Rotorua lakes) in the 1930's.

The impact of the introduction of smelt on koaro has never been studied but it may have been even more severe than the introduction of trout. The basis for this hypothesis arises from the different life cycles and the use of resources by the two species.

Koaro spend most of their adult life in streams and use the lake only as juveniles, much as whitebait use the sea Smelt on the other hand spend all their life in the lake and use the pelagic (open water) zone extensively. There is no data on the use of this zone by koare but during our smelt sampling koaro were virtually absent from the catch in open waters. We know that the production of smelt is limited by the production of their food, zooplankton, in the pelagic zone of the lake. This is not to say that koaro cannot also use this zone but it does suggest that smelt may have an advantage in the pelagic environment. Inevitably the intensive interspecies competition for zooplankton in the offshore zone will reduce the recruitment of adult koaro.

In contrast, koaro are common in the shallow margins of fake Taupo. For example during our smelt monitorengin January 1996 we caught an average of 10% koaro in each beach seine hauf we did along the edge of Hallet's Bay. Once koaro are in streams they no longer compete with smelt, but this window of opportunity is not sufficient to compensate for the losses that occur earier in the lake. Similarly, preventing tout access into the upper parts of rivers they



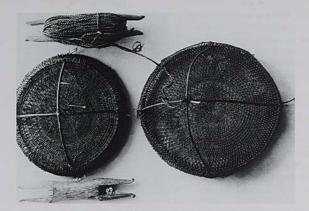
Mr N C Wright holding a 17.5lb Redultou from the Tengariro River in 1923



targe knaro became the prey of choice for Introduced from in the early 20th Century: This ready: supply: of food produced trout of remarkable size.

currently access to create sanctuaries for koaro, would be of little benefit.

Furthermore, environmental conditions in the lake are more stable than in rivers. Dramatic floods for example can have adverse effects on koaro in rivers but they will have minimum impact on smelt in the lake. In fact they may even fuvour smelt. High rainfall will ruise the lake level which in turn will augment the lattenal zone of the lake where smelt spawn. Ancedotal reports from anglers indicate that the condition of front and the overall fishing is generally better in years when the lake level is high during spring.



Early Maort fishing nets and lines, similar to (bose used to catch koaro, Photografis) by Angustus Hamilton, c 1903 – 1913 Museum of New Zealand Te Papa Tongarewa Wellington, New Zealand, The concept of strong competition between kearo and smelt in the lake environment is not new. Dr Dave Rowe from NIWA proposed that the introduction of smelt in Like Rotoponamu, a small trout-free lake between Turangi and Jake Rotoaira, was responsible for the disappearance of koaro in that lake. The size of smelt in Lake Rotopounainu is much larger than in Taupo probably due to a lack of trout. In this case, it seems that it was more the predation of larval koaro by these large smelt than competition for food between the two species that was responsible for the disappearance of the koaro.

There is no doubt that the original spectacular establishment of rainbow trout in Taupo occurred at the expense of the koaro population. However, the introduction of smelt and other human activities in the catchment such as the clearing of freests and the establishment of farms also impacted on koaro. To re-establish the koaro population to its former importance would require the removal of smelt, rainbow and brown trout from Lake Taupo.

Nevertheless, our monitoring and observations indicate that koaro are still common in Lake Taupo, despite coexisting with the largest population of rainbow trout in New Zealand. For example, while undertaking night diws in the lower sections of some of the rivers, including the Tongauro, we sometimes see almost as many koaro as juvenile trout and often feeding together. Information about the densities of koaro in other New Zealand lakes is very fragmentary but it may well be that the koaro pop ulation in Taupo is the largest in the country.

### ACOUSTIC TRACKING OF ADULT RAINBOW TROUT IS COMPLETED

The experimental phase of the research project on the use of Lake Taupo by adult trout has now been completed.

Fisher) scientist, Dr Micbel Deduat with a togger retrieved from the lake bed, where it bas sat for 14 months gathering data

Photo: John Gibbs

Il sixteen auto matic data loggers that were placed on the lake bed have been successfully retrieved by divers. These loggers have stored the signals sent to them from 36 tagged fish over the past year, and over one million individual records have been collected. The big task now is to interpret all of this data, and this will take some time to



complete, but will provide important clues about the movement of fish in the lake, what water temperature they prefer, and the depth they swim.We will keep you updated as the secrets of the life of trout in the big lake are revealed.

# the case of the **DEAD BULLIES**

by Petrina Francis



In early February, a Turangi resident handed the fishery team a collection of large dead bullies that had been found floating at a popular swimming spot at Stump Bay.

Bullies found at Taupo are the common bully (Gobiomorphus cotidianus), a native fish and the best-known of the bully species due to the fact that they are often seen out in the open in river and lake shallows. They grow to about 100mm in size with a speckled patterned body that helps them to blend in with gravel and stone surroundings They cat a wide variety of insects, crustaceans and shalls.

The common bully spawns from spring through summer with those in areas close to the sea spending their larval stage at sea. However, landlocked populations, such as those at Taupo, abandon the matine life singe and com-

plete their fife cycle in the lake. They mature at age one and live for up to three years in the lake. Bullies tend to occupy small sandy and gravel streams, shallows of lakes and wetlands and the mat-

The Common bully (Gobiomorphus cettduants), Grown Copyright: Defartment of Conservation Te Papa Atawhai. Photographer: Stephen Moore

gins of larger rivers They were once a large component of the diet of Taupo trout, prior to the introduction of smelt, and are still important to brown trout cruising in the shallows.

The bullies found in Stump Bay had died after spawning which is a natural occurrence, and it is not uncommon to see large shoals of dead bullies and smelt at this time of the year Because this occurs in shallow water, at a time of the year when low of people are fishing and swimiming, they are readily noticed and we regularly receive reports from concerned niembers of the public. This tends to be exacerbated by calm settled weather as often occurs at this time of year With rougher weather and turbulent lake conditions the dead bodies would bave quickly dispersed into the depths and out of sight



# FISHING COMPETITIONS

#### by Tania Greates

Tanta is our licence administrator and responsible for organis ing permits for fishing competitions

Social fishing competitions provide an opportunity for all of the family to team about tront fishing This young man was proud of his catch in the Whareroa fishing competion January 2005

Photo: Petitna Francis

Fighther the second sec

There is a perception among some anglers that competitions greatly increase the harvest or kill of trout at Taupo and therefore they should not be allowed. Certainly it is important that they don't impact unreasonably on the fishery but many anglers are unaware that there are a number of management restrictions on competitions to prevent this. To this end the total harvest across all competitions is capped at 2.5% of the total fishery harvest which, in the 2000/01 season, would have equated to 3,000 fish. No competitions are permitted on fake Otamangakau. Similarly competitions are prohibited on the tributaries over the busy winter period to avoid any accentuation of the crewding on Taupo rivers. With these controls fishery managers and the Taupo Fishery Advisory Committee are comfortable with competitions as another, slightly different opportunity for people to enjoy fishing.

The majority of competitions are non-commercial which are defined as competitions run along the lines of providing a social outing. These require a permit if an entry fee is charged or the total prize value is greater than \$5000. The daily entry fee is limited to less than the cost of an adult 24 hour licence which allows the club or organisation to recover the costs of running the event but not to use the competition to make money. An application fee of \$40 is charged for the permit and application forms are sent out upon request from the Taupo Fishery Office.

There are also a maximum of two commercial competitions allowed each year. These competitions can charge a higher entry fee but are required to pay a resource rental which is used in the management of the fishery. While these competitions may make a net financial gain, this must be returned to an approved community project or organisation.

> Conumercial competitions potentially can have more entrants and so a larger implicit on the fishery. As a consequence these competitions are limited to a total combined entry of 900 anglers.

> Valuable data is collected from fish weigherd in for competitions which helps us in our analysis of the state of the fishery. Every fish weighed in for a competition must have the date caught, locality, method used, species, sex, length and weight recorded Th is data allows us to monitor the harvest from competitions and when combined with our other data helps provide a big-picture of the fishery. These competitions also provide us with an opportunity to have direct contact with a group of anglers we might otherwise not see very often.

> > Full details of the criteria for competitions, whether commercial or non-commercial can be obtained from Tania Greaves, Ranger Service for the Taupo Fishery Area Office, Phone (07) 386 9243.

## **REMOVED ALL** AQUATIC HITCHHIKERS?





DO YOUR PART TO STOP THIS THREAT!

### HELP PROTECT TAUPO WATERWAYS!

- CHECK YOUR BOAT AND TRAILER FOR HITCHHIKING WEEDS AND OTHER DEBRIS (ANCHOR, ROLLERS, AXLE, MOTOR AND PROPELLER, COCKPIT AND BINS)
- CHECK YOUR FISHING GEAR (WADERS, NETS, DOWNRIGGERS)
- CHECK YOUR RECREATIONAL GEAR (KAYAKS, JET SKIS, TOWROPES)
- REMIND AND ENCOURAGE OTHERS TO ALSO TAKE THESE STEPS

Fish, eggs and weed can get easily caught and even small fragments of weed can reproduce and colonise new water bodies. Put any weeds you find in the rubbish or compost. Intentional transfer of pest fish is illegal and the legislation reflects the gravity of this offence.

Pest weeds and fish threaten water quality and the habitat of Taupo trout and native species.



To report anyone releasing or breeding unwanted fish, sightings of unusual fish, or to report a suspicious weed contact:



DEPARTMENT OF CONSERVATION, TONGARIRO TAUPO OFFICE (07) 386 8607 ENVIRONMENT WAIKATO, FREEPHONE <u>0800 800 401</u>



# COMPLIANCE &

by Dave Hart

ompliance and law enforcement (CLE) is one program which forms a large part of our role as fishery managers, but which generally receives little publicity The simple reason is that while the information may be very interesting to the general public, it can be even more so for the lawbieakers who seek to use knowledge of enforcement methods and metics to their advantage. Accordingly in this article we provide laupo anglers with an update on our compliance and law enforcement operations, while protecting the integrity of our methods.

In the 'laupe fishery most anglers comply with regulations not out of fear of being caught and prosecuted, but because they have a keen interest in helping to ensure the sustainability of the resource and derive enjoyment from fishing in a sporting manner. However, despite the major ty of responsible anglers there will always remain a small percentage who will offend against the regula

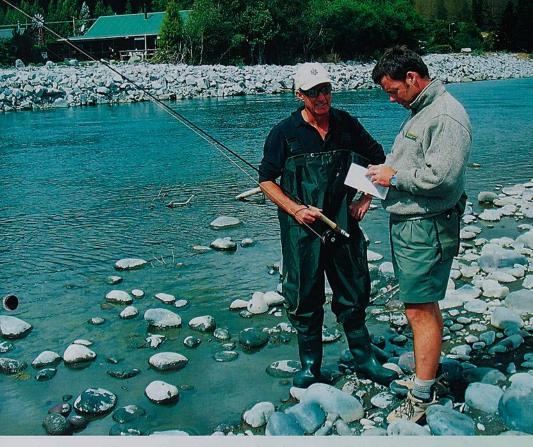
tions and thus the need for enforcement exists.

With a need for enforcing legislation comes the requirement to have shaff with the skills and training to do so. Department of Conservation staff required to perform these activities as part of their position undergo specific training to hold a warrant of authority under the Conservation Act. Warranted officers have a range of lawful powers available to them which include demanding particulars, stopping and searching persons, vehicles and boats, entry onto property, and seizure of items.

So what are the day-te-day activities of our staff in compliance and law enforcement work? The separate titles indicate that we have two separate focuses. In 'compliance' work we under ake checks with anglers to ensure that they are complying with fishery regulations. This is often undertaken as part of our angler surveys and is probably the most common encounter that you will have



summer months of December, January and February, staff interviewed 517 anglers on lake Taupo and another 163 on lake Otamangakau. The numbers would have been even larger had the weather been better and angler numbers higher during December Of these anglers, only 16 (2%) were found to be unlicensed or contravening the regulations in some way. Our summer effort is focussed on the lake fisheries whereas in the winter, most of the compliance effort is dedicated to the rivers where the bulk of the fishing is then occurring. In addition to these general surveys, we also undertake dedicated compliance patrols focussing on specific issues such as fishing outside of designated hours, in closed waters, trolling within 300 metres of marked stream



One of the more visible functs of our compliance work is checking angler licenses. Here Ranger, Rob Kirkwood under takes a check on the Torkarbo River.

Photo: Dave Hart

mouths or following up information on breaches that are regularly occurring.

By comparison 'law enforcement' relates to the targeting of poachers of the fishery resource where our intent is purely to apprehend and prosecute offenders. Regular operations of this kind are carried out at all hours of the day and night and being covert in nature form the 'invisible' part of our effort. Anglers who remark that they haven't seen a ranget in some time may well in fact have been the subject of close observation and surveillance on more than one occasion. albeit while being totally unaware. Over the recent summer period, these operations have resulted in a number of apprehensions for offences such as using spinning gear and bait in fy only waters, exceeding the daily limit and taking undersized fish.

So what happens when we apprehend some one for committing an offence? Occasionally where our rangers encounter a very minor breach of regulations the matter can be best resolved with education rather than applying enforcement, but this is very much the exception rather than the rule. Where a clear breach of regulations has occurred our rangers follow a set procedure in the interests of fairness and impartiality. The offender is required to provide their fill personal details and proof of identity, and if they refuse or provide false details, this then constitutes a more serious offence with a fine of up to \$10,000 or up to 1 year imprisonment. A statement of explanation may be recorded from the angler and the equipment used to commit the offence seized as evidence. Subsequently a legal advisory committee reviews the offence file and decides on the appropriate course of action. This can range from a letter of warning to District Court prosecution. When an offender is convicted by the court, any items seized as evidence may be forfeited in addition to the penalty and court costs imposed.



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South Island Retailers Fishermans Loft - Christchurch Complete Angler - Christchurch Falconers Field & Stream - Timaru Centrefire McCarthy's Stream & Field - Dunedin Element - Queestown Outdoor World - Invercarqil For our rangels out performing CIE duties the task can be rewarding but is often far from enjoyable. Apart from unseciable hours and operating in cold and wet conditions, it is not uncommon to encounterindividuals committing serious poaching offences that are hard-core recidivist criminals who can react unpredictably and accessively when apprehended Such situations can be exacerbated by the fact that we often operate in remote areas with poor communication coverage and a long why from ready assistance and may be further conpounded by having to deal with individuals who are armed with poaching implements such as spears and sharpened pitchforts: Occasionally the assistance of the police may be required and an excellent working relatonship with the local police has proved invaluable on more than one occasion!

A recent example of this was during a night law enforcement operation when rangers located and apprehended two men fishing illegally in closed waters on the upper Hinemaiata River. One of the men reacted aggressively and refused to comply with the directions of the ranger, and the two left at high speed in a vehicle towardsTaupo. Another fishery patrol was alerted and with the assistance of a moid police response located the vehicle and both offenders Both offenders were prosecuted on a number of offences with a successful result. In the course of that operation, further apprehensions were made with two men fishing without licenses and using illegal tackle in the Upper Waikato River, and another for fishing after hours and taking excess fish at the Waihaha River mouth. So we get around.

Perhaps the most frustrating situation for our rangers is hearing from an angler about suspicious activity that happened several days or a week previously. Unfortunately, this often involves serious poaching activity such as gill net ting in the lake or taking large numbers of fish from spawning streams Information of this sor: is very important to us but if it is received after the event is of limited value. Conversely, information reported as an event is occurring or at the time of discovering something suspicious enables us to respond immediately and often results in a successful outcome. For this reason we print the 24 hour contact number for the fishery duty officer (027 290 7758) on the front of the Taupo district fishing license. We also recommend that you enter it into your mobile phone memory for case of use. If you observe any suspicious or illegal activity, please contact us immediately and provide as much information as you can. We need your help to protect the fishery.

IF YOU SEE SUSPICIOUS OF ILLEGAL FISHING ACTIVITY. NOTIFY US IMMEDIATELY ON OUR 24 HOUR LINE: 027 290 7758

## Learning about EXPLOSIVES

by Rob Kirkwood

### RECENTLY THREE MEMBERS OF THE FISHERY TEAM TOOK PART IN AN EXPLOSIVES COURSE HELD IN TURANGI.



The course was designed as an introduction to safe handling and use of explosives but also combined as a refresher course for more experienced staff. DOC staff from all over the North Island attended. Explosives are used by DOC for a range of reasons including track building and fire fighting.

Explosives can also be a very effective tool in fishery management. We have used explosives regularly over the years to successfully remove log jams in tight gorges where debris has built up preventing fish from passing upstream. Fish passage is crucial for the sustainability of the fishery and explosives provide us with a relatively quick, low cost and effective way of ensuring this.

Glenn Maclean puts the finishing touches on a power gel laced bag of ammonium nitrate. Photo: Rob Kirkwood



The Society encourages and promotes public interest in trout fishing, an understanding of the Taupo fishery and trout habitat. 'The River Walk' Visitor Centre has been developed to provide a modern learning experience about treut for visitors of all ages. Throughout the year Society volunteers publicise and conduct children's fishing days at the Centre to teach children to fish for trout and to encourage respect for our environment.

To join the Society please fill in the form and include the annual subscription of \$25

Name:

Address:

Post to: Tongariro National Trout Centre Society, P.O. Box 73, Turangi

The fishery team bard at work clearing lbe walkway by the Tongariro River.

gets an extreme makeover

by Petrina Francis

The Tongabiro National Trout Centre is slowly being made over after the flood in February last year damaged large parts of the site. You may recall the flooding pictures in the March 2004 issue of TargetTaupo.

It is hard to believe as you warder around the centre now, that it is only just over a year ago when the devastation happened. Thanks to a grant from the Lion Foundation, the Tongariro National Trout Centre Society have restored the childrens fishing pond back to its former glory and lots of happy children will be fishing from it this winter

As well as this, fishery staff have been busy working to improve the site as time and budget allows. New signs are being crected to replace the faded ones and lots of work has been put into repairing paths and roadways and the walkway by the Tongariro River. Much of this walk



One of the new signs around the centre explaining the displays to visitors Photo: Petrina Francis



The trout centre is not just for young people! This group from Care & Independence in Taupo, theroughly enjoyed their recent visit. Photo: Petrina Francis

The childrens pond is looking great and once again a popular place for little ones to feed the fish Photo: Herwi Scheltus way needed to be recut as the flooding of the river took several metres of earth away along the banks, and as a consequence, parts of the original track

A new toilet block has been installed and plans are underway to relocate a building in the near future to the children's pond to be used as a classroom for the education programme.

The trout centre is a vety popular place for visitors, and it is great to see the public once again enjoying the grounds. Next time you are passing by on State Highway One, pop in for a while. Pick up a map as you enter by the cathark, and spend some time watching wild trout in beautiful surroundings!





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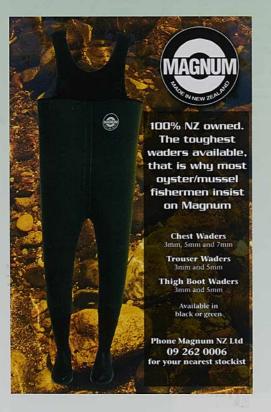
**CrosbyGarret** 

## LIFE AS A TRAINEE RANGER

by Lisa Manssfield

Ranger National Certificate in Conservation course. The course is based at Nelson Mariborough Institute of Technology in Richmond

This course is designed to prepare people like myself for a job with the Department of Conservation (DOC), and runs for a year. At the end of the year there are eight positions available for people in the class to do a further two years of training in the field with DOC



My class consisted of 19 students, with ages ianging from 18 to 36.1 was really happy to be accepted on the course as at least 160 people applied and the opportunity to do this course was exciting. Successful applicants needed to have knowledge, experience and an interest in conservation and the outdoors.

The year is made up of two semesters The first semester finished on the 15th of October 2003, and covered training in a number of skills, including für fighting, handling ATVs, building fences, snow skills, using global positioning system (GPS), compass, map reading, outdoor first aid, and working safely with chemicals. The second semester involves Treaty of Waitangi studies, public relations, public safety, natural history, building structures and a lange of other subjects.

Part of the course includes practical field work for DOC for liour months between semesters. Our DOC representative Scott Nicol, placed each member of the class around the country from Stewart Island to Kataaia to gain this experience. I was lucky enough to be placed in the 'tongarior/faupo Conservancy.as/faupo is my home town. My first assignment was with the faupo Fishery Area team.

Working with the fishery team was a great experience. When I arrived, I knew very little about trout and what was done to manage this resource. But throughout my time with the team, I learnt a great deal about the fishery and picked up some practical skills. I now have a greater knowledge of the history of trout in the area, how they live and what habitat they require, and what the fishery team as managers do to look after them. My field work took me to the Whipa trup, to learn how to operate a fish trap and how to measure, weigh and fin clip trout. I also speut quite a bit of time at the Tongatiro National Treat Centre learning how the hatchery operates Regular routine work at the centre involved deaning



lisa Mansfield enjoyed her time working with the fishery team. Photo: Petrina Francis the fish tanks, feeding the fish and talking to the visiting public. Falso went out with other tangers on the fake to survey anglers, checking their licences and measuring and recording any fish they kept. I was even involved in a couple of law enforcement operations at night which was a great experience as I was able to see first hand how these situations were handled. Out in the field with the rangers I participated in a number of other activities that provide important information to the fishery team, such as minnow trapping, electric fishing, drift dives, catfish monitoring and smclt monitoring. On one particular nice day I was

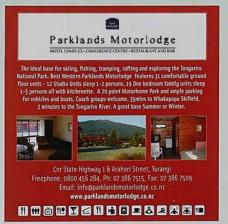
given the chance to be a passenger in a plane on a regular habitat survey. to check for environmental damage. This was awcome By flying around we were able to see a large area in less time so that if a problem was identified, it could be dealt with quickly. As well as this 'in the field' experience. I spent time in the office learning licence administration, entering data and learning all the back ground work that is done to help the team understand what is happening with the fishery. Part of this was helping out with entering full season licence holder details on to the

computer, so we have an accurate database for this magazine.

For the second part of my time with the Tongariro/Taupo Conservancy I worked with the furangi Tauno Area team. This team is responsible for all DOC land in the Yurangi-Taupo area, including tracks, huts, visitor assets and biodiversity. During my time with them I worked with the weeds team around the Deseit Road. We surveyed accas on foot to identify weeds that could be eradicated later. At times, the best option for large areas was to use a helicopter to locate and treat weeds. On another occasion. I was the hut warden for the Ketetahi Hut in the Tongatiro National Park for a week. This taught me responsibility for a visitor asset that DOC has and reporting at assigned times to the hut warden coordinator

Laise spent a couple of days setting out possum pre-feeding stations for trapping as well as rat tracking tunnels. These enabled us to find out what numbers of pests were around the area, so a plat. For control could be made. A couple of weeks were also spent with the tracks team on a maintenance project on the Spa Huka track and redirecting a section of theTon@trie walkway.

I ended my summer placement on the 18th of February 2005 to go back to Nelson for the second semister of my course. I feel that my time spent with both the Fishery Area team and the Turangi/faupo Area team has been very viduable. I have lownt loss of new shifts, goined a lot of knowledge and on the way had some avecome expeciences which will help me in the future.





'The best and fastest way to learn a sport is to vatch and imitate a champion" Jean-Claude Killy



### Record breaking rods

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Sonding titanium and calbon is a very difficult process patented by an American cooperation and only a few companies within the sporting equipment industry have obtained licence to use this technology.

The Scierra Ti+ rods are constructed from #6ts carbon cloth with woven-in titanium nibres - all produced in the U.S.A - giving an incredible stiffness and a very light, rast responding rod with fantastic casting solential.

n order to obtain maximum strength and to make the rod as slim as possible the plank is even x-wrapped with six titanium wires securing that sudden impacts and high stress are distributed to a bigger part of the blank. As pure titanium has a lower elastic strength than carbon the titanium wires also give an effective dampening effect while casting and shooting the line. Available in a 9' #5 rod up to a 10' #8 rod

9' #5 ONLY \$589.99 10' #8 ONLY \$665 Hywel Morgan earned his international reputation as competition fly caster by winning both the world champion title, the European Championship, more than 100 British titles as well as holding 14 British casting records. His sensational singlehand world record at 80.49

metres is still standing Beside designing and testing Scierra rods Hywel is busy running his famous fly casting school.



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the finest hand selected Portuguese cork. All rods are supplied in a codura rod tube and are covered by a lifetime warranty. ONLY 5589



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