TARGET TAUPO

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

JULY 2004, ISSUE 46

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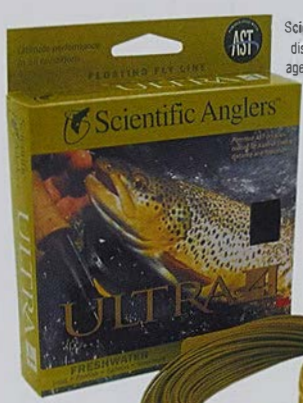

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JULY 2004, ISSUE 46

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Front cover: *John Gibbs and Norrie Ewing release a trout from lake Taupo into the HB dam on the Hinemaiaia River (see article on page 29). Photo: Petrina Francis*

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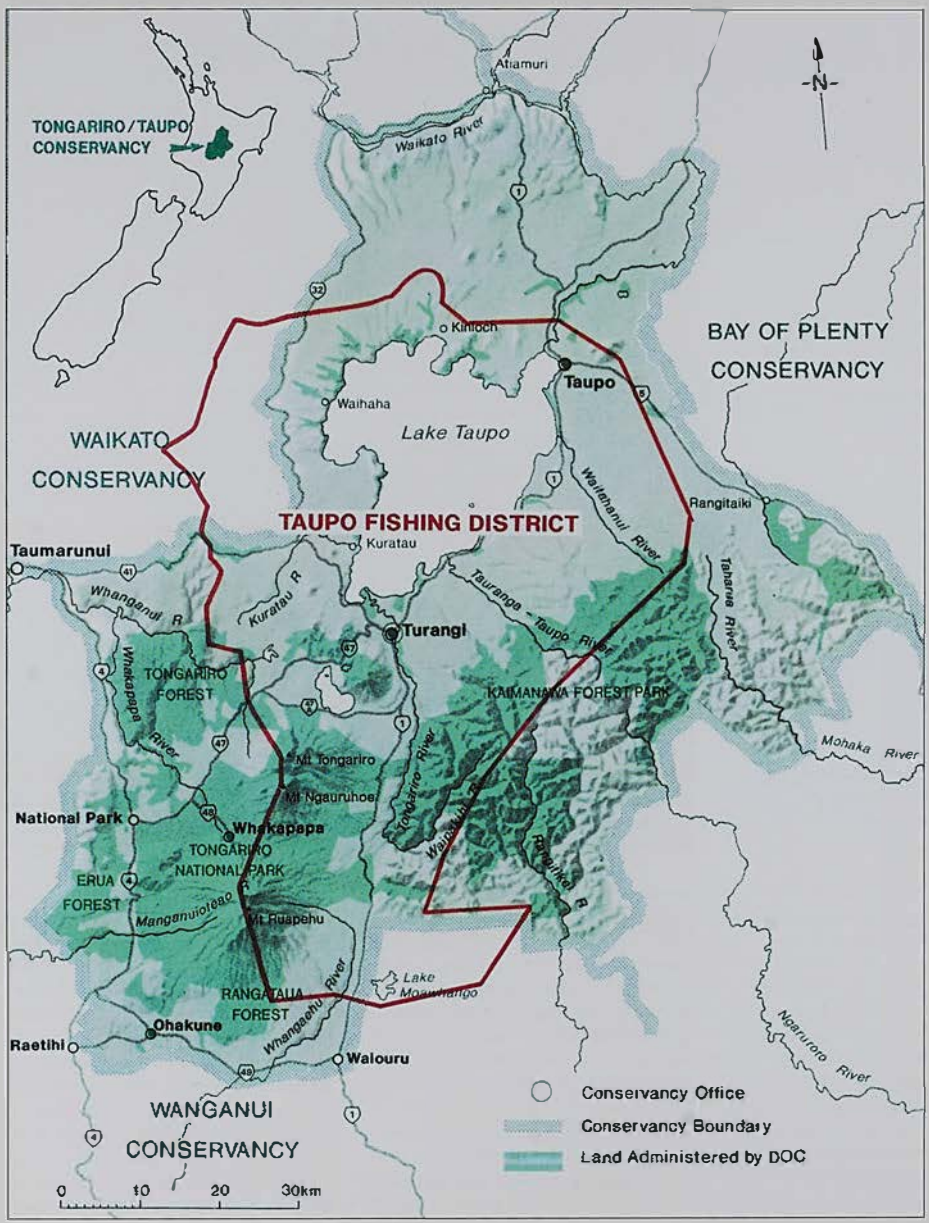


TO STOCK OR NOT?

One of the most common misunderstandings held by the general public is that Lake Taupo is stocked with hatchery reared fish each year. People are often surprised to discover that this is incorrect and Taupo trout stocks are wild and self-sustaining. In this article Glenn sets out to provide a background as to why this is the case, and how this reflects another special value of the Taupo fishery.

by Glenn Maclean

Glenn is Programme Manager Technical Support and responsible for oversight of the monitoring and research work done in the Taupo fishery.

Whenever anglers find fishing difficult, the question of why we don't stock the Taupo fishery arises. It is not an easy question to answer fully with just a brief chat on the river bank, so in this article we provide the background to this decision.

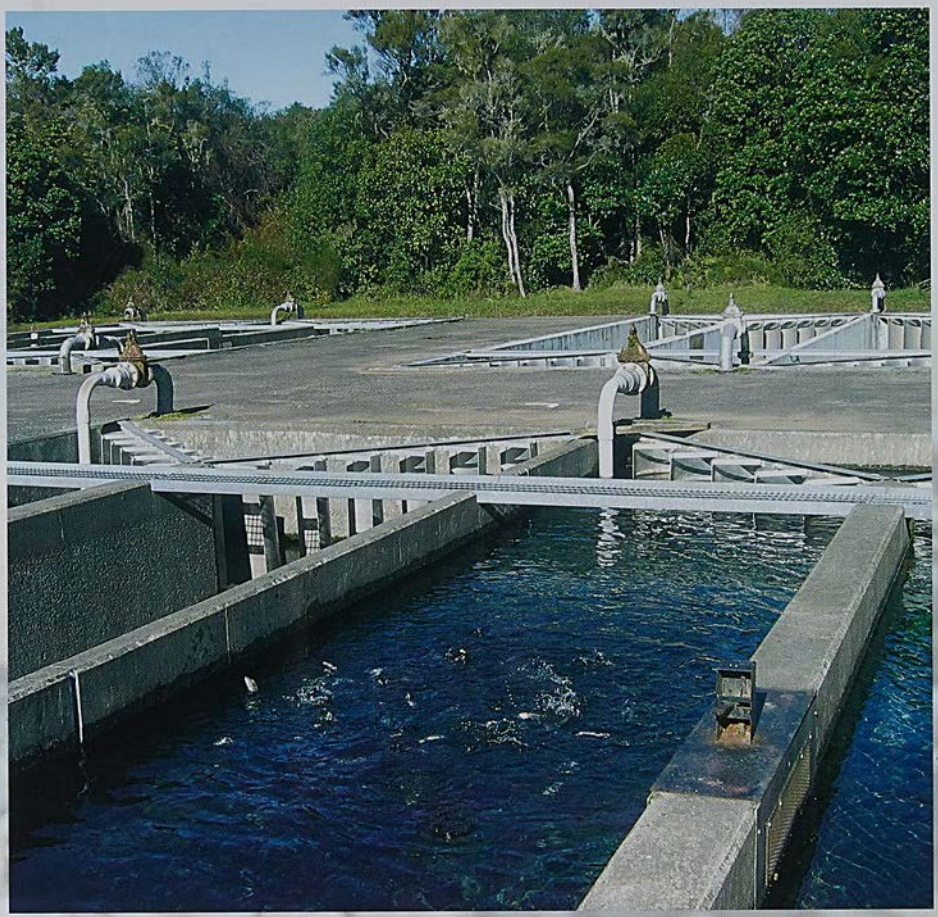
World-wide the value of stocking continues to be the subject of intense debate amongst freshwater fishery managers and scientists. Stocking still has a lot of support, in part because many fishery mitigation packages in the United States have resulted in huge sums of money to address the impacts of hydro dams and the like on salmonid fisheries. However in many cases there are few practical remedies and large scale releases are often viewed as the obvious solution. Nevertheless many management agencies have come to the conclusion that supplemental stocking of robust wild fisheries usually achieves very little, and indeed often has negative impacts on the wild population. Thus they have discontinued the practice. All sorts of criticisms have been raised, some of which may be applicable to the Taupo fishery and others which are clearly not. What is evident from the huge amount of research and literature on the subject is that each situation is different and as a consequence the results can range from very beneficial to disastrous.

World-wide the value of stocking continues to be the subject of intense debate amongst freshwater fishery managers and scientists

The Taupo fishery has always been managed as a wild fishery other than in the very early days of its establishment around the turn of the 20th Century. There is still a common perception that the fishery is sustained by hatchery releases but in reality there have been no such releases for close to 100 years. No doubt part of this perception is fostered by the profile of the hatchery (now Tongariro National Trout Centre) at Turangi and the obvious assumption as to what its role must be. There were several one off releases for experimental or scientific purposes including a large scale release in the early 1960s. There was also a long-standing practice of releasing trout fry in some of the tributaries where eggs were taken for the hatchery, but this would have had little impact on subsequent stocks.

There are probably few lowland and mid-altitude places in New Zealand which have not been stocked with trout at some time. A manager with a great deal of knowledge of the history of New Zealand's freshwater fisheries once mentioned that we could be confident, given the zeal with which early acclimatisation societies approached their task, that trout would have been stocked into virtually all significant lakes and rivers, and quite a few farm ponds as well, several times over. As a consequence, if trout don't exist somewhere now, there must be a very good reason for this. Central to this determination to establish trout wherever possible was the operation of the Turangi hatchery. Rather than being used to stock the Taupo fishery the primary role was for the government to support acclimatisation societies by providing eggs (ova) and fish for release all round New Zealand and overseas.

Intuitively people suggest stocking because they want more fish – it seems an easy solution. In reality it is much less straightforward. A good way of thinking of it is to imagine the



Life in the hatchery is quite different to coping in the wild
Photo: Petrina Francis

Taupo fishery as a big farm. There are certainly some occasions on a farm when buying in more stock is a simple solution to increase productivity. There are many other circumstances when this is the last thing a farmer would want to entertain. If the farm is already at carrying capacity then the farmer is simply spending additional money for no return. In fact it may well be less return if the existing animals do poorly as a consequence of the increased competition.

Potentially the Taupo fishery can have too many fish and this has actually happened in its history. In the 1940s and 1950s the high incidence of poorly conditioned fish was the catalyst for a major study by Derisley Hobbs, a scientist with the Marine Department. He concluded "a series of happenings which tended to limit exploitation outweighed the results of expanding angling pressure" or put another way, despite the increasing number of anglers, there were too many fish for the available food resources. As a consequence, measures to increase the harvest were introduced including removal of the daily bag limit, opening the rivers to fly-fishing over winter and allowing the use of lead and wirelines on the lake. We can take from this that while excessive harvest may limit angling opportunity, a significant angling harvest is nevertheless critical to ensure that the size of the Taupo trout population does not exceed the

capacity of the food resources, primarily smelt,required to support it.

The question is "is there any benefit to increasing the number of trout in Lake Taupo by stocking?" There are lots of lessons to be learnt from experiences elsewhere which we will discuss later, but first it is useful to look at how we might go about it.

On average a female Taupo trout lays approximately 3,000 eggs. From our radio tracking project, to index the run through the Waipa trap to the Tongariro spawning run we estimate the Tongariro run last winter was approximately 80,000 trout. Therefore in the Tongariro system alone there were something like 120 million eggs laid in the gravels. Even if only 10 percent survive to hatch, that is still 12 million fry. Clearly there is not much point releasing a few thousand more fry into the river. It is worth noting that this is quite a different situation to that of some of the Rotorua lakes for example, which lack suitable spawning areas. This in turn limits the wild population even though the rest of the conditions may be ideal.

The question is "is there any benefit to increasing the number of trout in Lake Taupo by stocking?"

These juvenile trout spend the next 18 months growing in the river and no doubt most don't make it, for the most part because there are more young fish than the habitat or food can support. However from our acoustic survey results it is likely several million juveniles enter Lake Taupo each year. This is the last major bottleneck they must overcome. It appears that most juveniles can't make the transition from feeding in the river to preying on smelt. Those that do survive extremely well. We don't understand all the factors that influence their likelihood of making this transition, though it is clear that the larger the fish are on entry to the lake the greater their chances of survival. The importance of understanding this is that if we are to stock then the best strategy is to add large fingerlings directly into the lake. At any point before this, we are simply adding a few extra fish on top of the natural population which is already likely to be at the limits set by the river environment. Even after seemingly catastrophic events such as large floods, our monitoring results indicate that many juveniles will have survived, their biggest challenge to find sufficient food in the 'clean' river over the forthcoming months.

hatchery fish are not accustomed to being predators and catching and eating smelt

Not releasing juveniles into the river avoids the debate of whether such releases are in fact detrimental to the wild fish rearing in the rivers. A simplistic way to think of this is that life in the hatchery selects for fish that are comfortable with their brothers and sisters living and swimming almost on top of them. Wild fish are much less tolerant, they each seek their own space which they defend in order to ensure their share of the available resources. The argument is that when faced with competition from hatchery fish, the wild fish are pushed out of the rivers but are too small to survive in the lake. On the other hand, the hatchery fish which remain in the rivers are not as well adapted to living in the wild environment and do poorly themselves – the risk being that we end up with less juvenile trout surviving in the lake, not more. A good example are the fish that we rear in the children's fishing pond at the Tongariro National Trout Centre. It is quite revealing to throw insects and spiders into the pool and just watch the fish mill around uninterested, compared to the feeding frenzy that occurs when you toss in food pellets.

If we were to release fish directly into the lake then they need to be 150mm or longer to increase their chances of successfully switching to feed on smelt. The first practical issue is that to produce a fish of this size costs in the order of $3.00 (this does not include capital or depreciation costs). In 2000/01 we estimate that the annual catch of legal sized trout was 240,000 fish. The debate is now if we want to increase the catch by 20%, (there wouldn't seem much point doing it for any less), then we need to raise a further 48,000 trout. This equates to a cost of $144,000. Clearly though, not every trout stocked is

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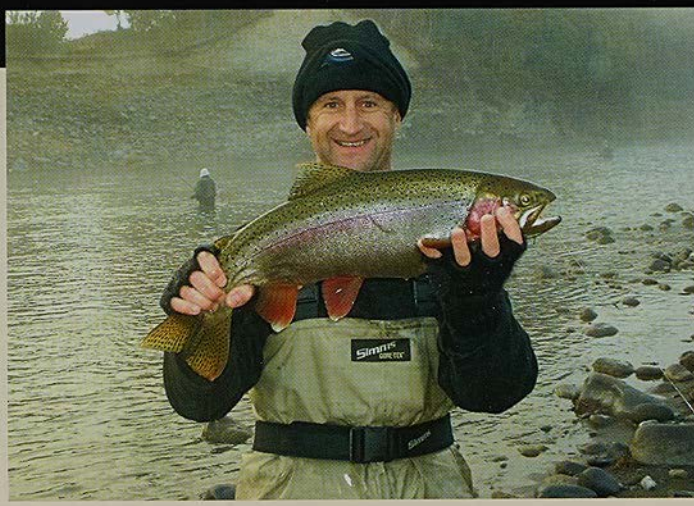

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When conditions are favourable, nature does it much better than us. Photo: Darryl Tuckler

going to be caught. It is recognised that stocking success is generally better in lakes than rivers, and in lake fisheries where the stocked population comprises the bulk of the fish present, then anglers may catch as many as 40 or 50 percent of those fish initially released. However in lakes which are predominately wild fisheries, then typically few stocked fish are ever recovered. For example, for many years we released 15,000 fingerlings annually into Lake Rotoaira. The best return rate recorded was only 7%. Similarly, from two 1987 releases of 600 fingerlings each into Lake Otamangakau, we obtained return rates of 4.5 and 6.1%. Anglers report on average, in Lake Rotorua, 6% of 'data watch' fish released to monitor growth rates. In a follow up study Fish and Game determined that anglers reported 50% of all tagged fish, or a total recapture rate in the order of 10% to 12%.

There are many examples in the literature where stocking of hatchery reared fish has depressed the production of wild fish

If we calculate that one fish in every 10 stocked is likely to be caught, then the total number stocked in our scenario above needs to be 480,000. This is a lot of fish and approximately seven times the total number stocked annually across the Rotorua lakes. At a total cost well over one million dollars, we would be spending two-thirds of our annual budget of fishery management funds on providing an additional 20 percent of fish. However we still need to manage the existing wild fishery, with its associated $1.6 million of management costs. Assuming no buyer resistance, (which would occur in reality) then the extra cost would need to be recovered from licence fees, making a season licence in the order of $135.00. This high

lights that in the case of the Taupo fishery, managing the wild fishery to produce fish for the angler's bag is much more cost effective than stocking.

If things went to plan and anglers indeed caught 48,000 of the hatchery fish, these figures would mean that each fish caught ultimately cost $30.00. This may seem a lot but is in fact conservative compared with many estimates from other fisheries. For example from 1966 to 1976 the Wellington Acclimatisation Society estimated that each of their hatchery reared trout caught by anglers cost between $25 and $45.

It is important to realise that these fish would make a negligible difference to the average catch rate. Over 2000/01 the average catch rate over the whole fishery was 0.32 fish per hour, or just under one fish for every three hours of effort. The additional fish would increase the average catch rate only slightly (by approximately 0.03 fish per hour). This is because catch rate does not increase in direct relationship with the number of fish present. This is another article in itself but reflects that each fish is more susceptible to being caught when there are fewer of them. The significance of this is that the benefit of stocking if successful, would be to increase the total harvest which could be taken from the fishery, rather than anglers' catch per hour.

One of the unknowns with these figures is the survival rate. While it is likely that these fish would have a high rate of survival due to their size at the time of stocking, a number of other factors act against this. Such things as the timing and location of release have been shown to be important in other fisheries. It would be reasonable to assume this would be the case in the Taupo fishery also, particularly given the variability in smelt (their key prey) spawning and distribution from year to year. Similarly hatchery fish are not accustomed to being predators and catching and eating smelt. They would need to make this transition immediately if they were to survive. Given the difficulty that wild fish have making this change, it is likely many hatchery fish would also succumb. There may also be other factors such as predation which are important. For example, between 1994 and 1997 we released over 4000 rainbow and 2000 brown juveniles (60mm to 90mm long) into Lake Otamangakau. To the best of our knowledge only one was ever recaptured as an adult fish. Perhaps they didn't make the transition to feeding on the rich soup of insects but more likely they became the staple diet of Lake Otamangakau's big brown trout and the few resident black shags. It has been demonstrated before that life in the hatchery does not teach good life skills when it comes to avoiding predation.

Early on I mentioned a large scale experimental release in the early 1960s. This involved releasing 100,000 yearling rainbows. Unfortunately I can find no record of the results on file but a manager involved in the trial recalls that the returns were less than 1%. This tends to support the notion that the survival of trout stocked into Lake Taupo is likely to be poor.

There are many examples in the literature where stocking of hatchery reared fish has depressed the production of wild fish. In some

instances the mechanism involves competition for resources such as food or space and/or the displacement of the wild fish into less suitable habitat. Other factors that have also been identified include impact from the introduction of new genes into the wild population, predation by stocked fish on wild trout eggs and fry, and the introduction of diseases and parasites. However, these are unlikely to be major factors if we stock directly into the lake using progeny stripped from wild parents.

A further impact which is of far more concern is the effect of increased angling pressure on the wild population brought about by the stocking. In the early 1990s it was estimated that the total harvest was approximately 30% to 50% of the total estimated trout production in 1988 and 1989. Such a harvest is unlikely to be sustainable and certainly had a major impact on the quality of the fishery. In response, we cut the daily bag limit to three fish and further reduced the harvest in 1998 when we increased the minimum size to 45cm, in the aftermath of the Ruapehu eruptions.

The final nail in the coffin for stocking at Taupo relates to the usual appearance of the fish.

Stocking has been shown to increase the angling pressure on wild populations in two ways. Firstly, it often increases angler expectations causing greater numbers of anglers to visit, or to visit more often, increasing total angling effort and therefore total catch. If the wild population is already subject to a very high harvest then this increased catch can push it into decline. Anglers tend to think that the increased catch will be of stocked fish, but the reality is that the wild population is also subject to that much greater effort. For example, if anglers fish a wild fishery for 100 hours at a catch rate of 0.5 fish per hour, then the total catch is 50 fish. If they fish it for 150 hours with a similar catch rate, then the total catch is 75 wild fish irrespective of how many other stocked fish they may have caught.

One way to avoid this effect is to set catch limit restrictions, because as anglers reach the limit they must stop fishing. However a second consequence of stocking is that anglers quite rightly expect more opportunity, not less, and so regulations are often relaxed, nor made more restrictive. This simply exacerbates the pressure on the wild fishery. In some instances regulations can be set to protect the wild fish such as requiring any caught to be released. However these are only practical where wild fish are a minority of the catch. In Taupo, the majority of fish caught would still be wild trout and anglers would expect to be able to keep a good proportion of them.

The net effect of these potential impacts on the wild population is that there are numerous examples around the world, including in New Zealand where, several decades after stocking began, the total size of the fishery was on a par with the original self-sustaining wild fishery. Instead the fishery is sustained all or in part by hatchery releases with their associated cost. Similarly, in many examples where stocking was stopped,

A prime Taupo trout - the harsh environment of the Central North Island selects for only the very best fish
Photo: Len Birch

increases in the size of the wild population were measured in subsequent years.

The final nail in the coffin for stocking at Taupo relates to the visual appearance of the fish. Prime Taupo fish are superb specimens highly prized by many people. This is not surprising given how harsh the environment is. Only the fittest, best fish survive to reach maturity. By contrast, hatchery reared fish are characterised by scarred and deformed fins, a consequence of their early life in the hatchery. New Zealanders tend to concentrate on fish size, but for many overseas visitors it is the unblemished appearance of many New Zealand trout and what that represents, that they covet.

It is important to keep in mind that to sustain the wild population, only one fish in every 1500 eggs needs to survive to spawn itself. If two fish survive, then the population doubles in size. As a consequence, it is a feature of wild fisheries that they fluctuate widely but when conditions are favourable they respond more rapidly and are much stronger than could ever be achieved by supplemental stocking. When conditions are not so favourable, then they will not be conducive to the survival of stocked fish either. Finally the fact that conditions do fluctuate greatly is simply a facet of life in the mountainous environment of the central North Island.

But aren't there successful trout fisheries in New Zealand that are largely dependent on hatchery stocking for their existence? Yes – but almost invariably these are lakes with small catchments that lack significant rivers or streams to provide the spawning and rearing habitat necessary to bring them up to their carrying capacity. Despite decades of trying, there are no examples where stocking has improved a wild fishery that was already at or near carrying capacity.

In summary, stocking lake Taupo would come at considerable financial cost and with potentially little benefit. Perhaps also at a considerable cost to the wild fishery. Even within the Rotorua lakes where stocking is highly valued as a way to sustain trout populations which lack natural spawning and rearing habitat, managers do not stock lake Rotorua (other than 1000 fish per year for monitoring growth purposes) preferring to let nature and the wild trout population do it better and cheaper.

Progress tracking trout in Lake Taupo

by Glenn Maclean

In the March issue of *Target Taupo (Issue 45)* we described a major project that we have begun to follow the daily and seasonal movement of trout in Lake Taupo. In November 2003 we tagged 34 rainbow trout in the lake with acoustic tags which send out information on the depth and water temperature that the fish is swimming in every minute and a half. This information is recorded by remote loggers positioned at strategic sites on the lake bottom. The tags have a life of 514 days and the project is planned to run for 18 months.

Michel Dedual, Fisbery Scientist, hands a logger recovered from the lake bed to Errol Cudby (below) and then downloads the information onto a laptop.
Photos: Rob Hood

The project involves considerable expenditure of time and resources, and there is plenty of potential for it to go wrong. So it was with more than a little nervousness that we set out to recover and download several of the data loggers in May. Could we find them again? Had the loggers and tags worked? Did the fish survive? Had the fish swum close enough for the information to be picked up by the loggers? And last but not least, was the logger we had placed on the drop-off at the Tongariro Delta still exposed after the February flood?

As it turned out we need not have worried. Using a GPS, divers quickly found the loggers at the Delta and at the Waimarino River mouth. These were downloaded onto a laptop to reveal thousands of records which came from a large number of different tagged fish. The loggers were then replaced on the bottom to continue recording for another 12 months. So at this stage, the project is well underway and good progress is being made.

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ARE FLOODS ALL DOOM A

by Glenn Maclean

Standing on the Major Jones swing bridge watching the swirling waters of the Tongariro River and listening to boulders bouncing underneath, it is hard to imagine that trout could survive the turmoil of a major flood. Yet our radio tracking of mature trout indicates that many fish simply ride out the flood, presumably protected in the lee of the banks or some other obstacle on the river bed. As soon as the flood starts to recede, they are once again on the move upstream. Even during some flood peaks when our fish traps are well underwater, we regularly observe trout jumping upstream through the pressure wave over the trap, or swimming around the edge in the flooded margins. It is thought this behaviour stems from their roots in North America where rainbow trout often make migrations of hundreds of kilometres. In many cases the upper stretches of these systems are only negotiable with the increased flows associated with floods and snow melt.

Below: Flood flows are no barrier to migrating trout as these two photos of fish jumping the Te Waotaua Stream trap show.
Photos: Norrie Ewing

ND GLOOM FOR TROUT?

When observing a river in flood it is hard to imagine that trout can survive the turmoil. Photo: Rob Kirkwood

Nevertheless, intuitively major floods would seem to be disastrous for young trout rearing in the river. It is hard to imagine small fish could prevail against the magnitude of big flood flows and clearly many perish, either swept away or stranded along the margins when the flows recede. But the long term effect on the fishery is not always so clear cut.

In July 1998 two big floods occurred a week apart. Both were over 900 cubic metres per second (cumecs) in the Tongariro River (at the time the 2nd and 3rd largest recorded) and the second flood in particular caused major changes to the river as it ripped it to bits. This may sound very emotive but is a good description of what actually happened. The juvenile trout in the river at the time were approximately nine months old and much too small to survive if washed into the lake. This year class would form the basis of the lake angling over the 1999/2000 summer and 2000 winter spawning runs. Things were not looking good.

Many of you will recall however, and with much pleasure, that in fact the fishing was outstanding over this period. Our monitoring of both trout numbers and angler catch rates indicates that this was the largest trout population for several decades or more. How could this be?

The flood certainly killed many young fish but monitoring indicates that by the end of the following summer, numbers had recovered, in fact to a high for the time of the year. Perhaps even more importantly, numbers of large juveniles (fish greater than 100mm in length) were much higher than normal. These fish are the key to the future population as they are most likely to survive entry into the lake in late summer and autumn. It would seem that even though immediately following the flood there would have been a shortage of food in the river, the conditions quickly became very favourable for young trout, perhaps improved by the relatively low numbers present. The net result was that those fish left had higher rates of survival and grew better than normal. Some months on the fishery was actually in a much stronger position than usual.

This is not always going to be the case. But it is a very good example to show that the effect of a flood on the fishery is not always as obvious as it may first seem. There are many aspects which interact to influence trout survival and just how these come together is critical. Many of these are both

This aerial picture (taken through the plane window) is of the lower Tongariro River on the 1st of March after the near record flood on 29th February. Floods do not always have a detrimental effect as the state of the fishery post-1998 demonstrated.
Photo: John Gibbs

complex and subtle and very difficult to predict. Not until we estimate the size of the trout population as two year old fish in the lake in spring, can we really be confident of what the effect of earlier floods has been.

So what is the likely effect of the near record flood that occurred on 29 February this year in the Tongariro? There are some reasons to be optimistic. Timing-wise it was opportune that this is typically the time of the year when the fish migrate to the lake as 18 month old fingerlings. The flood coincided with (or maybe caused) a flush of productivity in the lake reflected in the condition of the adult trout since then. This flush should also have benefited survival of the juvenile trout, further helped by the fact that last summer we recorded the largest number of fingerlings in excess of 100mm in length in the river since monitoring began eight years ago.

The younger year class (6 month old fish) may not have fared so well. Our monitoring indicates that a surprisingly high number survived the flood, but they were clearly struggling for food in the weeks that followed. Normally, late summer would be a period of active growth. Perhaps the new river conditions will favour survival and growth as occurred after the 1998 floods, but the timing may mean that much of the benefit of the clean gravels and improved habitat is lost by the time next summer arrives and the main insect production and trout growth occurs. Even if the juveniles make better growth at this stage, it will be a question of whether this outweighs the earlier poor growth. We will just have to wait and see what our monitoring of the juvenile population reveals in early 2005.

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NEW MAP OF

THE TONGARIRO RIVER

by Rob Hood
Rob is a Ranger, and part of the team that undertakes much of our field work

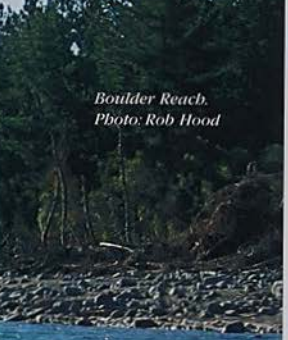
As many anglers are aware, the large flood at the end of February significantly changed the course and shape of the Tongariro River. Those that witnessed the size and scale of the flood could hardly be blamed for thinking the worst. However rivers are dynamic and large floods are a component of the natural cycle of a river. An initial and predictable reaction to such a significant event is to be concerned about the effects on the health of the fishery, and on fishing opportunity and enjoyment. The impact on the fishery is discussed in detail in our article "Are floods all doom and gloom for trout?" on page 14 of this issue. In terms of fishing opportunity, anglers have discovered some great new pools have been created and are reporting very successful fishing (even some of the staff have managed to catch a fish or two!).

Environment Waikato (EW) undertook some emergency work after the flood to protect the riverbanks from further erosion and clear logs and debris from the bed of the river. EW is also evaluating the amount of gravel that moved downstream during the flood.

Large floods characteristically re-shape and change the river course leaving larger, deeper pools and long straight sections of shallow rapids. As a consequence much of the smaller, more intimate fishing water is often lost and this is what has occurred on the Tongariro River.

The most obvious change is the area from the Blue Pool downstream to the Cliff Pool, which now runs several hundred metres to the east, with the old Breakaway Pool high and dry. However, even though the river follows its old course elsewhere, the actual pools generally bear little resemblance to those before the flood.

Shortly after the flood we joined with Environment Waikato and Genesis Power Ltd to have new aerial photography taken of the



Boulder Reach.
Photo: Rob Hood

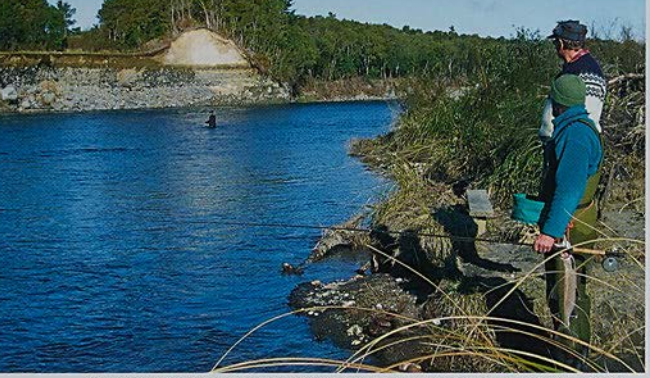
river. From these digital images, Colin Lawrence of DOC has created the map in this centre of this issue. The map shows the new river and pools and included are all the current fishing access tracks as plotted by GPS. Sometimes this new technology is very useful! Note that the track shown to the Reed Pool is just an informal track but easy to follow after the February flood. It was planned to cut this track this winter but this task was put on hold, as funding was used to repair the Major Jones bridge. Environment Waikato are proposing to undertake some more remedial work in this area next summer and we have now decided to wait for this to occur before reforming the track.

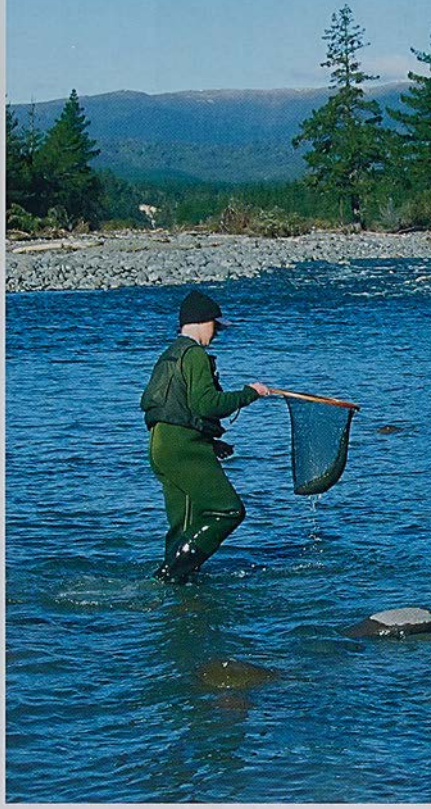
Many of the pools have improved considerably and are now easier to fish, being deeper and more defined. It has taken anglers a little while to work out the best pools but the following are fishing well: Reed, Bridge, Judges, Hydro, Cattle Rustlers, Upper Birch, Waddels, Boulder Reach, Blue and Fence Pools. Another that is producing lots of fish is the new pool where the river breaks away into its new channel above the old Fan Pool. In the past there was a pool in this general area which was most commonly known as Big Bend Pool or occasionally as Pythagoras Pool. It is probably most appropriate to refer to this pool as Big Bend Pool once again. Just remember that the only similarity between many of these pools and those that existed before the flood is their name.

One disadvantage of the changes, is the lack of pocket water which is concentrating anglers in the major pools. It will take time, perhaps several years,

While the track to the Reed Pool is only informal at this stage, the February flood has made access relatively easy.
Photo: Glenn Maclean

The Judges Pool is proving popular with anglers this winter.
Photo: Norrie Ewing

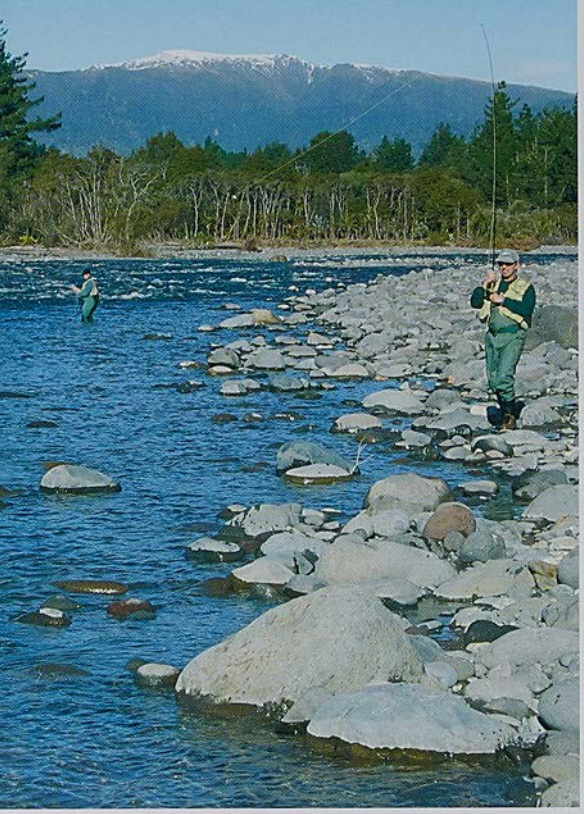


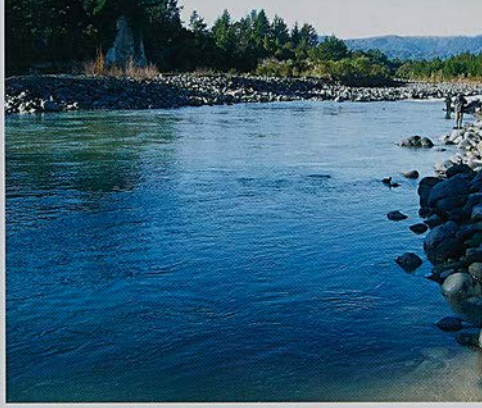


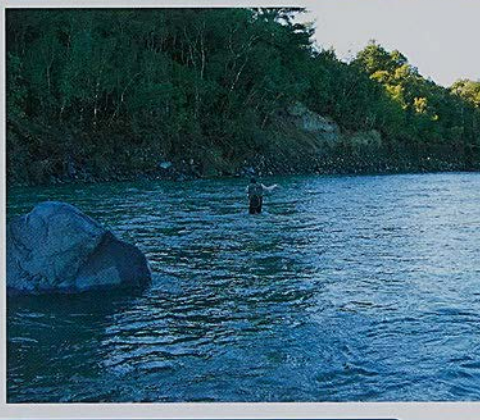
Above: Kevin Yeoward and Peter Bingham survey the upper Hydro Pool on a clear July afternoon.
Photo: Rob Hood
Below: The Cattle Rustlers Pool has changed since the flood.
Photo: Harry Hamilton

and a series of smaller floods to re-develop the character in the river that anglers had become accustomed to. The subtle sculpturing of the river is very much a function of the smaller floods and in fact the flood in late June caused a noticeable improvement in the angling opportunities in the upper river. It is a very similar situation to that which existed following the 1998 floods. Immediately after these floods the upper river especially comprised of long reaches of broken water and few good pools. By last season, this stretch had developed a number of good pools and many little pockets and runs which held fish.

Many anglers have commented to us that they have enjoyed the challenge of exploring and fishing new pools or places on







Above: Success at Boulder Reach for David Worsley from Hamilton, with a nice rainbow netted by his son Andrew.
Photo: Rob Hood
Top right: The old Big Bend Pool ran against the pumice cliff in this picture.
Photo: Rob Kirkwood
Bottom right: Looking up at the lower end of the Blue Pool.
Photo: Rob Kirkwood

the Tongariro River this winter. It is a great feeling to fish new water, the anticipation of a strike at any time. Gone is the knowledge that the hot spot is just in a particular part of the pool, or even that there is no hot spot at all. The February flood should not be considered as a negative thing but instead just part of a natural process and a component of the wild fishery. The ever changing face of the fishery and the opportunities it provides, is part of what makes the Taupo fishery so special.

What will you do with that unwanted monofilament?

by Rob Kirkwood
Rob is a Ranger, and an enthusiastic Tongariro River angler.

The rivers in the Taupo District are proving as popular as ever this year for fishing. On any day over the winter period, there are numerous anglers trying their luck in the pools on the Tongariro River. In fact, as our results from a harvest survey conducted in 2000/01 showed, at any one time over the winter period, an angler can expect to share the Tongariro River with 35 to 40 others.

Of course, the high angler numbers also equates to a high risk of litter and rubbish being left on the river side. Unfortunately, a stroll along the banks of the Tongariro will reveal a lot of monofilament line that has been discarded lying on the ground.

Monofilament nylon is a key ingredient in the angler's fishing kit. During a days fishing, there are numerous times when a leader is lengthened, shortened or completely replaced. Or an angler may break their line during a backcast or windknots may require the line to be cut. Perhaps it is because of its small surface area and lack of colour that some anglers discard unwanted monofilament on the ground.

Not only is this discarded line an eyesore, it also poses an environmental risk. The life span of fishing line depends on the type of line, surface area and exposure to UV light. Monofilament discarded at the side of a river can take considerable time to break down depending on the impact of rocks and other abrasions on it. Even if it is left in a situation where it is exposed to the sun constantly, monofilament will only gradually break down over a period of months as it becomes paler and more brittle. However, worse than this is a "birds nest" of monofilament swept downstream and into the lake to be anchored on debris under the surface. With limited direct UV impact, this filament may take years to break down.

So next time you snip your line, what will you do with the section of discarded mono? Will you put it into a pocket or bag to take home and dispose of through the rubbish system or will you leave it lying on the ground? Old sections of long usable line can be rebound onto an empty spool for use as a dropper line between two flies. Or, over the course of the day, why not wrap your discarded unusable line around a stick and secure with a rubber band, so that it is kept together and can then be easily transported home to be disposed of appropriately.

Please do your part in keeping the rivers and streams in the Taupo District free from litter and pollution, and help to preserve and enhance our beautiful fishing environment.

We ran this story in *Target Taupo, issue 10 (July 1992)* which graphically highlights the dangers of discarded nylon. This fish caught by local guide Tim McCarthy had a length of nylon protruding from its side. On cutting open the fish, the nylon was found to be a complete loop which encircled the fish, but which was not so tight it had cut into the viscera. Presumably the fish had somehow swum through the loop when it was smaller and as the fish had grown its musculature and skin had grown over the loop.

AG Industrial Ltd working on the bridge repairs in May. Photo: John Gibbs

MAJOR JONES BRIDGE SWINGS BACK INTO ACTION

by Errol Cudby
Errol is our Programme Manager for Visitor Assets in the Taupo Fishery Area and responsible for tracks, structures and access for anglers.

The weather on Saturday 28 February was not great in the Turangi area with steady rain all day and night and the rivers rising. "Still," I thought, as I headed north on State Highway One in the evening, with the Waiotaka and Waimarino overflows running alongside the highway, "we might lose some bankside track at the Tongariro National Trout Centre, but it won't be a big one."

How little I knew! The eastern side of Tongariro National Park had twice the rain that Turangi did and at one of the huts 80mm (over 3 inches) was recorded in two hours. The Tongariro River reached a peak estimated to be only 10 or so cumecs less than the 1958 flood and low lying areas and houses were flooded. The Tongariro National Trout Centre with its recently opened Riverwalk visitor centre were inundated, the State Highway One bridge across the Tongariro was endangered and the Major Jones footbridge across the river had been breached in three places, with a massive pine branch caught in it and swinging in the current.

Damage to the swing bridge was significant. Part of the pine tree that broke the bridge through is visible on the right hand side of this picture. Photo: Errol Cudby

Within a week the damage was assessed by an engineer and design drawings for the repairs to the Major Jones Bridge were in hand. A building consent was fast-tracked. But then came the hard part, finding the funding necessary for repairs. The bridge was uninsured, as is DOC policy, and with no reserve or contingency fund, the considerable cost of repairs would have to be met from the Fishery Area funds, or in effect money set aside for other fishery projects. On top of this, repairs to the extensive flood damage to property, both in Turangi and further south, left a dearth of trades people capable of undertaking the repair work.

Bramley Builders Ltd were persuaded to set aside their work for three hours to remove the hanging branch, but unfortunately were too busy to quote for the major repair work. After a couple of false starts with bidders pulling out of the process, the job was finally

A flood-borne pine tree also caused minor damage to the Red Hut foot bridge. Rob Kirkwood and Gordon Hyde get ready to undertake repairs. Photo: Dave Hart

FOOTNOTE: Fishery Area funds refer to the pool of money derived from the sales of fishing licences. This revenue is used to pay for all of the costs of managing the Taupo fishery, including the maintenance of fishery assets like the Major Jones bridge. Licence fees are set each year to recover the budgeted cost of managing the fishery and expenditure is limited to the subsequent amount of revenue received. The Taupo Fishery receives no additional government funding.

awarded to AG Industrial Ltd of Taupo who started work on the 10th of May. The work was completed on schedule and the swing bridge re-opened without fanfare at 5pm on the 28th of May. It was a job well done by all involved, in a considerably shorter timeframe than when the bridge was damaged after the February 1958 flood, when it was not re-opened again for use until September of that year.

Reactions to the bridge damage and the consequent closure were interesting: These ranged from a person who offered to donate $5000 toward the repairs, to those who broke down the barriers, ignored the warning signs and took their chances on the bridge while it was closed, and the many who vocally criticised both publically and personally the completion work.

A typical reaction was that of the local community board. We replied to the board's concerns about the time taken to effect repairs by explaining that the bridge was a fishery asset and funded through money from fishing licences, the difficulties we were experiencing, and sought the board's support for our application for funding from the Mayoral flood relief fund. Unfortunately, the board opposed our application, instead asking that we repaired the bridge immediately to serve the needs of the wider community, in effect forcing anglers to fund the total repairs.

Despite the set backs, the bridge is now "back to new", much to the delight of visitors to the river and anglers keen to access both banks. But the repairs have been at a cost to several other aspects of our planned work, including reforming the access tracks along the lower Tongariro River, which have had to be delayed.

Anglers' access to Waihaha River mouth

by Dave Lumley
Dave is Area Manager for the Turangi/Taupo Area of the Tongariro/Taupo Conservancy

Many Lake Taupo anglers access the Waihaha River mouth from the end of Waihaha Road off the Western Bays highway.

This involves driving through farmland via a legal right of way to the boundary of Hingaime Scenic Reserve. A walking track starts within the reserve for the first 200 metres and then crosses into private land administered by the Waihaha Maori Lands Trust before reaching the lake foreshore and Waihaha River mouth.

In August 2000 the Trust put in place a charge for access across their land. The charge is $30 per person for an annual permit.

Subsequently some anglers approached DOC and asked that we consider re-routing the track to avoid crossing the private land. However on investigating this, a safe and practical route which stayed within Hingaime Reserve could not be found.

We have since found some individuals, without authority from the Department, have formed their own route through the reserve to the river. This is illegal, because it involves the cutting of protected native vegetation. But of even greater concern is that this track is very steep over slippery rock outcrops and is simply not safe. We are taking steps to close this track and strongly advise anglers not to use it.

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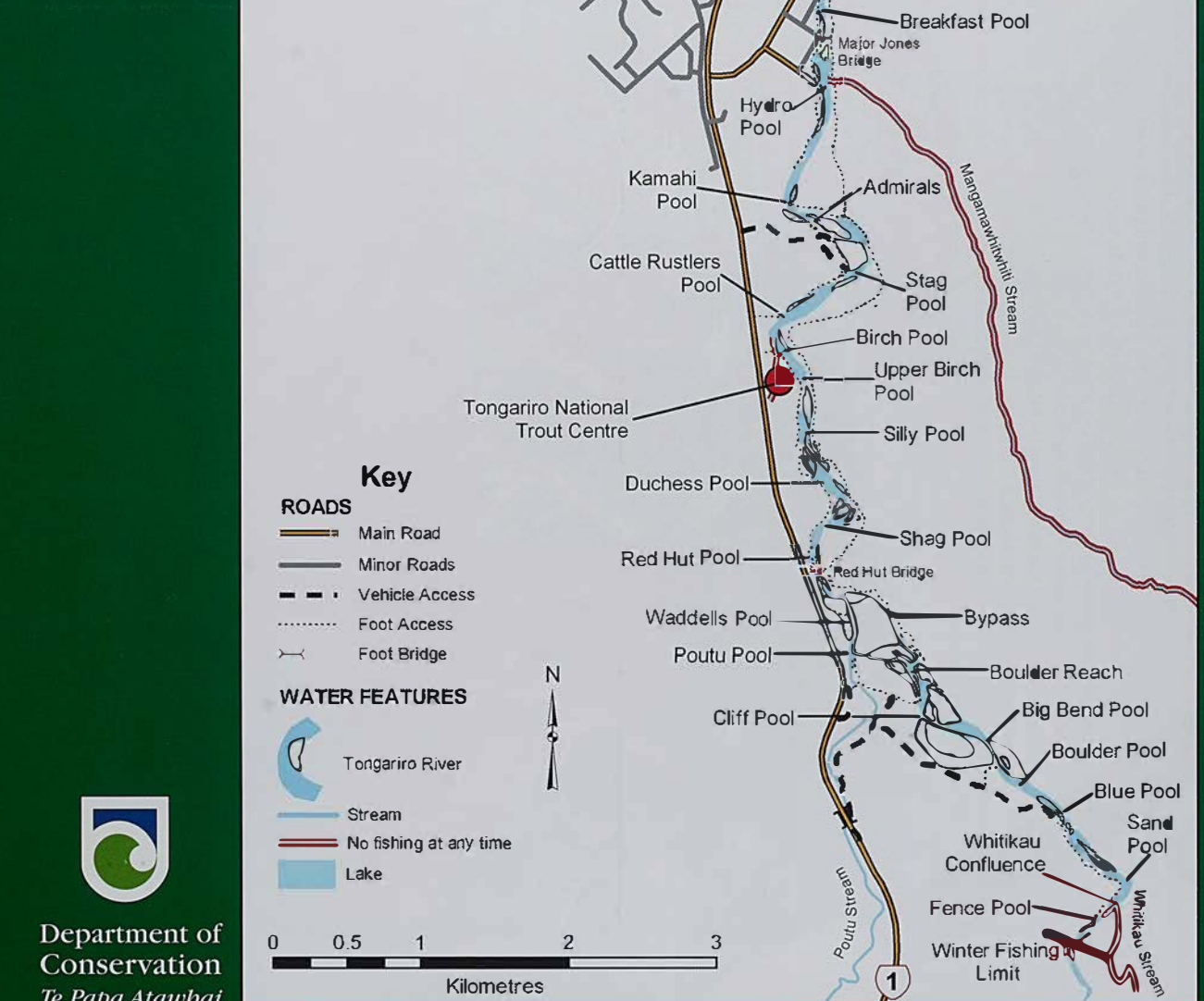

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HINEMAIAIA TRAPPING BEGINS

by Glenn Maclean

As part of recently granted resource consents to operate the Hinemaiaia Power Scheme, TrustPower Limited are now required to facilitate fish passage above the HB dam so that trout can spawn in the Pahikohuru and Kakapo Streams. There are several ways that this could be achieved and the consents make provision to allow TrustPower to trial options to assess their practicality, effectiveness and cost before they decide on a long term solution.

Dr Michel Dedual tags a rainbow trout before releasing it into the dam Photos: Petrina Francis

One option is to trap the fish as they migrate up the bypass channel and physically lift them over the dam wall. To investigate the feasibility of this TrustPower have contracted us to undertake a trial trap and transfer programme this winter. In early June we installed a temporary trap in the bypass channel adjacent to the HB power house. The plan is to operate the trap for two weeks every month between June and September. Any fish trapped are transferred to a holding tank, transported to above the dam wall and released again. Hopefully these fish will find their way to the two spawning streams and as part of the project we will undertake regular surveys of these. We will also radio tag 15 fish using tags recovered from last year's Tongariro River project to provide additional information on the movement of the trout after they are released into the dam.

In the initial trapping period in mid June, we transferred 20 fish before we had to remove the trap early due to flooding. Outside of flood events the trap is proving very easy to operate but it is early days yet. There are a number of practical issues which we have identified and that need to be assessed over the trial period. From a staff perspective we have already discovered that the Hinemaiaia Valley suffers some severe frosts but there are also considerable advantages over our other trap sites in terms of the facilities in the HB station and ready supply of electricity made available by TrustPower.

So for the first time in 39 years trout from Lake Taupo are once again able to spawn in the Pahikohuru and Kakapo Streams.

FOOTNOTE:

Our cover photo for this issue of Target Taupo has historical significance to the Taupo Fishery. In 1965 John Gibbs and Norrie Ewing trapped the last spawning run of Lake Taupo trout to enter the Pahikohuru Stream, which was not long after cut off by the HB dam . We felt it was appropriate therefore to show them releasing one of the first rainbows to be given access to this stream, nearly 40 years later.

The temporary trap in the bypass channel near the HB powerhouse.

THE 2004 TAUPO FISHERY REGULATIONS

– what the changes mean for anglers

by Glenn Maclean

The 2004 Taupo Fishery Regulations came into effect 1 July 2004 and completely replace the 1984 regulations. These regulations set the rules for trout fishing in the Taupo District. The main changes are summarised below.

CHANGES TO WHEN YOU CAN FISH

- A 24 hour licence is now available and replaces the day licence. This new licence runs for 24 hours from the nominated time of commencement. Angling is still prohibited between midnight and 5am.
- The fishing season for lake Otamangakau and the Te Whaiau and Wairehu canals runs from 1 October to 31 May.*
- The fishing season for the Tongariro River upstream of Ponui Intake and the Waihaha River upstream of Tieke Falls now runs from 1 October to 30 June.*

**Please note both of these changes show on the map on the reverse of your licence*

CHANGES TO HOW YOU CAN FISH

- You can now use three flies or lures. This change was made largely so anglers can use English stillwater techniques on lakes such as Otamangakau and Kuratau. However to avoid confusion, the use of three flies or lures was allowed across the whole fishery but it is unlikely to create many additional opportunities for Taupo anglers other than for anglers jig fishing. We suspect few anglers will use three flies on Taupo rivers, the added tangles, getting snagged and above all cost, outweighing any slight advantage a third fly might offer.
- There is no weight restriction for artificial lures or flies. This means you can use any weighted lure or sinker when jigging. However you cannot use a hook that is wider than 14mm between the point and the shank.
- When in fly fishing only waters, you may add lead weights to your line to facilitate the line sinking, for example, split shot. In our experience with using split shot less weight is necessary to get your trailing fly near the bottom than when using a second heavily weighted nymph. A very effective rig which is also nice to cast is one or two split shot weighing approximately 0.6 grams in total (the weight is on the packet and depends on the size of the split shot) and a single trailing fly. With regular casting, split shot tends to slip down your leader and once it is too close to your fly it will limit the number of strikes you receive. A good idea is to tie on a tipper of approximately 300mm and place your split shot just above this, the knot preventing it sliding any lower.
- When boat fishing you may use a paravane.
- You can use rod holders irrespective of whether other people on board have a licence or not. However anyone who handles the rod needs to have a current licence. The excuse that you were not fishing and just bringing it in for someone else is not a satisfactory explanation.
- There is no restriction to the number of assembled rods able to be carried in a boat.
- Trolling, jigging and spinning is now permitted within 300m of an additional 15 stream mouths and formerly restricted places around the lake. These are areas not commonly used by fly fishing anglers but which had previously forced trollers to deviate out into deep water away from the drop off in order to remain 300 metres away. The restrictions have been lifted from the Te

Mapu and Okaia Streams in Whangamata Bay (but not the Otaketake Stream), Tutaeuaua, Otutira (Chinamans Creek) and Omoho (Stony Creek) Streams in Kawakawa Bay, Tutaewaeroa and Kotukutuku Streams in Waihora Bay, Otauanga and Te Awaroa Streams between Waihaha and Whanganui Bays, Rotomoho Stream north of Waihi Stream, Tokaanu Stream and Tokaanu Wharf, Waitotara Stream at the southern end of Hallets Bay, Rotongaio Outlet south of Waitahanui and the Waipahihi Stream on the Taupo lake front.

Note that a number of restricted stream mouths remain and all of these are marked with white black and yellow posts.

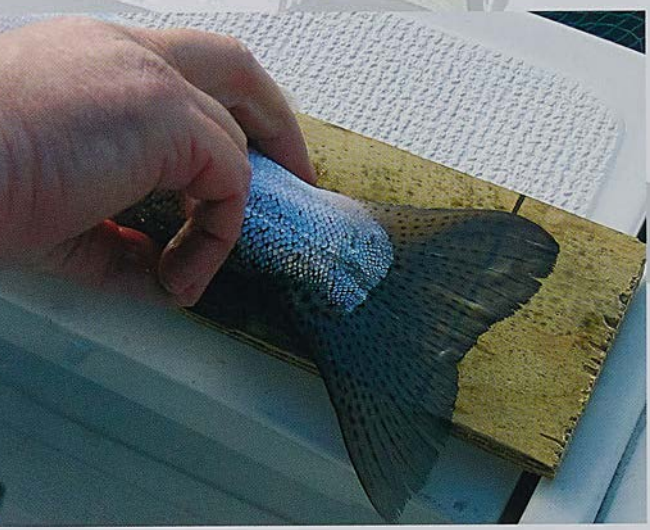
- Fly fishing is defined as fishing with fly rod, fly reel, fly line, and natural or artificial fly. This restriction means that you can no longer use spinning tackle trailing a fly in fly fishing only waters. If we had not made this change then, with the removal of any weight restriction, it would have been possible to spin fish in Taupo rivers, a change which anglers did not support.
- There is no size restriction for weighted flies. By allowing weight to be added to the line such as through the use of split shot then the removal of the size restriction for weighted flies does not offers nymph anglers any further advantages However where it does open up possibilities is by allowing the use of larger wetflies and streamers which incorporate weight. For example the attachment of bead heads to woolly buggers and the like is common practise elsewhere so that when fished on a floating line the lure swims up while being retrieved and sinks during any pause creating an attractive undulating motion.
- An attachment clip may be used with a strike indicator.
- Spinning is now permitted in the Waikato River from the outlet to the control gates and in the Tokaanu tailrace above the SH41 bridge.

When fishing 'fly-fishing only' waters, you may add lead weight, such as split shot, to facilitate sinking of the line. Photo: John Gibbs

CHANGES TO WHAT YOU CAN CATCH

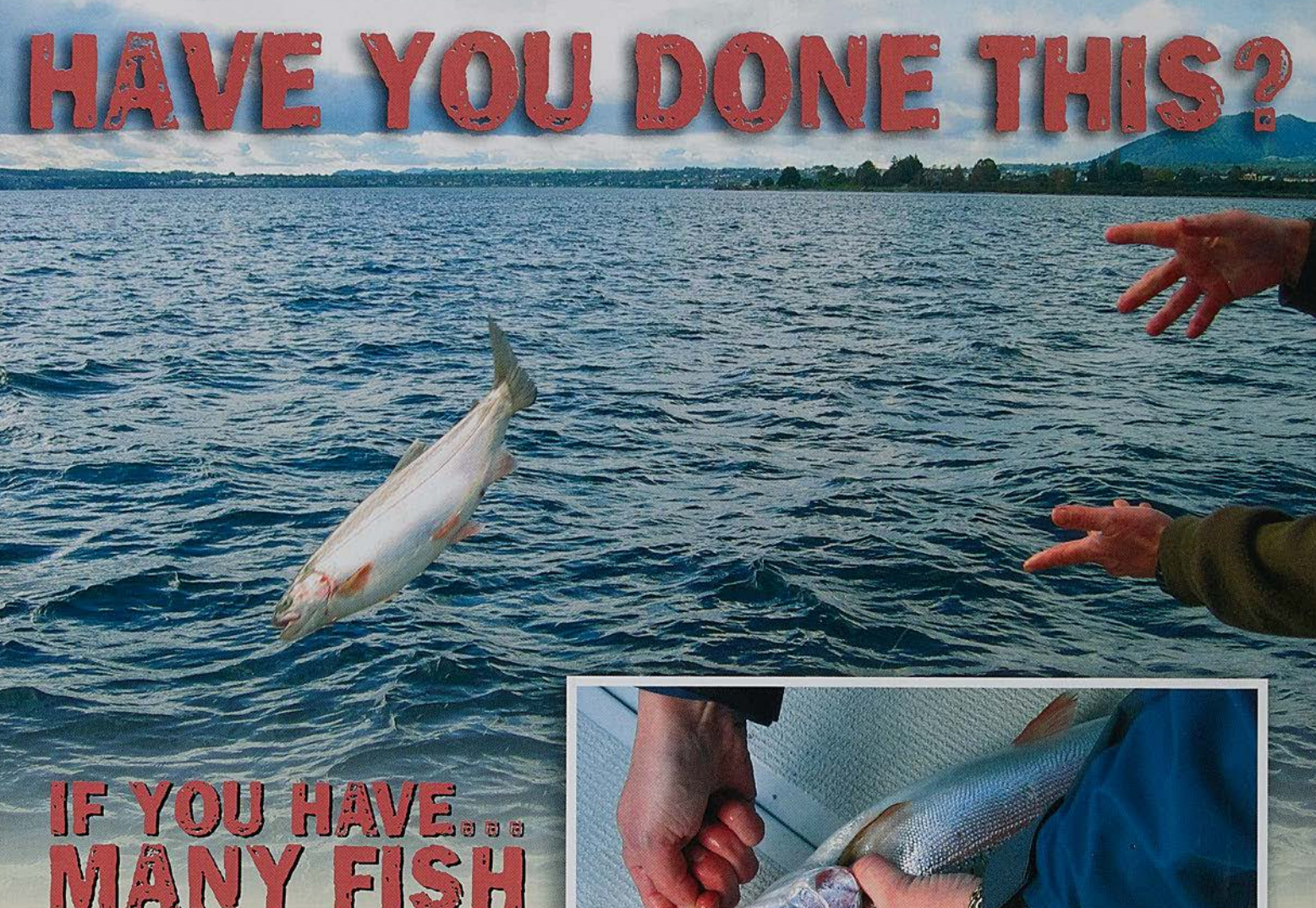
- Trout are now measured from the tip of the nose to the fork or 'V' of the tail.
- There is no size limit at Lake Moawhango or in the Waipakihi River upstream of Rangipo Dam.
- The minimum size is 30cm for Lake Kuratau and the river above the dam.
- The minimum size limit is 35cm for the Waikato River from the control gates to Huka Falls.
- There is no bag limit at lake Kuratau, Lake Moawhango, and the Waipakihi River upstream of Rangipo Dam.

For a full copy of our guide to the 2004 regulations, please contact the Taupo Fishery Area, Turanga Place, Turangi on (07) 386 8607 email: fishinfo@doc.govt.nz or download a copy from the DOC website: http://www.doc.govt.nz/Explore/Hunting-and-Fishing/Taupo-Fishery



Trout are now measured from the tip of the nose to the "v" or fork of the tail, which is consistent with the method used by saltwater and freshwater fisheries elsewhere in New Zealand. Photo: Glenn Maclean

HAVE YOU DONE THIS?



IF YOU HAVE...
MANY FISH

YOU RELEASED WILL HAVE DIED

Every year many Taupo trout die unnecessarily, victims of poor release techniques and rough handling.
Due to regulations such as the minimum size limit, anglers must release some fish they catch. Anglers may also choose to release a fish, if it is not of sufficient quality to eat. Often these fish are kelts recovering from the rigours of spawning. Kelts are very important to the fishery for two reasons. If they are handled carefully they have a good chance of surviving and regaining condition to make a worthwhile catch for another angler. If they survive to spawn again, they are preserving the future of the wild fishery!

So what can you do to ensure the survival of fish that you release?

If possible: Leave the fish in the water and unhook it without touching it.

When fly-fishing:

- Bring the fish carefully to the edge and unhook it while it remains in the water
- If necessary, use a knotless net to control the fish and remove the hook using long nosed pliers or forceps
- Use barbless hooks.

When boat fishing:

- Lean over the side of the boat and use long nosed pliers to twist the hook free, while the fish is still in the water
- If this isn't possible, use a knotless net and carefully lift the fish into the boat
- Leave the fish in the net and without touching it remove the hook using long nosed pliers or forceps
- If necessary, gently support the fish upright in the water until it swims away

Never put your fingers in the gills or squeeze the fish

Department of Conservation
Te Papa Atawhai

for further information contact
The Taupo Fishery Area, Turanga Place, Turangi

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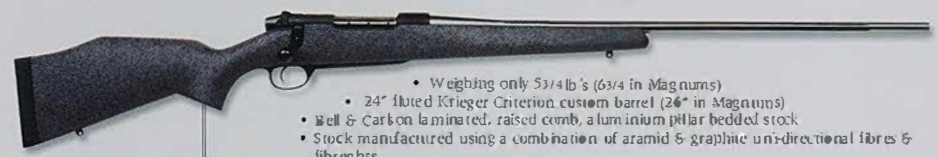

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Sizes 9' 6-7# & 9'6" 7-8#

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WINTER FISHING *update*

by Glenn Maclean

Photo above: Trap operations have been affected by several floods such as this one in mid June on the Te Whetau Stream. Photo: Norrie Ewing

Fishing so far this winter is following a more typical pattern rather than the delayed spawning runs of recent years. The runs have built steadily through June and July in response to the frequent freshes in the rivers,and this is reflected in the number of trout through the trap on the Waipa Stream, a tributary of the Tongariro River (table 1).

The June total does not include the runs over 8 days late in the month when the trap was flooded. From observations of unclipped fish now obvious in the stream above the trap, a large number of additional fish pass over the trap during those days. The trap was also out of commission for two weeks in early March following the 29 February flood.

Species	January	February	March	April	May	June
Brown	2	0	3	11	93	150
Rainbow	62	36	25	106	329	355

Table 1: Run of spawning trout by species trapped in the Waipa Stream January to June 2004.

Overall the number of brown trout trapped is down slightly on the same period last year, but the rainbow total is 25% higher even without the additional fish missed during the floods. With the exception of the Tauranga-Taupo River, fishing in the rivers reflects the building runs (table 2). The decline in the catch rate estimate for the Hinemaiaia in June reflects that the river above the state highway bridge closed to fishing at the end of May, restricting anglers to the lower river only.

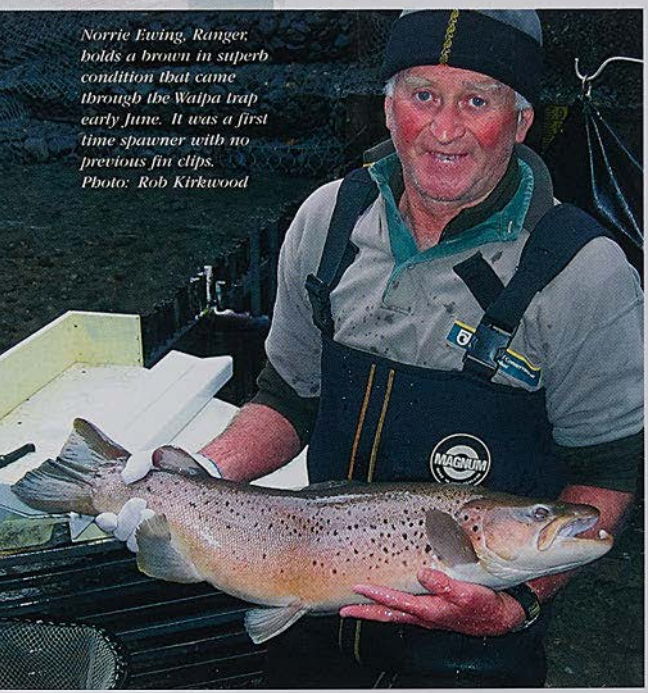
Month	Hinemaiaia	Tauranga-Taupo	Tongariro
April	0.28	0.52	0.13
May	0.39	0.31	0.26
June	0.24	0.10	0.26
Overall	0.34	0.21	0.22

Table 2: Monthly catch rate estimates (fish caught per hour) for the Hinemaiaia, Tauranga-Taupo and Tongariro Rivers April to June 2004.

On the Tongariro the lower river has fished best so far with an average catch rate estimate of 0.27 fish per hour compared to 0.25 fish per hour (or 1 fish for every 4 hours of effort) in the middle reaches, and 0.16 fish per hour in the upper river. However it is also our observation that the upper river has changed the most and those anglers who have started to work this stretch out are now having a lot of success. It is noticeable that the February flood created some great pools but removed much of the smaller "pocket water" which is having the effect of focusing anglers on the main pools. Having said that, a flood of approximately 600 cumecs on 20 June changed the river subtly and has generally improved the fishing opportunities. The river was slow to clear following this flood but since the weekend of 26 June the fishing has been very good to exceptional. In the past we always worked on the first major rain in late June or early July as the catalyst for the runs to really get into full swing, and this is another indication that the runs are following a much more typical pattern this year.

If there was ever any doubt in your mind whether trout can negotiate shallow water: here is a fine example of a fish in the Te Whaiau Stream trying to pass a barrier in only 3 to 4cm of water. Photo: Harry Hamilton

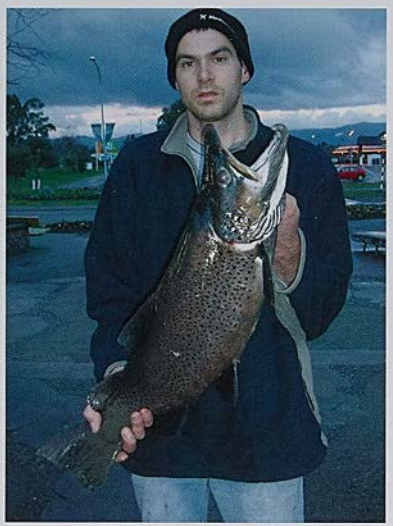
The poor catch rate on the Tauranga-Taupo River during June is out of character given the very good fishing before this. However it appears to have improved again after the recent rain, though generally angling effort is relatively quiet on this river this winter. A feature of the Tauranga-Taupo has been the large size of the fish kept by anglers. These fish have averaged 2kg (4.4lb) compared to 1.7kg (3.75lb) on the Tongariro and Hinemaiaia Rivers. It was noticeable that the fish in lake Taupo were doing very well after Christmas and in excellent condition by late autumn. These fish are now starting to appear amongst anglers' catches and most anglers interviewed recently have been very pleased with the size and condition of the fish.



Norrie Ewing, Ranger, holds a brown in superb condition that came through the Waipa trap early June. It was a first time spawner with no previous fin clips. Photo: Rob Kirkwood

One inconvenience of the frequent freshes is that many of the rivers have not cleared sufficiently over the last 6 weeks to be able to undertake our monthly dive counts of the number of spawning trout. This is not a problem at this stage as the key counts are during the peak spawning in August and September, but until we complete these we are not able to compare the runs in the smaller streams with previous years.

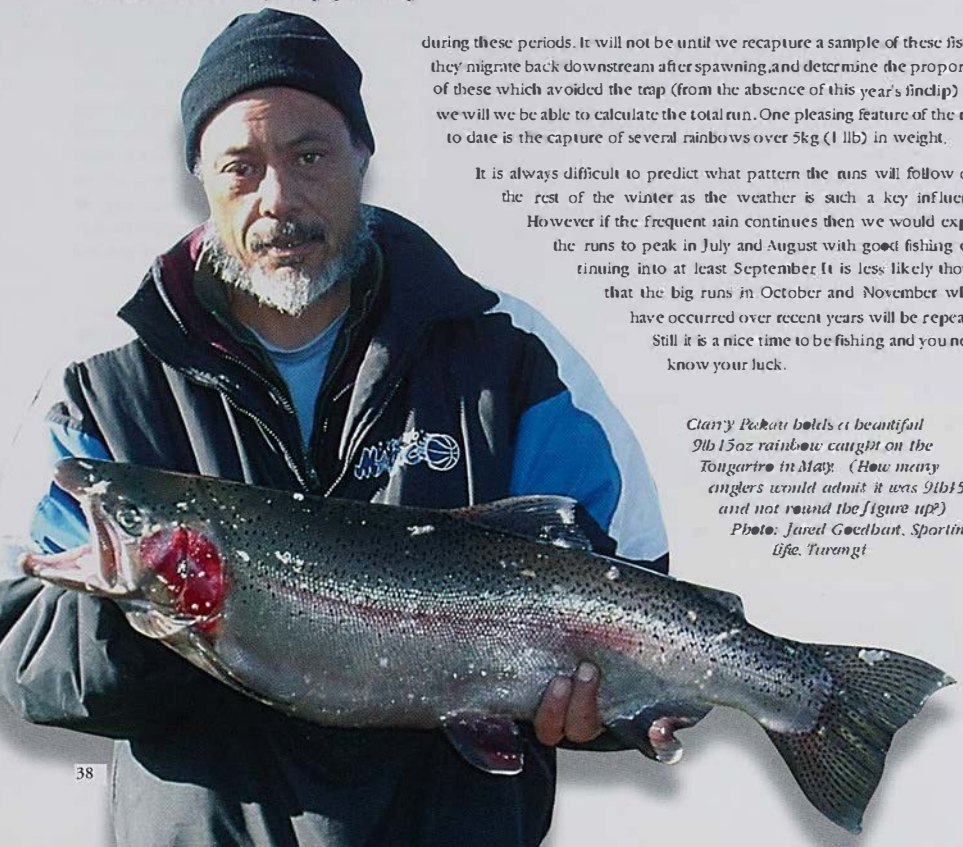
At our Te Whaiau trap which captures the spawning run from Lake Otamangakau, the number of brown and rainbow trout caught is slightly down on the same time last year. However as with the Waipa, this trap has been affected by the floods in June and we have seen many fish by-passing the trap structure.



Left: Iain Maxwell recently caught and released this prime brown at the Hydro Pool on the Tongariro River.
Photo: Simon Cox
Right: Martin Lewis was justifiably proud of this 13lb 2oz brown. The excellent size and condition of fish has been a feature this winter.
Photo: Jared Goedhart, Sporting Life, Turangi

during these periods. It will not be until we recapture a sample of these fish as they migrate back downstream after spawning, and determine the proportion of these which avoided the trap (from the absence of this year's finclip) that we will we be able to calculate the total run. One pleasing feature of the runs to date is the capture of several rainbows over 5kg (11lb) in weight.

It is always difficult to predict what pattern the runs will follow over the rest of the winter as the weather is such a key influence. However if the frequent rain continues then we would expect the runs to peak in July and August with good fishing continuing into at least September. It is less likely though that the big runs in October and November which have occurred over recent years will be repeated. Still it is a nice time to be fishing and you never know your luck.



Clarry Pokai holds a beautiful 9lb 15oz rainbow caught on the Tongariro in May. (How many anglers would admit it was 9lb 15oz and not round the figure up?)
Photo: Jared Goedhart, Sporting Life, Turangi

Taupo Fishery Advisory Committee (TFAC) concerned over releasing fish

Photo right: River anglers should bring a fish carefully to the edge and unhook it while it remains in the water; to minimise handling and increase the chance of survival

In *Target Taupo*, issue 45 the Taupo Fishery Advisory Committee (TFAC) contributed an article on angling etiquette. Now the committee has taken on board a campaign that the Taupo Fishery Area has started, to educate anglers on how to release trout carefully so they have a better chance of survival.

As explained in previous issues of *Target Taupo*, the TFAC comprises representatives of local Taupo angling clubs and also national angling interests, and has a statutory role to advise the Department of Conservation and the Minister of Conservation on matters affecting the Taupo Fishery. They also facilitate communication between the Department and anglers, to keep anglers informed on matters affecting their interests.

It was unanimously agreed at the committee's last meeting that effectively releasing trout is a key message that needs to be sent to anglers. This was prompted by a presentation given to the committee by the Department's Technical Support Manager for the Taupo Fishery, Glenn Maclean. He presented the TFAC with the results of a harvest survey that was conducted in 2000/01. The results showed that 160,000 trout are kept by Taupo anglers each year. However a further 150,000 trout are caught and released back into the water. The results were staggering and made the committee realise that if these released fish did not survive, then the total harvest of trout could almost double. Obviously this would have a huge impact on the fishery.

The TFAC observed that many anglers fishing at Taupo practice poor release techniques,

even with the best of intentions. Research by the Taupo Fishery Area in the past has shown that even though a trout swims away apparently alright, it will still die some hours later if it has been mishandled. As most anglers that fish at Taupo are visitors to the area, the TFAC wants to ensure that the message of releasing fish carefully so they survive, reaches as many anglers as possible.

"If anglers can take on board the need to release fish carefully by following some simple tips, this may prevent the need to put more restrictive catch measures in place", says Graham Whyman, Chairman of the TFAC.

The TFAC sees educating anglers as the first step in the campaign, and encourage all who fish at Taupo to take on board information that is being produced by the Department on this subject. A small brochure has been produced that provides tips for releasing fish successfully. The tips apply to both boat anglers and those fishing on the rivers. A theme running throughout the campaign is that wherever possible anglers should leave the fish in the water and unhook it without direct handling. If anglers follow this simple rule most problems will be avoided.

If you would like further information on this "releasing fish" campaign, please write to the Taupo Fishery Advisory Committee as follows:

Taupo Fishery Advisory Committee
PO Box 327, Turangi, or email the committee: TFAC@xtra.co.nz
They would appreciate your feedback.

If you would like a copy of the brochure "Hooked? Releasing trout so they survive" please contact the Taupo Fishery Area on (07)3868607 or email fishinfo@doc.govt.nz

Photo below: If at all possible, boat anglers releasing fish should leave the fish in the water and unhook it without touching it

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"We have four demo lines all from leading flyline manufacturers and four out of five Tongariro anglers will choose the Rio Longcast line after days of testing. I'm not surprised as Rio Longcast is my first choice of line for the Tongariro River."
- Dean Whyman, Sporting Life, Turangi

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Stop aquatic hitchhikers!

Propellers are a top spot for picking up aquatic hitchhikers. Photo: Anne Brow

by Brigid McKay

Brigid wrote this article as part of her work on the Tongariro/Taupo Conservancy Pest Fish Project

Clockwise from top left:
Catfish
Photo: Bob McDowall, NIWA
Koi carp
Photo: David Rowe, NIWA
Rudd
Photo: David Rowe, NIWA
Gambusia
Photo: Bob McDowall, NIWA

Be part of the solution to protect the resource you enjoy and *stop aquatic hitchhikers!* This is the theme for a fresh phase of action to prevent new species establishing in any of the lakes and rivers in the Taupo district. Unwanted fish and aquatic weeds are the hitchhikers, and you could be providing them with a free lift!

The story so far...in the December 2001 issue of *Target Taupo (issue 38)*, an article titled *'The Search is On"* detailed a nation wide pest fish survey being undertaken by the Department of Conservation (DOC). The aim of the survey was to determine the national distribution of introduced fish species of concern to the Department, namely koi carp, gambusia, rudd and catfish. Issue 39 summarised the Tongariro/Taupo results which confirmed catfish as the only species of concern that has been established for some time in Lake Taupo and the Waikato River. On the local front, DOC (Taupo Fishery Area) monitor catfish closely, as detailed by regular updates in *Target Taupo*. However, koi carp and rudd have moved up the hydro lakes toward Lake Taupo and gambusia was found at the highest point on the Waikato River to date. This indicates that several unwanted species are still moving beyond their former range, putting pressure on lake

Weed caught on trailer axle
Photo: NIWA

Stop aquatic hitchhikers!

users to be extra vigilant to ensure none of these species, or any others, make it into the local waterways.

While several species of unwanted aquatic weed have become established in Lake Taupo there are many other weed species that still pose a significant threat should they arrive. A unique 'weed free' status is held by two lakes in the area.

Regional DOC offices are publicising the issues and informing people how to prevent the transfer of unwanted species. For example, you may have noticed the banners heading into Rotorua calling to *"Keep the BOP koi carp and catfish free"*. Other Regions are promoting a similar message in a variety of ways. This forms the basis for a growing cavalry of water users taking action to confront the issue and stop new species establishing in the waterways they use.

Locally, Tongariro/Taupo Department of Conservation and Environment Waikato are committed to helping you protect the aquatic environment and are developing measures to help achieve this goal.

Why are new species unwanted?

The waterways in the area, particularly Lake Taupo, are under significant pressure from a variety of sources. The introduction of any new fish or weed species will not help this fragile balance. None of the fish mentioned above come with a glowing CV, which is why some of them are listed as unwanted organisms and noxious species. Unwanted fish and weed are guilty of an unpleasant list of freshwater crimes and lessons have been learnt the hard way where they have already become established. These species are generally able to withstand a wide range of environmental conditions and expand quickly to outnumber resident species (the aquatic equivalent to possums!).

Overall, new species of fish and weed unbalance aquatic ecosystems by disrupting food chains and out-competing native species of aquatic plants and animals. They may also pose a threat to the valued trout fishery.

Where are they? The national distribution of the different unwanted species varies. Some water bodies remain free of unwanted fish and weeds while others contain one or more. The risks of transfer between water bodies are three-fold – into, out of, and within a region. To combat this variable distribution it is safest to always take appropriate measures to stop aquatic hitchhikers, no matter what water body you are leaving or arriving at.

Fish and weed don't walk! People are the primary mechanism for moving aquatic species from one water body to another. Intentional transfers are illegal and the legal notes in the box reflect the seriousness with which this is viewed. It is tragic to think that there are people in New Zealand who intentionally release unwanted species into water

Right: Aquatic weed clogging shoreline
Photo: NIWA

Stopping aquatic hitchhikers is simple

...quicker than making a cup of tea!

Weed easily catches on rollers. Photo: NIWA

ways. These individuals are contributing to environmental catastrophes and clearly have no consideration for the on-going environmental, economic and social costs of such an act.

But how does this affect me? Imagine.....

- The trout fishery threatened by a new species of fish eating juvenile trout and competing for smelt, the main food for trout in lake Taupo;
- Native species – koura and koaro, being pushed to the brink with the introduction of voracious predators;
- Water quality in shallow lakes, bays and wetlands becoming degraded due to the bottom feeding nature of fish (koi carp feed like vacuum cleaners – sucking up everything then blowing out what they don't want);
- A lake that has the shallow margins clogged with aquatic weed – not pleasant for boating, swimming or fishing, or as a habitat for trout or native plants and animals.

The arrival of any of these unwanted species would have a real impact on what now value in the Taupo area.

Prevention is better than cure

Ensure you don't unwittingly contribute to the transfer of fish or aquatic weed into places where they do not exist. It is likely most releases are accidental. Always check your boat, trailer and fishing gear for aquatic hitchhikers and encourage others to do the same. Many of the lakes, wetlands and rivers in surrounding districts contain unwanted species not found in the Taupo district, so boats and anglers regularly moving between these waterways present a real risk. Fish lay eggs on weed and juveniles use it for shelter. These eggs or juvenile fish can be transported between water bodies on weed that may be caught on your boat, trailer or fishing gear. Some species of aquatic weed can grow from very small fragments to colonise new areas.

Checking the boat and trailer

Checking the boat and trailer need not be an additional task. Incorporate the check for hitchhikers into your pre-departure walk around to check tie downs, attach the pre-

Conservation Act 1987:
To introduce any live aquatic life (native or introduced fish, plants or invertebrates) into an area where they don't already occur you need a permit from the Minister of Conservation, otherwise you could be liable for a fine of $5,000.

Noxious species:
(Freshwater Fisheries Regulations 1983). People who possess, control, rear, raise, hatch or consign Koi Carp or Rudd without authority are liable for a fine of $5,000.

Unwanted organisms:
(Biosecurity Act 1993) It is illegal to release, spread, sell or breed Gambusia or Koi carp. There is a $100,000 fine or five years imprisonment for people caught doing so.

PLACES TO CHECK ON THE BOAT & TRAILER

peller flag, check lights and so on. Don't forget that if you have left the trailer in the water for some time fish may be hiding in the open channels of the trailer frame. Live catfish have been found lurking in a steel channel section of a boat trailer that had been towed from Motuoapa to Lake Rotoiti.

Fishing gear

Check - landing nets, downrigger, waders.

Be a voice for the waterways

If you see or catch an unwanted species it means that prevention measures have broken down. In a lake the size of Taupo, eradication of a new species of fish or weed would be extremely difficult and early detection may be the only way. As a user of the Tongariro/Taupo lakes and rivers you play a key role by being the eyes and ears for the waterways, and informing DOC of anything unusual.

- Report any sightings of these or other unfamiliar fish to DOC as soon as possible (note the location, and if possible collect a sample and freeze).
- If you see people releasing fish (other than trout) or emptying aquaria, contact your local DOC office as soon as possible. Take details of the person and vehicle registration.

For more information contact the Tongariro/Taupo Conservancy office or check out the DOC website (www.doc.govt.nz)

There are several links to fish and aquatic weeds, follow:

- conservation, biosecurity, freshwater fish
- conservation, weeds, aquatic weeds
- conservation, animal pests, pest fish

Pick up a durable quick reference ID guide available soon at key outlets, collect from the Environment Waikato Taupo office or the Tongariro/Taupo DOC office.

New LICENCE FEES for 2004/05

– Where Does the Money Go?

by John Gibbs

John is the Taupo Fishery Area Manager. He has fished Lake Taupo since the 1950s and his working involvement with the fishery goes back to 1964.

Early Taupo licence buyers will have noticed increases in most fees for the new season.

Adult Season licences are up $2 to $68. Adult Week are now $30.50 and Child Season are unchanged at $10. Of particular interest are two new categories of 24-hour licence replacing the old One Day licences. For $13.50 (adult) and $5.50 (child) anglers can now fish over a 24 hour period from the nominated time of commencement (except for the prohibited hours of midnight to 5am).

Most Taupo licence fees have not changed since 2002 – even longer for children's categories – and revenue had fallen behind inflation. The new fees have been introduced to meet the financial needs of managing the fishery and ensure its' ongoing sustainability.

Many anglers and others assume that because the Taupo fishery is managed by DOC, a government department - rather than by a fish and game council, that it is also funded from taxpayer funds. In fact, Taupo is treated no differently than any other sports fishery and is totally reliant on the revenue from licence sales for its management. So fees need to be set at a level that recovers those costs and ensures fair value for money for anglers.

Actual feesetting is a little different here though. Rather than being determined by the Minister of Conservation on the recommendation of the New Zealand Fish and Game Council, Taupo fees are set by the Minister with the concurrence of the Tuwharetoa Maori Trust Board representing the owners of the beds of Lake Taupo and its tributaries. This process starts with DOC determining fishery management costs, consulting with the Taupo Fishery Advisory Committee and the trust board, and recommending fees to the Minister and the board.

Every dollar generated from licence fees (exclusive of GST) goes back into the management of the fishery. The Crown also pays the Tuwharetoa Maori Trust Board for general public access to and use of Lake Taupo. Although indexed to fishing licence and boating revenue, this payment actually comes from general tax money in recognition of the access and use benefits to the country as a whole.

Why is so much money needed?

Licence fees for the new season are expected to generate a GST-exclusive revenue of $1.52M, all of which is devoted to the management of the trout fishery. Some people are surprised that such a large sum is gathered but are often unaware of the breadth and complexity of management actions necessary to sustain the resource.

The Taupo catchment supports about 40% of the country's trout fishing. Regular readers will know from the last issue of *Target Taupo* that our 65,000 licence holders make a quarter of a million visits to the fishery each year, fishing for three-quarters of a million hours. They catch about 240,000 legal size trout, harvesting some 160,000 of these, or 270 tonnes.

But most of this effort comes from visitors to the district and thus the downstream economic benefits are much greater to both the local and national economies. Our best estimate is that the fishery generates something like $70M into the economy each year. And all this is supported by anglers' licence fees.

Where is the money spent?

Each year a business plan is developed by the Taupo Fishery Area. This is based on the statutory directions of the Conservation Act and the strategic directions of the Taupo Sports Fishery Management Plan.

The business plan describes the work to be undertaken in the financial year to maximise angling opportunities and ensure fishery sustainability. It includes a budget, expected outputs and performance measures for that work. The work is grouped into similar categories or programmes which include routine and ongoing tasks as well as short-term or one-off projects. Programmes for this year include the following.

Fixed Costs: These are all the staff, administration, asset, infrastructure, communications and transport costs for the Fishery Area. Some of these (eg. specific salary costs) are apportioned

to other programmes when they are incurred. Cost this year: $1,042,832 and 38% of the 35,968 hours of staff time.

Community Relations: Includes servicing the Taupo Fishery Advisory Committee, liaison with other stakeholders and the general community, production of brochures and publications (including this magazine), maintaining the fishery component of the DOC website, angling information, displays, development of the Tongariro National Trout Centre and general media and fishery advocacy. Cost this year: $182,900 and 5% of staff time.

Licensing: Production, distribution and administration of our licences and sales network, including sales commissions, will cost $162,032 and 4% of staff time.

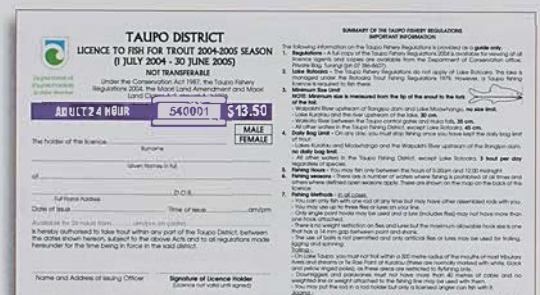
Field Operations: This is a broad programme that includes all field work associated with fishery monitoring projects, such as trapping and counting spawning trout, juvenile trout sampling, habitat inspections, catfish surveys, anglers' catch, effort and satisfaction surveys and associated compliance checks. Direct costs $75,568 and 20% of staff time.

Compliance and Law Enforcement: Targeted enforcement operations, offence management, prosecutions and enforcement training are the main activities. As with field operations, these are largely staff- and transport-intensive and so the actual additional operating cost is small at $5,100 plus 6% of staff time.

Visitor Assets: The Area manages and maintains a number of access roads, tracks, information signs and structures such as bridges for anglers. Clearance of willows, protection of trout habitat and maintenance of fish passage as well as daily operations of the trout centre and trout production for the children's fishing programme will cost $87,702 and 13% of staff time.

Technical Support: Includes development, analysis and reporting of monitoring projects, provision of technical advice, input to statutory planning processes (resource consents, plans, etc), fishery management planning, fishery research projects and head office and ministerial support and servicing. Technical contracts associated with the Tongariro, Hinemaiaia and Kuratau power schemes' resource consents, while largely externally-funded, are included here. Cost this year: $41,285 and 14% of staff time.

The total expenditure for the year is $1.6M.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MALE FEMALE

SUMMARY OF THE TAUPO FISHERY REGULATIONS
IMPORTANT INFORMATION

Autumn fishing on the Tongariro River. Photo: Rob Kirkwood

Where does it all come from?

By far the greatest proportion ($1.52M) of the fishery budget will be funded from licence revenue. Lesser amounts will come from contract work for resource consent holders ($32,000), consent mitigation funding ($40,000), and rents, fines and resource rentals ($11,500).

Not only are our licence fees scrutinised by fishery stakeholders, but they also get a thorough examination by other government agencies, including Treasury, Te Puni Kokiri and the Ministry of Tourism. The fees are also required to meet the Treasury and Audit Office guidelines and constitutional principles on setting fees in the public sector. Because the notices are deemed to be regulations, they must also undergo scrutiny from Parliament's Regulations Review Committee.

With all these hoops to go through and with the experience and expertise of the fishery management team, we believe that Taupo fishing licences provide excellent value for money for users of one of the world's finest rainbow trout fisheries.

Measuring your trout

by Petrina Francis

As already discussed in the article in this issue on the 2004 Taupo Fishery Regulations, one of the important changes is to the way trout are measured. Previously trout were measured on overall length, from the tip of the snout to the tip of the tail. Now the measurement is specifically from the tip of the nose to the "V" or fork of the tail. This is consistent with the way both saltwater and freshwater fish are measured around the rest of the country, and this consistency should make it easier for anglers to remember the rule.

This end of the measure should be placed flush against a vertical edge to make it easier to measure your trout quickly

To assist you with this change, we have produced a fish measure and one will have been included with this copy of *Target Taupo*. The measure has been designed as an adhesive label that can be stuck on an existing measuring board, boat seat or fish bin lid. We recommend that it is applied so that the end with the nose of the fish is flush with a vertical edge. This will mean that when you do catch a fish, it can be quickly measured by placing it on the label and nudging the nose against the vertical edge: it should be simple and fast to work out if the fish is undersize or not.

When measuring trout, try to reduce the impact on the fish by either keeping the fish in the net and gently placing it on the measure, or if you must handle the fish, wet your hands first. Or, rather than lifting the fish into your boat, why not take your measuring board to the fish? This will mean that it can be quickly measured over the side of your boat minimising the amount of time the fish is out of the water.

Remember, trout caught in Lake Taupo and most of the tributary rivers must be at least 45cm long from the nose to the fork of the tail. Other parts of the Taupo District have different minimum length requirements and we suggest you familiarise yourself with the new regulations, so you are not caught short!

aquatic and wetland weeds

by Nick Singers

Nick is a botanist and Technical Support Officer for the Tongariro/Taupo Conservancy

In this article, Nick explains the precarious situation we are currently facing with aquatic weeds in the Taupo area.

Hydrilla verticillata is one of the world's worst aquatic weeds
Below: Glyceria maxima is the greatest marginal aquatic threat to the lake Taupo area
Photo: Bill Amber, DOC

How aquatic weeds spread

The spread of aquatic weeds around the North Island has been relatively rapid. Oxygen weed *(Lagarosiphon major)* was first recorded in the wild in 1957 in the Hutt Valley and now very few lakes are free of this ecologically destructive and recreationally impeding weed. New Zealand's largest lake, Lake Taupo is no exception and has six of the worst aquatic weeds found in New Zealand.

Canadian oxygen weed *(Elodea canadensis)* was the first weed to arrive in Lake Taupo in the early 1950s and is now widespread. In comparison with other weeds it is relatively benign and tends to live alongside native aquatic species rather than dominate them. Two of the most ecologically damaging species, oxygen weed *(Lagarosiphon)* and hornwort *(Ceratophyllum demersum)* are now also widespread in Lake Taupo. Oxygen weed was first recorded in 1966 and by 1979 had occupied most suitable sites in the lake. Hornwort was first discovered in the Tokaanu tailrace in 1980. More recently in 2000, another larger oxygen weed, *Egeria densa* was discovered growing at three sites in Lake Taupo with the largest at the Timpo boat harbour. Egeria is unlikely to have much impact as its habitat is already dominated by lagarosiphon and hornwort. In Lake Taupo egeria, like the other weeds and native plants, is restricted by environmental conditions such as wind fetch, wave height and water quality.

Hornwort and egeria were recently discovered growing in Lake Otamangakau. Here these species are likely to exacerbate weed problems displacing the remaining native plant species, as well as causing greater problems for boat travel and fishing.

All of these weeds have been brought to Lake Taupo either through deliberate introduction or attached to boats, trailers and equipment. Only two lakes present within the Taupo fishery area are presently free of aquatic weed species, Lake Kuratau and Lake Rotopounamu in Tongariro National Park. Both of these lakes have a high diversity of native aquatic plant species and associated species found in these habitats. It is crucial that we preserve these last two remaining weed free zones.

What are the ecological impacts of aquatic weeds?

The littoral zone is the area where plants grow in lakes and ponds. This zone ecologically is the most productive, providing food and shelter for a variety of plants, insects, crustacea and small fish. Prior to invasion by

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Purple loosestrife is a bright coloured perennial noted around by gardeners

Photo Crown Copyright Department of Conservation Te Papa Atawhai

aquatic weeds, lake Taupo's littoral zone occurred from 1 to 15m below the surface. The native plant communities here were relatively short and open. Insects, koura and small fish could easily move throughout them, but still find plenty of refuge from foraging trout. Trout used this habitat extensively and the animals that lived there were the important components of their diet.

Most aquatic plants (native and exotic) tend to favour and thrive in sheltered habitats. With increasing disturbance associated with fetch and wave height, the diversity, density and height of plant species decreases. The most exposed sites have no plants at all. Lake Taupo (when compared to other lakes such as the Waikato River hydro lakes) has fewer sheltered areas susceptible to aquatic weed invasion, such as shallow bays protected from prevailing winds. Most of the western shoreline is unsuitable for aquatic plants, being lined with steep cliffs and deep water and much of the eastern shoreline is very exposed and so unsuitable. It is only the sheltered bays such as Waihi and Motuoapa in the south and sheltered aspects of the northern bays which are very vulnerable to aquatic weed growth.

Today in most bays, aquatic weeds have displaced large areas of native plants while in more exposed sites they are present but shorter and less dense. In sheltered bays oxygen weed and hornwort together have created virtual aquatic forests smothering water depths from 2 to 9m. However the ecological impact of aquatic weed invasion into Lake Taupo is greater than just displacing native plant species. These dense "aquatic weed forests" drastically reduce the diversity and abundance of most insects and small fish, as the water oxygen content within them is often so low that these animals cannot survive.

However some of the impacts of the invasion of lake Taupo by aquatic weeds have been less obvious. The black swan population in the southern end of the lake has increased as a result of invasion by these aquatic weeds. Swans graze the aquatic weeds to approximately 1m below the surface and prevent surface reaching beds forming. Without their presence boat travel through Waihi Bay would be substantially more difficult. The dense aquatic weed beds also provide shelter from predators for koura. Koura preferentially graze native plant species and have caused these plants to become absent from areas around many of these dense weed beds.

One of the reasons this invasion of aquatic weeds occurred is that unlike native forests, New Zealand's aquatic plant ecosystems have no defence against invasion by introduced weed species. A single small fragment of an aquatic weed is sufficient to turn a pristine habitat dominated by native species, into a lake thick with surface reaching weed beds. In many sheltered lakes where this has occurred virtually all native plant species and associated fauna have been replaced and the ecology of the lake is permanently altered.

How can we control aquatic weeds?

Most aquatic weeds are soft, easily broken and are well adapted to being spread vegetatively by small fragments of stem. Practical methods for controlling aquatic weeds are few and restricted to gel herbicides, suction dredging, hand pulling, weed matting, cutting and biological control. Suction dredging costs about $1000 per m² so a single hectare of weed could easily cost $10,000,000 to control. The most common form of biological control is the use of grass carp, however this is only practical in small lakes or drains as a large number is needed to cause a major impact. The Department of Conservation recently investigated the options of using biological control for *Lagarosiphon major*. However this programme was abandoned as it was decided that if control could be achieved for this species, then other aquatic weeds would merely take its place.

Eradication of aquatic weeds is only practical and economically feasible for small restricted infestations and nationally has only been achieved in a few small sites. At Rosie Bay in Lake Waikaremoana a small infestation of *Lagarosiphon major* has almost been eradicated using hand pulling and the placement of polythene matting to prevent light reaching the weed. Regular and repeated surveillance is now required to remove any of the last fragments remaining before complete eradication is assumed.

Future problems and surveillance species for Lake Taupo

There are at least 50 species of introduced aquatic plants growing wild in New Zealand. Many of these still have limited distributions, such as hydrilla and phagmites which are regarded as some of the worst aquatic weeds in the world. In comparison to other areas Lake Taupo has few aquatic weed species, though several are moving up the Waikato River and getting closer all the time. However numerous other species are present in New Zealand and being sold and distributed for the aquarium trade. In 2001 NIWA surveyed the aquarium trade and discovered 180 different species sold commercially. Disturbingly, 65 of these had not been previously been recorded in the country. Clearly, while the "front door" entry of plants into New Zealand is restricted, through the formal environmental impact assessment process (ERMA), the "back door" is wide open and nursery owners and aquarium keepers are bringing new plant species into New Zealand, without regard to the consequences to our environment.

In a recent review of aquatic and wetland weeds for the Taupo area, five species were identified as being key threats.

Hydrilla (*Hydrilla verticillata*) (see photo page 48) is a very competitive aquatic weed that forms dense monospecific aquatic forests displacing all other plant species. It is one of the worlds worst aquatic weeds. Currently it is very restricted to Lake Tutira in the Hawke's Bay and four other small lakes and ponds nearby. If hydrilla got into Lake Taupo it is expected that it would outcompete oxygen weed in sheltered bays.

A sign beside Lake Kuratau reminds all users that it needs to remain free of weeds
Photo: Petrina Francis

Additionally it is likely that it would further invade the more exposed lake shore habitats where oxygen weed is rarer and native species dominate.

Four other species of concern are plants occurring on stream margins and in wetland habitats. If any of these established in the Lake Taupo region, they would easily smother small spring fed streams such as the Tokaanu Stream or Waitahanui River. In doing so they would directly impact trout by preventing or limiting upstream migration and spawning. Additionally they all would impact on recreation users, hindering access and use of water ways. However there would also be significant impact on wetlands and waterfowl. Any shallow ponds or wetland areas which are habitat for dabbling ducks or wading waterfowl, such as Australasian bitterns would be smothered by these species. In doing so there would be a corresponding decline of these species in this area.

Of these marginal aquatic species, reed sweet grass (*Glyceria maxima*) (see photo page 48) is presently the greatest threat to the Lake Taupo area as two infestations have recently been discovered in the catchment. It is also spreading up the Waikato River. One of these infestations

Picturesque Lake Kuratau is special, not only as a unique place for anglers to fish but as one of only two weed-free lakes in the Taupo District.
Photo: Petrina Francis

is currently being controlled by the Taupo Fishery Area, while further survey is being undertaken at the other site to accurately determine where it is and how large it is before control is initiated. Two other species are less immediate threats though could turn up at any time. Alligator weed *(Alternanthera philoxeroides)* occurs in the Waikato River system but also was recently discovered growing at Taumarunui. Purple loosestrife *(Lythrum salicaria)* (see photo page 50) is a brightly coloured perennial, which though banned from sale, is still being moved around by gardeners. It is one of the worst wetland weeds in the USA and is known in the North Island from Wanganui to Wellington. Finally, *Phragmites australis* is a huge grass similar to bamboo growing up to 4m in height. This weed is rare in New Zealand though previously has been recorded at Murchison, Hawkes Bay and Canterbury.

What can you do?

The best form of controlling the spread of new species is preventing them getting there in the first place. The responsibility lies squarely on the shoulders of those who use the lakes and requires diligence and responsibility in ensuring clean boats, trailers and fishing gear before entering a new lake. The article on page 41 of this issue entitled "Stop Aquatic Hitchhikers" gives practical advice for boaties on how to check their gear for "hitchhikers" which could be transferred to a weed free zone.

We urge all anglers that use our lakes and rivers to do their bit to stop the further invasion of these weed pests, and to take practical and responsible steps now, before it is too late, to protect Lake Taupo from greater threats and keep our two weed-free and special lakes pristine.

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SUCCESSFUL WOMEN'S ANGLING SEMINAR

by Petrina Francis

Petrina is our Programme Manager Community Relations

Photo above: Professional guide Carol Harwood, gave a practical talk on fly-fishing before the outside casting demonstrations

Our first ever angling seminar designed especially for women was a real success. Held on Queen's Birthday weekend, June 5th, at The River Walk, Tongariro National Trout Centre, the seminar incorporated indoor presentations as well as outdoor fly-casting demonstrations.

Petrina Francis, gave a presentation covering the life cycle of trout, how the Taupo fishery is managed, and tips on fishing for trout on Lake Taupo including methods, rigs and seasons.

Carol Harwood, a professional guide in the Turangi area provided an indepth look at fly fishing equipment and addressed some of the concerns women have who are interested in taking up the sport. Bronwyn Wilson, a leading New Zealand fly tier demonstrated her expertise and tied flies as a group of interested women looked on.

The sun shone at just the right time, as everyone went outside and tried their hand at fly-casting. A generous morning tea kindly provided by Bronwyn Wilson and a display of women's fishing gear by Sporting Life added to the atmosphere on the day.

Enthusiastic appreciation from the thirty four women who attended, as well as favourable comments afterwards, confirmed that there is a place for seminars specifically for women, and so we intend to run others in the future. Our very popular summer angling seminars will again be held over the Christmas period this year. These seminars are held outdoors and provide information for both novice and regular anglers fishing the lake. We will confirm the dates for these seminars in the November issue of *Target Taupo*.

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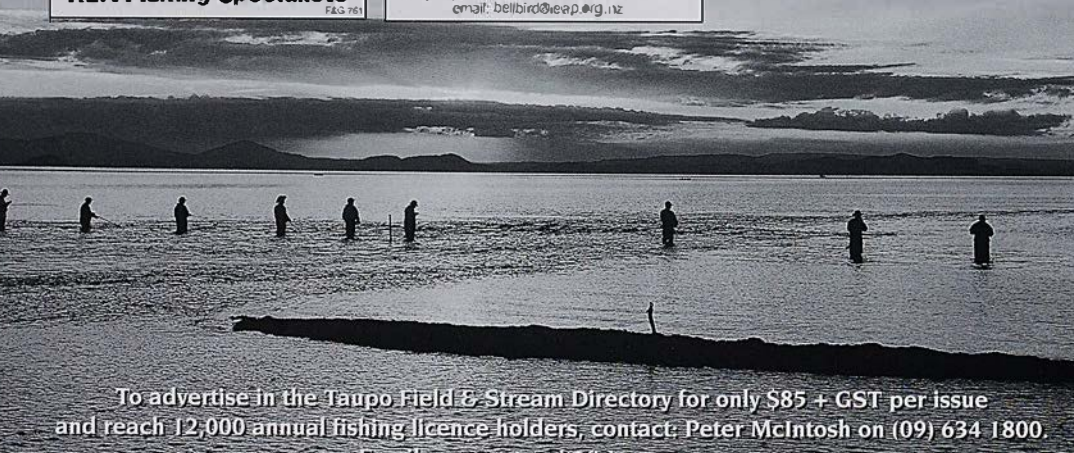

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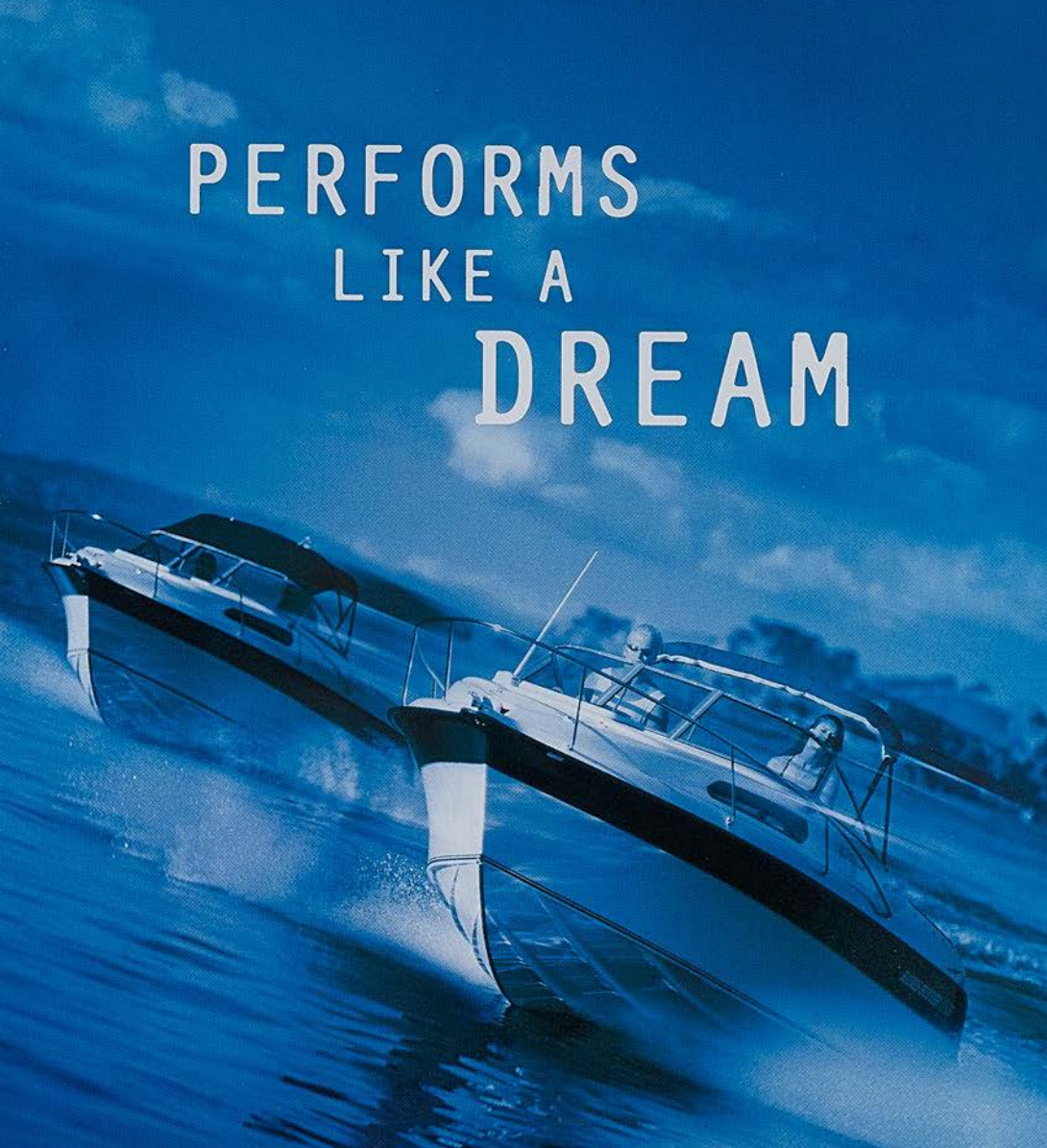

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