TARGET TAUPO

A newsletter for Anglers in the Tongariro Whanganui Taranaki Conservancy

DECEMBER 2010, ISSUE 62

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TARGET TAUPO

A newsletter for Anglers in the Tongariro Whanganui Taranaki Conservancy

DECEMBER 2010, ISSUE 62

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Front cover: Late afternoon brown for Isaac Bradley casting a streit fly from 2 Mile Bay wharf.
Photo by: John Welsh

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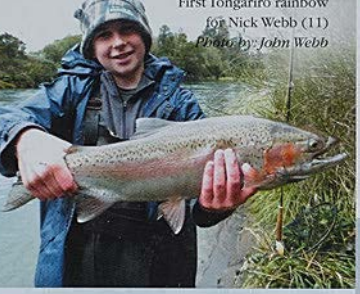


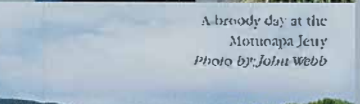
First Tongariro rainbow for Nick Webb (11)
Photo by: John Webb

Target Taupo

A newsletter for Taupo Anglers

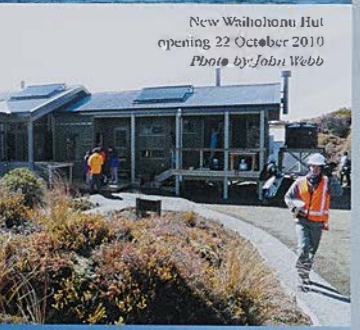
Contents

3	Fishery foreword
4	The Genesis Energy Freshwater Aquarium - a view to the future
9	Where to now for the Taupo fishery?
18	Backsteaks for the barbeque
24	No sale for selling trout!
30	Fast forward to the freshwater aquarium
33	Restoration of Te Matapuna wildsouth Taupo wetlands
38	Receiving Target Taupo
39	Too many trout?
42	The concept of trophy
49	The rewards of fishing with kids
54	Counting the escapees
59	No nets please
62	Harvest Survey update
64	Fish bytes
68	Farewells
69	The Taupō-nui-ā-Tia Area office structure

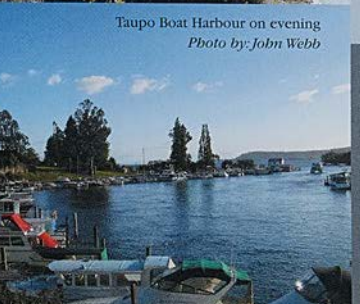


A broody day at the Motuoapa Jetty
Photo by: John Webb

Sailing home
Photo by: John Webb



New Waiohonu Hut opening 22 October 2010
Photo by: John Webb



Taupo Boat Harbour on evening
Photo by: John Webb

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Fishery Foreword

By Dave Lumley
Dave is the Taupō-nui-ā-Tia
Area Manager

Photo by: John Webb

KIA ORA AND WELCOME TO TARGET TAUPO

I write to you as manager of the newly formed Taupō-nui-ā-Tia Area which is the name that has been given to the recemly merged Taupo Fishery and Turangi Taupo Areas of the Department of Conservation. The area of responsibility for Taupō-nui-ā-Tia now not only encompasses the waters of the Taupo fishery but also the public conservation land to the east of the great Tongariro National Park volcanoes as far north as Whakamaru, as far east as Rangitaiki and as far south as the Napier Taihape Road. A diagram of the new Taupō-nui-ā-Tia Area staff structure is given on page 69 to give you a better idea of the work programmes involved. You will note that our fishery operations remain as a separate programme within the Area. This is a necessity because we continue to operate a separate fishery business plan funded by Taupo fishing license revenue.

Taupō-nui-ā-Tia, I believe, is a fitting name for our collective Area, the phrase translated meaning "The Cloak of Tia". Just as this cloak once protected one of the paramount maori chiefs, so too does the Taupō-nui-ā-Tia Area protect lake Taupo and its surrounding catchments and landscapes right to their sources on the peaks of Tongariro National Park and Kaimanawa Forest Park. From an operational perspective it makes sense for the Taupō-nui-ā-Tia Area boundaries to encompass the catchments of Lake Taupo and the Tongariro River Managing these areas holistically with the combined resources and expertise from both the Taupo Fishery and Turangi-Taupo Areas is already providing efficiencies for many of our operations.

In keeping with our expanded operational area, this edition of *Target Taupo* contains articles with a focus other than fishing. These include one on restoration projects and another on spring hunting. In the newly expanded structure we have staff with diverse interests and areas of work. Many are keen anglers and hunters and we know that many of you have hunting as well as angling as a pastime.

Regarding our staff, we have had a very busy winter with trying conditions particularly operating our fish traps at Waipa, Te Whaiau and Hinemaiaia. The harvest survey is also now well underway and has included its own set of challenges, including many hours coping with turbulence and manoeuvres in a light aeroplane for some. Reluctantly we have bid farewell to Heath Cairns who was supervising the harvest survey and has left to take up a demanding role with the Taupo Harbourmaster. This is why one of the positions in the fishery operations team is currently vacant.

We have also been busy expanding our freshwater advocacy programme at the Tongariro National Trout Centre with the construction of the new freshwater aquarium. When completed early next year the aquarium will definitely compliment the already popular TNTC experience. The unique partnership the department enjoys with the Tongariro National Trout Centre Society and Genesis Energy enables us to showcase the tremendous benefits of clean, clear freshwater to locals and visitors alike.

The Taupo Sports Fishery Management Plan is soon to be released for public submissions in the form of a discussion document focussing on the issues for future management of the fishery. I encourage you to take the opportunity to have your say about the future management of this great resource.

The Genesis Energy Freshwater Aquarium – A View to the Future?

By Mike Nicholson
Mike is the teacher at Tongariro National Trout Centre

Above: Wouldn't it be nice for giant kokopu like this one to be as recognisable as snapper to New Zealanders. *Photo courtesy of DOC*

It would appear that New Zealanders are generally well versed in recognising NZ's diverse range of salt water fish species and appreciating the value these offer to anglers, divers and other recreationalists. Many New Zealanders readily recognise a snapper, a terakihi, a blue cod or a crayfish and have some personal link with the ocean environment in which these species live. Similarly we understand the importance of valuing and looking after these environments for future generations. Interestingly, the same cannot be said about our knowledge of the freshwater species which inhabit our rivers and lakes. How many of us would readily recognise a giant kokopu, a torrentfish, a koaro, or even a common bully?

The Tongariro National Trout Centre (TNTC) is set to assist in addressing this imbalance when the Genesis

Energy Freshwater Aquarium opens to the public, the likes of which has not been replicated anywhere else in NZ. Randal Hart, the TNTC ranger explains about the construction process of the aquarium on page 30. On show will be many of NZ's iconic freshwater species that many people never see or may not even be aware exist, let alone value. Also included will be many of the key fish pest species which threaten NZ waterways in a bid to raise the profile and awareness of these species.

In previous issues of *Target Taupo* I have written about the value to learners of being able to visit the Genesis Energy supported Taupo for Tomorrow education programme, and engage with trout and aquatic life on site at the Centre. Viewing and interacting with trout as the context for learning quickly stimulates interest, engagement levels and ultimately learning outcomes for students. The aquarium offers a whole new set of learning opportunities and will enable us to look at freshwater ecology in more depth, promote advocacy messages and develop additional programmes regarding the importance of and the need to look after and make wise use of our fresh water resources.

The aquarium will be able to demonstrate to learners that our freshwater resources contain many more engaging life forms than meet the eye, and they all depend on a healthy fresh water environment for their sustainability. Learners are already encouraged to view trout size and condition as being a reflection of the health of the food chain they are part of. Now they will be able to view trout prey species like smelt and bullies for what they are, beautiful, engaging animals that are indicators of the health of the Taupo fishery and freshwater ecosystems.

Lake Taupo and the rivers of the central region are renowned for their ability to sustain an internationally recognised wild trout fishery. The quality of the rainbow and brown trout in the Taupo region attracts anglers from around the world year after year. This quality does not happen by accident though; the same conditions that allow trout in our rivers and lakes to thrive are exactly the same ones that many of our other less well known native species also require. Because of this, these aquariums are not only designed to display the fish effectively, but also to capture the essence of their natural habitat. Habitats that support vibrant, viable freshwater fish populations tend to have a few things in common including high water clarity,

Genesis Energy is a major user of water locally and is committed to being a responsible user of fresh water resources in the Taupo region and elsewhere
Photo courtesy of Genesis Energy

cool temperatures, plenty of riparian vegetation and sufficient dissolved oxygen in the water. Learners will be able to take a much wider and deeper view of freshwater communities while on site, recognise the importance of these and hopefully become advocates for freshwater in their own right. Not least, learners and other visitors may realise just what whitebait grow into! Of course, it is important for learners to recognise the value of rivers and lakes today. Encouraging creative critical thinkers about the future need for sharing and using resources like fresh water is so crucial.

Genesis Energy is one such resource user and is committed to being a responsible user of fresh water resources in the Taupo region and elsewhere. The sponsorship of the Taupo for Tomorrow education programme and Genesis Freshwater Aquarium demonstrates a real resolve to give something back to the community (and the nation in this case) over and above any legal requirements to do so.

The aquarium and displays in the visitor centre will allow learners to think deeply about and understand the relationship between freshwater ecology and resource use by business. For learners, the question could well be, how do we 'strike a balance' between that of sharing the resource (water) to achieve economic, social, and environmental outcomes for all. Genesis Energy successfully addresses environmental effects in a raft of ways and these will make engaging case studies for students

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Right and below: For learners, the question could well be, how do we 'strike a balance' between that of sharing water resources to achieve economic, social, and environmental outcomes for all
Photos by: Kim Alexander-Turia

grappling with some big questions around renewable resource use now and into the future.

The Genesis Energy Freshwater Aquarium will present to New Zealanders and visitors from other shores a remarkable view of the ecology of our rivers and lakes. It will enable us to further advocate for the continued health of the Taupo fishery, and raise the profile of species less desirable in our waterways. It will enable us to tell a range of stories about the special nature of many of our less than well understood native species and the key role they play in our river and lake ecosystems. Importantly, it will encourage students to ask the question 'how do we look after our fresh water resources for future generations while balancing the needs of electricity generation and other resource users?'

Perhaps in the future the giant kokopu will be as recognisable to New Zealanders as a snapper, crayfish or blue cod. Wouldn't that be nice?

genesis ENERGY

Taupo for Tomorrow
Exploring sustainability through Lake Taupo and its trout

Tongariro National Trout Centre Society

Where to Now for the Taupo Fishery?

The following is a summary of the presentation made by Glenn Maclean to the Fishery Forum held in Taupo in September. In this presentation Glenn described where the fishery is at now and discussed several of the issues facing the fishery over the next decade.

Last time I stood at the Fishery Forum 2 years ago it was standing room only reflecting the disquiet and anguish felt by many anglers regarding the state of the Taupo Fishery. This time, there are almost as many DOC staff as visitors, a reflection of how things have improved.

Two years ago there was major concern regarding the small size and poor condition of the trout. We explained that we believed this was due to the lake not mixing in the winter of 2005, mixing being an annual event that normally brings the nutrients locked up in the bottom waters back to the surface where all the life is. It's a bit like putting fertiliser on your lawn in spring and the catalyst for the whole cycle of life over the following year.

The nutrients are used by the tiny plants (phytoplankton) to grow and multiply which are in turn eaten by the tiny animals (zooplankton) which are eaten by the smelt (prey fish) which drive the trout fishery. At the best of times the lake is nutrient poor which is why it is so clear. There are not a lot of little plants floating around to make the water appear turbid and green. As a consequence each winter the smelt population starves and this is what controls their numbers, not predation by trout, shags or catfish.

However in the aftermath of 2005 there was even less food than normal and the effect on the smelt population was even more dramatic. Given smelt are almost all of what the trout eat then with many fewer smelt the trout were going to struggle, and they did.

Unfortunately with the benefit of hindsight our minimum size limit of 45cm only made the problem worse. The bottom line was there were too many trout for the available food and the one time we needed a substantial harvest the size limit acted against this. The trout didn't have enough food so they didn't

Above: Despite the lower numbers of fish the upper Tongariro this season, catch rates were still high for anglers in the Tongariro system overall
Photo by John Webb

The recovery is happening! The rains in August of 2010 resulted in some superb fishing like this top notch limit taken from the Tongariro River
Photo by: John Webb

grow,didn't reach the minimum size and were therefore protected.

This also slowed the recovery when the lake did mix again in the following winters. It's a bit like having a herd of starving cattle grazing a drought ravaged paddock. When it finally rains the stock will still graze the grass as soon as it grows and so the paddock doesn't recover even though the conditions have improved. However pull the stock off for several months while the paddock flushes and when you put them back in they likely can't keep up with the growth.

The crux of this is that in this situation we are better to have a lot fewer trout but in reasonable condition, as occurred over the decline in the late 1980s. Furthermore, having fewer trout then speeds the recovery.

Nevertheless the recovery has now worked its way through and the fishery on the lake last summer was characterised by some very nice fish, the sort of fish we typically associate with Taupo. This has continued in the winter runs especially once the rains came in August. Looking to the future, the rivers have been full of juvenile trout, many more than in recent years consistent with the huge biomass of aquatic insects evident through 2010. Ultimately their survival and growth in the lake will be dependant on the smelt stocks over the next 12 months. However there is certainly a very strong year class entering the lake fishery and not surprisingly lake anglers are already reporting catching large numbers of small fish around the legal limit.

So in the short term the fishery is definitely on the up. In the medium term though, the fishery faces a couple of significant challenges. Most of us recog

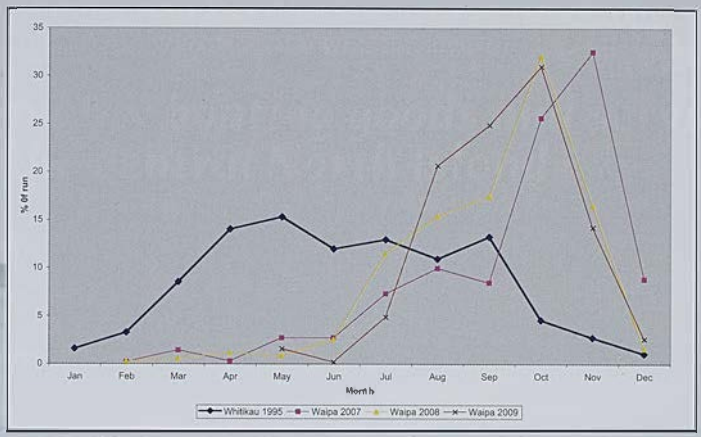
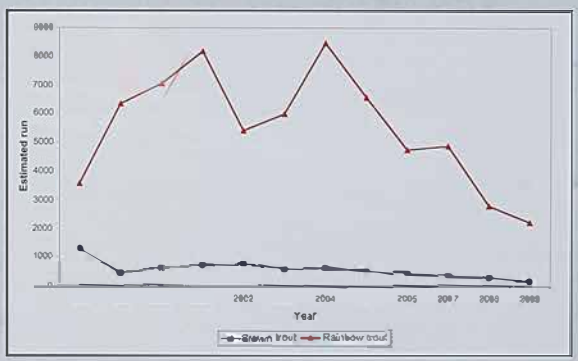


Figure 1: Monthly percentage of the annual run through the Whitikau trap 1995 and Waipa trap 2007 to 2009

nise that the spawning run has moved later, indeed in recent years the run has peaked through the Waipa trap in October or November. Our ongoing study into the genetic makeup of early versus late running fish indicates there are some differences, but there are also differences in their behaviour. Figure 1 highlights the difference in run timing between the run in the Whitikau Stream in 1995 and the nearby Waipa in recent times.

The graph also illustrates some of the changes in behaviour. Previously the run was spread out evenly from April to September, the early run fish spending a number of months up the river before they actually spawned. Typically in the past June and July would see large numbers of trout holding in the small pools adjacent to the spawning areas before these fish dropped back onto the redds in August and early September to actually lay and fertilise eggs. Now spawning occurs later, with many of the trout not even reaching the grounds until October or November. This reflects that these fish are not running until they are ready to spawn, the whole migration seems much shorter and more intense. The autumn run that sustained so much of the winter angling in the past is largely gone, the trout not entering the river until most anglers have given their sport away for the winter.

Figure 2: Estimated rainbow and brown trout run through the Waipa trap 1998 to 2009



The other major change with regard to our winter angling on the Tongariro is that it is clear that the upper river is not holding fish like previous times. For those of us who cut our teeth learning to nymph fish in the Whitikau, Boulder, Breakaway or Cliff Pools the upper river just doesn't produce like it used to. This is also consistent with our estimates of the spawning run through the Waipa trap (figure 2) and our winter counts of spawning trout in the Whitikau stream which show a trend of long term decline.

On the face of it there appears many fewer trout running the Tongariro River

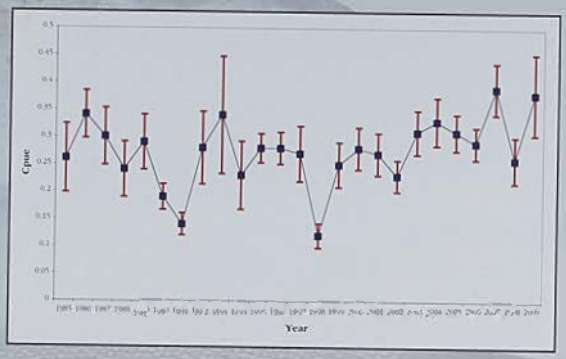


Figure 3: Estimated catch rate (legal sized trout per hour) with 95% confidence intervals for the Tongariro River 1985 to 2009

However there is one major contradiction which involves our catch rate data collected from anglers fishing on the river each winter (figure 3).

In years with large confidence intervals this reflects a high degree of variability between the catch rates of the individual anglers interviewed. Figure 3 highlights the low point in the fishery in 1990/91 and 1998, both of which can be explained. In the late 1980s it is likely the fishery went through a period of low productivity just as we have experienced recently However on this occasion we still had an 8 fish bag limit. 35cm size limit and the fishery was coming off peak angler numbers in the fishery. Under this scenario the angling harvest in the lake on top of low fish numbers was sufficient to have a major impact; in simple terms very few fish survived to reach maturity and so run the rivers. The impact was felt most by river anglers who recorded an average catch rate of only 0.14 fish per hour in 1991 (one fish for every 7 hours of effort) and was the catalyst for the reduction in the daily bag limit down to 3 trout in December 1991. In hindsight it was however a good thing as discussed earlier, as the fishery quickly rebounded once conditions improved and without the predatory pressure (note the catch rates in 1992 and 1993).

The other low point in 1998 which is also reflected in the Waipa trap data (figure 2) is the aftermath of the 1995 and 1996 eruptions when the ash washed into the Tongariro River had a major impact on the production of young trout. As a consequence we increased the minimum size limit to 45cm to protect the remaining few trout, however there were simply not very many in the run as evidenced by the average catch rate estimate of 0.12 fish per hour (1 fish every 8.3 hours). Interestingly now many anglers quote back to me what a great year it was, their memories coloured by the size of the fish they did get which averaged 2.4kg. This is a great example of how the quality of what we catch is a major influence on our perceptions of success.

The importance of this is that previously in years when there have clearly been fewer trout this has been reflected in the catch data. However in 2007 and 2009 the two highest catch rates in the whole period were recorded, totally inconsistent with our data indicating many fewer fish in the upper river.

Catch rates are influenced by many factors other than just fish numbers. Amongst the key factors is local knowledge and certainly the advent of the internet has allowed anglers to share where, what and how to do things in a way that previously took years to acquire. Therefore whether recent catch rates reflect any more trout present than in some other years is prob-

Fierce winter storms are required to mix and 'fertilise' Lake Taupo
Photo by Julie Greaves

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ably debatable but clearly they still represent a lot of trout.

So it would seem that a lot of trout still run into the Tongariro, but many fewer run right through the river. In a way this is what we have already instinctively realised which is why so many of us now target the lower river. For example on one recent flight I did as part of the harvest survey I counted 50 anglers between Delatours Pool and the Highway Bridge, 27 anglers in the several kilometres of river immediately above the bridge and only 5 in the whole of the upper river above the Red Hut bridge.

Why might this be? Maybe the spawning gravels in the lower river are such that trout don't need to go any further. Certainly over two major projects where we followed radio tagged trout in 1995 and 2003 there were major differences in the areas favoured for spawning. Whereas in 1995 spawning was spread evenly through the river and in 2003 more than 40% of the trout tracked chose to spawn between the Highway bridge and the Red Hut swing bridge. However many of the best spawning gravels in the whole fishery are upstream in the Whitikau Stream in particular and we would expect many of the trout to return to spawn where they themselves were reared.

The lack of fish in the upper river suggests some selective pressure acting against this part of the population. Indeed it is possible that the lack of fish using the upper river and the loss of the autumn run component of the spawning migration are linked. The habitat is as good as it ever was which in turn is as good as it gets in the fishery. Similarly early in their life the young fish move into the main river and mix with all the other juveniles so any impact at this stage should be felt across the whole population.

Rather it seems that angling harvest may be having an unwanted effect, both in the lake and the river. In hindsight on the lake our 45cm size limit may have been instrumental in applying a selective pressure on the early run fish. The reality is that once the fish enter the river on their spawning migration they essentially cease feeding and certainly stop growing. Therefore the fish that enter the rivers in April have reached mature size whereas the trout running in September are still 6 months away. In other words many of the big fish in the lake over summer that are targeted by the size limit are the early running fish.

Particularly as the growth of the trout slowed during the recent downturn and the numbers of large fish diminished then strong pressure came on the remaining few. A great example is a recent early morning trip with the kids where we hooked and released 17 fish all around the current limit of 40cm. Nice little fish and lots of them but we wanted one good fish for the smoker. In the end we didn't get it but if we had it would have been triumphantly taken home - when you have waded through 17 smaller fish to take a single bigger one then that is very strong selection. It's not just the legal restriction; more important may be the effect the increased limit has had on our perceptions as to what is a suitable fish to take. Whereas we may have been quite happy to take a 40cm trout when the limit was 35cm, I can't

In hindsight keeping the size limit at 45cm after 2005 was not helpful and slowed the harvest just when it was needed, resulting in less food, thinner trout and a longer recovery
Photo by John Webb

There is a tendency for fish to be more prevalent in the lower Tongariro such as here at the Reed Pool
Photo by: John Webb

help but feel many of us now look at such a fish as too small.

Similarly on the Tongariro River the reality is most of us still want to fish over autumn and winter: we know it is really too early to start in April and May but with perseverance we get a few fish. Collectively there are a lot of anglers targeting the few early run fish that are present, and sooner or later they get caught. Previously when there were many more fish the odds of any individual trout being caught were much less, but the risk increases as the population decreases. This scenario is not helped by the very settled early winters that have prevailed over the last decade, our radio tracking shows that under such conditions the early running fish simply don't move. For example in the 2003 experiment it took tagged trout on average 61 days to swim from the Delta to the Fence Pool – that means exposure to an awful lot of globugs and other flies. It doesn't matter if the fish takes the first fly past its nose or the 10,000th, if it is knocked on the head the outcome is the same.

The net effect is that it is likely selection for larger fish in the lake has been a significant driver towards the later spawning run in all the Taupo rivers. However almost certainly in the way of these things there have been other influences that will also have acted such as the downturn in productivity over the second part of the decade, weather patterns and the like. The difference in the Tongariro is that the remaining early run fish with their habit of slow migration have been further impacted by the intense angling pressure that continues to prevail on this river over autumn and early winter further reducing these stocks. In addition it appears that these autumn run fish were the majority of the trout that utilised the upper river.

So where to from here? Well it is up to Taupo anglers. On one hand we can take

the view that this is part of the evolution of the fishery and just make the most of how it is now. However it does seem that most of us still prefer to fish the river in autumn and winter, and so we could attempt to rebuild the autumn run component of the population. An advantage is that there are still some fish that run at this time so the genetics are not totally lost. Nevertheless this would come at a cost – if angling harvest is a key driver in the shift to later spawning then this impact has to be reduced, at least while the population recovers.

There are a number of options and permutations based around bag, size, area and season limits that would need to be carefully worked through least they have some unforeseen and detrimental impacts, as may have occurred with the introduction of the 45cm size limit in 1997. It's not something to be rushed but ultimately whatever option was chosen the bottom line is it would only be effective if it reduces the number of these from currently taken by anglers. In other words are anglers prepared to wear some short term restrictions for a return to the way things were? The other key point to recognize is that restrictions would likely have to extend to the summer lake fishery, though this is more about focusing the harvest on the smaller fish rather than reducing the overall harvest.

There is obviously a great deal more analysis, consideration and discussion required, and any change would likely be several years off. The key and what makes this topical right now is that for us to go down this path requires that the Taupo Sport Fishery Management Plan allows us to manage and manipulate the fishery in this way. This plan is a statutory document which defines what we can and just as importantly can't do with respect to managing the fishery, and is currently up for review. The key question that needs to be addressed in this review is should the plan make provision for us to consider options to manipulate the wild population, or conversely provide clear direction to leave well alone.

Clearly there will be many different points of view and it is important you make your views known. To guarantee this opportunity please contact our office (targettaupo@xtra.co.nz or 07 386 9243) to be added to the mailing list to receive the discussion document early in the New Year. This document will highlight key issues including this one and also the management of Lake Otamangakau as discussed on pages 39-41, and will detail how to make your submission. Note that if you are already on the *Target Taupo* mailing list for this season then you will automatically receive this paper.

Where to now? Do anglers want the fishery to return to its original fishing patterns or not? This could come at the short term price of a closed season in some cases
Photo by John Webb

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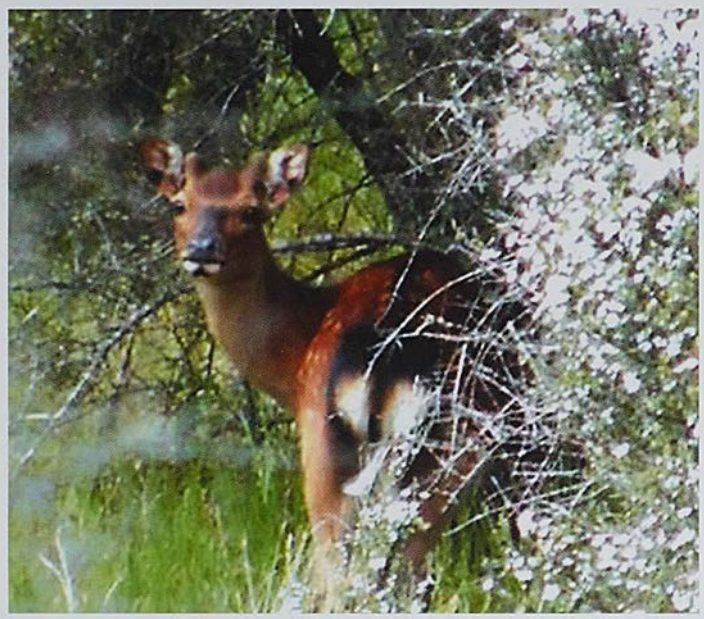
LOOP

Back Steaks for the Barbeque



To mark the merger of the Taupo Fishery and Turanga-Taupo Area offices, Murray Cleaver reintroduces a hunting article to *Target Taupo* and examines the basics of getting spring backsteaks for the BBQ. Murray is the manager of our field office in Taupo.

No question, venison back steaks, prepared and cooked as they should be are one of "Godzones" special treats and the lure of the backcountry to harvest some prime venison is hard to resist. Spring and summer are great times to hunt and the areas around lake Taupo provide some excellent opportunities ranging from sneaking out from home for an evening hunt, to flying into the backcountry for a few days. Logging on to the new DOC web site www.doc.govt.nz/huntsika gives a broad overview of hunting techniques and areas to hunt and this article is a summary of this.

At this time of the year, targeting open areas like clearings, river flats, slips, farm edges, old logging roads and skids are the obvious choices but it is not quite that straight forward. For the less experienced hunters and hunters new to the area, getting those back steaks for the barbeque can sometimes be quite difficult. To become a more successful hunter it is important to understand some basic techniques, what affects deer behaviour and the subtle behavioural differences between sika and red deer. Once this is understood you can modify the hunting technique to suit.

Above: Spring deer like this guy produce superb backsteaks for the BBQ. *Photo by: Murray Cleaver*

SIKA DEER

The lengthening and shortening of the days over the course of seasons triggers changes in deer behaviour. Over the winter the shortening of the days causes deer appetite to be switched off. As the days lengthen into the spring and summer months the opposite occurs, deer become hungry, very hungry, feeding day and night to regain condition after the winter.

Sika deer become dedicated grass eaters over the spring and summer so hunters need to concentrate their efforts where the grass is. Sika hinds do not have a tight

Spring and summer around the clearing fringes, pole thickets and scrub areas produces results when hunting sika deer
Photo by: Murray Cleaver

herd structure like red deer, associating more loosely, which frees them up to wander around as individuals and take advantage of good grass growing areas. The better feed areas can attract quite a few sika so with care a continual harvest can be achieved by hunters in these zones. When hunting during daylight hours, don't be fooled into spending large amounts of time hunting large grassy clearings even if you are finding a large amount of sign out in the middle of them. Sika deer are very nocturnal during the warmer months, emerging to feed on the clearings at night and preferring the protection of cover during daylight hours. Instead hunt the clearing fringes, pole thickets and scrub areas like manuka and mingimingi. These areas offer both the grass and the security of cover that Sika favour. Also look for creeks that have been cleared out by previous floods, particularly those cleared by a flash floods, often caused when a slip or debris blocks a stream creating a dam. When the dam bursts the resulting torrent of water clears out the water course leaving behind an open creek. With the onset of the new spring growth these creeks offer excellent stalking.

Sika are extremely wary and flighty especially when away from cover and if alarmed will not often give the hunter a second chance, disappearing in a flash. A very slow cautious approach is required as the hunter ideally needs to see the deer first and until their summer coats come through they can be very hard to see. Sika deer being the inquisitive animals they are, will often come in under cover to investigate noise and once they have worked out that it is being made by a hunter they will be put to flight. If possible, find feed areas that can be looked over from a vantage point and use the still hunting technique – watching likely spots from a downwind position at an appropriate time of day (first and last light).

Sika are more tolerant of human scent and disturbance than red deer and they seem to back themselves to avoid the hunter without leaving the area. If you have disturbed deer and there is plenty of sign, return the next day and try again but don't over do it. For sika there is little change in feeding patterns over spring and summer so the hunter can continue to hunt the same areas using the same techniques over a long period.

RED DEER

As for sika deer the lengthening of the days triggers an increase in appetite and by October the spring flush is underway in most areas. As a browse loving species, red deer are less dependent on grass but certainly take advantage of spring growth. By the end of November early December most red deer have returned to the bush. For the hunter this is an important difference between the two deer species as the window of opportunity for finding red deer on clearings is comparatively short. The exception to this is red deer living in beech forest, where there is a greater reliance on clearings for food. Where open tops exist, such as in the Tongariro National Park, the Middle Ranges and Thunderbolt in the Kaimanawa's deer can be harvested from these open tops right through the

A big sika stag on the run in typical scrubland habitat they love to live in
Photo by: Ian McNickel

summer. Bush hunting after November becomes the most productive method of harvesting red deer but also the most difficult as a very high degree of skill and knowledge is needed. Bush hunting techniques won't be outlined here as this style of hunting warrants a separate article in its own right. However, don't discount checking out some clearings

To many hunters, this sika stag will not only provide some backsteaks but a trophy set of antlers as well
Photo courtesy of DOC

later in the season as red deer enjoy picking at grass seed heads, such as Welsh Fog.

Red deer can be quite vulnerable at this time as they are more at ease in the open and less flighty. Yearling males kicked out of the family group, can sometimes be found out grazing some distance from cover, often standing and staring at the hunter or running to the bush edge and stopping for a fatal last look. Red deer have a much tighter herd structure than sika, are more territorial and stick to their own areas so there is less convergence by other deer on good feed areas. If a really good clearing is found, it will only be used by the resident family group so hunters need to be aware that if a hind and a yearling are taken from a clearing it could possibly mean the end of that clearing as a hot spot for some time.

Red deer are much less tolerant of human scent and disturbance than sika and if pressured will leave the area. This is an important point of difference between sika and red deer and hunters need to adapt their hunting technique to suit. Home work on clearings or feed

areas should be done early in the season and from then on only visit them from time to time and preferably only during good hunting conditions. Avoid walking all over clearings and especially avoid checking out the surrounding bush. If red deer get a strong air of human then they will depart the area and won't return for a number of days so it pays to rotate your hunts around a number of different spots. If red deer are not pressured they can be caught out on clearings at dawn and especially dusk. Hungry stags will often be tempted out for a midday snack, so it pays to keep an eye on good feed spots at this time of the day as well.

THEIR SENSES

Deer principally use three main senses to detect hunters - sight, hearing and smell, with sight being the least powerful and the sense of smell being paramount. Information from the nose takes precedence over information from all others senses. Deer rely on air scent as opposed to ground scent like tracker dogs and it is the wind direction and patterns that hunters have to pay most attention to. This can not be stressed enough, working the wind is vital to being a successful hunter. Always hunt into the wind or cross wind and be prepared to go well out of your way to get into position and work back into the wind. Sometimes this might mean shouldering your rifle and walking for over an hour before starting to hunt. Choose to hunt in light winds or breezes and avoid strong gusty winds.

Deer have very good hearing and will have no difficulty pin pointing a noisy hunter or a suspicious sound as they are more alarmed by foreign noises. Avoid metallic sounds such as clanging ammunition, slamming car doors or working the bolt of your rifle as much as possible when deer are around. Deer get used to familiar sounds and learn to ignore sounds made by other deer. If undisturbed deer can be quite noisy themselves. In areas of high traffic such as production pine forests deer are not particularly disturbed by vehicles. Interestingly, the quiet "Sneaky Pete" approach is sometimes more likely to be taken notice of, than a natural approach consistent with another deer's walk.

Deer are colour blind in the red end of the spectrum and are not good at distinguishing shapes, but are experts at detecting movement so it pays to do a lot of stopping and looking or using vantage points to watch over clearings. When you stop, look right around you too, not just straight ahead. There is an old saying "the deer are where you find them" in other words you never quite know where one is going to pop out. Deer are also less likely to see danger approaching from above, so where possible hunt down onto them.

Deer senses are extremely acute, their lives depend on it. You can tell by her attitude and stance that this sika hind has sensed danger and is about to depart
Photo by Murray Cleaver

A GOOD HUNTING TECHNIQUE

Firstly, find some good clearings or feed areas to hunt. Buy some maps, study Google Earth, check out the DOC web site, but above all get out there in the bush and find some. Maybe if you are lucky, a more experienced hunter might take you out and show you some good spots. Don't worry too much about the hunting at first, just get

Spring and summer hunting when it is warm is a great time to take friends, the partner or kids for a walk with you
Photo by: Murray Cleaver

out there and do your homework. Mark the good spots on a GPS. Look for the less obvious clearings or feed gullies, the sneaky smaller clearings or open creeks that aren't as well known. Once you have found some good clearings or open creeks, study them well and get to know them inside and out. Sometimes you might need to mark a trail into them from a less obvious direction just to beat the prevailing wind. A good technique is to find several likely areas that can be linked together to form a hunt. Evening is a good time for this approach as you have plenty of time to get into position and hunt back into the breeze. Now this is where new hunters have to learn to face their fears and hunt these clearings as late as they can, right up until dark. Hunters have to be prepared to get back to camp or vehicle by torch often using a compass or GPS. So choose a warm evening with a light breeze, ideally after a bit of rain and hunt the best clearings during the magic last hour of light and maybe there will be backsteaks for the BBQ. Good luck.

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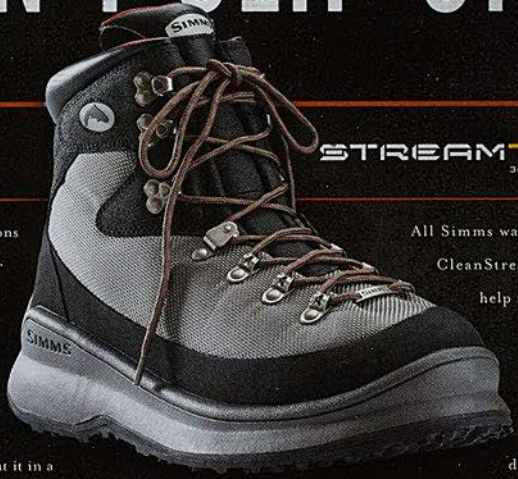

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No Sale for Selling Trout

By John Webb
John is a Ranger Community Relations-Concessions

When I was a ranger at the Tongariro National Trom Centre one of the most common questions asked of me was "Where can we buy trout". The reaction was often one of surprise when people were informed that the buying or selling of trout was illegal in New Zealand. This was particularly so for our international visitors from the northern hemisphere where trout retail is as common in many of their countries as snapper retail is in ours.

However, the Conservation Act 1987 is quite clear about the illegality of buying and selling of trout.

Section 26Z❍ states:

Every person commits an offence who buys, sells, or has in his or her possession for the purpose of sale any sports fish taken in New Zealand, whether taken lawfully or otherwise.

Further, Section 26ZI(4) of the Act states:

No person shall establish, manage or operate a fish farm for trout.

For the record, the definition of "sports fish" in the interpretation of

Above: Prime trout like these two from theTongariro in 2010 would become targets if trout were made a commodity
Photo by John Webb

the Conservation Act 1987 is: *Every species of freshwater fish that the Governor-General may declare, by Order in Council, to be sports fish for the purposes of this Act; and any such Order in Council may be expressed to apply to freshwater fish in any specified freshwater or other waters.*

Trout have been declared a sports fish.

In some ways it is easy to empathise with those supporting the idea of buying and selling trout in New Zealand. After all we have a well established and successful salmon industry and it is not hard to make the jump from a business about salmon production to one dealing in trout; the species are closely related (all salmonids). The ready and established markets for trout would be a definite advantage for any new business and the advertising campaigns to target them could be very powerful set against the backdrop of our outstanding landscapes and green image.

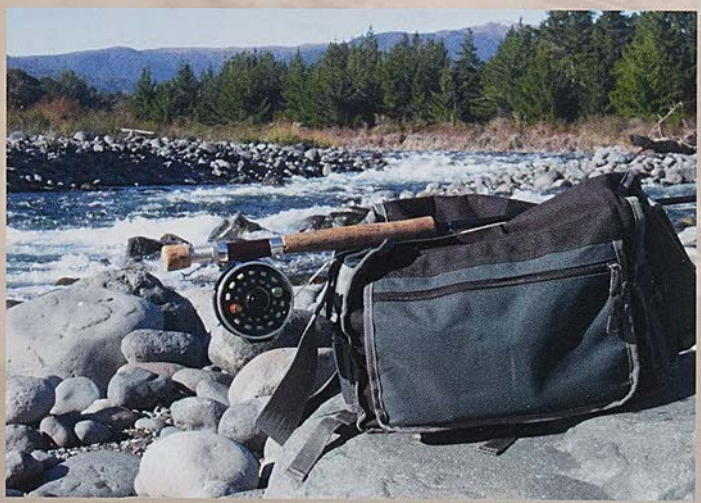
Despite this there are some very real and serious implications for allowing trout to become a commodity in New Zealand. However before we get into 'why' the buying and selling of trout is a threat we need to understand what we have to lose. The value of our wild and pristine trout fisheries cannot be underestimated and the potential loss of that value in both monetary and tourism terms would be highly significant. The Taupo fishery alone, which is widely regarded as one of the world's premier trout fisheries is worth somewhere in the region of $90m annually to the local and national economies. But it's not just the money that matters. Anglers come from all over the world to 'experience' our freshwater fisheries in a safe, picturesque environment. A very good example of this kind of fishing experience is the ability to go angling for the large, hard fighting wild brown trout in the wilderness areas of the South Island high country. The ability to take fish like these surrounded by snow capped peaks, relatively free of charge and without the restrictions of river ownership as in other countries is a rare opportunity indeed – even on a global scale. Make no mistake, in the world of trout, New Zealand fishing experiences are world class.

There is another unseen benefit of our freshwater fisheries too – as an education tool. If managed correctly New Zealand stands to be an icon for promoting the value of sustainable and high quality freshwater and freshwater habitats to a world where these things are dwindling. Trout are part of

this. They are widely recognised as a key 'indicator' species, their presence requiring good water quality. The Taupo for Tomorrow education programmes at the Tongariro National Trout Centre has these precepts as its cornerstone, using trout to teach these values to upcoming generations. Although there are notable exceptions, the ability of many New Zealand waterways to support good populations of trout shows the world that our water quality is looked after and worth protecting.

So why does the sale of trout threaten these ideals? Well the reality is that from a biological point of view buying and selling of fish products or the raising of fish in captivity, which would be an inevitable consequence of making trout a commodity, requires a number of necessary practices. These include the movement and importation of milt (sperm), ova (fish eggs) and other fish products from a variety of sources and disposal of fish offal from processing facilities. There would also be widespread sale and importation of trout products from overseas. This action carries with it the inherent risk of introducing disease. Once established many of these diseases are very difficult to control and it is almost inevitable that they will be transferred to the wild populations at some point. This can occur more easily than you think. For example a family enjoying a picnic beside one of our rivers has imported trout as part of the meal and someone inadvertently throws some of it into the river. Or seagulls feed on fish offal at the Taupo dump and then transfer this material to the lake edge. Imagine the effect of something like bacterial kidney disease (BKD) on our wild trout populations, a debilitating disease that destroys the kidneys. They cannot feed or spawn properly and ultimately the disease is fatal. There are also genetic implications. Importation of trout genetics from different provenances may pollute the genetics of the wild stocks, primarily through fish escape from farms. Although this might have a positive effect there could just as easily be a negative one, weakening the wild fish or modifying their genotypes to make them more susceptible to ecosystem impacts or disease.

Another critical aspect of the whole debate is that once things become a commodity they have a dollar value. Once the value is established it is very



The joys of wilderness fishing will be under threat if the sale of trout is permitted
Photo by John Webb

New Zealand trout and angling experiences are without doubt among the best in the world
Photo by John Webb

likely people will exploit it as demonstrated in some of our marine fisheries like paua and crayfish. This could be extraordinarily detrimental to the wild trout populations as poaching would become a much more attractive proposition and a black market is almost certain to arise. Indeed what limits poaching currently is the lack of any large scale market to dispose of the fish. However, as soon as a legal market exists experience shows a thriving black market selling produce under this cover will develop. For fisheries like the South Island brown trout referred to earlier or the Taupo fishery this could be catastrophic. Many of the high country fisheries are "resident" fisheries relying on the existing populations of fish in the rivers and streams to maintain them. Incidentally, this is one reason why many of these fisheries are promoted solely as catch and release fisheries in order to protect the breeding stock. Trout are easier to catch while they are spawning too so in the first instance the spawning streams would be favoured by poachers. Many of them are remote so there is difficulty enforcing the law in these places. Once the spawning stock is removed, fishery collapse is inevitable. More resourcing would be needed also. Greater incidence of poaching would

It is possible to eat trout fillets like these Taupo beauties in restaurants despite prohibition of sale
Photo by: John Webb

require more money, people and time in compliance and law enforcement to protect fisheries. Often, increasing the penalties for such offences is cited as a possible remedy for preventing poaching. However increased penalties often result in increased risk to those enforcing the regulations and it generates more sophisticated methods for poaching fish. Conceivably poaching could also carry with it a whole raft of consequences for anglers and businesses including a reduction in the bag limit or closed seasons in certain waters which would ultimately result in a reduction of fishing opportunity for anglers, tourism and business revenue.

An interesting sideline of this issue is that many of our visitors discover that the buying and selling of trout is illegal when they dine at local restaurants. Many want a trout meal but find that it is never on the menu. For some it is strange that a region which is so focussed on trout, does not sell it in its eateries. Many locals are queried by visitors about how they might be able to taste trout in a local restaurant. Interestingly, the act of eating trout in a restaurant is not illegal – so long as you have caught it yourself. The Conservation Act 1987 is quite explicit on this too:

Section 26ZQ (2) states:

For the purpose of this section, fish shall be deemed to be sold if it forms part of a meal for which payment for that meal or any part of the meal is made, or which is supplied to any person (whether in accordance with the terms

of a contract of service or otherwise) who is employed by the person by whom the meal is supplied:

However, the clause goes on to state: *Provided that nothing in this subsection applies to sports fish taken legally pursuant to a current licence and served to the angler who took the fish and the angler's immediate guests.*

So as long as you had a current fishing licence when the fish was caught, the meal is not part of the cost and it is only being served to you and your immediate guests its fine. Incidentally it is not illegal for a fee to be paid for the Chef's time to prepare the fish, which you would obviously need to do in a commercial restaurant.

So in the current political environment where there is some pressure coming to bare for making trout a commodity there needs to be some very careful consideration before this takes place. There is a great deal of value and opportunity that can be preserved by maintaining the buying and selling of trout as illegal. Many people see the sale of trout purely a business opportunity, which is fine, but as explained there is a flip side to that coin. For many involved with managing and using trout fisheries in New Zealand, preventing trout becoming a commodity is a mechanism for preserving the passion and art of fly angling and protecting the opportunity to catch wild trout in pristine surroundings for future generations. Surely this *is* well worth considering?

Fast Forward to the Freshwater Aquarium

By Randal Hart
Randal is the Tongariro National Trout Centre Ranger

As noted in the Dec 2009 issue of *Target Taupo*, part of the "New Era" vision for the Tongariro National Trout Centre included the Genesis Energy Freshwater Aquarium. The aim of the aquarium is to showcase many of NZ's iconic freshwater fish. It also stands to be an education tool to teach the public about the value of fresh water ecosystems as discussed by Mike Nicholson on page 4. The displays will also include unwanted species that threaten New Zealand's waterways. This is primarily an advocacy tool so people can recognize unwanted organisms in their waterways and alert authorities should they do so.

There was a great deal of effort put into to the design of the aquarium and after the approval by the Department of Conservation, construction was initiated in February this year. The robust acrylic tanks are being manufactured in Napier and are 50mm thick to both hold the large quantities of water required safely and also insulate that cold water from the

Above: The theme work is going to give the aquarium an authentic freshwater environment feel
Photo By: Randal Hart

surrounding air and so prevent condensation. The aquarium is sited between the existing Tongariro National Trout Centre Society Riverwalk and the hatchery buildings and will therefore become an integral part of the total experience for visitors to the Tongariro National Trout Centre. The aquarium contains 10 tanks of various sizes covering a wide range of fresh water environments. These environments include waterfall pools, river headwaters and riffles, still brackish water, slow moving forest steams and shallow lake edges. There are also tanks showing exotic fish, some of which are classified as unwanted organisms under the Biosecurity Act 1993. In addition to the tanks the aquarium is themed to reflect a natural setting which includes rock walls and various native plants found around streams, adding to the atmosphere. The themes were constructed in Auckland and brought down in pieces

Many aspects of the aquarium are "first of their type" which has presented many challenges for the designers, builders, tank manufacturers and the personnel constructing themes for these aquaria. A good example is the "riffle" tank, the aquarium centerpiece, where the challenge is to make the water flow and look like a typical river rapid or riffle, complete with boulders.

The process of designing and obtaining approval to build the aquarium was a complex and lengthy process. There were many statutory requirements and approvals required to both build and stock it with the required species many of which did not exist in the Taupo catchment. As an organization responsible for administering many of these approvals for others, being the applicant has made for an interesting insight into the process.

Examples of the native freshwater fish and invertebrates being displayed will include various species of bullies, kokopu (shortjaw, banded and giant) and eels as well as torrent fish, black flounder, fresh water shrimp, koaro, inanga, smelt, mudfish, koura and fresh water mussels. Each of these native species will be displayed in tanks that reflect their natural environment. Examples of fish that can have detrimental impacts in new waterways will be Koi carp, gold fish, perch, tench, catfish, gambusia and rudd. They will be displayed in innovative tanks which reflect the need to keep these species from escaping and spreading.

An essential part of the design and approval process was to ensure there was no risk of accidentally introducing new or unwanted organisms to the lake Taupo ecosystem. This required a high level of risk analysis on the final design and criteria for stocking. Some of the outcomes from this analysis include;

- Sealed fish tanks contained within a bund. Additionally the bund is drained to an isolated sump.
- Ensuring the tops of these tanks are above any previously known Tongariro River flood levels
- Keeping fish of only one sex
- Procedures to euthanize fish if flood levels did become a threat.

The aquarium facility will also have an independent quarantine facility to ensure new fish or invertebrates captured from the wild do not introduce unwanted organisms or disease to the aquarium tanks.

There is still a considerable amount of work to be completed before the aquarium is opened to the public early in 2011. During November the main riffle tank arrived and was fitted in place. This is a very large acrylic tank which was transported from Napier in two pieces and joined at the site. The acrylic panels for the other large tanks were also fitted and sealed. The curing of the various adhesives and sealants for these tanks will take up to 25 days before the tanks can be filled with water. After all the tanks are filled and the water reticula-

The first half of the centerpiece transition or "riffle" tank arrives
Photo by: Randal Hart

tion system checked, the final themes for the tanks will be completed and the various species introduced. The majority of the native fish will supplied by the Maharangi Technical Institute and the remainder will be sourced from local streams and lakes.

Other challenges to be faced by the staff involved in the day to day operation of the aquarium will be feeding the various types of fish and the general upkeep of the tanks once things are running smoothly. Many species require feeding of live food such as meal worms, maggots and white worms so cultures of these will need to be established and maintained. Three Department of Conservation staff and one Tongariro National Trout Centre Society volunteer attended a two day training and familiarization session at National Aquarium in Napier recently to get a handle on this operation. The session covered many aspects of the day to day running of large aquariums and proved invaluable to those who attended.

The finished aquarium will be a tribute to the dedication of all the people and organizations involved in its concept and build. It will also be a unique and invaluable asset to the Tongariro National Trout Centre which is an iconic Department of Conservation site and a major tourist attraction. The opening of the aquarium in early 2011 will be advertised in the media so keep an eye out for it and plan to come and enjoy the experience.

In the mean time remember to CHECK, CLEAN, DRY and tight lines.

Restoration of Te Matapuna, Wild South Taupo Wetlands

By Fiona Maguire
Fiona is a ranger in our Biodiversity team

Te Matapuna (South Taupo) wetland stretches from Orua tua in the north to Waihi in the south-west and covers some 1500ha. The area has had a long history of fire mainly perpetuated by human habitation. Before humans arrived the wetland was dominated by tall native trees including kahikatea, matai, ribbonwood and kowhai. With the arrival of humans and the insatiable need for grazing land, much of the wetland forest was felled and burnt. As a result, many of the native tree species are now in extremely low numbers in the wetland.

Te Matapuna wetland is one of the largest wetlands in the North Island and also holds a great deal of cultural value to local iwi. It provides many recreational opportunities for the local community. Unfortunately, the tree species that now dominate the wetland are grey and crack willow. These are introduced species and considered to be the number one weed of Te Matapuna and many other wetlands around New Zealand. Willow trees take over wetlands and work to turn wetland into 'dry land' by developing large root masses and trapping sediment.

Wetlands are extremely important ecosystems as they act as nature's sponges. They retain water in periods of drought and soak up water in periods of rain which in turn can help prevent flooding. They can also act as filters improving water quality entering lake ecosystems such as Lake Taupo. Wetlands are also home to many endangered plant and animal species. To protect and enhance these values in Te Matapuna, the Department of Conservation have been working in partnership with the Tongariro Natural

Te Matapuna or South Taupo Wetlands are of national significance
Photo by Lucy Roberts

Willows are destructive to wetlands and are slowly being killed and removed from Te Matapuna like these ones near State Highway 1
Photo by: Joanna Nash

History Society since 2005 carrying out willow control on areas of public conservation land in the Waimarino Recreation Reserve, the Waiotaka Scenic Reserve, and in association with Ngati Rongomai the upper Waitoaka River. The Waiotaka and Waimarino Rivers are two of the main watercourses feeding Te Matapuna. In conjunction with the willow control, restoration sites for new native plantings have been created.

Large areas of grey and crack willow have been controlled through aerial boom and spot spraying backed up by ground control using the drilling techniques which involves drilling into the willow trunks and injecting herbicide. This operation has been completed by Department of Conservation staff, Tongariro Natural History Society volunteers and local contractors. The work is always carried out between December and February as this is when the willow trees are in full leaf, the sap is rising and they are at the best growth stage to actively take in the herbicide. By killing the willow trees the native vegetation will have a chance to re-establish and with time, dominate the areas previously occupied by willow. In turn this will provide better habitat for the endangered fauna that inhabit the wetland including bird species such as Australian bittern, banded rail and fernbird. Clearing the willow will also give the wetland a chance to return to its 'natural state' and perform its ecosystem services of flood and drought control. New areas of Te Matapuna are being designated for control each year, and local iwi have also been encouraged to control willow on the areas of land that is under their ownership.

In addition to willow control, two riparian restoration sites have also been established. The first of these sites chosen is alongside the Waiotaka River in the Waiotaka Scenic Reserve.

Before (top) and after (bottom) willow and weed removal near the Waitotara River. This site is now ready for restoration planting
Photos by: Theo Wylie

Having previously been farmed, this was a very weedy site so it benefited greatly from restoration. An area of 2ha was cleared of all weedy ground cover (predominantly blackberry) using a tractor and rotary slasher and all willow trees on site were drilled and poisoned. As ground cover weeds began to re-emerge they were destroyed and in due course, when the planting site was ready, a team of people planted some 750 native plants. Kahikatea and cabbage trees were a feature of the planting, whilst other trees planted included kowhai, ribbonwood, manuka, and toetoe, all of which would have historically been dominant here. These plants came from local seed sources around the Tongariro area. They were grown on and cared for by

the Tongariro Natural History Society in their nursery. It is very important in restoration plantings that the plants used are 'locally sourced' to avoid the introduction of new cultivars into the area which might be genetically different and unsuitable for the site. These plants have now been in the ground for 17 months and are showing tremendous growth, prompting further ground clearance for additional plantings at a later date.

A second restoration site was established earlier this year on State Highway One along the banks of the Waimarino River. This site is on private Maori land and was chosen as a 'showcase site' as it can be easily viewed by traffic passing by. In this way, the wetland restoration progress can be shared by all. This area of roughly 1ha in size was planted in species very similar to the Waiotaka planting site, and was planted collaboratively by local iwi, Tongariro Natural History Society volunteers and Department of Conservation biodiversity staff. Recently with the warm weather these new plantings have shown excellent signs of growth and we are all excited about the future of this site. Continual monitoring is required to keep an eye on the weed re-growth around the plants and release spraying will be performed when and where necessary.

This wetland restoration will provide great benefit to anglers. As anglers we'l know, exotic species like willows often make it very difficult to reach the river edge and gain access to fishing spots. By poisoning the crack willow that tend to hug the margin of the Waiotaka and Waimarino rivers, and the nasty blackberry scrub that so often surrounds the base of them, access and back-casting room will be greatly improved. Imagine the pleasure of angling under the shade of a beautiful kowhai or ribbonwood as these species re-colonise over time. Ah yes, anglers and conservationists alike, we all eagerly await the return of Te Matapuna wetland to its former glory!

The final phase! Restoration planting with help from Korohe iwi/Tongariro Natural History Society and other volunteers makes restoration of Te Matapuna a real community project
Photo by: Lucy Roberts

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Have you Enjoyed Reading Target Taupo

By Carolyn Newell
Carolyn is ranger - Service

Are you enjoying reading Target Taupo? If you would like to receive the next one then read on. From the start of the new season (1st July 2010) we will be requiring your postal information again so we can send you Target Taupo. You only need to register once for the 2010/11 season.

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

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

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Julie Greaves with a big brown at Te Whaiau trap after dark. Do anglers want to return to less fish in Lake O but the trophies of old like this big fellow? Consultation on the Taupo Sports Fishery Management Plan will give you the opportunity to tell us
Photo by Julie Greaves

Too Many Trout?

By Glenn Maclean
Glenn is the Programme Manager, Technical Support for the fishery

The trend of very large numbers of nice but not huge trout, continued this winter at Lake Otamangakau. Previously this fishery was recognised for very low catch rates, but the fish taken were often of truly trophy size.

Since 1994 we have trapped the spawning run in the Te Whaiau and nearby Papakai Streams from April to August. The spawning migrations into these two streams comprise almost all of the mature trout living in Lakes Otamangakau and Te Whaiau. The trend in the brown and rainbow trout populations over this period is shown in figure 1.

As in recent years the rainbow run is approximately seven times larger than in the mid 1990's. Similarly the brown run continues to slowly increase and the run this winter is the largest recorded since trapping begun.

This would seem to be good news but these numbers have come at the cost of fish size. While the rainbow run was estimated at only 544 fish in 1995, 20% of the run was 4 kilograms or larger and 36 trout recorded in excess of the magical 10lbs (4.54kg). By contrast this year the largest rainbow recorded was only 3.95kg. The smaller size of the trout is reflected in figure 2 which

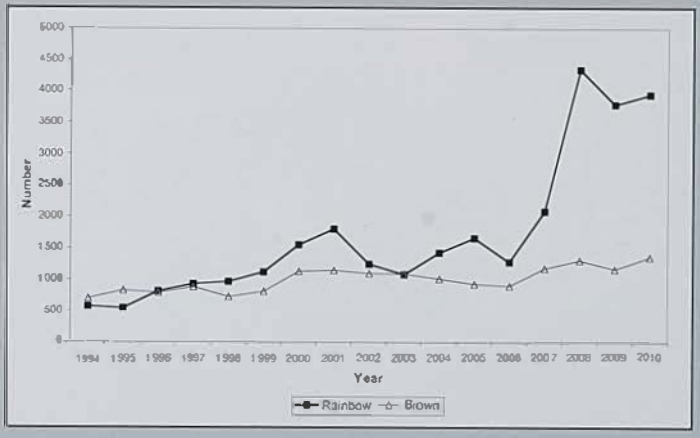
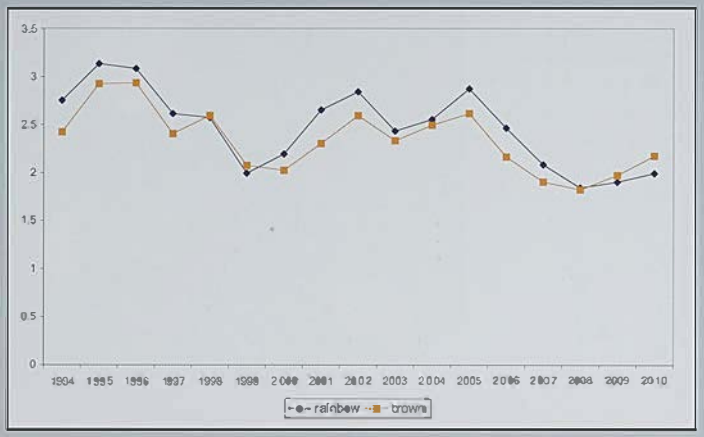


Figure 1: Estimated brown and rainbow trout run in Te Whaiau Stream 1994 to 2010 (adjusted to take into account fish missed during floods)

Figure 2: Average size of brown and rainbow trout in the Te Whaiau spawning run 1994 to 2010



shows the trend in average size over the last 17 years.

The very high rainbow numbers over the last three years coincide with the lowest average size recorded, one and a quarter kilograms less than in 1995. Interestingly changes in the average size of the brown trout closely mirror the trend in the rainbows, despite the brown trout population only gradually increasing over this period. The rainbows still have an average condition factor of around 43.5 to 44 which represents a nice fish by any standards; however this is significantly less than the 47.5 and 48 condition factors measured in 1995 and 1996 respectively. Indeed in the mid 1990s the average condition factor of the maiden trout (on their first spawning migration) was over 50 which is truly outstanding, and perhaps goes a long way to explaining the incidence of so many large trout.

So it seems that once the biomass of trout has increased past a particular level that this has significantly impacted on the individual growth rates and therefore production of trophy fish. This raises the question as to whether we might try to manage trout numbers to increase growth rates, or retain the status quo and enjoy the high catch rates of what are still very nice fish.

It is an opportune time to debate this as the Taupo Sport Fishery Management Plan which guides our management of Lake Otamangakau is now up for review. Currently the lake is identified as a trophy fishery and to be managed in this way. With the knowledge gained from the recent trapping results this would suggest we need to significantly reduce trout numbers, which in turn would negatively affect catch rates but hopefully result in a higher incidence of very big fish. What should we do? So far anglers are divided depending on their experience of the lake. Almost without exception those that fished through the period of very low catch rates but very large fish in the mid 1990s favour a return

This brown being processed at Te Whaiau trap by Ranger Dave Plowman is typical of fish in recent years, nice but not that big
Photo by: Kim Alexander-Turia

to this scenario. That is interesting given how hard the fishing could be (the average catch rate in 1995 was one fish every 11 hours). However those who have come since say it is a wonderful fishery as it is and leave well alone.

In the short term we will almost certainly see some reduction in numbers in the next couple of years anyway, as a consequence of all the rain during September and the flooding in Lake Taupo through into the Waikato. During this time Genesis were required to cease diverting water from the Western diversions of the Tongariro Power Scheme into Lake Taupo for several weeks. This necessitated closing Wairehu Canal and spilling Lake Te Whaiau, the flow over the spillway taking many returning trout and newly emerged fry from Te Whaiau Stream with it into the Whanganui system.

It's not all bad as in reality this event may well give a steer as to a possible solution should we seek to reduce trout numbers on an ongoing basis. Similarly results over the next couple of years should reveal whether having a smaller trout population is in fact reflected by an increase again in trout growth and size, or just a red herring. It will also be interesting to see how anglers feel about any changes.

If you would like to make your views known on this issue please take the opportunity to be added to our mailing list to receive the management plan discussion paper as detailed on page 38.

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The Concept of Trophy

By Dr Michel Dedual
Michel is the fishery scientist

As explained in the last issue of *Target Taupo* the fishery at Lake Otamangakau has shifted in the last decade from one producing many large rainbow trout that were hard to catch, to the more recent dynamic of an abundance of smaller fish that are easier to catch. This swing will probably satisfy anglers for whom size does not matter and who enjoy relatively high catch rates. However, for another group, the catch rate appears unimportant and what draws them to Lake O is the prospect of catching a fish as large as those of yesteryear.

In this article I will explore what drives us to go fishing in the first place. I have deliberately also included references to hunting as both pursuits have the same origin and many aspects in common. Many anglers are also hunters. In fact the enlivening and highly recommended book written by José Ortega y Gasset "The Meditations of Hunting" (ISBN 10: 1885106181) has been the main impetus behind writing this article and the sections in italics in the text that do not mention their origin are extracts of this book. Further on the article also examines the concept of "trophy".

Of course we fish or hunt because we love it, but why do we love it so much? There does not appear to be any historical surveys carried out in New Zealand aimed at finding out why. However, in 2007 Conservation Force, an international organisation trying to protect the rights of anglers and hunters asked that question of 2400 anglers and hunters across the United States. The results indicate that the overriding reasons driving Americans to go either fishing or hunting are similar. There is one clear difference between anglers and hunters though. It

Above: Hunting trophy room Krumau Castle , Ceske Krumov, Czech Republic
Photo by Michel Dedual

Contemporary trophies are often taken and used as everyday objects such as this table and chairs in Krumau Castle, Czech Republic
Photo by: Michel Deduit

seems that fishing provides more relaxation but less contact with nature than hunting. It is reasonable to assume that the motivation pushing Kiwis to go fishing and or hunting will be similar. The table below illustrates the results from the American survey.

Hunting and Fishing Motivation

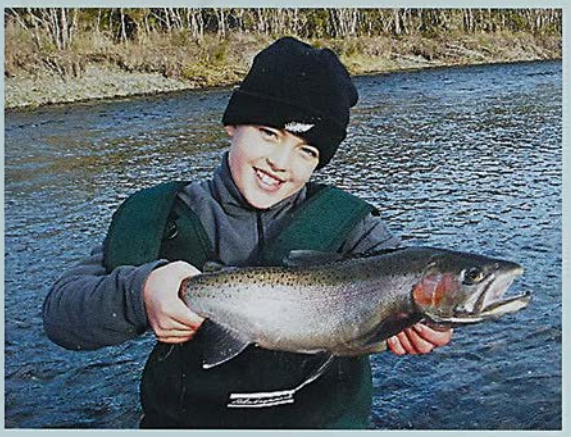
Interestingly neither "procuring a trophy" or "providing meat" are reasons represented in the results, at least explicitly. It is possible that the "challenge" responses from anglers and hunters alludes to securing a trophy fish or animal, however, it is still only significant for 20% of anglers and 16% of the hunters surveyed. So this is probably the first and somewhat unexpected lesson: the vast majority of today's anglers and hunters don't seek their quarry with the intention of securing a trophy or food.

The concept that most anglers don't go fishing to physically catch a fish is very intriguing indeed and might be quite foreign for some.

In ancient times there was absolutely no other reason to go fishing than to provide food. People had to devote their entire lives to hunting and fishing in order to survive. Hunting and fishing were the first occupations and the first professions. Hunting and fishing were unavoidable and practically the sole supporter of continued existence. Furthermore, these activities totally governed human life, its acts and ideals, its technical progress and its social aspects. So in many ways hunting and fishing were responsible for the first life styles. In early times being human consisted of being a hunter and angler (often later referred to as a hunter gatherer).

In the modern era it is appropriate to ask

WHAT MOTIVATES PEOPLE TO HUNT AND FISH?	ANGLERS	HUNTERS
To relax	27.9%	15.4%
Get away to nature	27.6%	42.8%
Good family activity/good way to spend time with friends	20.6%	20.3%
The challenge	19.3%	15.5%
Other	3.9%	4.3%
Don't know or no answer	0.7%	1.6%



The concept of trophy to this young angler on the Taurus-Tampo or the angler of this 'trophy' brown in southern France (top) is probably quite different to that of many others.
Photos by Barry Coombes and courtesy www.la-peche-a-la-mouche.com

if we have almost completely lost this original instinct. This is hard to believe considering that we still have the same genes. Logically our instinct to hunt and fish should still be buried in there somewhere. Also, we all know that hunting and fishing does not always culminate with the capture of something but most will agree that when it does it certainly adds to our enjoyment of life. So let's have a better look at each of the reasons listed in Table 1 driving people to undertake hunting and fishing pursuits.

Going fishing for relaxation is the main reason given by anglers. Relaxation is a vague state of mind that can be felt differently in different situations. For some it may mean solitude, and for others sharing time with friends. Relaxation also has obvious limits. For example who cannot remember an angling journey that started in a very relaxed manner, but after you had gone through half a spool of fluorocarbon and left 10 nymphs on the bottom those relaxed feelings were seriously frayed? Intriguingly regardless of these events, which happen all too often, something deeper pushes us to return again and again. Why? Perhaps angling makes us feel free in our otherwise turbulent world. We are free when angling - not necessarily because it changes our ordinary routines, but because we can move beyond our ordinary selves, and return to our more primal roots. *Progress has projected the human far away from his ancestral proximity of*

nature that is animals, plants, and minerals. Now we enjoy hunting and fishing as they are the only occupations that allow us to return to the nature and, hence, to take a holiday from the humanity.

This is why the need to get away to nature is almost as important as seeking relaxation and the second most important reason cited for angling. This is reasonably easy to conceive as fishing makes us more aware and more contemplative of our natural surroundings. When we are fishing or hunting we fall in love with nature.

This is why we hunt and fish. When we are tired of being "modern" we take our guns, rods, whistle the dog and go to the bush or the river to spend a few hours enjoying being "palaeolithic".

Man has always had the opportunity to escape from the present to the primitive form of being human that started history. Before the primitive form of human kind was only what is permanent: nature. The nature man is still here but hidden in the historic man. When we call him here he comes a bit stiff and drowsy but he is still present.

It is amazing to note how quickly we realize nature and lose our worries, mood and the character of our every day life to wake up the savage human in ourselves when we leave the city and arrive in "nature". Our life seems to lose weight that is progressively replaced by a sort of adolescence's perfume and freshness.

The hunting and fishing grounds are never exotic but to the contrary something already known, where we could always have been and the "feral" man who suddenly appears in us doesn't introduce himself as a foreigner but as our most evident, spontaneous and comfortable "I".

Man is a transfusion of nature. He moved out of it and started to make history trying hard to realize the imaginary, the improbable, and even the impossible. History is always made against the grain of nature. Man goes hunting/fishing to relax by returning transitorily and artificially to avoid history.

We need to preserve this acrid impulsion that we have inherited from the primitive man. It is only through him that we can obtain the greatest luxury: being able to enjoy a holiday from our human condition through an authentic immersion in nature.

The third most important reason that drives anglers to go fishing is to share some time with their family or friends. This sentiment may well be a reminiscent of our ancient life too. It is important for some of us to show that we still have the capability to provide for our families. The fact that we may no longer need to go fishing or hunting to provide food and clothing is immaterial: fundamentally we still need to know that we can be providers and fishing or hunting give us this reassurance.

Hunters know from first-hand experience that "life lives on lives." The hunter participates directly in the most fundamental processes of life, which is why the food chain is for him a love chain. And that is why hunters have been and still are, by far, the foremost conservationists of wildlife and wild places, to the benefit of everyone.

- Randall L. Eaton -

However, as John Madson summarized during the Symposium on North America's Hunting Heritage in 1993 in Bozeman,

Hunters may try to reduce their motives to such tangibles as trophies, meat, good dogwork, companionship, exercise, freedom in quality environments, or simply "adventure." Underlying all that, however, are deeply embedded reasons that neither hunter nor psychologist is really equipped to fathom.

This may well be so but there is a further intriguing question that needs consideration. Why for some is there the challenge in fishing or hunting to procure a trophy?

Etymologically, the word trophy comes from the French trophée and means a

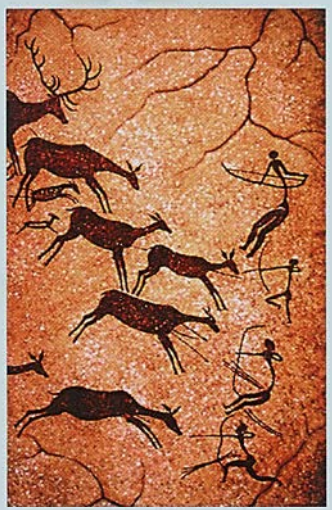
monument to victory. History tells us that in ancient Greece, trophies were created on the battlefields where the enemy had been defeated and various items were dedicated to a god or gods. These trophies included captured weapons and other military paraphernalia, which were hung on a tree or a large post. The ancient Romans wanted to keep their trophies closer to home. Instead, of erecting a tribute to the victors and the gods on victory ground, the Romans had special trophies constructed in Rome. These trophies often included architectural structures like columns and arches built on pedestals.

Another ancient form of representing trophies was to display various parts of the human body taken from the enemy. Archaeological evidence indicates that this practice is of great antiquity and was common in every major culture. The removal and preserving of the head, scalp, eye, ears, teeth, cheekbone, mandible, arms, hands, fingers, legs, feet and sometimes genitalia for use as trophies was widespread. Fortunately this sort of practice is nowadays the prerogative of only of a few disturbed minds.

The origin of taking animal body parts as trophies is more obscure. For many centuries humans have felt a need to display "dead things", particularly in natural history museums. Trophy mounts of a variety of animals are common wall decorations. However, a major difference to the human trophies mentioned earlier is that animal parts are often taken and used as everyday objects, such as deer antler used as a knife handles, chandeliers, tables, coat hangers, or as a priest to kill trout.

But the use of trophies in this regard was something that developed over time. Early hunting and fishing was much more primal. The prehistoric paintings found in caves in Lascaux in southern France and in Altamira in Spain clearly indicate that early hunting and fishing was not for the purpose of securing trophies at all. These paintings represent vibrant animals roaming the countryside and hunting scenes portraying their capture as encountered by the hunter. This means that the artists who painted them had survived the experience, something that was not a given when you consider the beasts they had to deal with and the archaic weapons available. These victories of human over animal for food or to prove strength in the face of danger were one of the prerequisites for the survival of our species. In some ways the excitement of the hunt and the danger it entailed paved the way for the culture of "trophy". Trophies were used to teach and tell stories relaying the meaning of success to future generations. It is interesting that in the modern era animals destined for human consumption are rarely mounted and displayed. Visual images of these "used animals" convey the message that using animals to meet human needs is normal and we should not be bothered by the practice.

After the invention of photography in the mid-nineteenth century by Joseph Nicéphore Niépce, pictures have been used to record animal trophies. Trophy photographs in hunting or fishing magazines are now records of prowess, strength,



and virility for some and for others they convey the beauty of nature and wild animals. The covers of hunting and fishing magazines usually display vibrant images of, beautiful and majestic tahr, deer or chamois running gracefully or standing majestically. If a trout figures on the cover then it will be leaping or be swimming in crystal clear water. Oddly enough the pages between the from and back covers will be full of dead animals or fish suggesting that death not life connects the gatherer with nature and animals.

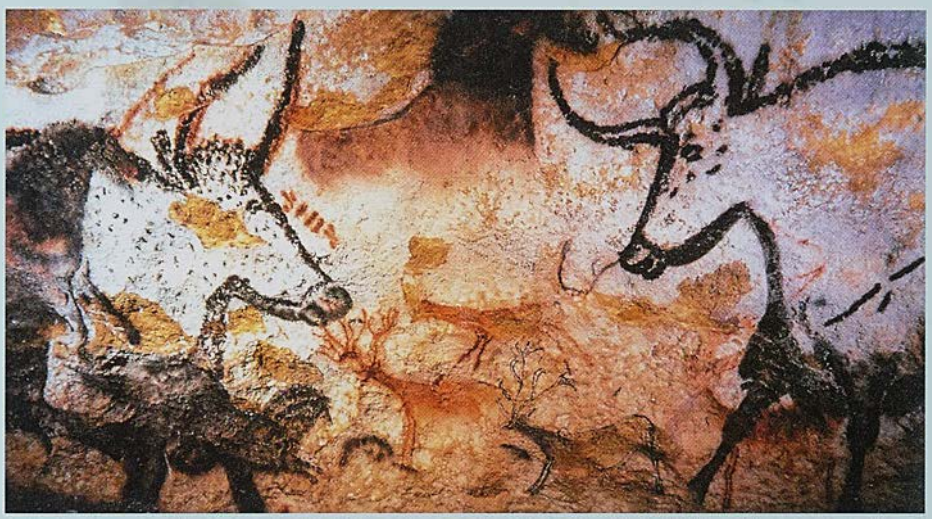
Another interesting facet is the fact that for most terrestrial animals the body parts displayed generally come from males. Deer antlers and boar tasks are probably the most common in New Zealand. Perhaps it stems from the greater level of danger encountered when dispatching a large strong male of the species all those years ago. But the display of aquatic animals like fish trophies is different. The display of fish parts as trophies is not common practice except perhaps for the terrifying open jaws of a shark or the long elegance of a marlin bill. Further, photographs of fish as a trophy convey a similar impact as a wall mounted trophy because the fish doesn't need to die. If you catch a trophy fish you can weigh it, photograph it and still have the choice of releasing it. This is unlike terrestrial animals where the kill is compulsory, it cannot be caught, photographed and released. It is also traditionally been more difficult for a taxidermist to recreate a realistic 'live' looking fish and for trophy fish sex doesn't appear to be important.

So what is considered as a trophy?

Most of us will never kill and mount "The Mother of All Trout". Yet we probably all have the story of a fish that we will always remember and tell every time the right circumstances arise. The special value of that fish for us is not always measured in weight or length but on the litres of sweat or adrenalin released during a duel that was fair and square.

However, the assessment of a trophy is highly dependent on where a fish was taken and what the population is like. Take a 10 pound trout. Often this magical limit is set to separate the ordinary from the trophy trout. But here's the catch. If you secure that fish in a fishery where most fish reach 11 pounds it will certainly not have the same prominence as

Below left & right: Prehistoric hunting paintings found in caves in Lascaux, south France and Altimira, Spain
Photos courtesy of www.deitchman.com



a 10 pounder caught where fish average 5 pounds This means that you need to assess what constitutes a trophy for the place that is being fished or hunted. For example in Taupo the size of the trom monitored in Waipa would suggest that, for the last 2 decades, any rainbow trout above 8 pounds can easily be considered as a trophy. On the other hand for a brown that figure could be 10 pounds. In Lake Otamangakau a 10 pound rainbow or brown can now be labelled as a trophy. During the mid 1990's the prospects of catching a rainbow heavier than 10 pounds in this lake were much higher and a trophy during this period was more around the 13 pound mark. Conceivably, this means the concept of trophy can change with time. Judging by the response from the anglers on Lake O this season it appears that many anglers familiar with the fishery don't want to lower the 13 pound benchmark.

Another side to this is the opportunities available to secure a trophy. For example if you were an angler that had only a once in a lifetime opportunity to catch a rainbow trom I would suggest that a rainbow of any size would constitute a trophy. In this way what constitutes a trophy is not measured in units and is in the eye of the beholder for any number of reasons. A final word. at Taupo we catch 'trophy' trout as a matter of course. Putting this in perspective is to compare them with the size of trout overseas. Every New Zealander who has been travelling and fishing for trout in Europe or America is certainly aware of that. Our average size trout of 1.5 kg caught at a rate of 0.3 fish per angler per hour dwarfs the aspirations of just about any other angler worldwide. So when you next catch one think fantastic, another trophy in the bag!

Remember the proverb that says It is not the quarry, but the chase, not the trophy, but the race.

Taupo trout have an average weight of 1.5kg like this one and are trophies to most other anglers in the world
Photo by: John Webb

The Rewards of Fishing With Kids

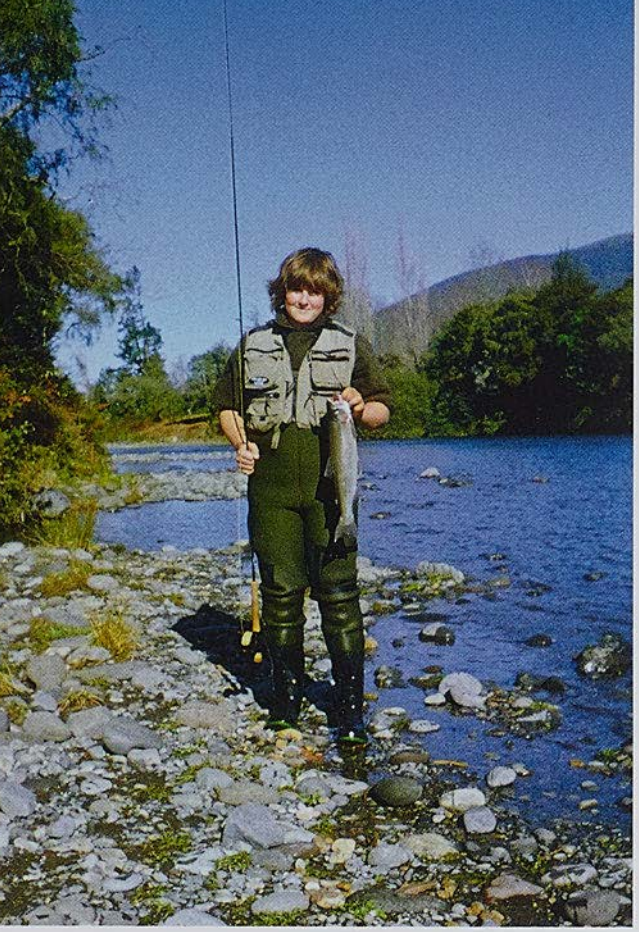
By Dave (Didymo) Cade,
Hadlee Cade
and Ethan Winter
Dave is our didymo ranger

I spend a lot of time on the riverbanks either in the course of my work or when I'm fishing in my own time and I have plenty of opportunities to observe people behaviour. The declining recruitment of young people into freshwater angling is something that often goes unnoticed but addressing it is essential for the future of both fly fishing as a sport, and the health and vibrancy of freshwater fisheries themselves. While I feel there are less young people fishing today than say 30 years ago I also think there is a great deal more we can do to recruit young people into freshwater fishing.

For instance, take a parent who has a child aged somewhere around 10 years, and not yet big enough to fish the Tongariro River with large rods and a weighted nymph. In many cases they will take the option of waiting until that child is strong enough to handle the equipment before introducing them to the sport. However, another option is to start them off on a smaller river with a wetline. The smaller streams around Taupo such as the Waimarino or Hinemaiaia are much easier for young people to learn on than the Tongariro, but I seldom see this happening. Smaller rivers can provide some superb sport at times; they are relatively safe and require smaller casts by the less experienced among us.

Fishing with weighted nymphs to spawning trout is a very popular method now and there is little doubt that it is very successful. But nymphing is quite technical in its application. Further, weighted nymphs certainly don't make learning to cast any easier. On rivers like the Tongariro you are

Top: A young Hadlee Cade (5) with a couple of nice rainbows near Kinloch
Photo By: Dave Cade



Hadlee Cade at the Major Jones Pool, Tongariro River.
Photo by Dave Cade

dealing with long leaders, multiple flies and indicators that all need to be monitored while fishing. Wetlines on the other hand are nice and simple, have shorter leaders, usually with one fly or lure and are fairly easy to cast. A wetline with a rabbit fly or a woolly bugger can be as lethal as a nymph when there are fish around. There are plenty of places on the smaller rivers where a child in their gumboots with a wetline and a rabbit fly trailed downstream can catch trout. In Tony Jensen's book Trout of the Tongariro, on page 106 there is an excellent story of a young boy catching plenty of fish doing exactly this.

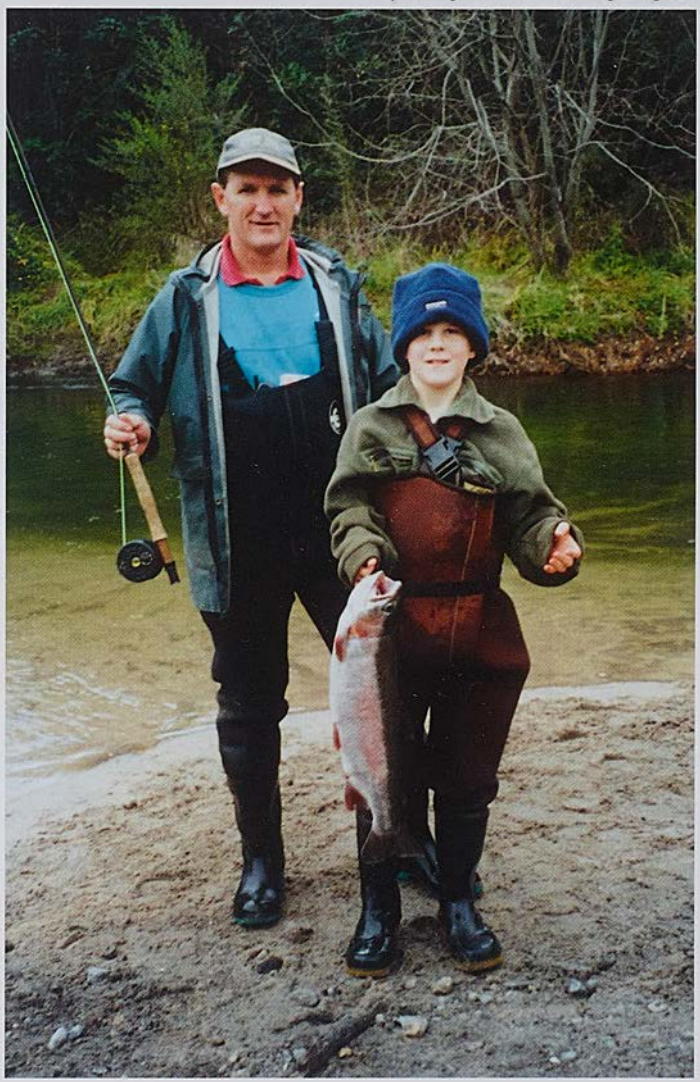
Having ready success is key for a young person starting down the angling trail – and let's face it, we have all been there. Have you ever hooked a fish, glanced around to see the look of longing on the face of a young person fishing close by? One of the things I regularly do in this circumstance, if I'm blessed enough to hook a fish, is hand the rod to them. After all, I have caught plenty, and I can catch plenty more because I am experienced. Personally, one of the most rewarding things about fishing is to make a young persons day.

Once youngsters become anglers,

The cycle continues. Hadlee Cade passes on some tips to young Ben Blicknatore on the Hinemaiaia River
Photo by Dave Cade

I am astounded by their sudden commitment to the preservation and care of our rivers and lakes as well. My son Hadlee Cade was awarded a Department of Conservation award in 2008 for his voluntary work. Ethan Winter did a Gateway programme with the Department in 2010 and both of these young men now work part time for the Department helping with the aquatic weed campaigns. In addition I have 3 young people from Wanganui, Taupo and Auckland who will be spending time with me this summer on a voluntary basis doing conservation work like trapping and weed control. I really enjoy talking to young people about how they got into fishing and what their ideals are about the fishery. Ethan Winter recalls:

"My fishing to me is all about getting out



Personally, one of the most rewarding things about fishing is making a young persons day. Ben Cooper with a top fish
Photo by: Simon Cade

Out on their own now James Williams and Hadlee Cade enjoy chasing rainbows
Photo by: Dave Cade

on the water with my mates. I got into the sport when I got a flyrod for Christmas. I would go fishing after school and on the weekends. After a year I caught my first rainbow trout. What kept me going was the challenge of getting my casting and mending of the drift right and then landing my first trout. Some people think young people should be able to baitfish or spinfish in the river but I would always have gone for fly fishing. To me it's a better way and more challenging. That's what got me into fishing and I still love it to this day".

For many people it is about building memories too. The following testimony is from Hadlee Cade:

"I was first introduced to trout fishing by my dad. We used to come to Taupo on holiday from the farm and go out harling in the dinghy. I'd really enjoyed fighting any fish that I hooked and dad would encourage us by letting us fight fish he hooked as well. I was 5 when I caught my first limit from Grandad's boat harling in Kinloch Bay.

I was 7 when we moved to Taupo and from then on I really enjoyed going fly fishing during the winter months. We would get up about 6am and have the car packed. We would eat toast and milo for breakfast on the way to the river. I would fish for a while but if the action was slow I would lose interest quickly, put my fishing rod somewhere safe and head off to build a hut. Dad spent time teaching me the difference between native trees and weed trees and I soon understood that I could cut anything down as long as it was a weed like broom or lupin. So he would fish and I would build huts but whenever

he hooked one I would drop everything and go and fight the fish. That was always my job and it made me feel as though I was part of the action. I was also part of the action one day when we went to cross back over the Hinemaiaia Stream after fishing a pool. The Stream was fairly shallow but too deep for me to wade in my gumboots so Dad put me on his back and off we went. We had crossed over lots of times at the same spot but this time Dad tripped on a rock and we both went in the river. So there we were standing in the stream in about 2 feet of water, both of us wet through laughing our heads off.

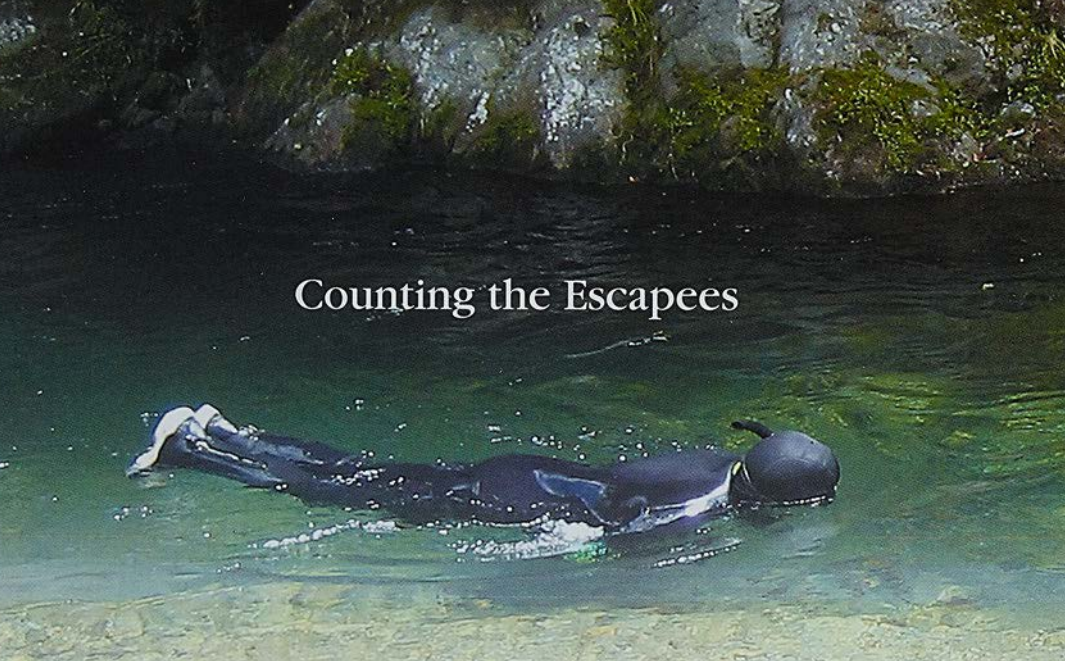
When I was oldet Dad bought me my first fishing rod. Wow my own fishing rod, it was a big thing for me. I also got a fishing jacket for Christmas that year and a reel from my Grandad. It was a great day in the middle of 2007 when I hooked and landed my first river fish on my own rod and I felt as though I had achieved something magic. So with my own waders and gear it was now all on. Look out fish!!

The spirit that dad and I shared helped foster my love for fishing and as a child and the more your parents make you part of something the more you want to do it with them.

Once I had started to catch fish on the own that was it,I was out and into it. One big day was when I hooked and landed 2 fish from the Major Jones Pool on the Tongariro in between 2 guides and their clients. I thought I was the man! Any child interested in fly fishing will always go further with the support from their family and being kept part of the action."

In my view a lot of young people are keen to fly fish and spend time looking after the rivers. Bringing young people along is extremely rewarding for both parties and there are ways to do it successfully - investing time is the key. Changing regulations to make fish easier to catch will help young people into freshwater fisheries, but by the same token lets help them and foster their memories and angling experiences as much as we can.

Counting the Escapees



By Heath Cairns
Heath is a ranger in the fishery operations work

Some of you may have seen a bunch of mysterious, neoprene clad individuals wandering past you in the upper reaches of a river while you are quietly enjoying a days angling and wondered "What are they up to?" To answer this question the following article provides a small insight into the operation of drift diving, what it entails and why the information collected on drift dives is so important in assessing the health of freshwater fisheries.

Why Drift Dive?

Drift diving is conducted by a team of specially trained individuals who 'drift' down rivers, maintaining a perpendicular line to the riverbank, counting both the rainbow and brown trout. In the case of Taupo we are counting spawning trout over winter, cold and potentially dangerous work, but necessary for understanding the dynamics of our trout populations. The data collected during drift dives includes the quantity, size and species of the trout that have that have escaped capture in the lake or rivers and made it to the relative sanctuary of closed waters for spawning. This data is then compiled by technical staff and analysed to ascertain trends.

Over time, the data helps in managing the overall objective of maintaining a sustainable, wild fishing resource. Drift diving also has some additional functions. Poaching and evidence of fishing closed waters is often determined during drift dives.

Basic Techniques

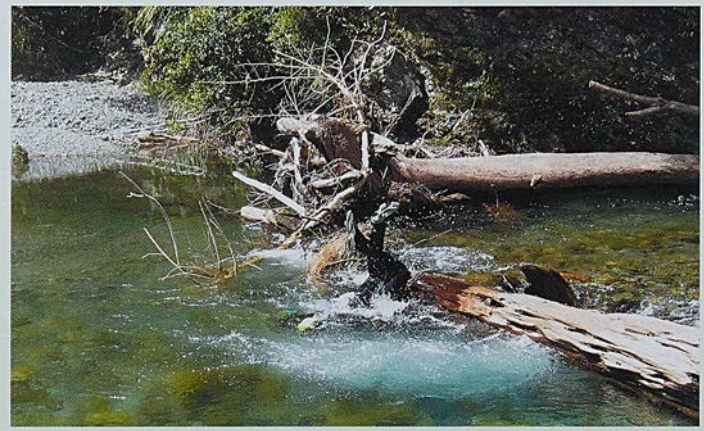
Divers assess each reach (pool) of a river prior to floating through. This is to determine any hazards and decide on which route to follow and undertake the count. Trout will often hide under river banks so the choice of route is important. This initial inspection also determines if any "duck diving" (complete submersion) is to be conducted and the exit point to regroup and collate data.

When the dive commences, divers line out across the river at a distance where your buddy's hand can be seen comfortably underwater; the theory being, if you can see a hand, you can see a trout passing between you and the next diver

A drift diver checks the overhangs for signs of life
Photo by: Heath Cairns

The dive begins and everyone must maintain an accurate and defined line across the river. All divers must keep up with the diver who is travelling along the river bank (by swimming faster or holding back) and, at the same time, looking towards them.

Each diver counts the trout that swim upstream between the neighbouring diver and themselves. Rainbows are more easily spooked than browns and will often swim downstream ahead of the divers to the tail of the pool, turn and bolt upstream past the divers all at once. It is less stressful on the trout and makes for an easier count if one diver purposely widens the gap (called 'opening the door'), essentially offering an escape upstream for the herded fish. Conversely browns are more sedentary and often hold up where they are until the diver is right upon them. Sometimes they will even let you drift on past. Consequently divers must thoroughly



Snags and debris can be dangerous for drift divers and challenging for counting the fish hiding in their shadows

investigate every shady, dark nook for the presence of browns. The ability to reliably assess trout from a distance, good hazard awareness and a natural predisposition for water is required to be a successful drift diver.

Hazards and Limitations

Drift diving is a quite physically demanding and hazardous pursuit. It is done during the winter and spring months when the trout are running to spawn so the water is inherently cold. Even with 7mm 2piece wetsuits, hoods and gloves, divers will feel the effects of the cold (especially on the longer dives). Manual dexterity is quickly diminished and slurred speech can become evident. Recognition of these signs and symptoms of hypothermia is always paramount within the team. For safety, there is an arbitrary minimum water temperature cut-off of 5 degrees C at or below which diving cannot take place. Typically above this temperature divers may initially feel uncomfortable but with the correct gear soon adjust, however below 5 degrees C it is just too cold. Personal fitness on the day must be optimum to ensure a safe dive. If a person is unwell he/she can not concentrate on the task at hand and ultimately become a danger to themselves or the team. As a consequence staff doing drift diving must undertake annual diving medicals and first aid training.

Aside from the cold there are other hazards that arise in drift diving. Although drift diving is effectively only snorkelling, it is still wrought with danger. You don't have complexities of compressed breathing mediums (such as scuba tanks), varied ambient pressures and the hazards associated with the various 'Gas laws' (eg the bends) but you do have the very real concerns of snags, entrapment, impaling, tripping, hypothermia, hyperthermia, soft tissue and skeletal injuries.

Our biggest concern is being trapped against debris in a fast flowing river, because unlike 'normal' diving you don't

Don't be fooled, this scene is extremely beautiful but also extremely cold. Drift diving presents some unique challenges
Photo by: Heath Cairns

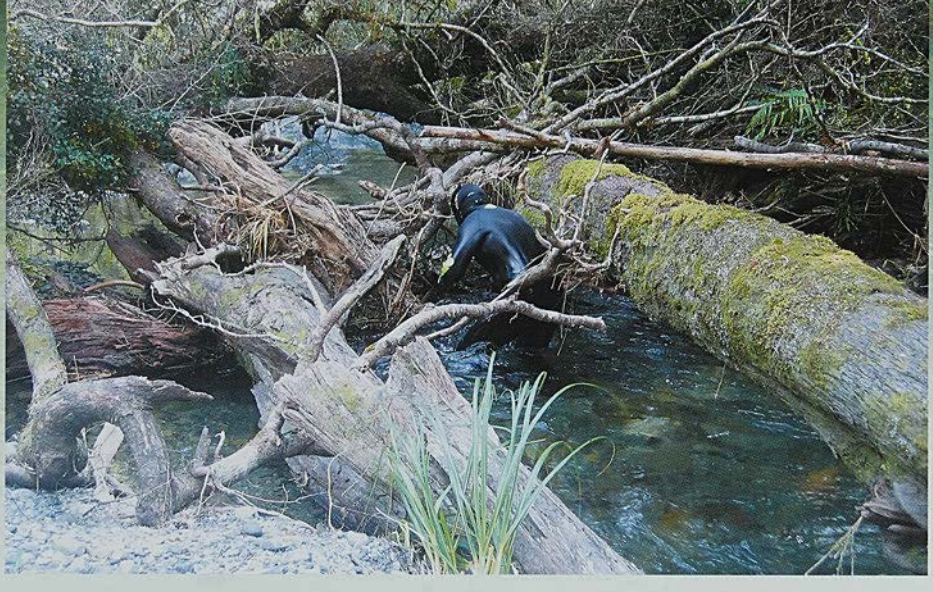
Every darkpool needs to be explored for loitering trout like these
Photo by John Webb

have the luxury of breathing underwater to rectify the situation you've encountered. Some people can hold their breath for impressive amounts of time, but that is normally in an environment they have chosen and are prepared for. Getting wedged against a submerged tree, caught on submerged obstacles, fencing wire or blackberries is testing even for the most disciplined diver. Dive teams will always have a safety look-out and an immediate response plan should these situations occur. Even with the most thorough pre-planning there will always be times when the unexpected occurs. Safety equipment including an EPIRB, handheld radio, first aid kit, hi-vis vest(s) and waterproof matches are checked as being serviceable before every dive. There is always a point of contact that knows of the dive team's locality and their ETA.

There are practical limitations when drift diving too. Rivers such as the Tongariro have large flows and visibility too low to accurately undertake counts. Likewise in very small tributaries it is difficult to make headway. Visibility is also a key limitation especially after floods. Minimum acceptable water visibility is 3m and determined by using a 125mm black disc held under the water and measuring the distance a diver can be from the disc while still seeing it. Even 3m is marginal when trying to count trout and visibility is always much less under water than it appears from above.

Where does Drift Diving Occur?

Lake Taupo has 5 primary tributaries (inflowing rivers) that are utilised by spawning trout and are also conducive to drift diving. These are the Hinemaiaia, Tauranga Taupo, Waimarino, Whitikau and Waiotaka. In addition as part of the resource consent that King Country Energy hold we also drift dive, on their behalf, the Kuratau River which requires the virtual shutdown of the Kuratau Power Station. We endeavour to dive all these tributaries monthly from June to December with the exception of the



Obstacles are negotiated in the easiest way possible when on a dive
Photo by: Heath Cairns

Kuratau which only gets dived 3 times during winter. When diving the Kuratau it is imperative that the power station is shut down and not re-opened until the completion of the dive. This not only reduces the hazard to divers but also reduces the water volume and consequently the river height and flow.

Personal Insights

Having only recently joined DOC and the drift dive team after 20 years in the Navy (the last 15 with the Navy Dive Team) and then 2 years as a commercial diver and dive instructor it was pleasing to see a whole new world underwater. Commercial divers are basically construction workers or labourers whose work place just happens to be underwater. Another fact about commercial divers is that they are about as subtle as a sledgehammer. Conversely, drift diving requires a much more precise and refined approach. It is not just a matter of 'get your gear on and go'. Things need to be carefully executed so as to ensure an accurate count, minimise any unnecessary stress on the fish and to ensure rivers remain undisturbed. The visibility experienced and the trout seen on some of these rivers is absolutely breath taking.

I would argue that the dive training regime undertaken by NZ Navy Divers is amongst the toughest and most disciplined in the world, but nothing ever prepares you for the 'cold shock' experience the first time you submerge your exposed face in snow fed rivers like those feeding Lake Taupo. Cold shock causes an involuntary 'gasping' reaction, which if you are not prepared for can cause you to inhale water. Just one mouthful of water can cause panic and the situation can become unrecoverable exceptionally quickly. This is why it is even more important that people use life jackets on our lakes and rivers, regardless of how strong a swimmer they are. Most New Zealand rivers and streams have their source as snow melt.

So drift diving may seem a gentle, safe and easy way to count trout, but it is actually more challenging than you think. It is just one more of those fairly obscure operations that fishery managers undertake to assess and protect the future and sustainability of our freshwater fisheries.

No Nets Please!

By Jill Larsen-Welsh
Jill is the Area Compliance Officer

Staff sometimes work all hours in remote locations to protect the fishery from netting
Photo by Jill Larsen-Welsh

It is always with deep regret when we see people using nets to catch trout. A recent apprehension saw sixteen beautiful brown trout caught in this way – and they were prime breeding stock. The fish averaged 3 lbs and were in fabulous condition. It was described by one of our longer serving officers as the best bag of fish he had seen from Lake Taupo. The offender in this case was caught due to the vigilance of anglers discovering the net and reporting it immediately. The net was set in a popular angling location so it was a fairly brazen act. This was fortunate for the fishery because although the intention is to undertake compliance in as many areas as possible it is

These outstanding brown trout were killed by a gill net at Omori. Anglers discovered the net and alerted us
Photo by: Glenn Maclean

difficult to be everywhere at once.

In a separate case a person was prosecuted in the Taupo District Court for catching trout with a net, fishing without a licence and exceeding the daily bag limit of three trout. The defendant said that he believed it was his customary right. However, the Judge, in her summing up made it very clear that that law does not allow for trout to be taken under this guise.

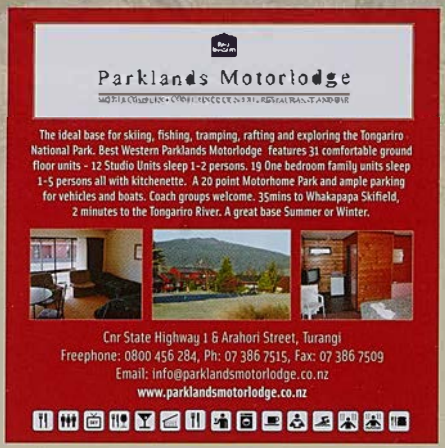
It seems that the process of netting trout is passed down through generations in some families. Another recent group of poachers who were convicted of using a net to catch trout in a spawning stream consisted of a man, his two sons and one other person. This is quite common. Many of the poachers will say that they have been taught by family and have been doing it for many years so there is a cycle there that needs to be broken. Just because it has been done for several generations doesn't make it right – it merely means they have been lucky in that they have not been caught until now.

Lake surveys have started again for the summer season so it's likely you will be stopped by a Ranger at some point and asked to produce your licence and

undertake a short survey. It is timely to remind anglers to ALWAYS carry your licence with you when you are out fishing. The onus is on the angler to produce their licence to a ranger upon demand. Having it at the ready avoids an unnecessary trip back to your vehicle, which may be parked some distance away or being told to cease fishing until you can produce the licence. This procedure is to safeguard all licensed anglers. Cooperation of anglers during surveys is greatly appreciated. You as a licence holder are paying for us to be out there upholding the rules and regulations on your behalf. An angler survey usually takes no more than a few minutes and we try not to interrupt your angling for too long. On the other hand many anglers appreciate the opportunity to question us about aspects of the fishery or raise concerns they may have. The main purpose of the surveys other than licence checks is to gather information about the fishery and the fish you may have caught. This information is vital to the future planning and maintenance of the fishery, and your contributions are always valued.

There is always a Taupo Fishery staff member available to take calls regarding compliance issues. As always, the more timely the information, the more useful it is – so if you see anything at all that just doesn't look right – please call us immediately. We would rather get a call and discover it is benign than not get the call at all. Small pieces of information can be very useful at times, sometimes its just the missing piece that we need. Even if something sounds silly, often it is not.

There are a few things you might want to take note of when it comes to reporting information. Always try to be quite specific about where the offence is occurring; the closest road or fishing pool or landmark. Try to get descriptions of the people involved – what they're wearing, approximate age, hair colour etc or anything else that might make the person identifiable. If there is a vehicle involved then a registration plate number if you can and the location of the vehicle is very helpful. Of course, don't forget to explain exactly what you have witnessed occurring. Some folk like to leave the scene before reporting an incident while others are happy to stay in place and give further details as they occur. Either way is helpful to staff who attend and it's really up to how comfortable you are feeling under the circumstances. Remember most of all, any information is good information. Taupo Fishery has a rostered Duty Officer who is available 24 hours, 7 days a week to take calls on 027 4424962. Write this number down somewhere handy, or save it on your cell phone you never know when you might need it.



Harvest Survey Update

By Mark Venman
Mark is the Fishery Operations Manager

The 2010/11 Harvest Survey is now one third complete and is progressing well since it began back in July. Just over 80 flights have been completed so far and you may have noticed the small red and white super piper cub winging its way above you on the rivers or out above Lake Taupo counting the boats. The flights are accompanied by Rangers interviewing anglers on the ground and so far our rangers have interviewed over 500 anglers on the Tongariro River and over 200 on the Tauranga Taupo River.

Since July, the Tongariro has fished well with an average catch rate of 0.34 fish per hour (1 fish every 2.9hrs). Over 80 fish kept by anglers fishing the Tongariro have averaged 1.4kg. The average catch rate for the Tauranga Taupo River is down slightly in comparison to the Tongariro but still respectable with 0.29 fish per hour (1 fish every 3.4 hrs). The 30 fish kept by TT anglers averaged 1.3kg.

Joe Beattie and Peter Wilton have been employed as our boat ramp interviewers and they have been doing a great job so far gathering information from lake anglers during what are some long days parked up at the ramps. A total of 350 interviews of non guided anglers have been completed across the lake between July and September producing an average estimated catch rate of 0.24 fish per hour (1 fish every 4.2 hrs). Overall, interviewed anglers have kept 152 trout (38% total catch), released 53 legal sized trout (13%) and 198 undersized trout (49%). Although early days, this high percentage of undersized fish amongst the total catch can be expected at this time of year in the lake and should decrease as these fish grow over the summer months and reach the legal length of 40cm. Deep trolling with

Above left: Ranger Joe Beattie interviews Jim Baggott after his morning out Lake Taupo
Photo by John Welsh

Above: A strong stomach and a keen eye are needed on the Harvest Survey flights. *Photo by: Michel Dedual*

Below: Our pilots Chris Blyth and Emma Holdgate Aerial assessments are an important part of the Harvest Survey *Photo by: Michel Dedual*

lead lines has been the most favored method across the whole lake as is typical this time of year when the lake is fully mixed and was the most productive with an estimated catch rate of 0.31 fish per hour (1 fish every 3.2 hrs), followed closely by harling on 0.27 fish per hour (1 fish every 3.7 hrs).

Guided anglers on Lake Taupo during the same period have done very well with downriggers accounting for the majority of the fish kept. As expected, the percentage of undersized fish returned was also high for guided anglers and on par with what non-guided anglers have been catching. Similarly, anglers fishing at the Tongariro Delta have also been successful with an estimated catch rate of 0.35 fish per hour (1 fish every 2.9 hours). At this time of year, the majority of these fish would be hanging around the Delta preparing to run the Tongariro to spawn.

Overall, a good start to the 2010/11 Harvest Survey and it will be interesting to analyze the results in greater depth at the end of the season. Thanks again to all of those anglers that have been interviewed so far – your information is greatly appreciated. Thanks also to all the staff involved not just on the ground but also up there in the bumpy plane on windy days.

Fish Bytes

Fish bytes are short interesting stories from the Taupö-nui-ä-Tia Area. Feel free to contribute if you have one

A NEW LEASE OF LIFE FOR TOKAANU WHARF

By Kim Alexander-Turia, Programme Manger Community Relations
And Ray Packer, Ranger Fishery Operations

As Dave Lumley discussed in Fishery Foreword now we have merged into a much larger Area involving land management staff. This means many of us get to be involved in the wider scope of what we look after in our new Taupö-nui-ä-Tia area.

Part of this is the ongoing restoration of Tokaanu Wharf. The original section of wharf was built more than 130 years ago, around the late 1870s or early 1880s and is one of the oldest man-made structures at the southern end of Lake Taupo. But by 2002 its condition had declined to a point where it was considered unsafe. So in 2003 a restoration programme began for the wharf, organised by the Department of Conservation in association with the Department of Internal Affairs and with funding assistance from the Tongariro Natural History Society.

The trolley makes the hard work lighter for Visitor Assets Ranger Ellen Abrahams
Photo by: Ray Packer

The wharf played an important role in the early days of New Zealand tourism. The

Visitor Assets Ranger Paul Prendergast replaces the timber decking during the restoration of the Tokaanu Wharf
Photo by: Ray Packer

nearby thermal pools were a highlight on the 'Grand Tour' of North Island volcanic attractions when the wharf was used to disembark visitors. However, this age of "leisure" travel came to an end as the roads improved, regular lake services stopped in the mid-1920s and the wharf began its long, slow decline.

During the restoration, the original beams, decking and handrail timbers have been reused where possible on the oldest section of wharf (closest to the shore) making it safe and historically 'intact'. Missing and damaged timber is being replaced with native hardwood, primarily totara that has been sourced sustainably and milled locally.

The wharf has a nostalgic feeling when you walk along it today. In it's hey day the wharf was a hub of activity as locals shipped their goods north across Lake Taupo and out to the wider world. Some of the goods shipped out back then included wool, dairy products and flax. The mail and food supplies came in on the return journey.

"On a beautiful day working on the wharf is a great place to be" says Paul Prendergast, Ranger Visitor Assets. "Not so good on a cold windy day where the conditions are tough". Staff often see trout rising around them and at times they come so close you can almost touch them. Bird life is prolific around the wharf with species such as dab chicks, marsh crake, spotted crake, scaup (Black Teal), Australasian bittern and the three royal spoonbill's that have recently been seen around this area.

Take some time out and have a walk on the Tokaanu Wharf - it is a historic hidden treasure.

Above: The team at the end of a great morning's planting on the Waiotaka.
Photo by: Les Owens

Top Right: People of all ages were involved in replanting the upper Waiotaka River.
Photo by: Kim Alexander-Turia

WAIOTAKA RE-PLANTS

By Kim Alexander-Turia

As reported in Target Taupo 59 gone are the willows which were over-hanging and choking the upper portions of the Waiotaka river Gone too are the dead willows and debris lying in the stream and the impassable blackberry thickets.

This work was an impressive initiative by Ngati Rongomai hapu to protect their marae downstream of the ford from flooding and also to provide access for anglers to an important fishing stream. The job was completed as a partnership between iwi and the Department of Conservation, Environment Waikato & the Department of Corrections as one of the other major landowners on the Waiotaka, and everyone was keen to see an effective solution. Funding was secured and the work began in March 2009. Back then after the works were completed the site looked very bare indeed.

However the fertile banks quickly recovered and it was time to think about re-planting. In October this year Ngati Rongomai hapu, Whakarewa I te reo o Tuwharetoa Hiringi Kura Kaupapa maori, Department of Conservation and Environment Waikato banded together to plant the cleared area. Plants were donated by EW and Department of Conservation to replant the true left bank.

It was a good turn out by all, young and old and over 3000 plants were put into the ground. Les Owens, Chairman of Ngati Rongomai was impressed with the rangatahi from the Kura being part of the replanting process and being involved in hands on conservation.

A shared lunch was enjoyed by all and a big thanks to the hapu members, the Kura, DOC and EW staff who made it a great day!

Further work is anticipated on the true-right bank in the future as further funding allows.

NO HORNWORT IN LAKE O AND LAKE KURATAU PLEASE?

By John Webb

Ranger, Community Relations - Concessions

There has been some concern recently about the invasive aquatic weed hornwort getting into Lakes Otamangakau and Kuratau. It is with some surprise that it is not there already given that it is well established in Lake Rotoaira and Lake Taupo.

It is very undesirable in Lake O for a number of reasons the first of these being its ability to choke the waterway. To put things in perspective cleanings from the weed screens on the Lake Rotoaira hydro system account for around 600 cubic meters of compost per annum most of which is hornwort. Note that composting provides a 90% reduction in volume so you can begin to understand how prolific this aquatic weed is. It doesn't root and can establish readily and spread over wide areas in a relatively short period of time. It also stands to markedly change the ecology of lake O and reduce the opportunities for weed-free fishing. Hornwort would also be very undesirable in Lake Kuratau for similar reasons but also because lake Kuratau does not contain any introduced aquatic plants. All the aquatic plant biodiversity there is indigenous (native).

Keep this nasty aquatic weed hornwort out of Lake O and Lake Kuratau please? *Photo courtesy www.swbiodiversity.org*

Boaties, duckshooters and other users of the Taupo lakes are urged to check and clean their boats motors and gear of all aquatic weed between excursions or when moving between lakes. One less weed in Lakes Otamanagakau and Kuratau has to be good for all users. Further, if you are out on Lake Otamangakau or Kuratuau and see hornwort – even fragments, please try and get a sample and alert DOC or Genesis Energy immediately.

FisheryTeam Farewells

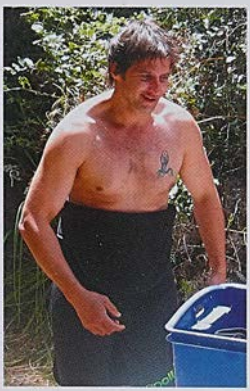
CALLUM BOURKE

Callum first started with the fishery team back in April 2003 as a fish trap operator. Having previously studied at Lincoln University and obtained a Bachelor of Parks, Recreation and Tourism Management degree, Callum was keen to get a foot in the door with the Department and show what he was truly capable of. It was great having experienced staff around such as Norrie Ewing and Rob McLay to show Callum the ropes and give him a great understanding of the fishery operations which would ultimately help him greatly in the future. Callum learned very quickly and soon became a seasoned trap operator dealing with large numbers of trout and several decent floods over a two year period. He also had quickly picked up the No.8 wire way of thinking from the older guys and could problem solve well in the field.

With the farewell of Gordon McKenzie, Callum applied and was appointed to the permanent position of Ranger, Field Operations within the fishery team in 2005. Callum undertook many of the basic Ranger duties and was a key player when it came to track work, law enforcement, drift diving and boating skills to name but a few. After further structural changes within the fishery, Callum was appointed to the position of Ranger, Supervisor, Field Operations. This was a much more challenging position for Callum involving the day-to-day management of staff and more technical work but Callum did an exceptional job and quickly became one of the key players within the fishery team over a reasonably short period. His previous knowledge and experience of the fish traps was instrumental when he took over this role. Callum was always willing to share his wealth of knowledge with new staff and coach them the old fashioned way.

Being a keen fisherman and coming from a family of anglers, Callum could easily relate well to anglers and was a great advocate for the fishery. Callum could often be found on his days off in his 12ft dinghy trolling off Karatau or thrashing the Birch Pool on the Tongariro River.

After the departure of his partner Julie Greaves to Auckland to study nursing, it was a tough decision for Callum to leave the fishery but it was inevitable that he would head north eventually. A position did come up in Auckland during August 2010, and Callum was successfully appointed to the position of Ranger Biodiversity, Freshwater with the Auckland Area office of DOC. Having a sound knowledge of field delivery work around freshwater fisheries, staff management, law enforcement and project management skills, Callum was the ideal applicant for the role.

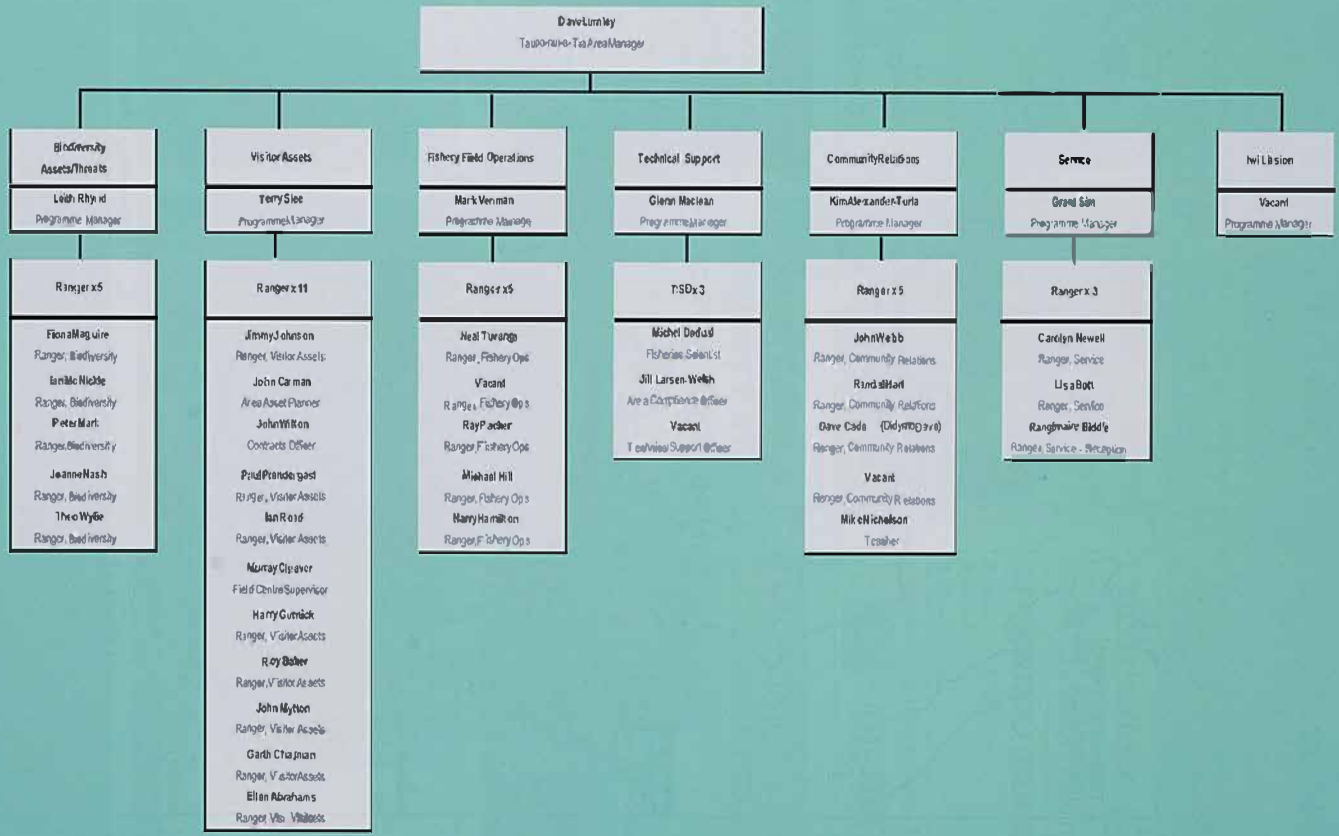


Callum will certainly be missed for his can-do attitude, his ability to say it how it is, and his organizational and planning skills. His passion for the fishery and his ability to get on with everyone will also be missed as he was a good Kiwi bloke! All the best mate and good on ya! The team wish Callum and Julie all the best with their new adventure.

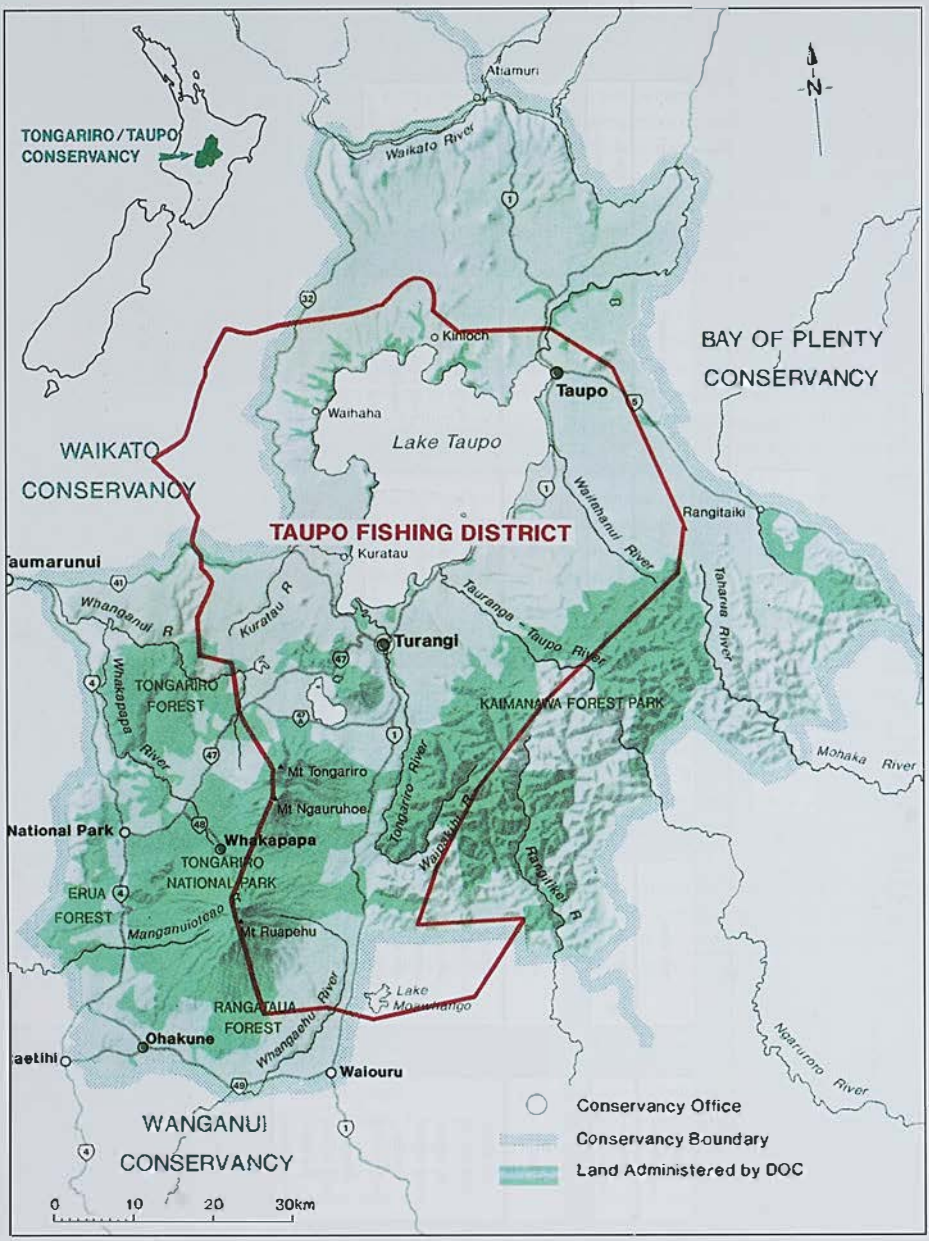
HEATH CAIRNS

Heath has left us after a short but productive stint with the Taupo fishery team. Heath had a strong background as a Navy diver and dive instructor and brought a great deal of skills to the table. His involvement with fishery operations, drift diving and compliance and law enforcement were some of his strengths. He also managed the early stages of the 2010 Harvest Survey. Heath has moved on to take up a position a bit closer to home with the Taupo Harbourmaster so we will continue to see him out on the great lake from time to time. Cheers Heath.

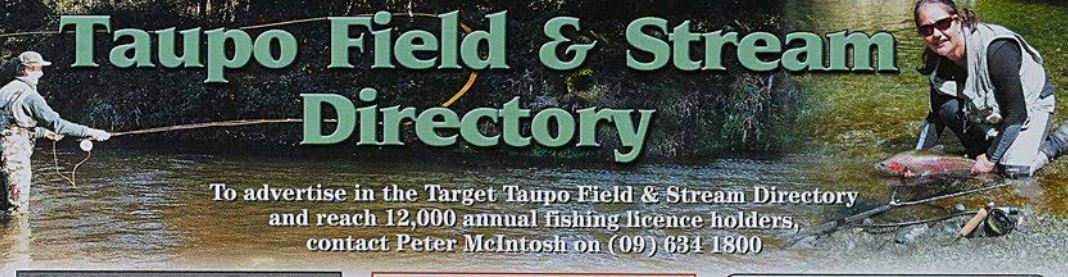
Taupo-Nui-A-Tia Area Office Structure



Tongariro/Taupo Conservancy



Taupo Field & Stream Directory



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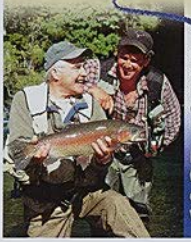

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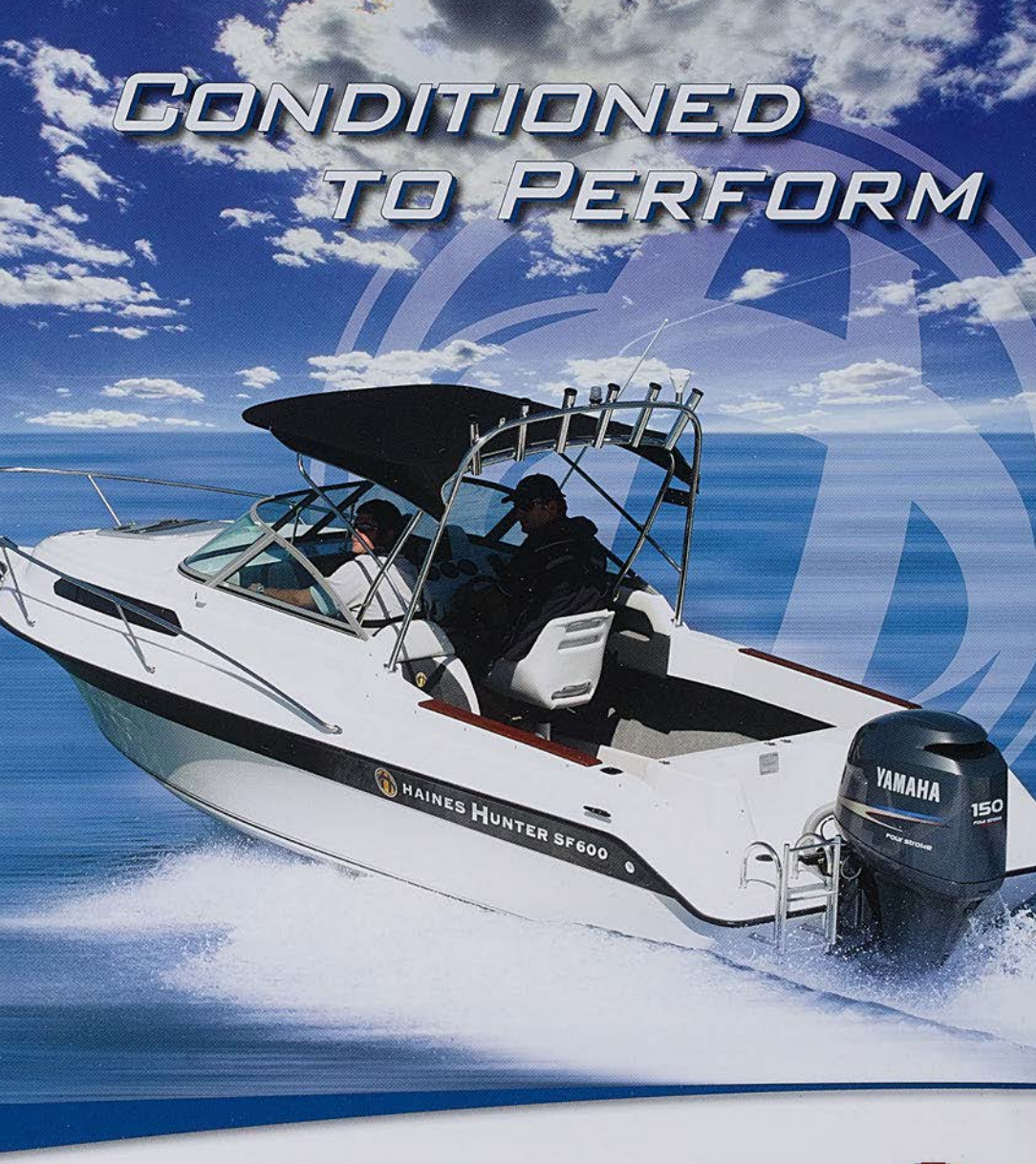

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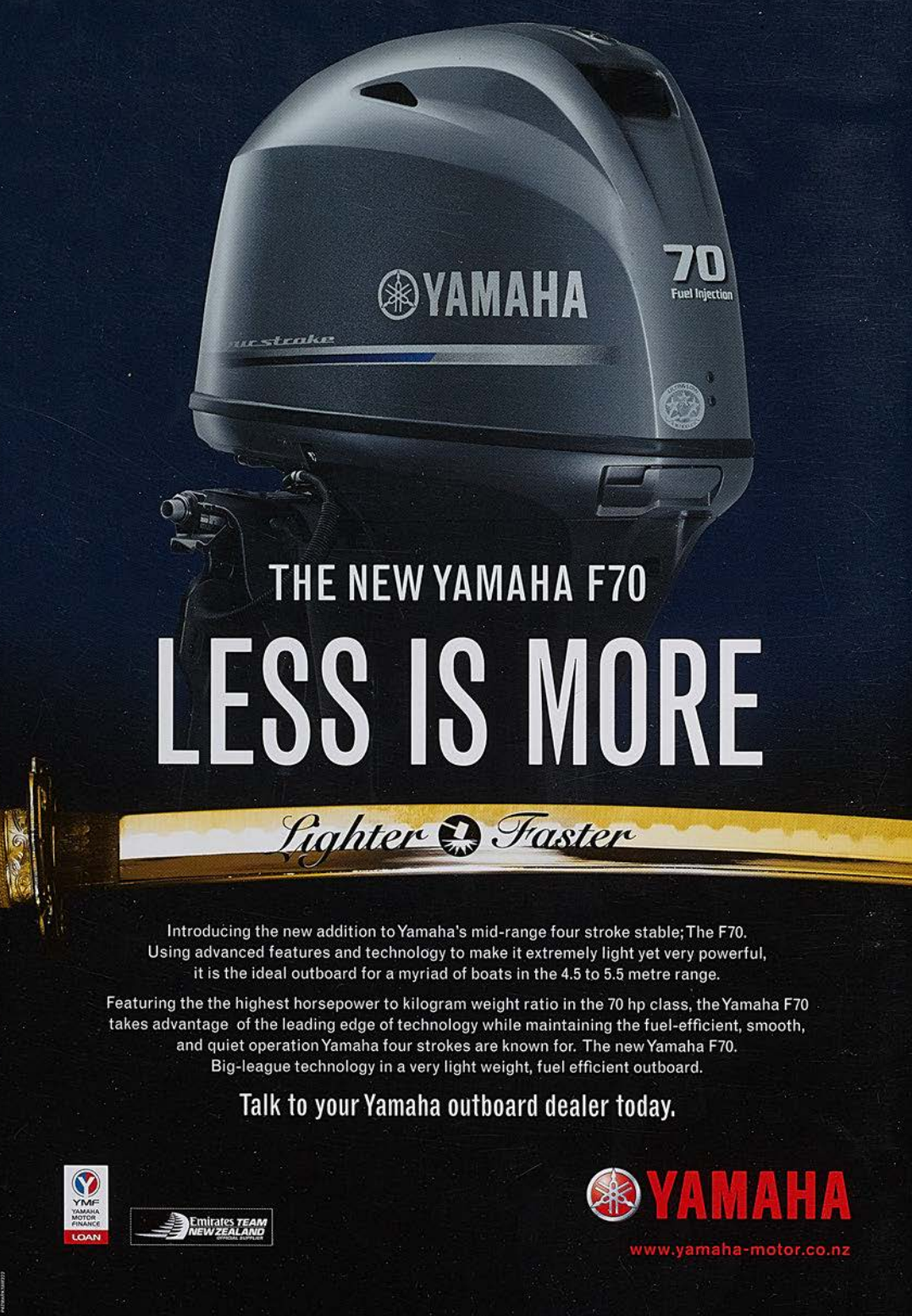

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