
TARGET TAUPŌ

#65

Issue 65 / December 2012
A MAGAZINE FOR TAUPŌ ANGLERS

Restoring the Early Run: Act 3
Winter Fishing Summary
Exploring Future Opportunities





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Front cover: Shaquille Dempsey from Turangi, aged 17, has been fly-fishing from a young age.
Photo by: Kim Alexander-Turia

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FISHERY FOREWORD



A big welcome to this 65th edition of Target Taupō. We hope that you enjoy the content of Target Taupō, as well as the brand new look.

By Dave Lumley
Area Manager

I'm writing this brief foreword in the early afternoon from a quiet location where I have a stunning view of great Lake Taupō with the rugged Kaimanawa Ranges as a backdrop to my east. I'm thinking about fishing from a personal perspective, as tonight (if Tamati's forecast of light winds is accurate) I will be fishing on this magic lake with my lovely wife and, if the last week's excursions are anything to go by, we will catch some fine Lake Taupō trout. To do this, we will set off from the Kuratau boat ramp in our modest 14-foot runabout and spend a very enjoyable evening trolling or harling our way around Kuratau Spit and the river mouth. Another bonus about the boat is the ability we have to take friends, visitors and family out on these early summer evening excursions and especially the opportunity to introduce our three young grandchildren to fishing for trout.

That pesky northerly is quietly easing, the white caps evident earlier at the Tongariro Delta are gone and it's shaping up to be a lovely evening on the lake. However, there is a disappointment here for me and that's that there is no other boat in sight. And I know that at most we will see only two, maybe three boats out later this evening. Why is that a problem I can hear many of you ask? Well, from a purely selfish viewpoint - it isn't for me. I don't like crowds and therefore I do most of my lake fishing from now prior to Christmas before the crowds arrive. However, to be truly world class, this fishery needs more anglers. From the data we collect from licence sales, angler participation in the Taupō Fishery is down 22 % from 2005. Adult licence sales are down from 12,557 in 2006 to 9,791 as at June 2012.

We can guess at the reasons for this; however, we are hopeful that the online survey that has been a part of the review of the Taupō Fishery will provide us with some clear indications. The review is all about obtaining a current, clear snapshot of the fishery in its widest sense and using the recommendations for improvement to ensure that we can all have a world class, sustainable fishery into the future. This is where you anglers come in. The lake fishing right now is superb and you don't have to employ any particularly difficult fishing techniques to catch good fish. It's your fishery - you need to get out there and enjoy it. I know my fishing mate and I will tonight.

Another great evening, recently trolling on Lake Taupō.
Photo by Kim Alexander-Turia

By Dr Michel Dedual / Fishery Scientist
and Elizabeth Heeg / Ecologist

RESTORING THE EARLY RUN: ACT 3

Stocking trout is not new in New Zealand; in fact, many salmon and trout populations were established through stocking rather than colonization, so there is a long history of liberations in this country. The use of systematic stocking to increase population size stopped when it became apparent that in most waters natural production was sufficient to support a sustainable fishery. Enhancement stocking was undertaken in some Taupō spawning streams to compensate for wild trout eggs taken for hatchery production, but stopped in the late 1970s and in virtually the entire country (except in the Rotorua lakes) shortly after.

However, since the end of the enhancement stocking programme many experimental and accidental fish releases occurred in Taupō waters. We found in the fishery archives records that at least 58 releases, involving 526,167 hatchery trout, had occurred between 1980 and now. Most of these releases were done as a way of conveniently disposing of the surplus of fish that were produced at the Turangi Hatchery, now the Tongariro National Trout Centre. However, some of these releases had scientific purposes mostly targeted at determining the growth rates and the age of adult trout returning to spawn. Taupō trout are difficult to age, but one way to obtain this information is to mark and release fish of a known age reared at the hatchery and then record the date when they are recaptured in traps as they return to spawn.

Another type of experiment was carried out to explore if the progeny of large parents were also growing into large fish. We haven't found any records documenting the results but we can assume that it wasn't manifestly successful; otherwise such a programme wouldn't have stopped. Some other experimental releases were made to look at a very similar issue to the purpose of our research programme. For instance, fish running early in some streams were reared and released in other streams they weren't known to return to. Unfortunately, here again, we couldn't find any record on the success of these operations.

In addition to these experimental and 'convenient' releases, some accidental releases of hatchery fish also occurred. For example, in February 2004, the



Bernard Stanley fishing the
Tauranga-Taupō.
Photo by Anna McKnight



hatchery building and children's pond were flooded and more than 5,000 fingerlings escaped into the Tongariro River system. However, most of these returned within a few weeks back 'home' when large numbers of these fish could be seen in front of the viewing chamber at the Trout Centre.

The New Zealand experience is an example of colonial rainbow trout succeeding beyond expectation, despite the potentially negative population effects of introductions and translocations. Unfortunately, many stocking programmes did not keep complete and accurate records, and the effects of stocking were poorly studied until recently. Thus, the history of stocking and its potential outcomes is poorly understood for most New Zealand fisheries.

A four-year long baseline study of the genetics of rainbow trout, undertaken since 2008, has provided strong evidence that Taupō waters have experienced multiple introductions from more than one source. Taupō trout most likely originate from a combination of coastal (like Sonoma Creek) and inland (like McCloud River and/or Lake Almanor) California populations.

Some rainbow trout brought here from California coastal streams were likely to be steelheads (rainbow

trout that grow in the sea prior to returning to spawn). Steelhead run at different times of the year but most of them spawn in spring. In the northern hemisphere, 'summer-run steelheads' migrate between May and October (equivalent to November–April here). When they run, these fish are 'green' and the completion of maturation occurs in the river before the fish spawn the next spring (September here). 'Winter-run steelheads', on the other hand, mature fully in the ocean before migrating, between June and October (here), and spawn shortly after.

In the Great Lakes in North America rainbow trout were also introduced from populations of steelheads from several sources. There they have also evolved into distinct fish types running at different times of the year, depending on their origin. Some have evolved into summer-run and some into winter-run but they mostly spawn in spring, although the Michigan Department of Natural Resources reports that more steelhead are beginning to spawn in autumn.

A diverse genetic background from multiple founding populations may also have helped Taupō trout to adapt more successfully to their new habitat with greater genetic resources than their founding populations contain individually. As we mentioned earlier, the original steelheads run from summer to

autumn but virtually all of them spawn in spring. In Taupō, something else has occurred. Rainbow trout here evolved into populations that migrated in the rivers and spawned over a very long period stretching from March to November. We are not aware of any other places in New Zealand or around the world where rainbow trout have such an extended spawning period. However, as we explained in previous issues of *Target Taupō*, during the past 10 years or so the early part of the Tongariro spawning run has been declining with peak spawning now occurring later in the year. The exact causes of this shift in spawning migration timing are not fully understood.

What are the possible causes of the early run decline? Changes in fish populations are generally due to combinations of changes in environmental conditions, in fishing pressure or selectivity, or in predation. A fishery is a balance between mortality and production. When the mortality level is higher than production the population declines and when mortality and production remain equal the population stays stable. Therefore, this requires not only an assessment of the status of existing populations but an appraisal of the environmental conditions that may limit production. These assessments must be based on firm evidence and not hearsay or unsubstantiated complaints.

It is well known in commercial fisheries that fishing may result in genetic changes in fish populations. In addition, deleterious changes in population characteristics, such as life-history traits, behaviour and mortality have also been reported to result from commercial fishing pressure. Fishing selectivity in recreational fisheries has not been as heavily documented due to an absence of long-term monitoring and the lack of knowledge on unfished populations. Nevertheless, more than 20 years ago, research in Europe already suggested that different levels of angler exploitation may alter the genetic potential for growth and aggression in wild trout and that angling tended to select for larger, faster growing, more aggressive individuals.

In light of this, by analysing the genetic make up of fish caught in the lake throughout the year, we investigated if fishing in Lake Taupō is selectively targeting early running trout. We didn't do this in the river because fishing in the river early in the season will obviously target early running fish. There was no clear indication from this analysis that fishing was selectively removing one particular genetic type. Fish were sampled every month and the proportion of both types of fish didn't change throughout the year.

LEFT
Lake Almanor, California, likely home of origin for introduced Taupō trout.
Photo by Dr Michel Dedual

BELOW
Fishery rangers Mike Hill and Harry Hamilton releasing project trout into the Tongariro.
Photos by Ray Bond

'Changes in fish populations are generally due to combinations of changes in environmental conditions, in fishing pressure or selectivity, or in predation'



However, as we will see later, this doesn't mean that fishing has nothing to do with the shift in running timing or the decline in abundance.

Trapping in several Taupō streams indicates that production (the number of trout) and mortality (the number that die) are highly variable from year to year. For example, the largest and lowest spawning runs through the Waipa trap were recorded in 2005 and 2010 when 8,000 and 2,000 fish returned to spawn respectively. The extent of fluctuations in total mortality is even better illustrated by another set of trap data. Each fish that returns to spawn for the first time (maiden) has a particular fin clipped. The next year, it is possible to recognise and count how many fish are returning for the second time by identifying the fin clip. This allows an estimate of the total mortality (natural plus fishing) that has occurred during that year. The data indicates that the total mortality can fluctuate from 10 % to 90 %, a change of almost ten-fold! A closer examination indicates that the total mortality is strongly correlated with the average abundance of zooplankton in the lake. This in turn suggests that the productivity of the lake is the most important driver of the total mortality that affects the adult trout population. Most of this adult fish mortality reflects the conditions that exist in the lake where fish return to recover after spawning. If feeding conditions in the lake are good (abundant and available smelt) then the recovery will be quick and mortality low.

Fishing mortality is better correlated with fishing pressure than with trout abundance. However, fishing pressure has consistently declined since 2000 when it reached a peak, suggesting that fishing mortality has also declined. This suggests further that natural conditions are the key drivers of the total adult trout mortality. Angling exploitation in Taupō waters, obtained from diverse tagging experiments, ranges between 25 % and 30 % of the catchable population. However, this may be a minimum exploitation rate, as the figures are obtained only from tags being reported; the inclusion of unreported tags and tag loss could substantially increase the exploitation rate if these factors are significant.

Mortality due to fishing pressure can be large when natural mortality is low, without having any visible negative impact on the state of the fishery. However, it can also exacerbate the total mortality when the natural mortality is high. The actual threshold of natural mortality at which fishing pressure can have substantial impact on total mortality is unknown. The estimation of this threshold is currently being

assessed by dynamic fish population modelling to better understand what role (if any) fishing pressure might have played in the decline of the early run.

WHY IS THE EARLY RUN VALUABLE?

Fishing in Taupō rivers traditionally targets fish returning to spawn during winter. Radio-tagging experiments in the Tongariro River indicate that early in the season fish migrate in the river mainly at night with a strong response to freshes (small floods). Each fresh pushes a pulse of fish that stops when the flow conditions return to normal. The next fresh pushes them further up and so on. These fish have spawning migration behaviour similar to summer-run steelheads. They start entering the river as early as the end of March and can spend up to 3 months before actually spawning. Therefore, the early run is what sustains the winter fishing in the region and the livelihood of the community (fishing guides, hoteliers and so on) that relies on it.

From a biological angle, it is also very desirable to have the spawning spread over a long period. The success of spawning will largely depend on the incidence of floods, as floods can scour the gravel and remove or crush the buried eggs and flush out the newly hatched alevins. An extended period of spawning is insurance against natural disaster, as any flood will affect only one part of the spawning but not all, thus providing an extra resilience to the fishery.

HOW COULD WE PROTECT OR REINSTATE THE EARLY RUN?

A solution that may appear to many straightforward is through restoration stocking; however, stocking is highly controversial.

Those who support stocking argue that the debate about wild fish is purely semantic and irrelevant as fish were introduced in the first place and if something can be done to improve the fishing, then let's do it. Those vehemently opposed dispute the release of hatchery stock as they could affect the wild fish. They also tend to suggest instead of stocking, using other management measures like catch-and-release, closed season, reduction in bag limits, slot size, gear bans and so on.

These alternative measures are unfortunately unlikely to make any substantial difference on their own. The Taupō Fishery is an open-access fishery meaning that fishing pressure is not controlled because the number of anglers is unlimited. It is possible to close the lake and rivers for a while but if the pressure rockets during the open season then the exploitation of the early run

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LEFT
Hopefully these trout will return to spawn in two years time during the early part of the season.
Photo by Ray Bond

(through exploitation of the total Taupō catchment) could still be unsustainable. Catch-and-release only (no kill) and slot limit regulations have the same efficiency limitation if pressure is unlimited. If the catch-and-release procedure is not done properly a substantial proportion of fish will still die, being lost to everybody and the higher the fishing pressure the higher the loss. As any regulations that involve handling fish cause some mortality, the best regulations are those that limit handling to a minimum, but they may not be palatable to many anglers.

Sean Cox, an eminent Canadian fishery scientist, soberly warns:

Regulations in size and catch limits have not been effective at achieving even the simplest management objectives in both commercial and recreational fisheries. Policies based on regulation of individual angler harvest are practically doomed from the start for two reasons. First bag or size limits tend to be unrealistically high and most anglers seldom catch a full bag. The actual limits on both catch and size needed to protect fish populations are so drastic that their implementation is discouraged due to fear of public outcry or perceived loss in total catch. The second cause of failure is an angler effort response to fish abundance. When anglers increase the amount

of effort exerted in response to the abundance of fish present, generally a pathology occurs in which “success breeds failure”. Short term increase in abundance due to successful production- or consumption-side programs result in higher effort and potentially higher exploitation until catch rate and angling quality decline to the point where no further effort is attracted.

Because the total mortality of adult Taupō trout is mainly dictated by the highly variable natural conditions in the lake, fishing regulations would need to be particularly stringent, but only when natural conditions are poor. We are actively exploring what makes a good year for environmental conditions but, unfortunately, we are not in a position yet to reliably predict fishery outcomes and performance year-to-year.

This leaves us with restoration stocking as a potential approach to reinstate the early run. The sensitive issues surrounding stocking have aroused some very emotional responses in fishing magazines and on blogs. While some of the concerns raised are well founded and constructive, many others are based on poor information and/or a lack of understanding. In New Zealand, the introduction of trout was done in water free of native salmonid fishes (the scientific family of all trout and salmon), as salmonids are native only to the northern hemisphere. In addition,

Taupō trout broodstock were one of the main sources of trout that were introduced throughout New Zealand. By reintroducing other New Zealand trout populations derived from ancestral Taupō trout back in Taupō waters today the risks are far more limited than in America. There, brown and rainbow trout were introduced from Europe and the West Coast of North America respectively into East Coast American waters where they didn't previously exist, but where other native salmonids were present that they could hybridize with. A similar situation here would be if we were stocking Tasmanian mudfish that could hybridize with Canterbury mudfish – if they interbred then the Canterbury mudfish stock would contain non-native Tasmanian genes, creating a new mix of different genes from two very different species. However, since New Zealand rainbow trout were all introduced from the same American sources 100 years ago, it is essentially just introducing related fish back to other related fish, and remixing genes that were already mixed in relatively recent colonial history.

Based on the genetics study results, it could be argued that the most suitable source of rainbow trout to stock Taupō waters if attempting to reinstate the early run would be to use the initial Californian populations that were released in New Zealand. Unfortunately, it is impossible to source these original populations as the stocking and liberations

programmes in California have been so extensive these original sources no longer exist in the same genetic composition that was used for the New Zealand introduction. Over time, geographically separated populations also tend to become more genetically different simply due to random chance, an effect known as genetic drift. This is what we have observed with the Californian populations: now New Zealand rainbow trout are significantly different from all the California populations, including their source populations, due to genetic drift in all populations and the influence of stocking programmes in some areas. So for stocking purposes, the fish now least genetically different from Lake Taupō trout are other New Zealand trout stocks. Therefore, our best option is to use New Zealand populations of wild fish that were introduced from Lake Taupō and that show the desired characteristic of running to spawn early.

WHAT ARE THE RISKS?

The review of the history of fish introductions on all continents of the world indicates that the majority of introductions are often not successful. So it is wise following the recommendations from Robin Waples who said in 1991 that the rule of supplementation should be: ‘first, do no harm’. The most common genetic effect from translocations is the loss of rare alleles, which can be thought of as rare genetic variations. This can have negative effects because these rare variations can be a result of local adaptation; they can also be a result of random chance, though. Indeed, translocations by restoration stocking have been shown in some cases to be able to restore genetic diversity where it has been lost. The long-term ecological effects of stocking are difficult to monitor because changes in genetic composition and population size tend to occur relatively slowly. One way to increase understanding of the impacts of stocking is to develop models that incorporate demographic and genetic processes between wild and introduced fish. This is exactly the approach that we used to evaluate the risk associated with the release of Tarawera lakes and/or Lake Otamangakau trout – typical early running fish – into the Taupō catchment. The results of the simulations indicate that the introduction of trout from these catchments would not have any significant effect on trout genetics in the Taupō basin.

WOULD THAT WORK?

Predicting whether a stocking exercise is likely to meet its objectives is another important consideration. Just because the risk of negatively affecting Taupō trout is insignificant, doesn't mean that stocking is likely to be successful. To be fully successful, it is

central to consider the time scale of the stocking programme because it needs to be sustainable and affordable in the long term. The most recent Taupō trout genetics report from Victoria University of Wellington stressed that while the introduction of Lake Otamangakau and/or Tarawera lakes fish may stimulate the early run in the short term, the increase would likely only be of short duration. Once the introduced fish go through a couple of spawning seasons with the previously established fish, the old spawning pattern would likely reoccur because the introduced trouts' progeny would be outnumbered by the established returning spawners. Even if the introduced trout became established in their new habitat, a proportion of their progeny would be hybrids with the previous residents, and these hybrids might reflect the previous spawning patterns.

Therefore, an ongoing programme of selective stocking would be required to maintain an early run. In order to produce a stock with known traits, a management programme would need to be implemented akin to the Rotorua controlled breeding programme. This would require a much larger expenditure of limited resources that would be possible only through a dramatic increase in revenue (for example, licence cost) and at the expense of the other activities required to properly manage a fishery. Most importantly, without fully understanding the underlying mechanism for the decrease in early spawning trout, it is more risky to attempt solutions that do not fully address that underlying mechanism, and these attempts may end with the same scenario that Lake Taupō populations are currently experiencing.

EXPERIMENTAL APPROACH

As managers of the Taupō Fishery, we have neither downplayed the risks associated with fish introduction nor contemplated embarking on an enhancement stocking programme. But this doesn't mean we shouldn't carry out scientific experiments to understand the ecology of trout and to provide objective information to anglers based on scientific results rather than hearsay. The remaining 500 fish were released in Lake Otamangakau to monitor their growth in a highly productive system. These fish can be identified by a fluorescent yellow mark.

An opportunity arose to release a few experimental fish (5,000 juveniles) that were not sufficient to affect the genetic make up of Taupō trout or create further limitation to the production of indigenous trout. On the other hand, the fate of these fish could provide some precious information.



LEFT
Early run project trout are marked with fluorescent yellow and pink.
Photo by Randal Hart

RIGHT
Randal Hart assisting Dr Michel Dedual inserting fluorescent markers.
Photo by Kim Alexander-Turia

Last August, we marked and released 4,500 juvenile Tarawera lakes trout of similar size with a visible fluorescent mark injected underneath the skin at the back of the eye. The combination of different colours allows identifying the different locations where the fish were released. Trout carrying a yellow or pink mark were released in the lake or in the Tongariro River respectively. The remaining 500 fish were released in Lake Otamangakau to monitor their growth in a highly productive system.

The experimental fish were reared for several months at the Tongariro National Trout Centre and some of them may return to spawn in the Waihukahuka Stream as they did when they escaped during the flooding in 2004. Therefore, we released some fish in Lake Taupō and some in the Tongariro River upstream of the Waihukahuka Stream where the fish are in olfactory 'unknown' water. Some fish were liberated at the mouth of the Waimarino and Tauranga-Taupō rivers. Conversations with Eastern Fish and Game staff revealed that, in Lake Rotoiti, adult fish return to spawn at exactly the same location along the beaches where they were released as fingerlings. Therefore, it is possible that fingerlings released in the lake may show the same behaviour here in Taupō.

The other reason for the choice of release sites was that the mouths of these rivers are heavily used by anglers. Anglers are big actors in this experiment as they are, or will be, the first to catch and hopefully to report marked fish. The reported captures of tagged fish will signal that the time to crank up



surveys in these rivers has arrived. The idea is to recover as many fish as possible by increasing the frequency of surveys of anglers in these waters to provide the best information possible. In Lake Rotoiti, fingerlings return to the beaches where they were released because the lake doesn't have any significant spawning tributaries and adult trout spawn or try to spawn along the beaches. In Lake Taupō, by contrast, spawning tributaries are abundant and rainbow trout are not known to spawn along the beaches. Therefore, this experiment could provide information that potentially could become extremely relevant if, for some reason, the conditions in rivers are not suitable for spawning over a long period. Having access to fish that can use the lake littoral instead could be very valuable indeed.

The return of the fish and their growth will be monitored as they pass through the Waipa, Waihukahuka or Te Whaiu traps that are operated daily throughout the spawning period. Concomitant creel surveys and spontaneous reports from anglers will provide further information.

This experiment should provide answers to two important unknowns. First, it will allow us to verify if the early running fish from Lake Tarawera that spawn between May and July do in fact return at

the same time if released in Lake Taupō and Lake Otamangakau. Secondly, it will allow us to compare the growth rates achieved in the different lakes. Several anglers have suggested releasing fish from Lake Tarawera as they believe that they will do as well in lakes Taupō and Otamangakau and turn into very large fish. The results of that part of the experiment will answer that lingering and recurrent question.

Fisheries management often involves balancing the needs and desires of conflicting user groups within the constraints of the environmental and biological processes that control fish populations. Each action a manager proposes will, if implemented, impact not only on the fish population or community being managed, but also the groups that use the fishery. As scientists and anglers we take our commitment to the Taupō Fishery very seriously, and we aim to use the best scientific tools and techniques at our disposal to make it a resilient, sustainable and productive paradise for anglers far into the future. 🐟

Michel is the fishery scientist working for the management of the Taupō Fishery. Elizabeth has just completed a doctorate in ecology and biodiversity at Victoria University of Wellington that examined Lake Taupō rainbow trout population genetics and spawning time.



LEFT
Spawning trout waiting for upstream passage to be cleared.
Photo Ray Bond

ABOVE LEFT
Terry Blumhardt ropes in Rob Hood.
Photo Kelly Page

ABOVE RIGHT
A keen Rob Hood descends into the gorge.
Photo Kelly Page

EXPLOSIVE START TO SPAWNING

By Dave Plowman / Fishery Operations Ranger

Within closed waters, and in an area accessible only by the occasional hunter, is the largest and best tributary spawning stream in the Tongariro catchment.

Every season, thousands of trout make the long journey from Lake Taupō up the Tongariro River and into the Whiti kau Stream to spawn in this ideal habitat. The journey takes them through a narrow deep gorge and, because of this, the area occasionally becomes blocked, creating dams and waterfalls that prevent the trout from reaching their spawning destination. This year has proved to be no exception.

With very strong winds experienced in this area in late summer, a number of trees were blown over into the riverbed in the headwaters of the Whiti kau. These were not a problem until the winter floods came and washed a lot of them down creating log jams in the narrow gorge. The fall of the water creates aeration and white water making it difficult for the trout to swim and jump in the habit they are accustomed to. After the floods cleared, approximately 300 trout were

found to be congregating at the bottom of the gorge in an area known as ‘The Grotto’ suggesting that the gorge was in fact blocked.

An inspection (involving bush-bashing to the sites) was carried out and three log jams were found. These would need to be cleared with chainsaws and/or explosives. Tracks had to be cut, working platforms cleared and anchor points found to be able to safely abseil down into the gorge.

Terry Blumhardt, from Naturally Adventurous Limited, was employed for his expertise in abseiling and provided the necessary supervision for the safety of the fishery staff. The task was to abseil over the edge into the jammed gorge with chainsaws and cut all accessible logs into smaller lengths, allowing the next flood to flush them out through the gorge. This part of the operation was very successful. Three days after the task was completed, we had a large flood that cleared all of the debris above the water. We were then left with two locations with large logs under the water level that required moving with explosives.

This next task was not for the faint-hearted. It involved abseiling down into the gorge (again with safety harnesses) into a chest deep, icy cold and fast-flowing stream to place the explosives around the load-bearing logs. The first attempt had to be abandoned due to high river flows. The second attempt went to plan, thanks to our own staff and Rob Hood from DOC Ruapehu who has the necessary qualifications to use explosives and experience of clearing previous log jams.

After the explosives were set, the area was cleared, roads closed and the charge connected and detonated. After the explosion, when the smoke had cleared and the toxic fumes dissipated, we were able to look over the edge and see the results. It appeared a great success. Another small jam further up the stream was cleared in the same way requiring a smaller charge, which was also successful.

A small but timely flood occurred two days after the Grotto was initially cleared which encouraged a small number of trout to sneak through the gorge while it was open. However, this flood also created a new log jam just upstream of the original blockage, with more logs and debris being brought down from above during the higher flows. This particular jam was really problematic and had created a significant waterfall. Through a combination of more explosives and the use of a long crow bar, this blockage was successfully removed and spawning trout could be seen swimming upstream immediately after the blockage was cleared. A drift dive count during late November indicated how successful this operation had been with a count of more than 600 trout over a 4 km stretch upstream of the Grotto. A great outcome for all those involved – including the trout!” 🐟

Gravel extraction in the Tongariro River – not something new

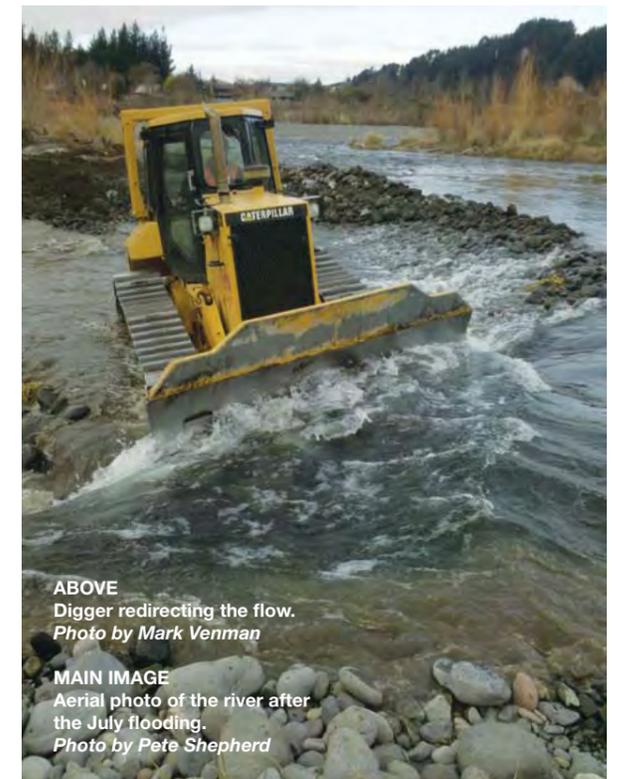
By Mark Venman / Fishery Operations Manager and Lawrie Donald / Zone Manager Taupō River and Catchment Services, Waikato Regional Council



The lower Tongariro River has seen considerable change over the past couple of years, with both the removal of willows and the more recent removal of gravel and sediment downstream of the State Highway 1 (SH1) road bridge. Concerns have been raised by some anglers that this work has had a detrimental effect on the fishery by removing cover for juvenile rainbow trout and adult brown trout through habitat modification, but has also impacted on anglers through the loss of fishable water such as The Braids. This article summarises what work has been done and looks at what is planned for the future and what this means for both fish and anglers.

The Tongariro River catchment spans an area close to 800 km² and consists of several tributaries flowing into the main river channel before discharging into Lake Taupō, approximately 10 km downstream of Turangi township. The river itself is approximately 92 km long and carries sediment such as volcanic ash, pumice and andesite lava from the eastern slopes of the volcanic central plateau plus greywacke, argillite and ash from the Kaimanawa Ranges. The Tongariro River undergoes significant channel changes in response to natural events such as floods and volcanic eruptions. The natural hydrology of the Tongariro River has been significantly changed by the Tongariro Power Development diversions, with average flows in Turangi almost 50 % less than before the scheme. Large flood events remain relatively unchanged but the scheme does curtail flood recessions and this can impact on the natural movement and deposition of sediment throughout the lower reaches of the river.

The township of Turangi is located at the head of an alluvial fan created by the Tongariro River as it approaches the Tongariro Delta and Lake Taupō. The bed of the Tongariro immediately upstream of Turangi consists of coarse cobble and boulders. Heavier material, such as cobbles and gravel, gets deposited at the upstream end of the alluvial fan while lighter sand and silt is transported through



ABOVE
Digger redirecting the flow.
Photo by Mark Venman

MAIN IMAGE
Aerial photo of the river after the July flooding.
Photo by Pete Shepherd

the lower end of the fan and down through the lower reaches as the river slowly meanders towards the Delta. This deposition of material at the head of the fan is a natural process and, over time, this deposition process will raise the flood plain and cause lateral instability of the channel, that is, the river will spread over a wider area. Waikato Regional Council is required to manage this process and stabilise the path of the river to protect property and life in Turangi from floods.

Flood control works have been established over many years, with work dating back to the late 1950s. During the 1960s and 1970s, approximately 700,000 tonnes of gravel was removed from the river in the vicinity of the Swirl Pool. Since the removal of gravel has stopped, the artificially lowered river bed has acted as a sink for bed load material coming from upstream during floods and has filled in this area to the point where it has now returned to its 'natural' level. It is thought that this natural level could be the upper limit for management of the flood control scheme.

Waikato Regional Council has constructed a flood protection scheme on the Tongariro River within Turangi Township to protect property and people from the equivalent of a 100-year flood. Protection is provided by the formed floodway, which includes stop banks, river channel, river banks, berms and flood

BELOW
Aerial photo of willow clearance, delatours pool.
Photo by Pete Shepherd



plain. The scheme consists of stop banks for flood control, with erosion control structures to ensure that river banks remain stable. With the river's higher bed level, there is a risk that the current flood protection measures are not sufficient to handle a 100-year flood. It is hoped that the combination of willow removal, continued gravel and sediment extraction and a widening of the flood channel will ultimately result in Turangi surviving the next 100-year flood.

The most recent work commenced in 2011/12 to remove scrub and willow infestation from the floodway to help reduce the peak height of a 100-year flood, as water can flow more easily to Lake Taupō without the risk of backing up and flooding Turangi. A large part of this area has been mechanically cleared and followed up with spray to minimise regrowth. Further work is required to continue to eliminate willows and other woody species from the floodway. Woody species, such as broom, buddleia, grey and crack willow, colonise gravel islands and can cause the river to divert during a flood due to reduction of the cross-sectional area of the river floodway. This vegetation needs to be cleared prior to any gravel or sediment removal. With continued woody vegetation management, vegetation cover in the form of grasses and toitoi should dominate over the next 3-4 years. River bank erosion could become a problem through the clearing of willows and the development of a wider channel but this will be monitored.

Some areas of willow have been strategically left in key areas to minimise the risk of the Tongariro breaking out and cutting a new channel into Stump Bay during a significant flood event. A blind channel approximately 1 km in length and still growing has developed from the lake towards Turangi. It is this channel that carries flows during floods and there is potential for a permanent breakout from near Delatours Pool and Awamate Road to join up with this channel and threaten a number of waahi tapu sites.

From a fishery perspective, the willows in the lower river provide cover for both brown and rainbow trout residing in the lower reaches. The dense root systems are also an ideal nursery for juvenile trout as they grow and migrate down towards Lake Taupō. Summer fishing in the lower river was also largely terrestrially based, with anglers using large cicada patterns to hungry browns and recovering rainbows busily feeding under the cover of the willow branches. Much of this cover has been lost, but some areas of willow have been left to help stabilise erosion-prone areas that will provide some cicada action in the short term. The Department of Conservation (DOC)



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FAR LEFT
Resulting water receding after a bund is put in place.
Photo by Mark Venman

CENTRE
Tongariro River after July flood.
Photo by Mark Venman

LEFT
Angler enjoys the fishing in the main flow.
Photo by Ray Bond

is also advocating for a small section of willows to be left along the edge of islands downstream of the Crescent Reserve to provide suitable habitat for fish. It is possible that this work could encourage browns to reside further upstream and closer to the town pools. With browns entering the Tongariro from late December onwards, it will be interesting to see where the browns choose to seek cover this coming summer.

Gravel and silt extraction has already commenced, and this work has really changed the landscape especially on the true left side downstream of the Crescent Reserve. This site is currently devoid of any vegetation, but it is anticipated that the completed works will result in a much more pleasant experience for those visiting the river. The cleared floodway will be managed as an area free of willows and other trees and shrubs and be dominated by indigenous plants, such as toitoi, once a full season of vegetation control and establishment has occurred. The improved access and the re-establishment of vegetation over the spring and summer periods will hopefully increase angling enjoyment once the area returns to a more naturalised state.

A new flood channel has been opened up down the true left side of the river to move the river away from the true right side during significant floods. Vegetation has been removed and the area widened so that the river can spread out laterally during a large flood. This new channel was created from an old groundwater channel and continued down towards where the Hirangi Stream enters the Tongariro on the true left bank, just upstream of the Reed Pool.

After discussions between DOC, Waikato Regional Council and the Tongariro River Advocates during early July 2012, it was decided to reduce the normal permanent flow down this channel to encourage more

water down the true right side and ultimately into the Bain Pool area. With a bulldozer already on site, the machine went to work to achieve this. We discussed collectively what the options were to create more braided water and add more diversity to the channel to make it less uniform and canal-like for both anglers and fish alike.

One major concern we had was the presence of large willow stumps half buried in the soft sediment down to a depth of almost 2 m that were still in the new flood channel making angling almost impossible due to snags. The new narrow channel certainly looked good from an angling perspective, if you ignore the stumps, and fish were present soon after it was created. We discussed the option of using the bulldozer to cut channels from this flood channel through to the centre river channel to increase the flow down the true right side and into the Bain Pool and create some diversity and braided channels. It was difficult to know where to make these channels and the river will generally decide where it wants to go during a major flood event.

Fortunately, we only had to wait 4 days for a 620 cumec flood to come down and rearrange the river downstream of the Crescent Reserve! We thought the work done by the bulldozer was impressive but the Tongariro River proved who was in charge and made a few changes to the flood channel and the volume of water now flowing down the true left. The widened flood channel on the true left worked well and the river sent a considerable flow down the new channel and across the flood plain on its way to the lake. A significant volume of water still came down the true right into the Bain Pool area but that has reduced as flows returned to normal. Some nice braided water exists still near Tongariro Lodge and around the Bain Pool and it will be interesting to see how it fishes during the spring. The small flood channel on the

true left is now much straighter and wider than before and looks very fishable if you can see past the snags. There is a lot of fine gravel deposited in this channel and with minor modifications could be both fishable and ideal juvenile trout habitat.

As it is currently, there is slightly too much water flowing down the true left flood channel for both adult and juvenile trout but with minor modifications, this channel could offer a lot more. DOC is keen to reduce some of the flow by cutting channels into the island and diverting water through to the centre channel to increase the flows into the Bain Pool. Some willows left along the side of the island will help provide cover and shelter for trout of all ages. Combined with rock groynes, it will naturally become a diverse area for both fish and anglers.

The weekend of 25 and 26 August 2012 was one of the busiest for anglers this winter throughout the Tongariro, but especially downstream of the SH1 bridge. Anglers could be seen fishing right down past the Crescent Reserve area and were hooking fish in this newly modified landscape. The area just downstream of where the bulldozer had previously redirected the flow is producing fish and has been referred to as the new 'Honey Pot Pool' by local anglers. Since the July flood, the head of this stretch of water has looked ideal for nymphing and brings in a nice flow. Similarly, a nice area for anglers has been created where this true left flood channel re-enters the main channel at the head of the Reed Pool. This is suited to both nymphing and wet lining.

Work proposed by Waikato Regional Council for the next 3-5 years will focus on managing the expected in-coming deposition of sand, silt and gravel in the vicinity of the Swirl Pool area. The vegetation management completed to date has helped to

establish the freeboard required for a 100-year flood flow to pass through Turangi without breaching the current stop banks. Modelling by Waikato Regional Council based on the most recent surveys has indicated that the lowering of the flood plain through this section has re-established the design flood protection scheme freeboard.

The removal of gravel that has built up in the vicinity of the Swirl Pool is planned for the future as this will lower the mean river bed level and subsequently increase the floodway capacity at this location. Some vegetation clearing is required upstream of the SH1 bridge and will be done mainly using chemical sprays rather than mechanical means. Vegetation that restricts the floodway will be dealt to. No extraction of gravel is required through this reach as the stop-bank freeboard is currently sufficient to deal with a 100-year flood. It is hoped that this level of intervention in the river will be a one-off with future maintenance work minor in comparison. However, this will naturally be dependent on future flood events and the deposition of material. Essentially, the rest of the river will be left to its own devices unless there is serious erosion or significant deposits of sediment that need to be addressed. The riprap rock wall at Herekieke Street also requires a small amount of work to top up the structure and reduce its steep gradient. This will require the river to be diverted away temporarily from the true right while the work is undertaken.

DOC is keen to work alongside Waikato Regional Council to get a balance between flood protection work and the interests of the fishery, and the council has been very receptive to our concerns and requests. Gravel extraction is not something new to the Tongariro River and if done sensibly can create new angling opportunities and trout habitat as well as keep the people and property of Turangi intact. 🐟



BIOSECURITY BOATIES

By David Cade 'Didymo Dave'
Freshwater Threats Ranger

Boat show? Approximately 35,000 attendees over 4 days? We need to be there! So former Taupō Fishery ranger Callum Bourke and I set about organising a stand at this year's Hutchwilco New Zealand Boat Show held in Auckland in May. To be honest, while working there last year on another stand, I had sussed out which stand site was best suited to us and booked it, so we had a running start. Getting people onto a stand is always the hardest part, so I looked for one that allowed multiple attraction magnets and great people flow.

We also put our hands up to work with the school groups that visit the show as well as making sure we had slots booked on the main stage for presentations on the CHECK, CLEAN, DRY programme. Now Callum and I are tough but we knew a 4-day show was going to be hard work, so we brought in my 18-year-old son Hadlee, known as Didymo Junior, to give us a hand.

The first attraction magnet people saw was a sign offering them a free prize if they could name two freshwater weeds in New Zealand. Despite many having a go and all of them receiving prizes for trying, only two people succeeded. The lesson we learnt from this is that despite a huge local

advertising campaign about didymo, hornwort, alligator weed and so on, we still have a mountain of educational work to do.

But by far the most successful attraction magnet was the aquarium installed on site with species of carp, goldfish and catfish in it. They were labelled, rightly so, as pest fish, and the reactions to that were beyond what we expected. From little children thinking they were pretty fish, to duck shooters despising them for ruining the cover on the edges of their duck ponds, then add in the anglers who understood the environmental damage pest fish can do, plus the bow hunters who consider them great sport, and it was all on. But by far the most disturbing group were the few who had coarse fished in their homeland and wanted to do the same here. As a team, we really struggled with this group. We found it very difficult to get them to even consider the possibility that pest fish can cause environmental damage. Learning from that experience, we are actively looking for as much evidence as we can get, particularly photos of environmental damage caused by pest fish, that we can take to the 2013 show. If you have any photos, videos or information that can help, please give me a call on 027 240 9603. 🐟

MAIN
The pest fish tank was a successful attraction magnet, thanks to the Mahurangi Technical Institute.
Photo by David Cade

TOP LEFT
Brushing with fame: Hadlee Cade with weather man Bruce McDavitt and windsurfer Bruce Kendall and family.
Photo by David Cade

TE MAARI CRATER ERUPTION

By Kim Alexander-Turia
Programme Manager Community Relations



TOP
Department of Conservation rangers hard at work to reopen the Tongariro Alpine Crossing track for Labour Weekend.
Photo by John Wilton

BOTTOM
Catching great conditioned fish the day after the eruption is Neil Cunnington.
Photo by Neil Cunnington

MAIN
Upper Te Maari crater and vents
Photo by Dr Harry Keys

August this year marked the moment when a significant local icon woke from its hundred-year-long slumber. At 11.50pm, Monday 6 August 2012, an eruption occurred on Mount Tongariro at Te Maari Crater, where the last significant eruption was in 1896.

This is on the northern flank of Tongariro approximately 1.5 km from the Ketetahi Hut, and significant damage occurred to the hut and surrounding tracks. The eruption had also caused a landslide below the hut, creating dams that threatened three bridges and the track below the bush line at the time.

Immediately following the eruption there was a flurry of internet activity from concerned anglers worried about the potential impact on the fishery. Fortunately, the Tongariro River was not greatly affected by the eruption as a light westerly wind took the majority of ash towards Napier.

A small amount of ash fell in the Waipakihi Valley and at the Waipa Stream fish trap, and reports from a local angler who was out fishing the following day indicated that a slight sulphurous smell in the air and minor discolouration to the river was all there was to show for the activity on the mountain.

Department of Conservation staff kept a keen eye on the river conditions over the subsequent days to assess the impacts, and there appeared to be no obvious effect on the aquatic life, so it was fishing as normal for anglers on the Tongariro River. 🐟

WINTER FISHING SUMMARY

By Mark Venman / Fishery Operations Manager

The fishing this winter has certainly been an improvement over recent years especially in terms of trout size and quality. Although fishing in Lake Taupō is the main attraction for anglers visiting the area, the inflowing rivers and the fresh run spawning trout draw a number of anglers back year after year to fish these pristine waters. This article summarises some of the highlights observed this winter and looks at fishing prospects for the coming summer on both Lake Taupō and Lake Otamangakau.

RIVER ROUND UP

Fishing started slowly for most anglers this winter and, overall, angler numbers seemed down on previous years especially during May and June. The rivers did see a small early run of fish enter them during this period and those such as the Tauranga-Taupō River fished well during this time. The Hinemaiaia River has always traditionally seen an early run, and this season was no exception. The spawning run starts early and tends to finish slightly earlier than some of the more southern tributaries. Angling pressure was high on this river, with anglers making the most of the fishable water available and the good runs of fish above the main highway bridge. The overall catch rate for the winter on the Hinemaiaia was estimated at 0.45 fish per hour (one legal sized fish every 2 hours 15 minutes) and is on par with recent years. Angler-caught rainbows measured by staff during surveys averaged 463 mm and 1.3 kg which is on par with fish caught during the winter of 2009.

The Tauranga-Taupō River has had an average season, with an estimated catch rate of 0.25 fish per hour (one fish every 4 hours). Fish caught on this river over the winter months have averaged 480 mm and 1.3 kg.

RIGHT
Stoked! Neil Blizard and mate Tim (Jackal) Jordan.
Photo by Ray Bond

BELOW
Peter Thomson with his Waitahanui monster.
Photo by Sue Stubbs



Another river to have fished well this season was the Waiotaka Stream just north of Turangi. This stream was cleared of willows during the past couple of years and was a pleasure to fish from the ford up to the upper limit at the prison boundary. There is some great pocket water that held good numbers of fish throughout July and August, and it also saw a small run of brown trout early in the season. This stream is well worth a look after a small fresh when the water levels are receding or when the Tongariro River is lined with anglers. The fish caught in general have been larger and heavier than recent years, and the overall condition of some of the spawning fish this season has been impressive.

The Tongariro River was not as busy as expected early in the season, and it wasn't until late August

that angler numbers really increased. The weekend of 25 and 26 August saw a significant increase in angler numbers with one of the busiest weekends of the season so far. The Bridge Pool alone had at least 20 anglers fishing away on both banks, while the Red Hut and Blue Pool car parks were full of vehicles. With fishing reports on the internet and several social media platforms such as Facebook, it would appear that anglers are making the most of this up-to-date information to plan their trips, and it doesn't take long for news of big fish or high catch rates to reach the masses! A good example of this was the 5.85 kg rainbow jack (12 lb 14 oz, 50-plus condition factor), caught in the lower Waitahanui River by Peter Thomson, which circulated the numerous fishing store websites and local papers and resulted in an increase in anglers fishing the lower reaches in

search of other trophy-sized rainbows. Anglers can leave their travel arrangements to the last minute and pick their moments to visit the fishery when it is really firing. Whatever went out prior to the weekend of 25 August certainly inspired anglers to fish the Tongariro River.

Overall, the Tongariro has had an average season, and the fishing early on was relatively slow for many. This winter the catch rate was estimated at 0.30 fish per hour (one fish every 3 hours 20 minutes) based on over 500 angler interviews. Late June and early July were drier than normal and were cold due to decent frosts. The rain didn't arrive until mid-July and a 600 cumec flood after almost 200 mm of rainfall in 48 hours made a few changes to the lower river and changed a few of the lies to keep anglers on their toes.

This got things moving and the Tongariro fished better towards the end of the winter season. The overall size and condition of fish present in the river has been an improvement over recent years, and it has been encouraging to see solid fish in the 1.8–2.2 kg (4–5lb) category appear amongst the angler's catch. Tongariro-caught rainbows this winter have averaged 475 mm and 1.3 kg. Anglers overall seem happier with the quality of the fish this season and reported the hard fighting qualities of these Tongariro fish. As always, there will be a mixture present, but it is encouraging to see well-conditioned fish over 500 mm and 1.7 kg, on a more regular basis.

WAIPA FISH TRAP AND SPAWNING TRIBUTARIES

Solid fish in this size category have been becoming more frequent at the Waipa Stream fish trap situated in a tributary of the Tongariro River near Rangipo. So far this season, brown trout have averaged 582 mm and 2.5 kg. The largest brown recorded was a female measuring 625 mm and weighing 4.3 kg (9.46 lb). The number of brown trout trapped so far this season is up slightly in comparison with the past five years. Rainbows trapped to date have averaged 470 mm and 1.2 kg (2.64 lb), and there still appears to be a mixture of fish amongst the run from previous seasons.



However, it is encouraging to see some nice rainbows in the 1.7–2.2 kg (3.75–4.85 lb) size coming through the trap, which bodes well for the future. With the Waipa trap still in operation until Christmas, it will be interesting to see how the numbers and overall condition of rainbows this season compare with previous years.

The other important spawning tributary in this part of the upper river is the Whiti kau Stream. This stream flows through a narrow gorge known as The Grotto and recent inspections indicated a couple of blockages to fish passage. A significant barrier was identified in the lower section of the gorge that was creating a 2 m plus waterfall and preventing fish from migrating upstream. Through the careful use of chainsaws and explosives, three significant log jams were removed during early September and now allow trout easy access to almost 10 km of pristine spawning grounds upstream of The Grotto. This gorge will be monitored closely after the next flood to ensure that it remains free of debris and log jams, and drift dive counts of spawning fish upstream of The Grotto will indicate how successful this job was.

ANGLER TRACKS

The large flood in mid-July caused significant damage to several of the angling tracks around the area, with the Tauranga-Taupō River coming off worst once again. A heavy deluge of rain over two days caused all of the rivers to rise, with the Tauranga-Taupō coming close to 2.5 m during the peak of the flood. Significant erosion to the true left bank occurred throughout the river but the worst areas were downstream of Maniapoto's bend and below Kereru Lodge. Fishery staff have worked hard to cut new tracks around washouts and have worked closely with New Zealand Forest Managers to ensure continued access up the true left side of the river in close proximity to the pine forests. **Please keep to the formed tracks and avoid walking through private land.** A significant washout occurred downstream of the State Highway 1 road bridge with a large section of the road on the true left side of the river washed away. Flood protection work is currently being carried out by Waikato Regional Council to remedy the damage.

Significant damage also occurred on the Hinemaiaia River, which also required some track diversions and the clearing of trees from the track. The spill over the Hinemaiaia 'B' hydro dam that followed the July downpour was one of the largest in the past 10 years. Track damage also occurred on the Tongariro with washouts observed down the true right bank between the Bain and Delatours pools. A new track has been

LEFT
Rainbow trout measured during processing at the Waipa trap.
Photo by Ray Bond

BOTTOM LEFT
A nice fresh maiden from the Waiotaka stream.
Photo by Mark Venman

'Anglers overall seem happier with the quality of the fish this season and reported the hard fighting qualities of these Tongariro fish'

cut, but anglers should take care when using this as it is prone to erosion particularly at the lower end and immediately downstream of Delatours. Similarly, the true left bank recently cleared of willows is also prone to erosion, and care must be taken when fishing from the uneven bank sides.

COMPLIANCE

It has been surprising to see an increase in the number of teenagers and young adults fishing illegally with spin fishing gear and roe baits both in the lower reaches of the Tongariro and between the Judges Pool and Red Hut. We have apprehended several young men fishing without licences and using illegal equipment and bait. Rods and fish have been seized and the files are currently being processed. We would like to thank those vigilant anglers who brought these offences to our attention so that we could successfully apprehend the offenders in the act. Please continue to report any illegal activity via the Conservancy Duty Officer, phone 027 442 4962.

KINLOCH FISHING COMPETITION

Early July saw the return of the Great Lake Taupō Fishing competition held out of Kinloch. This is currently the only commercial fishing competition run on Lake Taupō. Over 300 anglers entered the three-day event and managed to weigh in close to 500 fish. A total of 13 browns were weighed in and averaged 505 mm and 1.6 kg with an average condition factor of 44.5. The heaviest brown measured 570 mm and weighed 2.19 kg. A total of 483 rainbows averaged 461 mm and 1.1 kg with an overall condition factor of 40.9. The heaviest rainbow measured 570 mm and weighed an impressive 2.52 kg with a condition factor of 49.1. The majority of the rainbows weighed in were caught deep trolling (61.3 %), with



LEFT
Weigh in at the Kinloch fishing competition.
Photo by Julia van Velden, Déjà vu Photography

ABOVE
Enjoying a sunny winter's day on the Tongariro River.
Photo by Ray Bond

shallow trolling (19.3 %) and downriggers (17 %) providing most of the rest of the catch from the lake. Jigging accounted for only 1.2 % of rainbows. Overall, the fishing was unusually hard for this time of year, with a lot of anglers struggling to locate fish.

ERUPTION

Early August saw the eruption of Mount Tongariro at Te Maari crater, which resulted in volcanic ash being blown across to the Waipa hut. A thin layer of ash coated the roof of the hut and the general trap site. Ash was also present on the trees within the bush and lightly coloured the Tongariro River for a couple of days. It would appear that the ash from this small eruption didn't have any negative effects on the fishery, and anglers were catching fish in the river later that day.

TE WHAIAU TRAP

September saw the removal of the Te Whaiu Stream fish trap after its 19th season of consecutive operation. This year saw its fair share of wet weather with the months May through to August all exceeding 200 mm of rainfall at the trap site. The trap was flooded on six separate occasions. The rainbow trout run of 3,371 fish was the fourth highest on record and up marginally on last year. These rainbows averaged 554 mm and 2 kg with an average condition factor of 42.7, which

is a slight increase on last year. The brown trout run of 984 fish was up slightly in comparison with last season but has remained relatively stable over the past decade. The browns averaged 565 mm and 2.2 kg with an average condition factor of 42.8, which is again an improvement over last season. The heaviest trout trapped this season was a female brown measuring 740 mm and 6.4 kg (14 lb). A male brown measuring 735 mm and 5.6 kg (12 lb) was also trapped, and it is very encouraging to see some double-figured fish amongst the spawning run. One trophy-sized rainbow weighing 4.5 kg was also trapped. Despite the slight increase in the size of the runs this season, the average size has increased slightly. It will be interesting to see how Lake Otamangakau fishes this summer and whether some of the trout in the 3.6 kg (8 lb) bracket push through to double figures in time for next winter.

SUMMER PREDICTIONS

Overall, it has been a productive winter, and it has been good to see an improvement in the general size and quality of the fish running the rivers to spawn. Some rivers have fished better than others and some have produced double-figured fish, but most importantly we do seem to be heading in the right direction with a lot more positive news than in recent years. This summer is shaping up to be a good one for anglers, and the maiden fish preparing to spawn

next winter should be in great shape if some of the fish we have seen this winter are anything to go by. It is encouraging to see good numbers of maiden trout in the lake already over the 40cm minimum length at this early stage in the season (November). Trout caught in Lake Taupō contained zooplankton (daphnia) in their stomachs. Anglers have reported seeing a 'greenish mush' when examining the stomach contents of the fish that they have been keeping, thinking that the trout had simply been feeding on green weed. However, closer examination of this green material has shown it to contain lots of daphnia, more commonly known as water fleas. Trout feed upon these small creatures by swimming around with their mouths open gulping groups of them at a time. Elsewhere in the world, daphnia are a primary food source for trout, especially during the winter months. This smorgasbord of daphnia, smelt, kōura and soon green beetles, will serve the trout well over the summer months and help increase the overall size of the trout." Some decent floods in July and September will also help wash some of the spent fish back into the lake where they can focus on feeding on smelt and regaining condition. These fish will be able to feed up well prior to Christmas and so will provide lake anglers with decent sport this summer. 🐟

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IT'S ALL ABOUT THE KIDS

By Anna McKnight / Community Relations Ranger

Kids planting native trees is what it is all about at the Whakaipō Bay annual native tree planting. This year drew a record crowd with 350 tree planters, and of those, about 60 % were children. Three thousand native trees were planted, many by tiny hands.

The Girl Guides have been associated with the Whakaipō Bay native tree plantings for every one of the 22 years the event has been held. Every year, the girls bring along their families to help plant the trees. Meanwhile, the guide leaders are working tirelessly back at the Girl Guide Whakaipō campsite to prepare the sausage sizzle to reward all the hard working tree planters. This year, the Taupō Cubs came along with their families too, which boosted the number of kids with spades. Next year, they are spreading the word and bringing the Scouts along too.

Planting trees is an easy and fun way for children to connect with nature and develop conservation values. They have their hands in the earth and are caring for something living. The children can come back with their children and grandchildren and show them the trees that they planted. Trees beautify the land and are homes for birds and insects. Whakaipō Bay is already a popular recreation spot for families. Taupō school children can tell you all about the role of trees in keeping Lake Taupō clean, from their visits to the Taupō for Tomorrow education programme run from the Tongariro National Trout Centre, where they learn about sustainability and the importance of clean fresh water to our community.

We were very lucky to have the Living Legends community project generously sponsor the native trees for the second year running. The Living

Legends first planting was during the rugby world cup, and the planting celebrated our local King Country rugby legend Sir Colin Meads. Sir Colin was back this year with spade in hand. Sir Colin was a great ambassador, and many kids took the opportunity to get their photo with the New Zealand legend. Pine Tree and a whole team of kids can now visit their growing native forest and look out over their beautiful clean lake. Legends! 🐾

PHOTOS LEFT TO RIGHT
1 The Davanney Family. (Lindsay and Helen with their children Cooper, Miller and Lincoln). Photo by Anna McKnight
2 Pine Tree and little shrub. Photo by Kim Alexander-Turia
3 Spider Man lent his super hero powers for the day. Photo by Kim Alexander-Turia
4 The little ones got stuck in too. Photo by Anna McKnight
5 Girl Guides Katherine Davy and Holly Rameka. Photo by Anna McKnight
6 Auren Smith celebrates a planting, 'Yesssss'. Photo by Anna McKnight
7 Sir Colin Meads with Thomas, Lexie and Shaun Stock. Photo by Kim Alexander-Turia

Living Legends
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Fishery tracks: Paving your way to paradise

By **Pete Shepherd** / Community Relations Ranger

Much of the attraction of fly fishing the tributaries that spill into Lake Taupō is the many varying scenic areas we fish.

Making your way to your favourite pool is not always about the destination, it can also be about the journey. One moment you can be walking through large manuka stands and the next, arid stony river beds. This contrasting landscape in which we find ourselves can often be overlooked as we contemplate our next strike, stretch of water or deep holding pool. The only break from our 'I caught a trout this big...' concentration, coming from the branch we just got our line caught in or the stump we just tripped over (cue record needle scratch, younger generations might hear a cd/mp3 skipping). We're often left thinking 'what a silly place to put that!' or words of far greater expression. It takes a lot of coordination and planning to put that stump just so or grow that branch on just the right angle. When you throw a flood or two into the mix, it takes a hardened crew of committed workers to set mother nature straight (or crooked in this case).

MAIN IMAGE
Pathway to heaven.
Photo by Pete Shepherd

NEAR RIGHT
Clipboards – handy.
Photo by Pete Shepherd

TOP RIGHT
The A Team, missing the bling without Mr T.
Photo by Ray Bond

BOTTOM RIGHT
Big blokes cut big trees.
Photo by Ray Bond



Meet river track team 101, made up of fishery and visitor asset rangers, tasked with the duty of ensuring that the mail must get through (mail being you). The track crew will spend approximately 500-plus hours on the task of 'mail delivery' in a calendar year, which is ages, and funded entirely on revenue from fishing licence sales. Buy your licence! It's important.

This hardened team of individuals will work rain, hail or snow not only because their contracts stipulate it but also because they know the importance of getting to that favourite place that we all like to be... fishing our own piece of paradise.

These men and women of service will don their hi-viz clothing, appropriate personal protective equipment and, with scrub bar in hand, route, re-route and re-re-route access to said piece of paradise with as little effect on the native fauna, flora and beloved prize trout as possible.

Sometimes mother nature will place insurmountable objects in the way, for example, a massive cliff. Sweet as! Much like the laborious ant, a path will sometimes divert through the river to reach the other side. This is nothing for an adventure-seeking angler who enjoys stalking their prey on their terms, plus that's what waders were designed for (make sure to

'A lot of time and effort goes into ensuring we get to our favourite fly fishing spot'

Check, Clean and Dry, that's important too!). If a river's too deep or too wide, with the help of volunteer groups who share the same 'get to the other side' ethos, we build bridges.

A lot of time and effort goes into ensuring we get to our favourite fly fishing spot. Sometimes it's fraught with danger as the great outdoors habitually is, sometimes the weather gods are not your BFFs (best friends forever) and sometimes, when you get to your favourite place in the world seeking solitude, some other bugger has a great mind that thinks alike. Either way, next time you're heading to your favourite place in the world, stop, have a look around, check out the view, read a plaque or two. Contemplate the exposed volcanic thousand-year-old rock that some hardworking soul uncovered from the blackberries. Your day will be much better for it! (Cue the angels singing or what we here at DOC like to call... birds.) 🐦

RIGHT
Weedbuster Ray Packer.
Photo by Anna McKnight

SPRAY AND WALK AWAY

By Mark Venman
Fishery Operations Manager



After an exceptionally wet summer last year, which encouraged the rapid growth of grass and other weeds along the margins of the angling tracks, we decided to complete a trial using herbicides to help minimise the need to regularly cut and maintain the tracks. During the height of summer, it seemed that staff would finish cutting a track only to have to start again due to the rapid regrowth.

Trials were completed on the upper Tongariro River and on the Tauranga-Taupō River to monitor the effectiveness of herbicides. Members of the fishery operations team had spent a significant amount of time trying to keep up with the mechanical vegetation trims, and the favourable growing conditions meant that a more viable and cost-effective option was required.

Trials involved spraying the grass margins from the Blue Pool upstream to the Fence Pool on the Tongariro River on the true left bank. Dense thickets of blackberry along the edge of the track were also sprayed to reduce the likelihood of long blackberry runners catching on waders or fishing rods while anglers walked along the tracks. As part of the trial, the edges were cut and then sprayed once the grass had started to regrow after only a few weeks. This really knocked the grass back during January and

kept the tracks tidy until early November and useable during the busy winter period. Areas through the bush, where grass growth was minimal, were left unsprayed to avoid making the area look unsightly and brown.

Permission to spray along the Tauranga-Taupō track was granted by New Zealand Forest Managers, and this is one track that can take the team several long days to cut back in spring using scrub bars and hedge trimmers. However, it took two staff only half a day to spray most of the fishable length of the river up to approximately Kereru Lodge. Only the angling tracks were sprayed and no spray was applied to vegetation near the water's edge. Glyphosate 360 (Round Up) was used to kill the bulk of the grass, while Grazon was used on the woody species, such as blackberry, further back from the waters edge. Once again, this was a success and is a much more efficient use of staff time.

Talking with anglers, it quickly becomes clear that two of the simplest things we can be seen doing to make them happy is checking licences and ensuring that angling tracks are tidy and free of obstructions. Through the use of herbicide sprays, we hope to be able to minimise the time spent track cutting and focus more on other work such as compliance and fishery monitoring. 🐟

What's up at TNTC

By Randal Hart / Tongariro National Trout Centre Site Ranger



Since the last 'What's up at TNTC' article there have been a few things happen that will have a positive impact at the Tongariro National Trout Centre (TNTC). The first is the completion of the new Tongariro River Trail track, which now gives visitors the option to cycle or walk a loop covering both sides of the Tongariro River between Turangi and the Red Hut Bridge. The new part of the track passes the TNTC site and gives track users the option to add a visit to the TNTC as part of their experience. While dogs and riding of bicycles are not permitted within the TNTC, provision has been made for visitors to park their bikes or tie up their dogs in a dedicated area to allow visitors to enjoy the site. The Tongariro River Trail is a great day's experience, so why not pack a lunch, walk or cycle the trail and have a picnic at the TNTC.



MAIN IMAGE
The TNTC is a popular stop-over destination on the new Tongariro River Trail.
Photo by Pete Shepherd

ABOVE
Tongariro National Trout Centre raceways.
Photo by Pete Shepherd



‘The eels and kōura are still the favourites for visitors’

TNTC has been selected as a site for a hardening up facility for captive-reared whio (blue duck) ducklings before they are released into the wild. The purpose of the facility is to give those ducklings that don't have any parental guidance the opportunity to learn how to swim and feed in a controlled environment. The ducklings are then released into the wild before they become imprinted to human contact. Department of Conservation (DOC) staff are actively developing a specification for the proposed facility that will be reviewed and hopefully accepted by the Whio Recovery Group. The proposed date for the first whio to arrive is Summer 2013/2014, and their presence will be an invaluable asset that will greatly enhance a visitor's experience to the TNTC.

The aquarium continues to attract a lot of interest from visitors, and the DOC rangers enjoy talking to anyone about the fish in the tanks. The eels and kōura (freshwater crayfish) are still the favourites for visitors although it is rewarding to see people leave

with a greater appreciation of the other native fish in the aquarium. Some of the fish are getting quite big now and the eels are getting very cheeky as well. The kōura were put in a separate tank and once again they hid under the infrastructure of 'apartments' made from small plastic pipes that was put in place to give them somewhere to hide from each other. These apartments have been removed and the kōura are now more visible even though they are hiding by the rocks in the tank.

During June this year, I presented a paper at the New Zealand Zoo and Aquarium Association conference in Auckland. The paper discussed the trials, tribulations and rewards during the design, building and operation of the Genesis Energy Freshwater Aquarium located at the TNTC. The conference also gave me the opportunity to meet other like-minded industry people and many good contacts were made. The programme of raising Tarawera lakes and Lake Otamangakau fish for the experimental release of early run fish into Lake Taupō, Tongariro River and Lake Otamangakau has been completed. The Tarawera fish were originally donated by Fish and Game for the experiment, and the Otamangakau fish were obtained by DOC staff. The article 'Reinstating the early run: Act 3' in this issue of *Target Taupō* discusses the experiment and that the released fish were marked

with a yellow or pink dye mark. There were a number of surplus fish from this experiment, which DOC donated to Fish and Game and the Lake Rotoaira Trust as they could not be released back into Lake Otamangakau due to the lake's current high stock numbers. Fish and Game released the fish at selected sites in Northland, Hawke's Bay and Wellington, and the Lake Rotoaira Trust released 4,300 trout into its lake. The donating of the surplus fish to Fish and Game and the Lake Rotoaira Trust was a significant relationship-building exercise, and has potentially helped the improvement of trout fishing in areas recently affected by floods. It will also be interesting to see how Lake Otamangakau stock grows in Lake Rotoaira as these fish can be identified by a clipped adipose fin.

The Tongariro National Trout Centre Society continues to update the displays in The River Walk building and has run various competitions for kids. The kid's fish out days still prove popular, and it is rewarding to see our future anglers catch their first fish in the pond. The society has also won several prestigious awards, and the details are noted in the article titled 'Volunteer victory' in this issue of *Target Taupō*.

In the meantime, enjoy the summer fishing or pack a picnic lunch to have by the kid's fish out pond at the TNTC and remember to 'Check, Clean, Dry'.

TOP LEFT
Kōura.
Photo by Randal Hart

CENTRE
Tui, a common sight around the grounds.
Photo by Kim Alexander-Turia

TOP RIGHT
Kererū enjoying the protection of the canopy.
Photo by Kim Alexander-Turia

Back steaks from the bush

By Murray Cleaver / Taupō Field Centre Supervisor
All photos by Murray Cleaver

Venison prepared and cooked as it should be is arguably the most tender and best tasting red meat on the planet. It is no wonder that the kings of long ago took an extremely dim view towards poaching. To be able to sit around a barbecue and share some succulent tender back steaks with friends and family is an extremely rewarding and satisfying moment for a hunter. It is moments like this that remind us just what a great place New Zealand is and how privileged we are. Sure, you need a firearms licence, but no hunting licence, no season, just a free permit, available online www.doc.govt.nz or from your friendly DOC office, and you can be away harvesting free venison. No kings or the hangman's noose to worry about! How good is that?

This, then, is the second article aimed at assisting the less-experienced hunter in being more successful in harvesting some of that prized venison for the table. In the last article, 'Back steaks for the BBQ', *Target Taupō*

Issue 62 we focused mostly on hunting clearings in spring and summer, but this time we explore the difficult art of bush hunting. This is a very broad and complex topic, as the seasons, the weather, the forest type, the terrain, the deer species and of course the hunter, all influence the way we bush hunt. It is not an exact science and there is no right or wrong, as some methods suit some hunters better than others.

It is fair to say that some bush hunters are consistently more successful than others and we envy the way they make it look so easy. We wonder what secret method they have or what secret spots they may visit. Of course, it's some of this, but it's more about the huge database of experience they have developed, the intimate knowledge of the environment they hunt, understanding the deer they hunt and about being completely at home in the bush. These hunters have reached a level where they rely on their intuition and feelings about what to do next.



They hunt the bush because they prefer to; they are not intimidated by the vastness of the forest, but are at one with it. It's an environment that draws them like a magnet, perhaps driven by something deep in their DNA. They love the anticipation of engaging with their quarry at close quarters, being able to smell them and look them in the eye. This is the essence and attraction of bush hunting and, to some, this form of deer hunting is the purest of all.

This article can't cover every bush-hunting scenario but in an effort to demonstrate the basics, we will go back in time and share a hunt with a professional hunter from a past era and see what we can learn. Hunting full time, and with deer numbers much higher than today, these hunters and the deer cullers before them had the opportunity to become extremely good hunters.

The year then is 1979, and a deer carcass is worth \$3.00 per kilogram at the local chiller. Our professional hunter has been hunting a logged over block for several years now, as the numerous roads and tracks provide him with good access and the ability to spread his hunts around. It is still dark when the Landrover pulls up at a washout, part-way along an old logging road. The hunter gets out and gets his gear ready. He swaps his lace-up gumboots for a pair of blood splattered shearers' moccasins, hitches on his sacking pīkau and straps on his knife and pouch. He reaches for his Sako .243 and remembers to top up the magazine, as the two deer from the last evening's hunt have left him two rounds short.

'They hunt the bush because they prefer to; they are not intimidated by the vastness of the forest, but are at one with it'

He slings his rifle over his shoulder and walks briskly up the logging road by torch light, full of anticipation because he is heading for one of his most productive areas. He did well here over a week ago but knows not to push a good spot because the deer will move out. It is light enough to see now, so he slips his torch into his pīkau. He lingers for a moment to enjoy the dawn, then enters the bush and begins climbing a leading side spur. The forest type at this lower altitude is predominantly tawa and mixed podocarp, with some māhoe on the faces. He climbs hard up the spur enjoying his high fitness level, not bothering to hunt, knowing the deer are not in the tawa, but are higher up. At about 700 m, the forest changes completely, with the tawa being replaced by a mosaic of trees such as kāmahī, fuchsia, black maire, various hardwoods, tall pepperwood and numerous giant broadleaf trees, and it is these large ancient broadleaf trees that hold the key, as deer love broadleaf. In a forest where the understory has been somewhat modified by browsing animals, deer rely on the leaves that these large trees shed, particularly in the winter.



TOP LEFT
Half back steak seared on BBQ and finished in a hot oven.

LEFT
This outstanding sika stag was spared from a trip to the freezer due to the trophy potential of his antlers.



Far from it! Our hunter had spent several years hunting this area and knew the environment and his quarry intimately. He planned his hunt, and knew precisely where he was going and where the deer were. Before we list some bush hunting basics, it's worth discussing more fully, two key aspects that contributed to making the hunt successful.

First, our hunter targeted an area of broadleaf (*Griselinia littoralis*), and this is a tree you should familiarise yourself with. Gut sampling has shown us that the leaves from this tree can make up over half a deer's diet, especially in winter, as it remains palatable all year round. The abundance of this tree, which can vary from forest to forest, has a significant influence on deer populations, particularly red deer, as it is a winter staple. The size of this tree can vary considerably, depending on the environment and age of the tree. In some areas the trees are rather stunted and small, whereas in other areas they are quite large with the trunks being over a metre in diameter, often

As the spur levels out, our hunter pauses to catch his breath after the climb. A male tom tit catches his eye and he can't resist brushing some leaves aside on the forest floor and enjoying the busy bird's company as it dives in close to investigate. He checks his scope, gives the lens a wipe with a tissue, chambers a round and pulls the bolt down to half cock. After slipping several times and cursing his moccasins earlier, he is pleased he is wearing them, for they now come into their own. Ahead of him is perfect bush hunting country, open, quiet, north-facing with gentle contours and numerous gentle gully heads and seeps, and it is here, where the large broadleaf trees spread and drop their leaves, the deer will be. He has a good feeling about this morning as the conditions are ideal. The recent rain has freshened things up and even though it is mid-September, he knows the deer are still up in the broadleaf but will be moving down onto the new growth and māhoe faces soon, so he is keen to get in a few more hunts before they disappear.

There is no wind at the moment but he knows what direction it will come from when it does pick up. He moves off quietly, sidling along slowly just below the ridge top, pausing here and there and taking everything in. He is in a heightened state of awareness and totally tuned into the bush environment. He is missing nothing! Numerous deer tracks, etched sharply in the black damp earth, increase his anticipation and he knows it won't be long now. He follows deer tracks in and out of several gully heads and as he approaches a large familiar

gully he smells them. The strong unmistakable scent of red deer lingers in the still air. They are close, very close! He eases forward slowly and as the gully head comes into view he spots them, two young stags, still carrying their hard spikes and winter coats, are busy picking up broadleaf leaves from the forest floor. He eases down the bolt and slowly raises the rifle and gives a fawn call. The deer come to attention, standing rock solid and staring in the direction of the sound. Finding the deer quickly in the scope, which is set on two power, the first deer collapses from an easy neck shot and as the second deer spins and runs, the hunter lets out three loud fawn calls. The young stag stops immediately at the top of the gully head and the hunter has his second deer. He searches around in the leaf litter, finds his first spent cartridge and slips it into his pouch along with the second one. With practised ease, he quickly guts the deer and drags them over a log, then wedges a stick across each chest cavity to hold them open and help them cool. He is hopeful of least another kill before the wind gets too strong, so he continues with his hunt. He is going to be busy today as he will shoot a hind and yearling on a bench not far ahead and it will be sometime before he has carried all four deer down to the logging road below. It will be a late lunch!

The hunt we just shared did actually occur and the successful outcome didn't just happen by chance. It would be a mistake to think that there were deer everywhere in those days and it was just a matter of heading off into the bush and shooting them.

LEFT
Broadleaf is candy for sika.

ABOVE
Caught red handed, sika hind feeding on broadleaf.

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growing in groves. In all cases, the deer feed on the leaves that the trees shed and drop to the forest floor. New seedlings don't stand a chance and in many cases they only survive as epiphytes. In some locations, these trees are found more in abundance in a band of forest that grows between 700 m and 900 m and, as in the hunt described above, excellent results can be achieved by targeting these areas.

Second, the use of a fawn call was an interesting tactic used in the hunt. If you can master this call it can be used with excellent results all year round. Our hunter raised a pet deer and perfected his calls that way, but it is easier today because you can visit a deer farm and learn from the farmed deer. You will be amazed at the amount of calling the hinds and fawns undertake but try to learn the hind call as well as fawn call. The fawn has two basic calls, one where it calls for its mother and another where it answers its mother. The call gets slightly deeper and louder as the fawn gets older, and this call is the easier one to make. Then again, you could simply pop down to the local sports shop and buy the latest electronic deer caller, which has all the calls loaded, however, they lack the subtleties needed for various hunting situations. The idea of using a fawn call is to confuse the deer into thinking you may be another deer, but it will only work if they haven't winded you. Not only can the call be used as described in the story but also when deer have taken fright and have started barking just out of sight. By using a series of 'Where are you?' calls, with the odd hind call thrown in, the deer will often give itself away by either holding its ground, perhaps changing position slightly or sometimes even coming forward or out to the open. If you can master the fawn call you can expect to achieve about a 50% strike rate on barking deer, particularly red deer, and it is certainly a lot of fun. 🦌



LEFT
Sika fawn.

Here is a summary of some basic skills

- **Get to know your hunting areas intimately.** Use a GPS, Google Earth, maps, compass and so on to help you. The more you respect and understand the forest the more it will open itself up to you and share its secrets and bounty.
- **Plan your hunt.**
- **Hunt to your fitness level.**
- **Hunt after rain when the bush is quiet.**
- **Learn your trees and plants and what deer eat, particularly broadleaf.**
- **Preferably hunt alone.** If you do hunt with a companion, never separate. Over 80% of hunting fatalities are when mate shoots mate.
- **Face your fears about getting lost.** Be prepared to hunt until dark.
- **Use quiet footwear and clothing.** Avoid heavy boots with stiff shanks.
- **Hunt early and late when the deer are more active and the wind is light.** The best times are the first 3 hours and the last 3 hours of daylight.
- **Sidele through gully heads and benches, particularly in winter.** Hunt higher in the winter, lower in the summer.
- **Hunt at a moderate easy pace, cover some country and learn to slow up and pause at fresh signs or key places.** For example, always pause at saddles, gully heads or benches.
- **Hunt into the prevailing wind direction.** Don't worry if the wind swirls and beats you sometimes, keep going. Avoid hunting in very windy conditions.
- **Understand thermals.** For example, be above the deer as the day warms up.
- **Learn and use the fawn call.**
- **Enjoy your hunt and always try to learn something. No hunt is a bad hunt.**

The best way to learn and be successful is to get out there and do it. Good luck!

DOC GIFT WELL RECEIVED BY LAKE ROTOAIRA TRUST



ABOVE
Pristine Lake Rotoaira.

BELOW
Willie Marshall, Sam Konui, Randall Hart, Tevin Turanga, Mike Hill and Neal Turanga.

By **Pete Shepherd** / Community Relations Ranger
All photos by *Pete Shepherd*



Lake Rotoaira is a privately owned lake administered by the Lake Rotoaira Trust on behalf of its 11,000 owners. The lake is located south of Lake Taupō and has a reputation as a great sport fishery as well as being an iconic lake for Ngāti Tūwharetoa. Earlier this year an offer of several thousand juvenile rainbow trout was made by the Department of Conservation (DOC) to the Lake Rotoaira Trust—this article documents the historic release.

In October this year approximately 4,300 juvenile rainbow trout were successfully released into the Lake Rotoaira fishery as a gift from DOC to the Lake Rotoaira Trust. These trout were initially raised for an experimental release, investigating the possibility of re-instating the early run in the rivers of the Taupō Fishery. However these fish were surplus to the required need for this experiment. The trout



‘The rainbow trout caught within the lake are reputed to be some of the best eating fish in the district due to their diet now consisting mainly of bullies and kōura’

CLOCKWISE FROM LEFT
Rangatahi ready the transfer bins.

DOC readies the fish for release to whānau.

Kaitiaki Ranger Neal Turanga weighs the yearlings for transportation.

Whānau create a human chain to release their precious cargo.

Ray Packer transferring the yearlings into the transport container.

were from fertilised ova from neighbouring Lake Otamangakau via the Te Whaiu Stream fish trap and were subsequently raised to the yearling stage (approximately 200 mm in length) at the Tongariro National Trout Centre in Turangi.

Given the relatively high population of trout already in Lake Otamangakau, DOC didn't want to add more fish to the system so a new home was needed for these fish. Hence the offer was made to the Lake Rotoaira Trust, given the suitability of the fish.

The first tanker-load of trout arrived at the shores of Lake Rotoaira against a backdrop of the majestic vistas associated with the Rotoaira basin. Met by whānau and a small fleet of boats, the first of six short trips began. One-third of the fish were transported by boat to three separate locations on Lake Rotoaira under the direction of the Trust's ranger. The first land-based release occurred in the Wairehu Stream, which flows alongside the Otukou marae. At this location, kaumātua and whānau of all ages joined in with the release and enthusiastically liberated approximately 750 trout into their new environment. These trout should return to their release site within

two years to spawn in the Wairehu Stream and repeat the cycle on their own.

The remaining trout were released at the Opotaka boat ramp and at the Poutu Canal. It will be of great interest, in the near future, to see how these fish grow and behave in the Lake Rotoaira catchment.

Prior to their release the trout were marked by clipping the adipose fin, located between the dorsal fin and the tail. This fin does not re-grow and will help identify these hatchery-reared trout when they are caught by anglers or when they pass through the Wairehu Stream fish trap as adults. This will ultimately help the Lake Rotoaira Trust collect valuable data on fish growth and survival rates to determine the overall success of the project over the next two to three years.

Anglers who land fish identified in this way are asked to report key information such as length, weight and location to the Lake Rotoaira Trust Ranger based at the Lake Rotoaira Campground. Details of marked fish caught can be emailed to the Trust at lakerotoairatrust@gmail.com

Lake Rotoaira is a relatively large lake that contains a large population of rainbow trout in the 1-1.5 kg (2-4 lb) range although fish around 5-6 lb do still get caught. High catch rates can be expected during summer especially when harling along the drop-offs around the bush-clad lake margins. With depths ranging to 12-13 m, boat fishing is best done using lead lines. Fly fishing around the dense weed beds can also be very productive from a boat using sinking lines and a woolly bugger fly. The rainbow trout caught within the lake are reputed to be some of the best eating fish in the district due to their diet now consisting mainly of bullies and kōura.

With very little fishing pressure and an amazing scenic backdrop, this lake is a great place to take a kid fishing. A Taupō fishery licence is required and an access permit can be purchased from the I-site in Turangi and from the Lake Rotoaira campground. For more information please contact Maria Nepia, maria@tihia.co.nz 🐟



FAR LEFT
High conservation intelligence – 100 kayakers and rafters turned up 100 % Checked, Cleaned, Dried ready for a recent recreational release. Ally Price of the University of Auckland Canoe Club giving a talk on the importance of the Check, Clean, Dry programme.
Photo by Anna McKnight

LEFT
Andrew Walsh of the University of Auckland Canoe Club helping spread the message by proudly displaying Check, Clean, Dry bumper stickers.
Photo by Anna McKnight

BELOW
Marise Gold of Wellington came up with this beaut' of a winner in a recent competition for a new Check, Clean, Dry banner. Designed by Nelson Signs, Napier.

**REAL MEN KEEP THEIR
TACKLE FREE OF WEEDS
CHECK CLEAN DRY**

DIDYMO CAN GROW IN

By David Cade 'Didymo Dave' / Freshwater Threats Ranger

Earlier this year, I was often asked 'What on earth are you doing?' as I walked around with my fingers, toes and everything else I could possibly cross crossed and constantly looking to the heavens. Well, the answer is scientists from the Cawthron Institute, a science and research facility in Nelson, had taken water samples from 13 North Island rivers, including the Tongariro River, and were testing them to find out if didymo would grow in them. Hence the fingers and toes business, and the visions I had of my role becoming a little easier if it was shown that didymo would no longer be the major freshwater threat to the central North Island. Sadly, it was not to be. The scientists reported back the following.

Didymo cells can survive, attach and divide in water with a wide range of elemental and nutrient concentrations, including water from North Island rivers and groundwater-fed creeks.

This was not the news I wanted to hear, and so it was back to the battlefield to continue the mission of protecting the rivers and lakes of New Zealand but

particularly the Taupō area for the benefit of the next generation, the children of Aotearoa.

Some people still think I'm fighting didymo, and I can understand why they think that. But no way, not me. You see, didymo can't move on its own, it can't fly and certainly isn't going to moonwalk up State Highway 1 and jump in your favourite river. It has to be transferred. So for it to arrive in the central North Island, something has to transfer it here. I've got ample common-sense examples demonstrating birds are not moving freshwater weeds so what's the transfer agent? It's simple: it's human-controlled activity. So I'm in a people fight. Obviously, not against all people, there are many who CHECK, CLEAN, DRY and do great conservation work, and I congratulate every one of them. It's the group made up of people from different genders, ages, races and so on that doesn't care about this country or have consideration for others that is the problem. Strong words? Absolutely.

So let's look at some facts. First, the bed of Lake Taupō and its tributaries belong to the Ngāti

NORTH ISLAND WATER

Tūwharetoa people. So if didymo or any new freshwater weed was transferred into the Taupō area it would be on Māori land that it grew. As a young boy in the 1960s fishing the Waitahanui River with my dad, he taught me that we were on Māori land, that it was a privilege to be there and to have respect for that land. I learnt never to leave rubbish or drop nylon or to walk through watercress, because that was food, and so on. It was then natural for me to pass those lessons on to my sons Simon and Hadlee, and I'm proud of the conservation habits they have developed.

Second, scientists in New Zealand have learnt an awful lot about didymo since its arrival in 2004 and have developed amazing tests to detect its presence in water. But despite the great science effort there are still gaping holes in our knowledge of didymo and its behaviour.

Third, didymo isn't something that people either like, or they don't. Everyone detests it and no one wants it in their favourite piece of fishing water.

So if we accept the total dislike of it and the hope it will never get in your favourite river or lake and add in the gaps in our understanding of didymo I would think that's more than enough to motivate people to take zero risks and clean their gear between all waterways. But when we top it off with having respect for others' property plus the recommendation from the Cawthron Institute scientists that the CHECK, CLEAN, DRY programme be continued, and yet still some people won't clean their gear? Then it's time to call it as it is. That's low conservation intelligence. So come on people, use the CHECK, CLEAN, DRY programme to keep didymo and freshwater pests out of your rivers and lakes. It works if you work it. 🐌



LAKE OTAMANGAKAU SPAWNING RUN SUMMARY

By Ray Bond / Fishery Operations Ranger

THE 19TH TRAPPING SEASON AT TE WHAIAU

We have had another successful trapping season at Lake Otamangakau this year, the 19th season since the operation was initiated in 1994. Fish traps were operated in both the Te Whaiiau and Papakai streams from 2 April through until 6 September 2012. The Te Whaiiau Stream trap operation is by far the largest, with approximately 4,355 fish passing upstream to spawn this year, whereas there were less than 500 trapped in the Papakai Stream. These streams are the main tributaries for Lake Otamangakau, and therefore the data summarised below will give you a good indication of the size and quality of fish you can expect to catch this season.

The data collected at the Te Whaiiau fish trap is summarised in table 1. The brown trout spawning run peaked in May, with 492 fish trapped, and rainbow trout peaked in July, with 1,331 fish trapped during the month. The busiest day in the trap was 20 June where over 250 spawning trout were weighed and measured. A total of 984 brown trout and 3,371 rainbow trout were monitored in the Te Whaiiau Stream over the season.

The monthly run counts and rainfall are summarised in figure 1. The brown trout spawning run was all but over in July, however, this is when the rainbow trout run peaked. Fish generally move upstream during a fresh in the spawning season, and figure 1 shows that the rainbow trout spawning run correlates nicely with the total monthly rainfall recorded at the trap site.

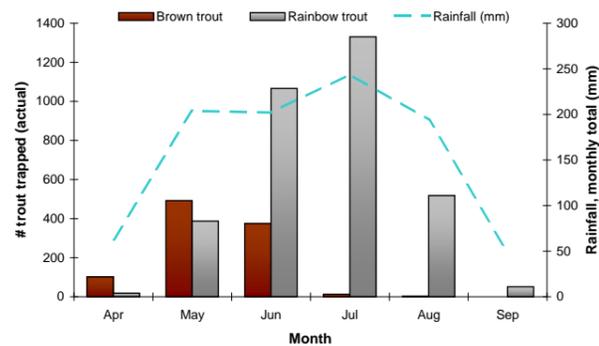


Figure 1: The number of brown and rainbow trout trapped in the Te Whaiiau stream and total rainfall each month during the 2012 spawning run

Table 1: Te Whaiiau Stream fish trap operation summary

MONTH	BROWN TROUT	RAINBOW TROUT	TOTAL RAINFALL (MM)	NO. SIGNIFICANT FLOOD EVENTS	TRAP DOWN TIME ¹ (HRS)
April	101	18	63	0	0
May	492	387	204	2	6
June	375	1,066	202	1	11
July	13	1,331	244	2	62
August	3	518	194	1	4
September	0	51	49	0	0
Total	984	3,371	956	6	83

¹ Trap down time is the number of hours that the fish trap is not functional and trout can pass upstream or downstream freely due to flooding.



We had a wet winter and the trap flooded on six separate occasions. The largest flood event was recorded in mid-July (15-16 July) and was the highest seen for several years with a total of 149 mm rain recorded at the trap site over 48 hours. Overall, July was the wettest month, with 244 mm of rain recorded, although close to 200 mm of rain was recorded for the other months of May through to August. April was the driest month, with 63 mm of rain recorded. When the streams flood and the water level rises above the trap, trout can pass freely upstream or downstream and the data associated with these fish is not captured.

There were over 80 hours this season where the streams could not be trapped due to flooding, however, the raw trapping data is adjusted to estimate the number of fish that are not captured during flood events. All upstream trout are marked with fin clips to allow the trap operators to identify if the fish has been weighed and measured before spawning. The clips are coded to identify which year(s) the fish was trapped. We estimate the proportion of fish that passed over the trap during a flood by monitoring the kelt or spent fish passing back downstream for fin clips, and then calculating the proportion of clipped and



MAIN
Canadian volunteer Jesse Gow and ranger Ray Bond working in the Te Whaiiau fish trap.
Photo by Megan Mae

ABOVE
Te Whaiiau fish trap in full flood 16 July 2012.
Photo by Ray Bond

Table 2: Adjusted run of trout through the Te Whaiu Stream fish trap during 2012

SPECIES	SEX	ACTUAL NO. TROUT TRAPPED	% KELTS S WITH FIN CLIP	ADJUSTED RUN TOTAL ²	TOTAL
Brown trout	Female	459	67	685	984
	Male	269	90	299	
Rainbow trout	Female	1,802	77	2,340	3,371
	Male	876	85	1,031	

unclipped kelts. The upstream figures are divided by the proportion of clipped downstream fish to give a more accurate indication of the numbers of spawning fish. For example, 1,802 rainbow female trout were trapped this season. However, of the 210 rainbow female kelts trapped after spawning, only 77 % (161) had been clipped. Therefore, to calculate the number of rainbow female trout that are likely to have spawned in this stream, we divide 1,802 by 0.77. The 'adjusted' figure would therefore be 1,802 divided by 0.77 which equals 2,340 trout. Table 2 summarises the number of trout spawning this season for each species. It is interesting to note that in recent years the number of female rainbow trout is approximately double the number of male trout.

TROPHY STATUS IMPACTED BY INCREASED NUMBER OF FISH

The spawning run totals recorded since 1994 are summarised in figure 2 and show that the number of fish in Lake Otamangakau has increased steadily over the years. The increase peaked around 2008 and since then there has been a slight decline in numbers in both species.

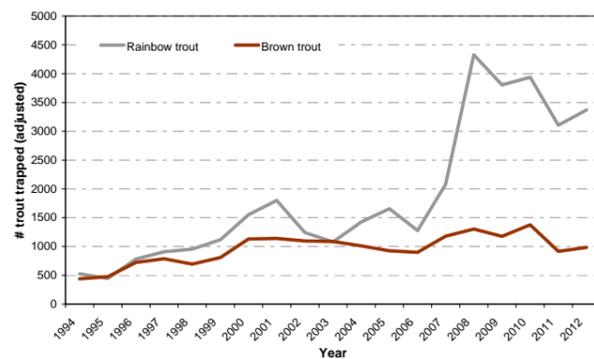


Figure 2: Adjusted spawning run totals for rainbow and brown trout through the Te Whaiu trap between 1994 and 2012

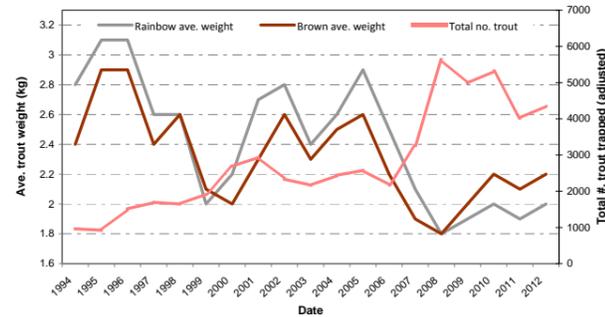


Figure 3: Average weight and combined spawning run totals for both rainbow and brown trout through the Te Whaiu trap between 1994 and 2012

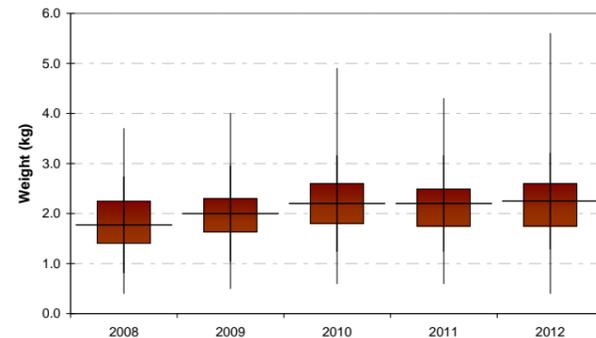


Figure 4: Brown trout weight range recorded over the past 5 years in the Te Whaiu fish trap

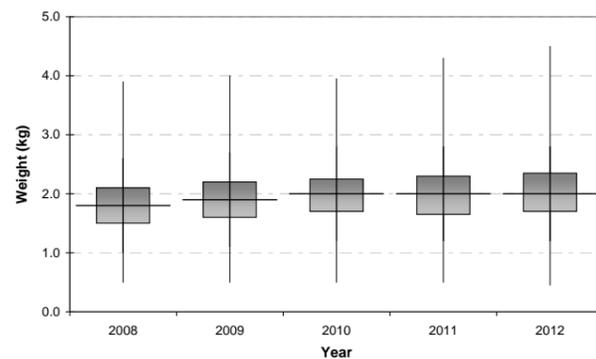


Figure 5: Rainbow trout weight range recorded over the past 5 years in the Te Whaiu fish trap

² Adjusted run total = actual number of trout trapped divided by the proportion of clipped kelts.

The average trout weight inversely correlates with the number of fish spawning, as shown in figure 3. The average weight of trout trapped in Te Whaiu was lowest in 2008 at 1.8 kg (3 lb 16 oz) when the spawning run was the highest with 5,633 trout. Now, in 2012, where the total run has dropped to 4,355, the average fish weight has increased to just over 2.0 kg (4 lb 7 oz). Figures 4 and 5 show the weight variance over the past 5 years as 'box and whisker plots' for brown trout and rainbow trout, respectively. Overall, there is a steady upward trend in the median, upper and lower quartiles, and maximum weights, although the median weight for rainbow trout over the past 3 years has been relatively stable. The slight improvement appears to be due to the small drop in the overall number of trout. Statisticians amongst you might argue that the increase is not significant, nevertheless, the data is moving in the right direction.

Clearly, the increase in the number of fish since the 1990s has resulted in increased competition for food in Lake Otamangakau. As a consequence, we have seen the average fish weight reduced by a third, ultimately affecting the trophy status of the lake. We therefore have to determine whether the majority of anglers would prefer the present situation with more fish in the lake and therefore a greater chance of catching fish, or should we reduce the number of young fish in the lake to encourage more trophy fish. A recent satisfaction survey of regular anglers to Lake Otamangakau has indicated that there may be a preference to have fewer young fish in the lake to make way for the larger trophy fish. The feedback from this survey will contribute to the review of the fishery management plan in due course, however, until then we would like to encourage you to take legal-sized fish from the lake to help reduce the overall population size. There is also the option of extending the fishing season by one month until the end of June (instead of May), like it used to be. Increasing angling opportunity should reduce the overall population.

SMALL-SCALE EXPERIMENTAL RELEASE

With the above data at hand, it may concern some anglers to hear that we have translocated a small number of juvenile rainbow trout from Tawarewa lakes to the catchment of Lake Otamangakau. However, these fish have been selected over many years for size, condition and growth rate, therefore, they have the potential to grow to trophy-sized fish and contribute to the wealth of the current gene pool. There were 250 released just downstream of the Te Whaiu trap and 250 released in Lake Te Whaiu.

The fish have been marked with a yellow fluorescent material behind their right eye so they can be monitored each year (for further details on the marking process, refer to 'Reinstating the early run: Act 3', by Michel Dedual and Elizabeth Heeg, in this edition of *Target Taupō*). With their genetic make up, the fish have the potential to grow to trophy size quickly, therefore, it will be a good study to see how the environmental factors influence their growth rate compared with other fish in Lake Otamangakau. The released fish will be monitored through the Te Whaiu fish trap and catch information provided by anglers. If you catch a marked fish, please let us know the marking colour, catch location, sex of the fish and any other information you may be able to collect, such as length and weight.

TOP 10 TROUT TRAPPED

The distribution of fish weights monitored through the Te Whaiu fish trap this season is presented in figure 6. The majority (63 %) of brown trout were between 2 kg and 2.95 kg (4 lb 7 oz to 6 lb 8 oz), and the majority of rainbow trout (69 %) were between 1.5 kg and 2.45 kg (3 lb 5 oz to 5 lb 6 oz). Despite the overall decline in the average weight since 1994, we are still seeing some beautiful fish through the traps. The 'top 10' fish trapped this season have been summarised in table 3 (see over page). The heaviest (and biggest) fish was processed by ranger Harry Hamilton, weighing in at 6.4 kg (14 lb 2 oz) and 740 mm long. Harry said that she was in superb condition for her size.

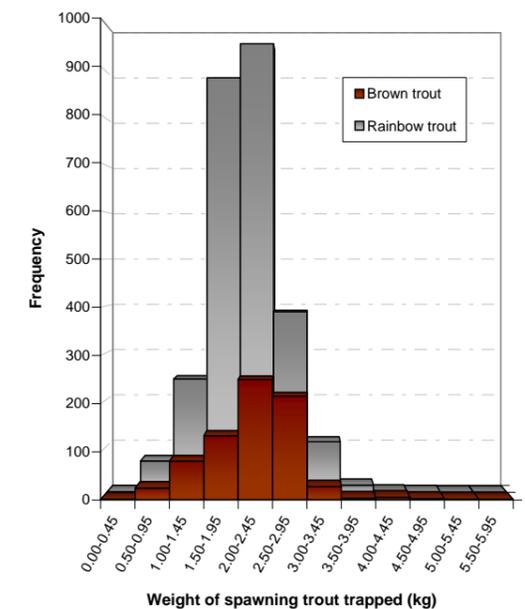


Figure 6: Trout weight frequency histogram for fish trapped in the Te Whaiu stream, 2012

BELOW

This brown jack measured in at 4.35 kg (9 lb 9 oz), 720 mm long, however, it was only the sixth heaviest fish trapped in 2012.
Photo by Ray Bond



Table 3: Trap data for the 10 heaviest fish in 2012

WEIGHT (KG)	WEIGHT (LB OZ)	LENGTH (MM)	SPECIES	SEX	ESTIMATED AGE (YRS)	SPAWNING STREAM
4.00	8 lb 13 oz	645	Rainbow	Female	5	Te Whaiiau
4.05	8 lb 15 oz	665	Brown	Male	>5	Te Whaiiau
4.05	8 lb 15 oz	695	Brown	Male	6	Te Whaiiau
4.15	9 lb 2 oz	690	Brown	Male	7	Te Whaiiau
4.35	9 lb 9 oz	720	Brown	Male	7	Te Whaiiau
4.45	9 lb 13 oz	485	Brown	Female	>4	Te Whaiiau
4.50	9 lb 15 oz	495	Rainbow	Female	>4	Te Whaiiau
5.10	11 lb 4 oz	715	Brown	Male	7	Te Whaiiau
5.60	12 lb 6 oz	735	Brown	Male	>6	Te Whaiiau
6.40	14 lb 2 oz	740	Brown	Female	7	Papakai

OTHER VISITORS TO THE TRAP

The trapping operation at Te Whaiiau Stream can be a lonely business. Occasionally, an angler might stop by and say hello and check up on the latest trap data. This season, we had regular visits from a pair of whio (blue duck), often feeding around the Te Whaiiau fish trap in close proximity to the trap operator. We also had a couple of unexpected visitors – two female tuna (longfin eel). One was caught in the Papakai trap, and the other was caught in the downstream pen of the Te Whaiiau trap. We contacted John Morgan, tuna conservationist, who monitors the local tuna population. John explained how they change shape when they get ready to migrate – their head becomes much more streamlined and their eyes enlarge to up to twice the normal size, as shown in the adjacent photo of the landed tuna. John weighed and measured the tuna then released them in the nearby Whanganui River to start the long migratory journey to the tropical Pacific for spawning.

ANGLERS ENCOURAGED TO TAKE SMALLER LEGAL-SIZED TROUT

In summary, the trout spawning run numbers increased by approximately 8 % since last year, and the average fish weight increased by 5 %. Close to 80 % of the mature fish population at Lake Otamangakau is rainbow trout, and you can expect over 60 % of your catch to be 1.5 kg to 2.5 kg (3 lb to 6 lb). Two-thirds of the rainbow trout you catch are likely to be female (hens). The brown trout make up the remainder of the population, and close to 70 % of your catch is likely to be 2 kg to 3 kg (4 lb to 8 lb). You can expect about 5 % of the population (rainbow and brown trout) to be above 3 kg (6 lb 10 oz). The current trout population has doubled since 2007 increasing the overall competition for food. We therefore encourage you to take, rather than release, smaller legal-sized fish to reduce the overall population size and promote growth in the larger fish. Soaking the trout in a brine before smoking helps reduce the ‘earthy’ taste for fish from this catchment.

We hope you find the data presented above useful and that it inspires you to fish the special place known as ‘Lake O’. All the best for the 2012/13 fishing season, and a big thank you to the anglers who completed our annual satisfaction survey. 🐟



TOP
Large female tuna (longfin eel) trapped in the Papakai fish trap mid-July ‘playing dead’.
Photo by Ray Bond

BOTTOM
Tuna conservationist John Morgan weighing the tuna before release into the Whanganui River.
Photo by Ray Bond

THE BENEFITS OF ANGLER FEEDBACK

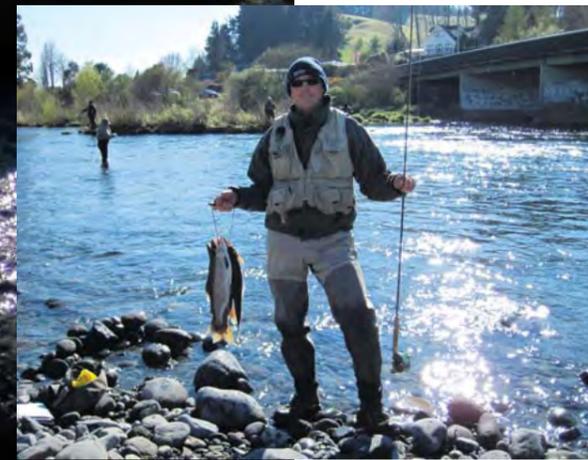
By Mike Hill / Fishery Operations Ranger

I can remember fishing with my father as a youngster. An important lesson he passed on to me is a craft I continue to practise to this day, that being the power of positive thinking. This is no new secret, and I am sure without some degree of positive hope an angler wouldn't be out there fishing in the first instance – although it doesn't hurt to be reminded of this. For that reason, I avoid negative thoughts that would most certainly not serve me. Therefore, I acknowledge and simply consider all the elements involved to better understand the fishery.

As a passionate and dedicated angler, I have developed a sense of understanding about our fishery

over the years. More so have my eyes widened due to the education and insights I have gained during my involvement with the Department of Conservation (DOC) and conversations I've had with other anglers. Being engaged in the many assignments, information gathering and tasks or just being out in the field, has further extended my awareness of what affects and impacts the fishery.

Among our tasks, creel surveys are an important and effective tool in gaining an overall view of the fishery from an angler's perspective. Each year, a large portion of our monitoring pays particular attention to these surveys. Creel surveys occur during the



MAIN
Catch bag limit on the bank.
Photo by Ray Bond

ABOVE
The benefits of September fishing.
Photo by Ray Bond

BELOW
Traditional woven creel basket.
Photo by Anna McKnight

summer months on Lake Otamangakau and Lake Taupō and on the larger rivers between Taupō and Turangi during the winter. Creel means basket and in this context a basket of fish (or no fish), therefore a creel survey is a questionnaire on your basket of fish or similarly your fishing experiences.

The objective of creel surveys is to establish the angler catch rate. By comparing them over time we can identify any trends in each of the lakes and rivers.

Surveys allow us to measure angler satisfaction with trout size and quality as well as angling success and enjoyment. It is also a great opportunity to check

licences and take heed of any angler concerns. This provides anglers with a face to the fishery. Some anglers get checked quite often over the season but we still encounter the odd old-timer who has never been checked before in decades of angling! Often, the ranger on the river or lake is the only point of contact that an angler will have with DOC.

Approximately 1,000 interviews are completed on the Taupō tributaries over winter with a similar number being completed on Lake Taupō during the summer months. This large sample of anglers provides us with valuable data on compliance (for example, licensed versus unlicensed anglers), catch rates, preferred angling methods, the number of undersized fish caught and returned, fish size and condition as well as angler satisfaction. This data can be compared over recent decades and trends identified. Having a large dataset collected over such a long period highlights the peaks and troughs and shows just how cyclical the Taupō fishery is. It is a dataset that other fishery managers around the world would be envious of.

A more in-depth harvest survey occurs every five years, but creel surveys are an important tool in between.

Creel surveys are a great opportunity for building relationships between the angler and the ranger and, more importantly, it is your chance to tell us what you think. There are many different views among anglers about the state of the fishery and the causes of change. Angler satisfaction and opinions can be quite varied, and by comparing the many view points, creel surveys allow us to develop a quick picture of recent and current fishing success. We will hear of a good run and witness decent fish being caught, which we can pass on to help other anglers. Of course, it's great for me being an angler; I can assure you that after work I'll use that information the best I can.

Many of you may have been approached, sometimes frequently, by a ranger during the 2,000-plus interviews we conduct on the lakes and rivers annually. We recognise that for a lot of anglers, fishing is their place of peace away from the daily control and of course the last thing they want is to be interrupted, therefore we thankfully acknowledge you for your time and contribution. The information we gather from creel surveys is thanks to your cooperation. Your involvement is helping us decipher any change for the betterment of our fishery, so keep up the good work. 🐟



MAIN
Fun for the whole whānau.
Photo by Ray Bond

LEFT
Alan (Worm) McPherson all the way from Chicago to stalk the big Tongariro browns.
Photo by Dave Conley

Exploring future opportunities for the Taupō Fishery



By Kim Alexander-Turia / Community Relations Programme Manager



In issue 64 of *Target Taupō* we discussed the current status of the Taupō Sports Fishery Management Plan (TSFMP). A review of this plan is required to be completed by the Department of Conservation (DOC) every 10 years, and in early June 2011 a discussion document asking eight key questions about the Taupō Fishery was released into the public arena. The purpose of this document was to encourage discussion and invite feedback from anglers and key stakeholders. Whilst this exercise produced some interesting results, the pool of respondents was not as big as expected, with only 90 responses received.

The next stage was to go to full formal public submission for the TSFMP. However, DOC felt that

it was important to have a close look at the present management regime and identify opportunities and options for the future of the Taupō Fishery, before the TSFMP was finalised. To do this, DOC kicked off a review of the fishery in August this year. The objective of the review is to ensure the Taupō Fishery delivers an internationally renowned and sustainable fishery, as well as contributing to the social, economic and cultural wellbeing of the region.

To achieve the review objective, DOC wants to ensure that:

- Taupō is an internationally renowned sustainable fishery and destination for anglers
- the Taupō Fishery is an integral and integrated part of Destination Great Lake Taupō, and DOC's management contributes to the social, economic and cultural wellbeing of the region
- angler participation in the Taupō Fishery is at the optimal level
- management of the fishery is financially sustainable
- as the Taupō Fishery manager, DOC has the confidence of its key partner, anglers, stakeholders and the support of the wider community
- the tino rangatiratanga and kaitiakitanga of Ngāti Tūwharetoa over Taupō-nui-ā-Tia and the fisheries within the Tūwharetoa rohe is acknowledged and recognised
- DOC is meeting the Crown's obligations under the 2007 Deed with Ngāti Tūwharetoa as owner of the Taupō lake bed
- DOC understands and is well integrated and aligned with the aspirations of other fish and game managers (including the Lake Rotoaira Trust), the angling community, district and regional councils and energy companies.

CONTEXT AND BACKGROUND TO REVIEW

The 1926 Māori Land Amendment and Māori Land Claims Adjustment Act established a relationship between the Crown and Ngāti Tūwharetoa to manage the Taupō Fishery. The Crown, initially through the Department of Internal Affairs Wildlife Service and then DOC (since 1987), has exercised its part in this relationship through the management of the fishery. Further to the 1926 Act, in 2007, an agreement between the Crown and Ngāti Tūwharetoa clarified property rights and further simplified payments from those specified in the 1926 Act (including in respect to revenue from the fisheries). The 2007, agreement clarified that Ngāti Tūwharetoa owns the bed of, subsoil and space occupied by water in, and the airspace above Lake Taupō, including the Waikato

River to Huka Falls and the tributaries that flow into Lake Taupō. The overarching legislation for managing the Taupō Fishery is section 26Q of the Conservation Act 1987, which gives DOC equivalent powers to a Fish and Game Council in terms of its role of managing, maintaining and enhancing the sports fishery resource in the recreational interests of anglers.

DOC's vision is for New Zealand to be the greatest living space on earth. While this vision is bigger than DOC and conservation, DOC's purpose is to provide a conservation leadership role for a prosperous New Zealand. Ultimately, DOC wants to see New Zealanders gaining environmental, social and economic benefits from healthy functioning ecosystems, recreation opportunities and living our history.

Lake Taupō is the largest freshwater lake in New Zealand. It provides for exciting river and lake fishing all year round and attracts anglers from all around the world, in a stunning natural setting. It is integral to the economic wellbeing of Taupō and the wider region. The Taupō Fishery includes Lake Taupō and its tributary rivers, Lakes Moawhango, Kuratau and Otamangakau and the Waikato River between the Control Gates Bridge and Huka Falls. Although Lake Rotoaira is part of the Taupō fishing district, it is privately owned and administered by the Lake Rotoaira Trust.

DOC's management of the Taupō Fishery is critical to environmental, economic, social and cultural wellbeing. DOC is undertaking a review of its management to ensure that its investment in the Taupō Fishery is well targeted and contributing optimally to the overall wellbeing of the region. To do this, it will engage widely to hear the views of anglers, the tourism and economic sector, local authorities, other fisheries managers (Fish and Game and the Lake Rotoaira Trust) and from the Crown's partner in the fishery, Ngāti Tūwharetoa. Once those views have been heard, they will be used to guide the long-term direction of the management of the Taupō Fishery for the benefit of all.

DOC has also identified this as a particularly important project in the context of the current worldwide economic downturn and a recent perceived decline in the health of the fishery. The latter has drawn concern from some in the angling community as well as other stakeholders, including the Taupō District Council.

Additionally, there have been several recent structural changes within DOC culminating in a merger between the Tongariro Taupō and Wanganui conservancies. The newly created Tongariro Whanganui Taranaki (TWT) conservancy includes a new Area office, joining the fishery and Turangi-Taupō areas into one, known as the Taupō-nui-ā-Tia Area.

Key issues and opportunities for exploration

In order to achieve its overall objective, DOC has identified eight critical areas for the review team to examine. These are listed below.

1. Meeting the needs of primary customers

- **Anglers – past, present and potential – are the primary customers of the Taupō Fishery:**
 - How can the fishery best meet the needs of the anglers?
 - How do anglers currently view the fishery?
 - What is the relationship currently like with anglers?
 - What opportunities are there to work better with anglers?
 - How accessible is the fishery to anglers?

2. Effective and transparent governance

3. Management direction and systems

4. Honouring the agreement between the Crown and Ngāti Tūwharetoa, relating to the Taupō Fishery

5. Productive and positive relationships

6. Examine the current state of the Taupō Fishery

- What are the opportunities to improve it?
- What are the current interventions and what are the possibilities?
- What role does the Tongariro National Trout Centre have in terms of research and intervention aimed at improving the fishery?
- How well is the threat of a didymo and/or other pest species incursion understood?
- How can fishing pressure be relieved?

- **How are science needs currently determined?**

- How are they applied and what are the future opportunities?
- What are the issues regarding genetic engineering?

• The Taupō Fishery is cyclical:

- How well is this understood?
- How can this be better communicated?

• What role and input does the Taupō Fishery have in the broader catchment and lake management?

- Where are future opportunities?

• What is the role of the fishery in freshwater advocacy?

- What are the future opportunities?

• Taupō Fishery access:

- How is the fishery accessed?
- Who uses and accesses the fishery and its associated facilities? (For example, families, individuals, commercial operators)
- What are the issues and how are they currently managed?
- What are the future opportunities?

7. Optimising the economic contribution of the Taupō Fishery to the region

8. Maximising the Taupō Fishery's contribution to the social wellbeing of the community

These key issues and opportunities are being explored by a multi-agency team consisting of DOC staff, Fish and Game, Ngāti Tūwharetoa Māori Trust Board, Taupō District Council and the Taupō Fishery Advisory Committee. An economic assessment of the fishery is currently being undertaken to identify its actual economic value to the Taupō district, as well as a number of other studies into the state of the fishery itself and the current perception and use of the fishery by its users. An online survey was released to capture the views of fishers and non-fishers alike. The survey received over 742 responses.



WHERE TO NEXT?

As you can see, this is a very comprehensive review, which will identify strengths and weaknesses of the current management model together with opportunities for future improvement.

The review is expected to be completed by the end of 2012. It is anticipated that the approved outcomes will be incorporated into the TSFMP before it proceeds to formal public submission.

For more information about this project, regular updates on how the project is progressing and how to get involved – please visit

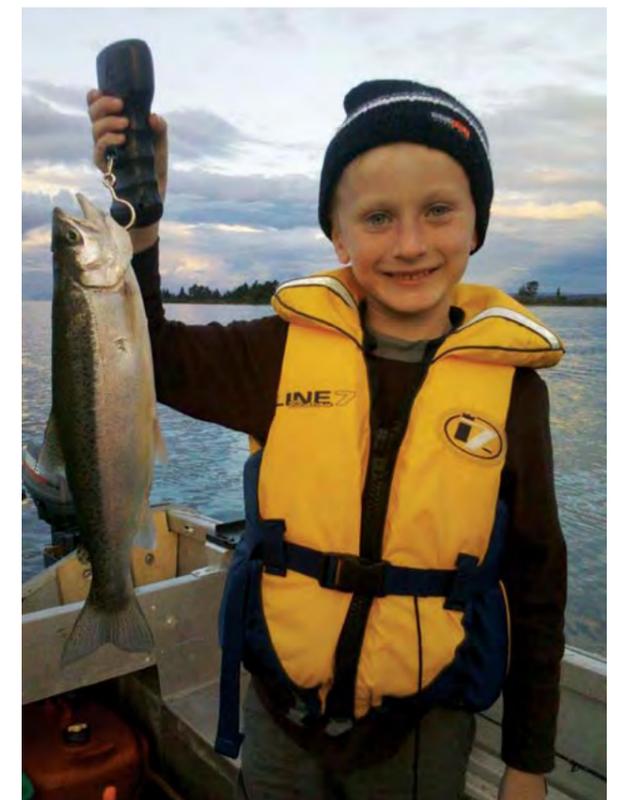
www.doc.govt.nz/taupofishery 🐟

ABOVE

Orange flesh is nice eating as it means it is a well-conditioned trout.
Photo by Susan Hastie

RIGHT

Harling on the lake is no sweat for Tommi Joyce.
Photo by Mark Venman



Supreme winner, 2012 TrustPower Taupō District Community Awards

Tongariro National Trout Centre Society



1



2



3



4



5

VOLUNTEER VICTORY

By Mike Nicholson / Taupō for Tomorrow Teacher

The volunteers at the Tongariro National Trout Centre Society are a passionate bunch. Passionate about trout, trout fishing and pretty much everything associated with the precious Taupō fishery. They recognise the value of educating about, and advocating for, this iconic fishery and, importantly, they get the opportunity to engage with visiting members of the public on a daily basis.

During public children's fish out days, held several times a year, a visit to the Tongariro National Trout Centre sees volunteers provide hundreds of budding anglers their first experience of fly fishing. For some youngsters, it may well be the only fish they ever catch, for others the start of a long career engaging with the environment and well and truly being hooked by the fishing bug! To provide a memorable experience like this you need a few things. You need a great location, you need some trout and of course you need plenty of quality fresh water. However, it is a dedicated, passionate and thoroughly reliable group of volunteers who make public fish out days, and indeed the entire Tongariro National Trout Centre experience, a reality!

The volunteers are of course passionate about fishing, but they are also keenly aware that, for there to be

a vibrant and healthy trout fishery in the area in the future, the natural environment must be able to continue to support the fishery. Learning about trout and trout fishing is important and immensely gratifying, however, the great strength of the centre and its society is their ability to engage visitors with a big picture of fresh water, its management, biodiversity and sustainable use.

The Tongariro National Trout Centre now boasts what must surely be one of the foremost freshwater aquariums in the country, the Genesis Energy Freshwater Aquarium. It is in here that volunteers are able to support visitors to the site in their understanding of freshwater issues and the range of species on display. Yes, the centre is still very much about trout, they will always be the cornerstone of all things at the centre. However, in terms of what the centre can offer visitors and learners, the contexts continue to grow and evolve.

Visitors to the Tongariro National Trout Centre can expect to engage with a raft of freshwater species and stories as they make their way around the site. For volunteers, seeing the delight on visitors' faces as they realise that the good old whitebait fritter they have so valued over the years, actually



comprises the beginnings of what turn out to be a range of seriously cool, large and engaging adult fish, is priceless. In a similar vein, introducing New Zealanders to tuna (eels) for the first time and noting the interest a familiar, yet often misunderstood, iconic native species generates is hugely satisfying. The genuinely warm Kiwi greetings delivered to visitors in the visitor centre come courtesy of volunteers who run the front desk. Outside, volunteers can often be seen driving the ride-on mowers or head down in the gardens abounding the site.

In addition, the volunteers are an integral part of the education programme that operates at the site called Taupō for Tomorrow. Taupō for Tomorrow is sponsored by Genesis Energy and works in partnership with the Tongariro National Trout Centre Society and the Department of Conservation. The programme contacts in excess of 3,000 young people on a yearly basis, and all of them visit the site because of the natural values, the range of learning opportunities and of course the trout.

Many of these visiting school groups choose to catch a trout as part of their learning experience on site. Once again, the volunteers step up to the plate and enable this to happen. Catching a trout certainly is a

fine way to cement a range of learning experiences that happen during their visit. Whether visitors are learning about water quality, food chains, resource use and management, or lifecycles, it's the trout that bring these ideas to life. Fishing is also the one activity that learners on site rate as the most enjoyable aspect of their visit. Without a dedicated and reliable group of volunteers the programme simply would not be able to offer fishing as part of the learning experience.

The volunteers do a wonderful job in bringing enjoyment, education and outdoor experiences to many thousands of visitors every year. They are passionate about the site, the fishery, the environment and, most importantly, the potential of our young future leaders and decision makers.

Congratulations Tongariro National Trout Centre Society - 'Supreme winner of the 2012 TrustPower Taupō District Community Awards'.

If you're interested in becoming a volunteer, the Tongariro National Trout Centre would be keen to hear from you (07) 386 8085. 🐟

PHOTOS LEFT TO RIGHT

- 1 The volunteers celebrating their awards. Photo by Anna McKnight
- 2 Kids signing excitedly for their fishing licence keeps Bev Swetman busy. Photo by Mike Nicholson
- 3 Engaged in intense conversation - Wendy Lester and young friend. Photo by Mike Nicholson
- 4 & 5 Spreading the fishing thrill is Phil McKeown. Photo by Mike Nicholson

REMEMBERING MARILYNN BRUTON 28.6.46 – 3.3.12

Marilynn Bruton loved fly fishing so much she worked hard to inspire other women and children to fall in love with the sport too. She fished, lived and loved Waitahanui. She lobbied the Taupō Fishery management for a public toilet at Waitahanui, and commended the tracks team's efforts. Marilynn passed away this March and will be missed on the banks of the Waitahanui.

Marilynn made a dream of hers come true – to organise and hold a Women's Fly Fishing Day at the Waitahanui picket fence in March 2011. It was a successful event, attracting 20 women – some veteran anglers and some in waders for the first time. She followed this event with a Women's Fly Fishing Conference in September. She had further dreams to have women's fly fishing competitions, including guests from a Scottish women's fly fishing group. The women that Marilynn gathered remain in contact and wish to continue meeting and fishing, and hope to one day hold women's competitions.



By Anna McKnight

The Tongariro National Trout Centre Society remembers Marilynn's help at public kid's fish out days:

She enjoyed interacting with the children, and showing them the finer art of casting a line and landing a trout. Being a nurse, she was also a good person to have on hand to treat the odd graze and snag, which she attended to in her usual matter-of-fact way. She was an asset to the fly-fishing community and "spread the word" by deed as well as word.

Avid angler Bob Berg had this anecdote to share about his dear friend. 'After meeting Marilynn and organising a fishing trip to Flaxy it became apparent her fly casting needed an upgrade. She asked me, "Do you think I can do better?" I replied, "According to my notes girls can do anything!" Well! She was a great student and was single hauling and double hauling within the hour.' He describes her fondly as a 'Good sort'.

Marilynn always well-wished her friends and signed off with her endearment, 'SNUG LINES'.



BELOW LEFT
Fishing talk – good angling mates, Marilynn and Bob.
Photo Susan Crenshaw

BELOW RIGHT
Living her dream – Marilynn with the pink feather boa at her Women's Fly Fishing Day.
Photo Roger Crenshaw

REMEMBERING JEREMY NORRIS 13.2.69 – 18.2.12

Remembered by David Lehndorf



Jeremy Norris was an English angler who had fished all over the world, but his favourite place was Lake Taupō. He is remembered fondly by many local anglers who got to know him on his colourful visits to our region. Jeremy lost his life in February while fishing in the Tongariro River, and a gang of us local fly fishers gave him a great send off.

Jeremy chose an angler lifestyle and fished exotic fish all around the world. He left art college as a graphic designer as he didn't like the nine-to-five lifestyle. He fished the Amazon for bone fish, marlin, tarpon and payada; kujeli in Camba and Nile perch in Egypt; but his favourite place was Lake Taupō. He published two books: *Against the Current* in 2008 and *Chasing Dreams* in 2009. He had all but completed his third book dedicated to all the Taupō anglers he had had the pleasure to fish with over the years, which is yet to be published. His paintings of fish and sunsets from the above places were very sought after, all being done with a pallet knife. To view some of Jeremy's work see www.fishartist.com.

Jeremy had a great personality and I would best describe him as a people magnet. He talked to people everywhere he went. Jeremy would fly into Auckland, pick up an old van from a mate and furnish it while visiting his Taupō mates. He soon found out the meaning of the lovely word 'koha', and whipping into Taupō with a couple of trout he would return with a meal of chicken 'n' chips and half a dozen cans of V.B.

After Jeremy's passing, his local friends did his family, worldwide friends and the international angling community proud by giving him a warm farewell. I made a memorial seat at the rip for him with his name on it. He was a great fisherman, mate, fly tier and artist, and when fishing the rip at sunset, it would be great to hear that cackle of his saying, 'Move over you bloody hedge monkey'.



ABOVE
Jeremy at 'home' fishing the Waitahanui picket.
Photo by Carl

RIGHT
Jeremy with good mates David Cade, David Lehndorf and Hadlee Cade.
Photo by Chris Hall

NEW FACES TO THE TAUPŌ FISHERY



Willem Venter



Dave Plowman

PETE SHEPHERD

Ko Tongariro te Maunga
Ko Taupō te Moana
Ko Tūwharetoa te Iwi
Ko Ngāti Te Maunga te Hapū
Ko Te Heu Heu te Tangata

After spending a summer with our visitor asset team, Pete Shepherd has now taken a role working within community relations. Living in and around the Taupō district for the majority of his life has afforded Pete the opportunity to experience the great outdoors from an early age. Many camping trips to Whanganui Bay, where much of the summer was spent, and winters roaming local rivers after school, meant an introduction to trout fishing was a given. This ignited a life-long interest in the fishery as well as a great love of the environment. Pete went to school in Taupō before studying Eco Adventure Tourism at Taranaki Polytechnic. Pete then spent the next 16 years working for a local adventure tourism operation before taking a summer sabbatical. This has evolved into a somewhat longer-term arrangement.

We wish to welcome Pete onto the team and thank him for his great sense of humour and good looks, the likes of which rival Taupō's Hottest Hunk, Michael Hill - fishery ranger.



Pete Shepherd

WILLEM VENTER

Willem joined the Taupō Fishery team as a temporary trap operator this winter. Willem arrived from South Africa after having completed a science degree and brought with him a variety of fishery-based skills. As a very keen and passionate angler, it was clear from the beginning that Willem loved working with fish and quickly felt privileged to be able to trap and handle some trophy-sized trout at Lake Otamangakau. Some friends back in South Africa couldn't believe how big the fish were and Willem had to email photographs home as evidence!

Willem's ability to drift dive was a great advantage this winter and he quickly became an important member of the small dive team. Seeing wild trout in the upper reaches of the spawning streams was a real thrill for him and despite working with and around trout all day, Willem's passion for fly fishing increased rather than decreased. After working a long stint, it wouldn't be unusual to find Willem fishing up the Hinemaiaia on his days off or sneaking in a quick flick on the Tongariro prior to work.

Willem's can-do approach and sense of humour will be sadly missed within the team now that he has returned to South Africa to be with his fiancée. We would like to wish him all the best for the future and thank him for his hard work this winter on the fish traps and as a member of the fishery operations team.

DAVE PLOWMAN

I have been permanently employed with the fisheries team for the past 6 months after spending 5 years as a temporary fish trap operator. I am originally from the Hawke's Bay and come from a farming background. I believe I bring to the job a practical and hands-on approach. As a keen boat angler on Lake Taupō since the 1960s, I more recently took up fly fishing in the region during the mid-1990s.

Moving to Taupō during the mid-1990s to establish a business allowed me to fish more regularly and provided me with the opportunity to further explore and familiarise myself with the many lakes and tributaries in this wonderful region.

In 2006, my wife and I moved into our motor home and spent the next 5 years exploring New Zealand. We travelled during the summer and based ourselves in Turangi for the trapping season. Working in the fish traps gave me a great insight into the great work that the fisheries team does and inspired me to become a permanent member of the fisheries team.

I look forward to meeting anglers out-and-about on the lakes and rivers over the years to come.



LEFT
Joy Wintour experiencing the fishery first hand.
Photo by Grant Sim

BELOW
Joy interviewing an angler about buying fishing licences.
Photo by Grant Sim



Online fishing licences coming soon

Work is under way to implement an online fishing licence system for the Taupō Fishery. The Department of Conservation (DOC) has set up an eServices programme team to develop an online system for issuing fishing licences. This will improve anglers' access to licences, streamline DOC's support process and provide an easier way for DOC and anglers to communicate with each other.

The development of an online fishing licence system supports the Government's priority of better public services. Government is keen for New Zealanders and businesses to complete their transactions with departments easily online. People have asked for more convenient ways to deal with government, and DOC is no exception. DOC is aware of the need to rethink the delivery of services to meet public needs.

By Grant Sim / Service Programme Manager

Joy Wintour, Senior Advisor, Improvement, from our National Office is a key lead in this project and in August she spent a couple of days in both Turangi and Taupō to find out more about the Taupō Fishery. Joy was really keen to talk to affected people, particularly anglers and agents, and collect their thoughts on an online fishing licence system for the Taupō Fishery.

Joy was seen on the banks of the Tongariro River surveying anglers, where she learnt the correct etiquette by waiting until the anglers had finished fishing before approaching them. Joy also surveyed agents who sell licences on behalf of DOC to get their perspective on this project, and we appreciated the agents' willingness to talk candidly. After one of her visits to a sporting shop in Turangi, Joy was gifted a couple of lures, which she transformed into high-fashion earrings. When she returned to Turangi for another visit a week later, wearing those earrings,



LEFT
Lisa Bott on the Lake.
Photo by Murray Bott

BELOW LEFT
Keiran Baylis, taken by Aunty Kath.
Photo by Kath Baylis

Licence update

By Lisa Bott / Service Ranger

We have had a strong start to the fishing season with an increase in licence sales, especially in the Child Season category, which is pleasing to see. We have been hearing some great fishing stories including stories from our next generation of anglers, such as from 9-year-old Keiran Baylis who recently sent us a photo of his catch, a 2.94 kg (6.5 lb) brown trout caught on Lake Otamangakau. Well done Keiran!



Also, our winner of this year's photo competition was a young angler named Charlotte Bowers. Her first-ever trout was caught over the Waitangi weekend just off Wharewaka Point. Charlotte and her five friends climbed aboard the family's boat and headed off for a fish after donning their lifejackets, hats and sunscreen. Just out from the buoy, Charlotte's dad dropped a jig line and the kids took their turns. Charlotte's turn landed her this beautiful 2.26 kg (5 lb) rainbow which was smoked that night. The kids cheered and celebrated and, as they high-fived each other on the boat, cheers from the beach could be heard as the mums and friendly onlookers watched the mayhem. A magic day was had by all and resulted in some life-long fishing fans being born.

I gave her some of my lures with an invitation to return and use them the way they are intended - to fish! It was pleasing that she accepted the lures and made a commitment to experience the fishery first hand.

Joy organised a workshop with staff of the Taupō-nui-ā-Tia area to look at the needs of people who use or are involved in the Taupō Fishery and at how an electronic fishing licence system will impact on DOC's operation and management of the fishery. This was a great opportunity for our rangers to share their knowledge and experience with Joy, and the input from both staff and other key people will help produce a better product.

DOC is now working through all the information gathered from interviews and workshops to come up with an online fishing licence system with the customer experience in mind. 🐟

So don't forget to save your photos and stories from this year so you can send them into us at fishlicences@xtra.co.nz for consideration for the 2013/14 season photo. Please make sure that your picture is from the Taupō fishery area and is taken during the 2012/13 season.

And, remember, if you are a new season licence holder send us an email to targettaupo@xtra.co.nz to register to receive your personal issue of *Target Taupō*.

I've even had the chance to escape the office and catch my own personal best. 🐟

This year's entries to the fishing licence photo competition

PHOTOS TAKEN IN 11/12 SEASON

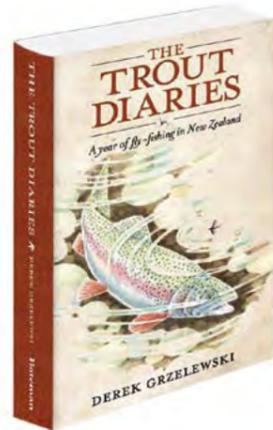


THE TROUT DIARIES: A YEAR OF FLY FISHING IN NEW ZEALAND

By Derek Grzelewski

BOOK REVIEW

By Dr Michel Dedual / Fishery Scientist



During the gestation of this book, I shared many memorable moments with Derek. Our friendship started in 2000 when he wrote an article about trout for the *New Zealand Geographic*. Derek was then not an active angler but it was obvious that his abduction by the Forces of Fishing was imminent.

This book is the distillate of a series of adventures that Derek lived in the course of his quest: blurring the demarcation between trout and anglers. *The Trout Diaries* is, above all, the autobiography of 'Un Fou de Pêche' (which broadly translates as 'an angler possessed by fishing').

A good part of the action takes place in the Taupō area: the Tongariro River, the Tauranga-Taupō River mouth and Lake Otamangakau. Some famous anglers, like Zane Grey and Ernest de Lautour, as well as other colourful local personalities will help connect with the places and thus the Taupō angler readers. I knew that the January chapter was dedicated to the experience Derek and I shared together on the Rangitikei River, however, the book started in October...



ABOVE
Dr Michel Dedual fishing spot X on the Tongariro River, which features in the *Trout Diaries*.
Photo by Anna McKnight

It was a privilege, but by no means an easy task, to review this book without the river, the fire, our inspirational friends and the dogs around us. This wicked problem fuelled some anxiety. Would Derek retrace the story accurately? Would he describe all the knotty and sometimes embarrassing anecdotes that made this fishing pilgrimage unforgettable?

After the first chapter, my anxiety levelled out. The lines were set for travel into another dimension of the nature-angler space.

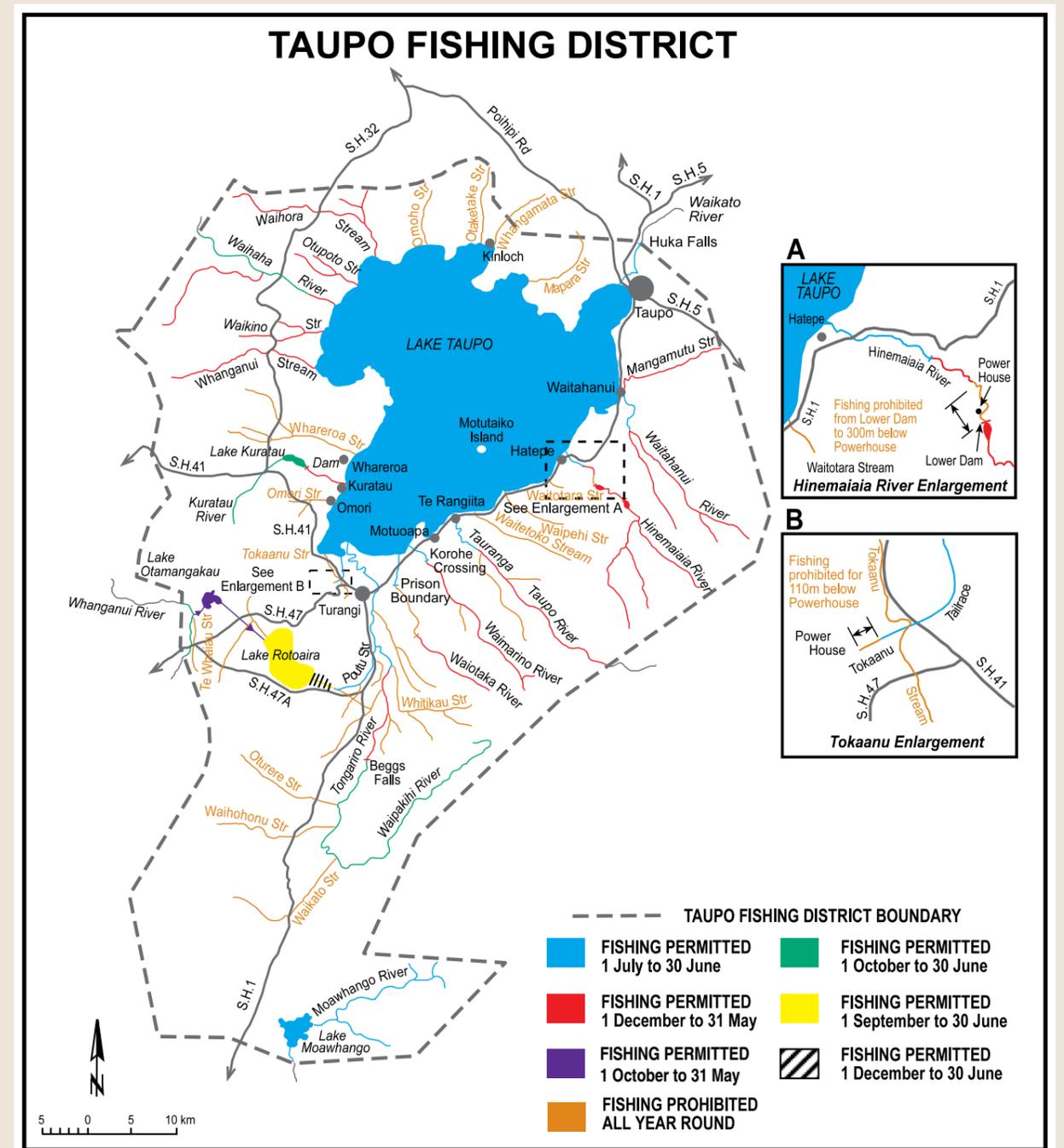
The trout in this book are in fact secondary actors that silently play the most important role: the catalyst between nature and man. Maybe more enlightening; the fish that he misses are often more significant than those that he lands. This is a sure sign of honesty, the same bare honesty he gratifies us with when he speaks about himself and his demons. His fishing expeditions are some *raison d'être* for having deep and sensual contacts with nature and fuelling friendships. This book, like life, meanders between reality and contemplation of the meaning of fishing and how it shapes our existence. Derek's enthusiasm is contagious and remains intact regardless of the water he fishes and the people he meets.

Derek's concerns regarding fish welfare and the future of rivers and anglers puts this book in the category of contemporary angling literature. Within each chapter, ideas from many 'off-stream' disciplines are used either directly or by analogy with a touch of humour and, in some cases, even suspense. The many historical, geographical, psychological even scientific details make you surface from the book with a clear feeling of being enriched. Derek's writing style is refreshing and four dimensional as it often awakes the sense of smell when he relates to the delicate volutes of cigars, the exhalations of single malt or of the wet dogs.

This is a book definitively meriting of living in any angler's waka!

For more information and a slide show about *The Trout Diaries*, the reader can visit: www.derekgrzelewski.com

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