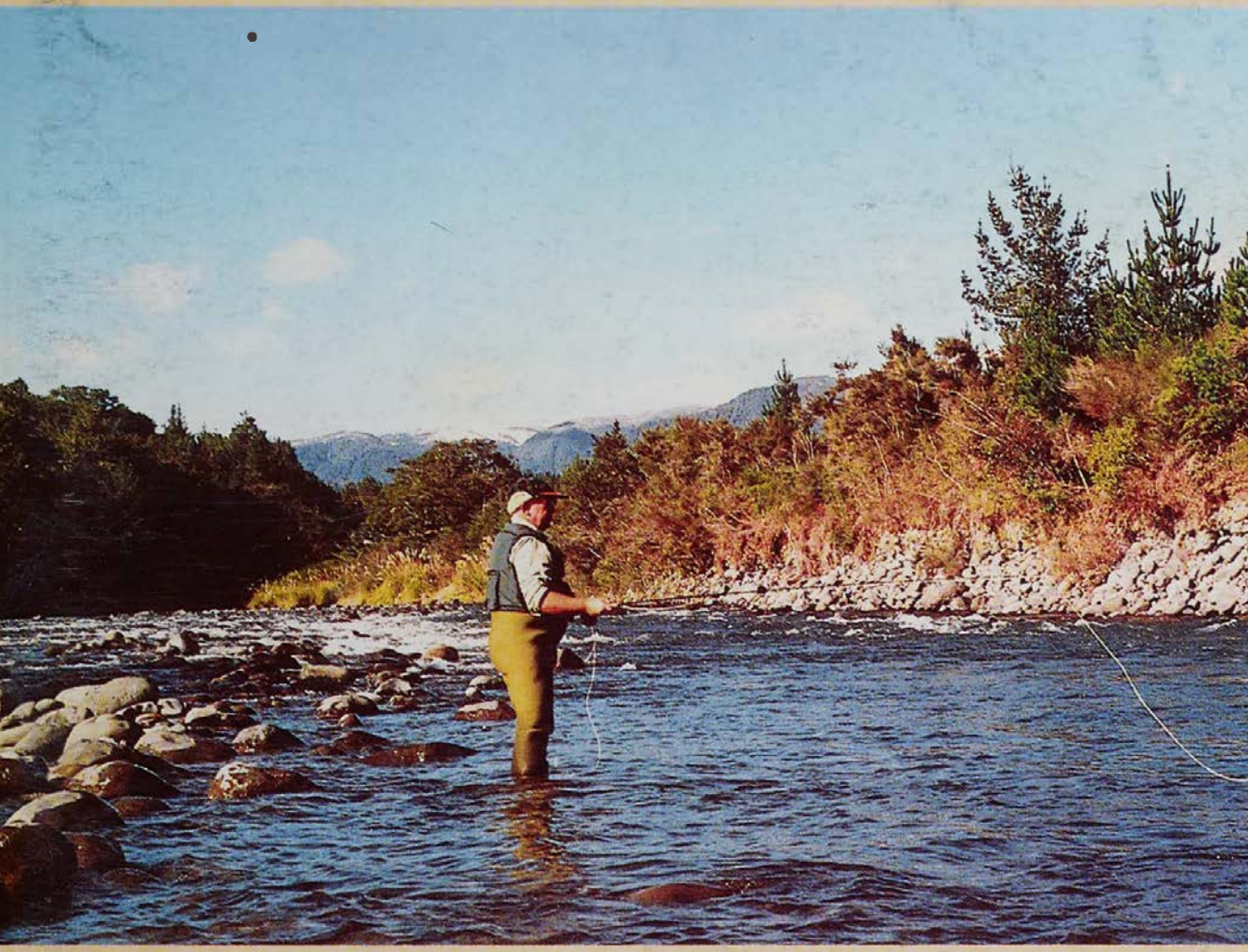
TARGET TAUPO

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

JULY 1997, ISSUE 25



Department of Conservation
Te Papa Atawhai

ECNZ helps out on the Tokaanu Stream weed clean up

The Tokaanu stream, an important spawning stream to the Taupo fishery received a major clean up thanks to the help and effort from ECNZ and the Taupo District Council.

For over five years Tokaanu residents have been concerned at higher than normal stream levels. These have caused serious worries concerning high water tables, drainage and septic tank problems.

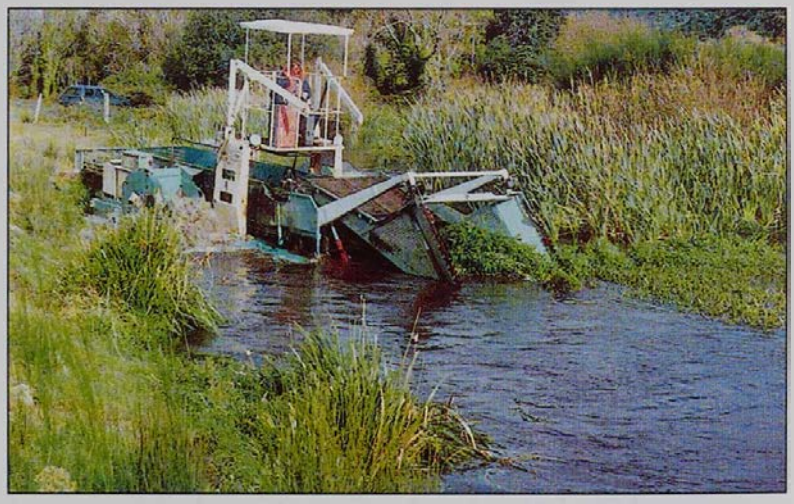
Weed was restricting discharge of the stream to the lake, creating a backwater effect upstream, which caused the high water levels.

The recent weed clearance project – a joint initiative between ECNZ and the Taupo District Council – using a weed harvester has removed much of the problem, improving the water flow and reducing the risk of flooding of the adjacent properties.

The project, between the lake edge and SH41 bridge, has dramatically changed levels in the stream which have dropped by 30mm at the Domain Bridge, above the hot pools to 550mm in the lower reaches.

The Taupo District Council contributed the labour, a loader and a truck, while ECNZ undertook consultation with iwi, the local community and the Department of Conservation, Turangi.

ECNZ project manager, Tracey Hickman, said ECNZ was not responsible for weed control, but it had agreed to assist the removal of weed as a demonstration of the corporation's commitment to the community.



ECNZ

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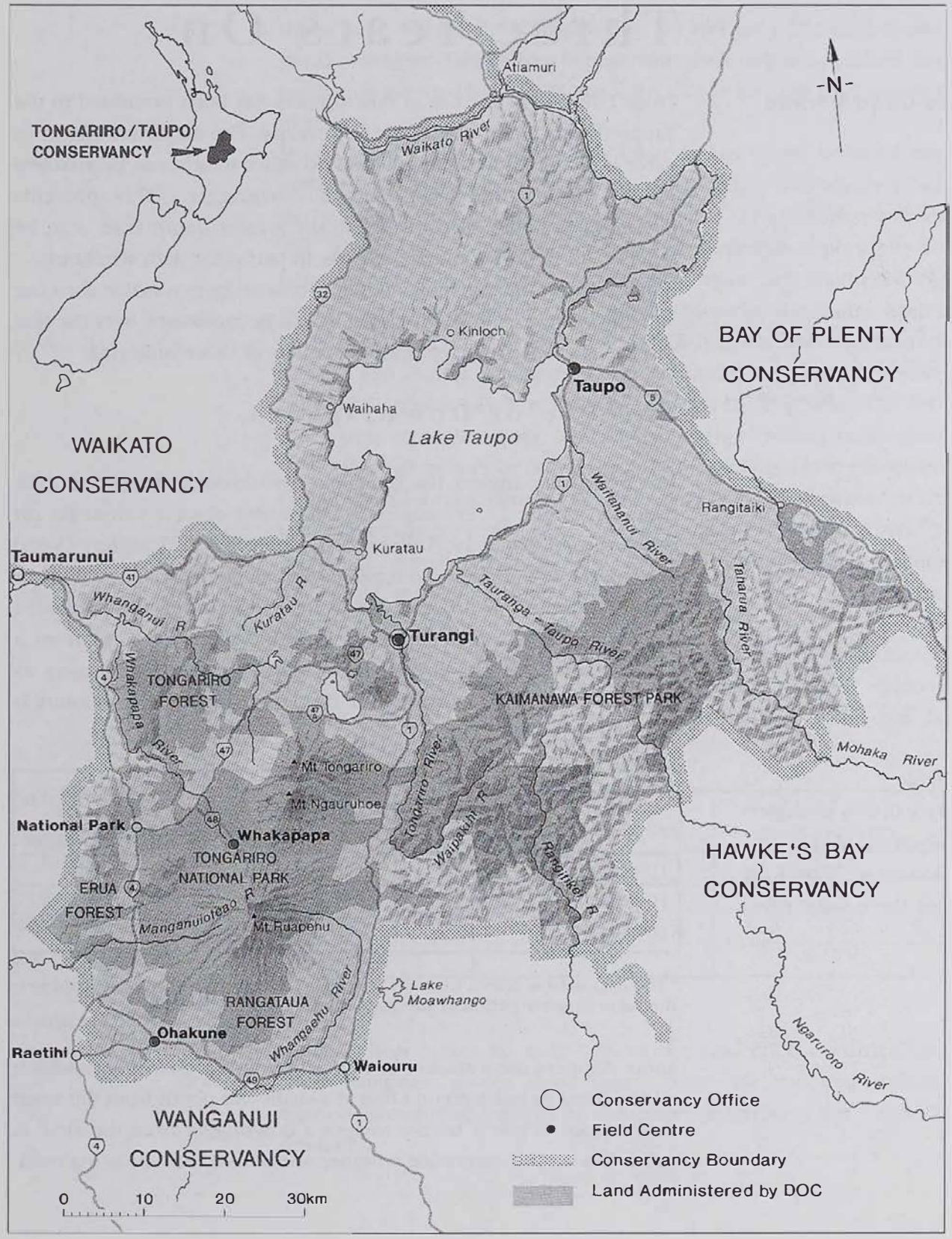
Information about illegal activities is only of use when it is passed on immediately

Please contact compliance staff
ANYTIME

Wayne Boness, Taupo :Telephone 025 995 517 (Work), 377 0112 (Home)
Bryan Taylor, Turangi :Telephone 386 8607 (Work), 386 6549 (Home)
Sid Puia, Turangi :Telephone 386 8607 (Work), 386 6700 (Home)
or the Conservancy Duty Officer :Telephone 386 8607 (after hours)

Cover photo: John Amos from Auckland enjoys the solitude of the Boulder Pool, Tongariro River.

Tongariro/Taupo Conservancy



Downriggers - Three Years On

by Glenn Maclean

From 1 July 1994 the use of downriggers has been permitted in the Taupo fishery albeit with some constraints. The maximum length of cable is restricted to 40 metres and no other weight can be attached to any fishing line used from a downrigger. This prevents downriggers being used to fish at any greater depth than can be reached using conventional methods, in particular with wirelines.
A condition of the trial introduction of downriggers was that their use and any associated impacts arising would be monitored over the first three years. This article reviews the results of this monitoring.

The Use of Downriggers

Use by private anglers has remained low through the period. For example, among 17,435 anglers (9900 boats) observed from the air during the year-long 1995/96 harvest survey, only 621 anglers (3.6%) were using downriggers. Professional fishing guides have much more readily adopted downriggers and in the same survey 49% of guided anglers observed on the lake were fishing with a rod set from a downrigger. The percentage of all anglers using downriggers as counted from aerial surveys over the last three summer seasons is presented in Table 1.

Table 1:
Proportion of anglers observed using downriggers over the last three summers

Season	Number of rods fished from downriggers	Number of anglers observed (all methods)	Percentage using a rod from a downrigger
1994/95	122	3438	3.5%
1995/96*	830	14,157	5.9%
1996/97	91	2658	3.4%

* The data used is drawn from the year-long harvest survey but restricted to the same summer period as surveyed in the other two seasons.

Some skippers use a stacker in association with a downrigger, which allows them to run a second line at a shallower depth from the same downrigger. While it is easy to spot a downrigger from the air it is much less easy to determine whether one or two rods are being used.

As a consequence the number of downriggers is often counted rather than the number of rods. However, where it is possible to count both this is done and this data indicates that on average 1.22 rods are used per downrigger. Therefore where downriggers only are counted this number is adjusted by multiplying it by 1.22 to give the total number of rods.

Downriggers can be used to fish a lure at any depth between the surface and approximately 30 metres deep. When the fish are close to the surface the more traditional harling rigs are just as easy to use. The advantages of downriggers, which include the opportunity to fight the fish on light tackle and the ability to precisely set the fishing depth, occur when fishing deep, when otherwise the angler would have to use lead or wire lines. Typically fish move into the shallows at night and anglers fishing early and late in the day target these fish using harling gear (shallow trolling). During the day, when the fish move deeper, anglers have to resort to deeper trolling techniques such as using leadlines or downriggers. The first two surveys involved flights spread through the day when anglers could be expected to be using downriggers if they were going to. However in the 1996/97 survey, all counts were done soon after daylight when many anglers might still be using harling techniques. This likely explains the apparent drop in the use of downriggers last summer.

Comparisons of the use of the different angling methods last summer, using data collected from anglers interviewed as part of random licence checks, support the aerial counts above. This data is presented in Table 2.

Table 2:
Breakdown of the use of the different trolling methods by guided and non-guided anglers interviewed over the 1996/97 summer (2938 interviews).

Method	% of total use by unguided anglers	% of total use by guided anglers
Harling	42.5%	8.1%
Leadlines	46.7%	7.6%
Wirelines	6.5%	1.6%
Downriggers	4.3%	82.7%

Guided effort makes up only 7.8% of the total effort recorded but clearly amongst guides downriggers were the favoured trolling method, accounting for 83% of the guided effort over the 1996/97 summer.

Angler Success Using Downriggers

A comparison of the overall success rate of anglers using each method over the last three seasons is presented in Table 3. The figures given are the average catch rate (number of legal-sized fish caught per hour) of all anglers interviewed over the summer who were using that method.

Table 3: Angler success using the different trolling methods over the last three seasons.

Method	1994/95	1995/96	1996/97
Harling	0.31	0.23	0.27
Leadlines	0.29	0.20	0.18
Wirelines	0.34	0.34	0.22
Downriggers	0.38	0.38	0.31

A catch rate of 0.25 represents one fish for every four hours of effort whereas a catch rate of 0.33 reflects a catch of one fish every three hours.

In Table 4 catch rates for each method (all anglers interviewed) are further broken down by month for 1995/96. Comparative data for 1994/95 is included in brackets.

Method	November	December	January	February	March	Overall
Harling	0.28	0.34 (0.36)	0.17 (0.23)	0.14 (0.14)	0.15	0.23
Leadlines	0.34	0.29 (0.39)	0.14 (0.21)	0.15 (0.18)	0.17	0.20
Wirelines		0.63 (0.42)	0.22 (0.38)	0.17 (0.25)	0.51	0.34
Downriggers	0.44	0.33 (0.39)	0.39 (0.39)	0.36	0.60	0.38

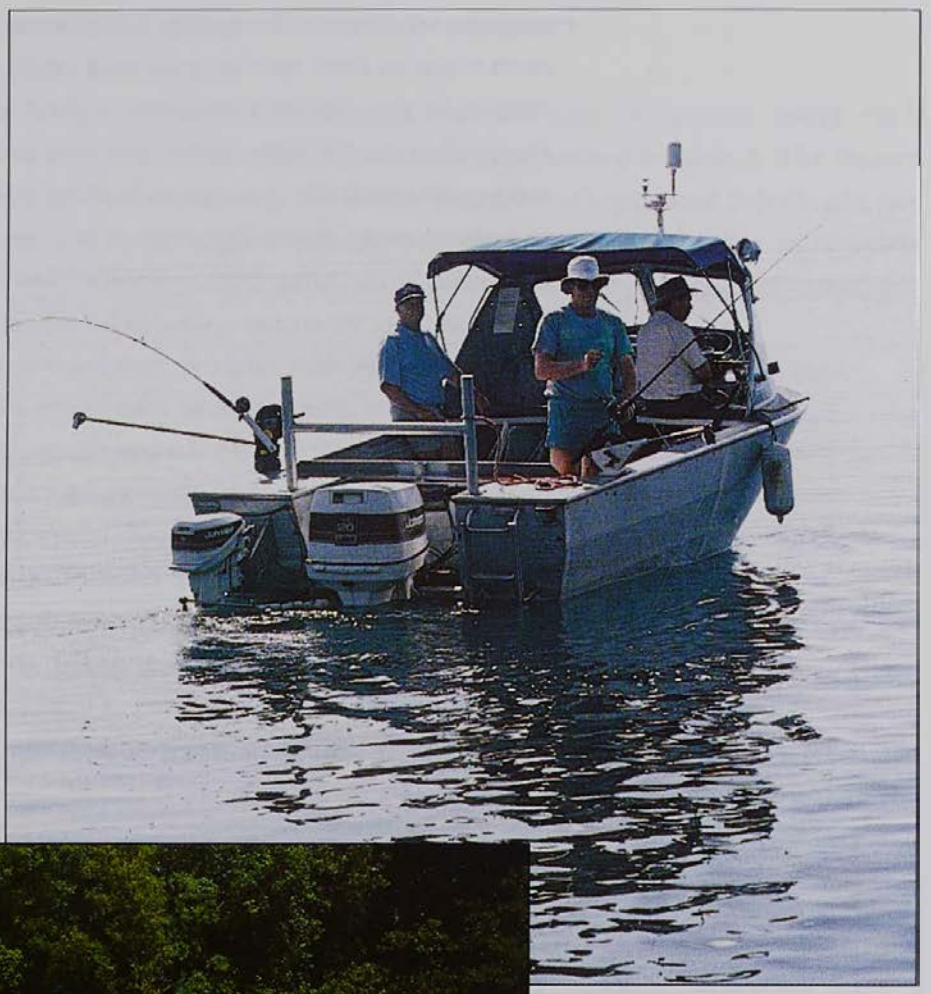
Table 4: Angler success using each trolling method broken down by month over the 1995/96 season along with some data for 1994/95 (in brackets). Missing data indicates that the data set contained less than 20 hours of angling effort

The relatively low use of both wirelines and downriggers often causes a monthly sample size that is not very large (20 to 40 hours of effort) and the data is strongly influenced by the angling skill of the few anglers interviewed. As a consequence the monthly catch rates for these methods tend to be more variable than for the much larger data sets of the other trolling methods.

Statistically it is not possible to determine whether the small differences in catch rate are significant or not. It is apparent from Table 4 that the success of each method is similar during spring and early summer. As the summer progresses though, shallower trolling methods (harling and leadlines) become less successful in comparison with the deeper trolling methods. This is an expected outcome when we consider the distribution of trout through the

spring and summer. In spring many trout migrate into the shallows each night to feed on the spawning smelt. During the day they may remain in the shallows or move a short distance over the drop-off. Depending on the time of the day and the lake conditions these fish are equally available to anglers harling or using leadlines as they are to anglers using downriggers or wirelines. As the same types of lures are fished at the same depths irrespective of the equipment used, it is not surprising catch rates should be similar. However, as the summer progresses and the surface waters warm along with the holiday disturbance of thousands of lake users, the trout move deeper into the lake. Acoustic echograms show many trout down 100 or more metres out of reach of all anglers but some fish remain around the thermocline, the zone of rapid temperature change between the warm surface waters and the cooler bottom waters. By late summer this zone is usually around 30 metres deep and by late autumn it will be still deeper. Harling techniques fish the lure within five metres of the surface and even 200 metres of leadline is unlikely to reach below 15 metres, so clearly, in late summer, the majority of fish are out of

Downriggers are still an uncommon sight on private boats. Most anglers prefer to stick with more traditional methods (Photographs: Len Birch)



reach of these two techniques. This is reflected by the fall in the average catch rates for these methods. By comparison a downrigger with 40 metres of cable out may just reach 30 metres (the cable always trails back from the boat at an angle) and several hundred metres of wireline may go even deeper. As a consequence the catch rates of these two methods remain much more consistent over the summer.

From the data, the catch rates of anglers using downriggers may be slightly higher than those using wirelines, though statistically we

cannot test this. Preliminary trials by DOC staff prior to the introduction of downriggers compared downrigger, leadline and wireline catch rates when used simultaneously. A slightly higher catch rate by downriggers was ascribed to a higher hooking efficiency of this technique, rather than to an increased strike rate. We also know that one of the key components affecting angling success on Lake Taupo is how familiar the angler is with the lake. For example, in Table 5 the catch rates for anglers interviewed as part of the year-long harvest survey are broken down according to how many days a year the angler fished on the lake.

Table 5: Catch rates for lake anglers interviewed during the 1995/96 season, broken down according to how many days they fish on Lake Taupo

Days fished	% of non-guided anglers using downriggers	Catch per hour
1 to 4	6.5	0.17
5 to 9	3.8	0.21
10 to 19	5.3	0.24
20 to 49	7.5	0.27
50 plus	16.5	0.42

The table shows that by and large those anglers who trialed downriggers are experienced anglers. For example from the harvest survey data the average number of days spent on Lake Taupo by non-guided anglers using downriggers was 42 days compared with 25 days for those using other methods. Considering that the catch rate data also includes data collected from fishing guides (who largely use downriggers) we would expect downrigger catch rates to be slightly higher than for other methods, simply because of the level of experience of the anglers using them.

While the average catch rates of guided anglers are higher than those for non-guided anglers, there does not appear to be an increase in the catch rate as a consequence of guides switching to downriggers. For example, in the 1990/91 year-long harvest survey the average catch rate of guided anglers deep trolling (lead and wire lines only) was 0.34 trout per hour, identical to their catch rate in 1995/96 when 65% of the deep trolling effort was with downriggers.

Given that downriggers account for only a small amount of the angling effort on the lake (Table 2) and that success rates are similar to traditional trolling methods, (Table 3) it follows that the total catch by downriggers remains small. In 1995/96 downriggers accounted for 9820 fish, or only 9.9% of the total catch by lake anglers.

Response of Anglers who Used Downriggers

We did not attempt to quantify the reactions of anglers who had used downriggers. However, several comments were regularly heard. Some anglers expressed initial disappointment with the fight of the trout on the light tackle, expecting the fight to be much more equivalent to that using harling gear. Those who subsequently tried very light baitcasting outfits were much more satisfied. There was general agreement though, that downriggers were much more fun than the other deep trolling methods, although some people missed being able to hold the rod in their hands prior to the strike.

Guides using downriggers reported that being able to use light tackle greatly added to their clients' enjoyment and frequently mentioned the particular advantages for young or disabled clients.

Perhaps most revealing were several comments received from opponents to the introduction of downriggers who later went out and tried them. Their experiences changed their views completely, and while they would not necessarily adopt them themselves they appreciated the opportunity downriggers provided for increased angling enjoyment over other deep trolling techniques.

Summary

Only a small proportion of Lake Taupo anglers switched to downriggers as a trolling method during the three-year trial period. These anglers however did tend to be experienced, spending a lot of time trolling on the lake. From comments received there are also an unknown number of other anglers who are interested in the method but are waiting to see if downriggers will be permitted on a permanent basis before they commit themselves to the relatively high cost of an outfit. Overall though, downriggers contribute to only a very small proportion of the lake angling effort.

Downriggers have proven to be as effective as other trolling methods and offer the opportunity to catch fish in late summer and autumn when previously an angler's only option was to use wirelines, a technique many do not enjoy and therefore do not use. It is likely therefore that some of these anglers who switch to downriggers will be more successful at this time of year. However, considering most of

the anglers using downriggers are among the more skilled Taupo lake anglers, the catch rates do not suggest downriggers are any more effective than any other method fished at the same depth. It is worth noting that when the fish are very deep there are several anglers who, if they want to be sure of catching fish, switch back to wirelines which are able to fish several metres deeper than downriggers.

Local guides have been much more keen to switch to downriggers, many choosing expensive electronic models. Guides have to go fishing when the client chooses, which is often during the middle of the day when the fish are lying deeper. As a consequence they are more dependent on deep trolling techniques than many private anglers. Comments from them suggest the ability to precisely set the fishing depth anywhere between the surface and 30 metres, the ease of use and above all the increased enjoyment of their clients through fighting the fish on light tackle are the main reasons for this change. While some guides probably changed in the hope of improving their success rate the data confirms that this has not occurred.

The catch by anglers using downriggers is only a small proportion of the total lake catch. At present the fishery is under stress as a consequence of poor recruitment following unseasonal floods and the eruption of Mount Ruapehu in spring 1995. This has caused the fishery managers to seek an increase in the minimum size limit to reduce the trout harvest from the lake. If downriggers were having a significant impact on the angling harvest and in particular resulting in the harvest of fish which would otherwise not be caught, there would be a good argument against their continued use. However, the trial has shown that downriggers are

simply an alternative and more enjoyable way to catch the same fish. If downriggers were not available it is unlikely that the trout harvest would be any less.

Recommendation

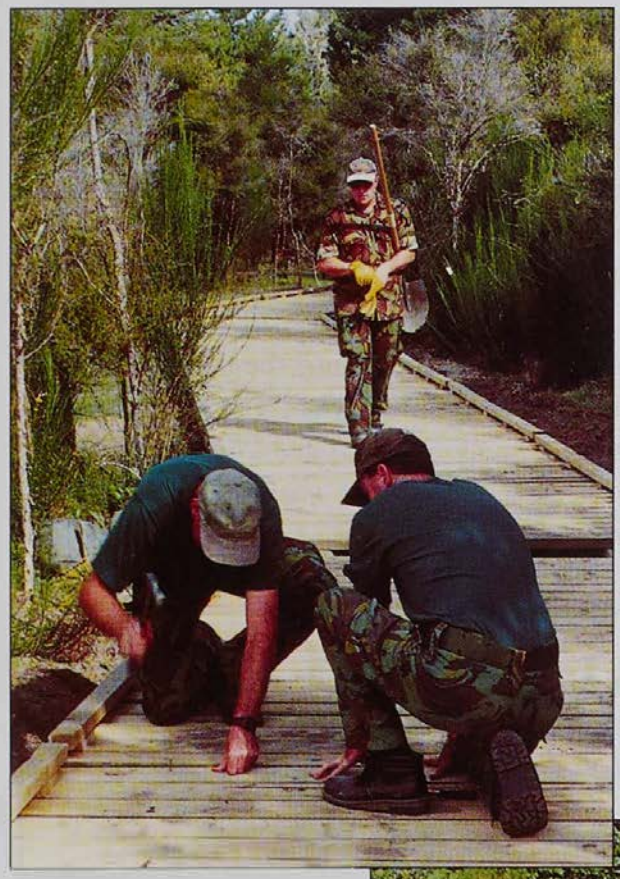
We are recommending that the use of downriggers continue to be permitted in the Taupo fishery under the following conditions:

1.The cable length is restricted to 40 metres. This prevents the use of downriggers to exploit any part of the fish population not already available to other trolling methods;

2. The use of downriggers and their impact on the harvest are monitored, particularly over the late summer and autumn periods. If large numbers of anglers who currently use harling and leadlines switch to downriggers there may be a potential increase in harvest.

Something Fishy

Trout Centre Walkway Rebuilt



During March, two teams of 10 from Armaments Section, RNZAF Ohakea, laid out 31 3.5 metre x 2 metre wooden walkway sections on the river walk at the National Trout Centre (NTC). The sections were prefabricated by fishery staff and stacked at one end of the 200 metre long bush and river walk. Each section, weighing about 200 kilograms, was carried on its edge using strops, placed, levelled and bolted together. Bends were built separately by a local builder.

The walkway was originally built by a team of inmates from Tongariro Prison in 1991, of compacted pumice and crusher dust on a terra-cloth base with 75mm x 25mm timber borders. It was a popular walk for visitors, with views of the famous Tongariro River, seats and tables to picnic on and watch the angling action from, and outdoor displays explaining how the nearby pools were named, how the aquatic food web

The RNZAF Armaments group became involved when organisers asked DOC in Turangi if there were any suitable projects to be involved with. A requirement of their proposed adventure course was that they spend a day on a community project.

operates and the gentle rules of angling etiquette.

However, in September 1995 a big flood in the Tongariro River washed part of it out. It was repaired, but an equally large flood in December 1995 washed it out again.

This was too much for DOC Landscape Architect Herwi Scheltus, and he designed a boardwalk which would be more flood resistant as well as capable of being shifted to higher ground should the river continue to wash away NTC land. Carter Holt Harvey (Taupo) very generously donated the timber and the National Trout Centre Trust Committee paid for a bobcat to level the ground and for the installation of the bends.

Catfish Monitoring

Following on from a recent Masters study into the distribution, diet and ecology of the brown bullhead catfish (*Ictularus nebulosus*) in Lake Taupo, we initiated a monitoring programme over summer (December to March), designed to detect changes in the catfish population structure and diet.

Each month two fyke nets were set overnight at three sites around the lake. All the fish caught were removed and counted. A sample of these were sexed, measured and weighed. In December and February a further sample had their guts removed for dietary analysis. All the catfish were destroyed.

A total of 2401 catfish was caught from 24 nets set over the study period, which gives a mean catch of 100 fish per night in each net. The majority of these fish were caught in Waihi Bay (2073 - 86.3%), with Motuoapa Bay having the next highest density (298 - 12.4%), and Whakaipo Bay the least (30 - 1.2%). The following table details the numbers of catfish caught per net per night (CPUE), for each site. Early summer is December and January, late summer is February and March.

Table 6: Number of catfish caught and CPUE for each site over the summer of 1996/1997

Site	Early summer		Late summer		Overall	
	Number	CPUE	Number	CPUE	Number	CPUE
Waihi Bay	1162	290.5	911	227.75	2073	259.13
Motuoapa Bay	137	34.25	161	40.25	298	37.25
Whakaipo Bay	22	5.5	8	2	30	3.75
All sites	1321	110.1	1080	90	2401	100

As table 6 shows the catch rates for each site were consistent over the sampling period, with the majority of fish being caught in Waihi Bay. This highlights that while catfish occur in high densities in some areas around the lake, in other areas densities are much lower.

We also examined the characteristics of the catfish population. 628 of the 2401 fish were sexed, measured and weighed. Of these 211 (33.6%) were females, 283 (45.1%) were males, and 133 (21.2%) were immature.

The following table shows the average lengths and weights for the catfish caught over the sampling period. The data is not split by site as the work carried out by the Masters student in 1995 identified that there was no difference between sites.

Table 7: Average lengths and weights for catfish caught from all sites over the summer of 1996/1997

	Female	Male	Immature
Average length (mm)	174	190	119
Average weight (grams)	85	113	23

Analysis of the data indicates that the lengths and weights of the three

categories of catfish are all significantly different from each other. Dietary analysis of the catfish guts has not yet been completed. Results of this work will appear in subsequent issues of Target Taupo. This survey will be repeated next summer to measure if any changes are occurring in the catfish population.

River Creel Surveys

This winter we will again be collecting information from anglers about their fishing experiences on the eastern tributaries of Lake Taupo. The surveys are being undertaken over a range of days from April to September and there is a good chance that you will be approached by a Conservation Officer when fishing this winter. As well as checking your licence, the officer will weigh and measure any trout you have caught and ask you a few questions about your fishing for the day.

The data we collect is used to assess your satisfaction with, and enjoyment of, the fishery. We also use the data to measure angling success and to provide a measure of the quality of the fish that are being caught from the rivers. The process only takes a few minutes of your time (unless you can't produce your licence) and is an essential part of our management programme. Your co-operation with this is very much appreciated and remember it gives you a chance to put forward any comments or concerns you have.

New Licence Format

In the photograph you will see that we have changed the design of the 1997/98 Taupo District fishing licence. We have allowed more space for your name and address and included a new column on catch and release. Increasing the minimum legal length from 35cm to 45cm will require anglers to release more fish. If the fish are not released using correct techniques and subsequently die, then the regulation change will achieve nothing, or worse, result in a greater waste of

"YOUR FISHERIES NEED YOU. JOIN A CLUB"

ADULT'S WHOLE SEASON 0020 **$52.00**

Early season fishing Major Jones Pool, Tongariro River.

Department of Conservation

TAUPO DISTRICT

LICENCE TO FISH FOR TROUT 1997-1998 SEASON

(1 July 1997 - 30 June 1998)

NOT TRANSFERABLE

Under the Conservation Act 1987, the Taupo Fishing Regulations 1984, the Maori Land Amendment and Maori Land Claims Adjustment Act 1926

MALE / FEMALE

The holder of this licence .... Surname .... Initials

of ....

Full Postal Address

is hereby authorised to take trout within any part of the Taupo District between the dates shown hereon, subject to the above Acts and to all regulations made thereunder for the time being in force in the said district

Available from .... to 30 June 1998 (both days inclusive)

Date of issue .... Time of issue .... am/pm

Name and Address of Issuing Officer .... Signature of Licence Holder (Licence not valid until signed)

PLEASE NOTE: As from 1 July 1997, the minimum size limit for trout taken from Lake Taupo has increased to 45cm in length. See '1 Minimum Size' for further explanation.

SUMMARY OF THE TAUPO FISHING REGULATIONS

This angler's guide has no legal standing. Please refer to the Taupo Fishing Regulations 1984 which are available from all licence agents and the Turangi DOC office.

1 **Minimum Size** [illegible]

2 **Daily Bag Limit** A maximum of three (3) trout irrespective of species. [illegible]

3 **Fishing Hours** You may only fish between the hours of 5.00 a.m. and 12.00 midnight.

4 **Prohibited Gear** [illegible]

5 **Fishing Methods** [illegible]

6 **Fishing Lures** [illegible]

7 **Restricted Fishing Areas** [illegible]

8 **Fishing Prohibited in Certain Areas** [illegible]

9 **Tagged Fish** [illegible]

10 **Sale of Trout** It is illegal to sell or purchase trout.

11 **Indigenous Fish** [illegible]

CATCH AND RELEASE

If it is not done with care it is simply a waste

Land the fish quickly - use suitable gear and good technique to keep the fight as brief as possible.

Use a cotton mesh landing net - fish will lie more quietly in a net and so are less likely to damage themselves.

Leave the fish in the water - release the fish without lifting it from the water.

Photograph: Len Birch

Take care removing the hook - a quick twist with long-nose pliers removes hooks easily.

Hold the fish gently with wet hands - if you must grasp the fish leave it in the net and hold it horizontally with its belly up. The fish will lie quietly in this position.

Do NOT squeeze the fish or put your fingers in the gills - internal organs are easily damaged by squeezing and any touching or bruising of the gills is usually fatal.

Photograph: Len Birch

Gently revive the fish - after the fish is unhooked, support it gently in the water and let it swim away in its own time. DO NOT THROW IT BACK.

If you don't think it will survive, keep it - if the fish is bleeding the chances are it will die. It is better to make some use of the fish than to discard it to rot on the bottom. This does not apply to undersized trout.

The new format of the 1997/98 Taupo District fishing licence

fish. By putting the information on the licence, in front of all anglers, it is hoped they will read it and put it into practice.

Please note the regulation change to the minimum size of trout which can be caught and kept. The minimum length is now 45cm.

This is the WRONG WAY to release a trout. Read your new licence to ensure the fish you release will survive! (Photograph: Len Birch)

Licence Sales for 1996/97

With the 1996/97 season nearly over, licence sales are slightly up on the 1995/96 season, apart from Adult Day licences which have shown a decline. Sales figures to the end of May are:

Adult Season	11,550
Child Season	5792
Adult Month	821
Adult Week	8422
Adult Day	28,996
Child Day	6262

A total of 61,843, which is an increase of 2% over the previous season. With only one month of licence sales to go, the figures are not likely to vary greatly compared with the previous year.

Restructuring in the Department of Conservation

Many of our readers will be aware that the Department is currently undergoing a re-organisation and some of you may be wondering if this will affect fishery management at Taupo. The short answer is that it will not. There will be no staff redundancies in the fishery team and the prime roles of research, enforcement, advocacy, administration and habitat management will be maintained at current levels. However, the way in which individuals go about their work will alter, in line with a strengthening of accountabilities and the development of standard operating procedures.

New Licence Fees for Taupo

Licence fees at Taupo have remained unchanged over the last three years and, in the case of children's licences, for a number of years more than that. Over that time, the real value of revenue received has been depreciated by accumulated inflation. A significant downturn in sales was also experienced following the effects of the Mount Ruapehu eruptions.

Last season we were predicting a shortfall in revenue of around $50,000 as a consequence of the above factors. However, we were able to offset this by generating revenue through external contracts which we undertook as part of research investigations within the

Tongariro Power Development resource consents process. This was a "one off" and we will not have this opportunity in this current season.

In setting fees we are first required to accurately determine the costs of proposed management programmes and then set the fees to recover those costs. This is done in consultation with your representatives on the Taupo Fishery Advisory Committee and we must also obtain the agreement of the Tuwharetoa Maori Trust Board. In developing our current business plan, it became clear that we would not be able to fund it without fee increases. Therefore, a new scale of fees has been approved by the Minister of Conservation as shown in table 8.

Table 8: 1997/98 Taupo District Fishing Licence Fees.

	Adult Season	Child Season	Adult Month	Adult Week	Adult Day	Child Day
Previous	$46.50	$ 6.00	$30.50	$22.50	$ 9.00	$2.00
New fees	$52.00	$10.00	$35.00	$25.00	$12.00	$3.00

One of the most significant projects to be undertaken in the current year is a review of licence categories and pricing scales, with the intention of providing licences which are the best value for money, in a range of formats that best accommodate the needs of anglers and our licence selling agents.

NIWA Fish Health Profile Project

Observant anglers may have noticed several nets and traps set in the southwest region of Lake Taupo for a couple days in late January. These were being used to capture a sample of rainbow trout and common bully from the lake for the NIWA's fish health profile sheet. The fish health profile procedure was developed in the USA to provide a simple and reliable method for assessing the health of fish populations. To establish a health profile, a fish's external (e.g. eyes, fins) and internal (e.g. liver, kidney) organs are observed and classified according to whether they appear normal or abnormal. These data are used in conjunction with measures of length, weight and food parameters to calculate health "scores" for a sample of fish. Comparing these scores with the scores from other fish populations, or from previous sampling occasions, allows water managers to assess the effects of adverse conditions on the health of the fish. It also

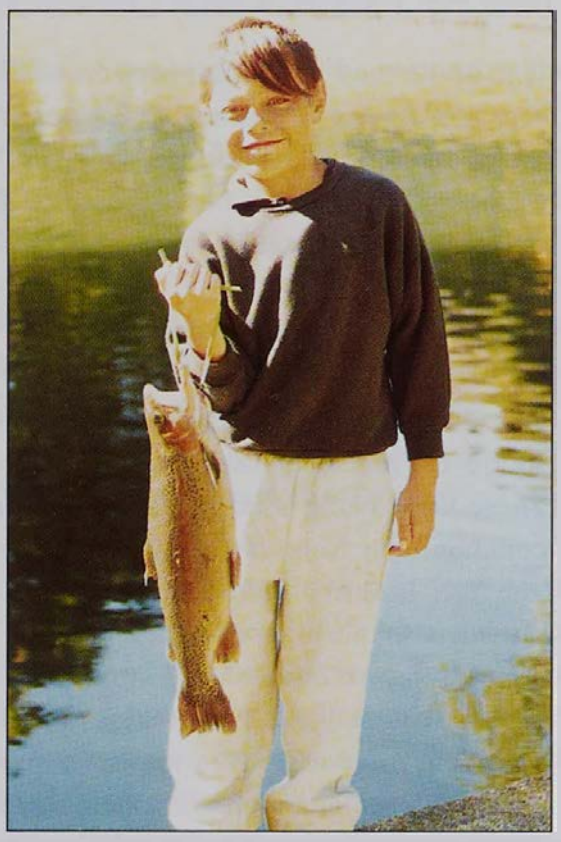
allows for a biological component to be incorporated into routine monitoring programmes, which traditionally have focused on water chemistry measures such as oxygen concentration or pH.

The purpose of the present project is to build a database of fish health profiles for fish species found in New Zealand. Trout, bullies and eels from sites in the North and South Islands are being collected and assessed, and Lake Taupo was selected as a clean water site where bullies and trout were relatively easy to capture.

Preliminary results show that trout from Lake Taupo compare well with trout from other areas, but that the bullies were heavily infested with parasites, particularly shagworm.

Anglers wanting additional information about the fish health profile sheet should contact J Richardson at NIWA in Hamilton.

NTC Children's Fishing



Anaru Waru, aged 10, of Turangi with the 1.8 kilogram rainbow trout he caught at the May children's fishing day (Photograph: Turangi Chronicle)

The first two children's fishing days at the NTC have come and gone with good turn-outs and good weather. In May, 152 trout were caught ranging from 80 to 1800 grams and averaging 286 grams. In June, 197 were hooked (140 to 1050 grams, average 315 grams). The big range in weight is because a few fish were left behind from last year's batch and, while they raise expectations, they are hard to catch. Only one or two were caught on each day.

The kids' fishing days are organised and run by Bill Colston for the Tongariro and Lake Taupo Angling Club (TALTAC). Children aged 6 to 14 years are taught to cast a fly and then helped to catch a trout

from a pond which DOC manages and stocks solely for these days. They are held monthly from May through September, 9 a.m. to 3 p.m. The remaining dates this year are 6 July, 17 August and 28 September. Bill Colston needs to ring about 40 to 50 people to get the 20 to 30 helpers he needs each day, so if you are in the area on any of the days and want to help out, give Bill a telephone call on 386 7484. You're sure to catch a trout!

Juvenile Monitoring

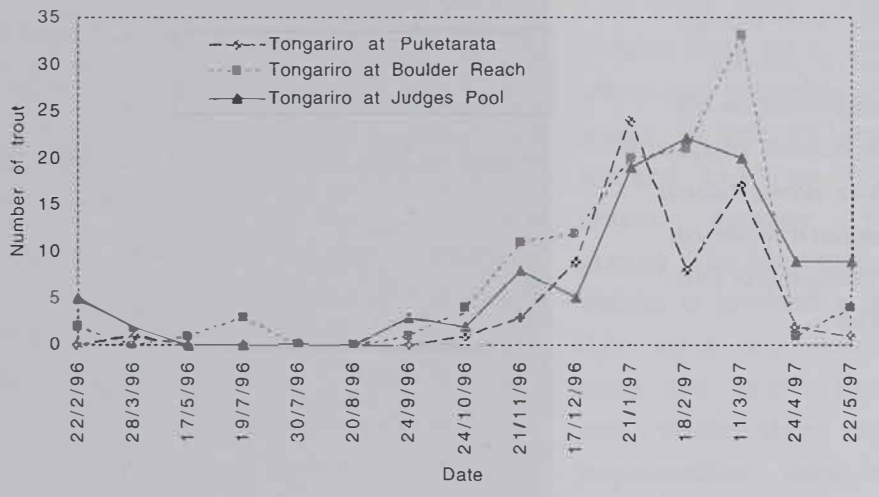
A key component of any wild fishery is the juvenile population. Unfortunately for fishery biologists the study of wild populations of juvenile fish is not an easy task. There are many complex processes, both natural and man-made, that affect the probability of a juvenile fish successfully surviving to enter the adult population. Fishery biologists call the interaction of these variables the "black box" of juvenile recruitment. In simple terms the black box means it is not possible to predict how many fry will survive to become adult fish in any year.

Iain Maxwell (left) and Errol Cudby use generator- driven electric fishing equipment in the Birch Pool, Tongariro River, while Glenn Maclean looks on (Photograph: Len Birch)

We are aware in the Taupo fishery that recent natural events are likely to have had an impact on the juvenile population of trout in many of the tributaries. A combination of ash inputs following the eruption of Mount Ruapehu in October 1995 and two large floods that same year, one in September after most of the spawning redds had been dug, and one in December when the largest proportion of fry were emerging, is likely to have severely depressed the juvenile trout population in most of our rivers.

But quantifying how severe the effect was, given the complex workings of the black box, is difficult to assess. As a result we designed a long-term monitoring programme that combined the use of electric fishing machines and baited Gee Minnow traps to assess juvenile trout densities at five sites in the Tongariro River and two in the Whitikau Stream. The sites are sampled once a month. The electric fishing machine is used to fish the shallow margins of runs and riffles and the traps are set overnight in deeper areas of cover that electric fishing machines cannot fish effectively.

This monitoring programme has been running now for just over a year. The trends that this type of monitoring reveals are likely to become most evident over a long period of time. However we already have some interesting results.



Graph 1 shows how the numbers of juvenile rainbow trout caught while electric fishing three sites on the Tongariro River vary over time

The number of trout is the number caught electric fishing 30 metres of riverbank. The sampling method we use gives us a good measure of the relative abundance of juvenile trout. Size selectivity by the electric fishing machine was not assessed but is likely to be significant, with some fry small enough to escape through the electric

field and the largest fingerlings agile enough to also escape from it. However, given that we are interested in the trends that emerge, and we use the same methodology each time, the technique is useful to compare seasonal and annual variation.

The graph shows a pattern of densities that we would expect from a wild fishery such as Taupo. The majority of fry are hatched in spring/early summer as shown, and densities increase. Densities continue to increase, peaking in late summer. It is apparent that in this case the larger juvenile trout then move out into the lake (out-migration) in autumn.

While we are gaining insight into the life history patterns of juvenile trout in the Taupo fishery, we will gain even more from this work in future years as any patterns between juvenile densities and subsequent numbers of adult trout returning to spawn begin to emerge. Similarly we should be able to quantify what impact events such as a spring flood have on the juvenile population present at that time.

On a positive note, the numbers of juvenile trout in our tributaries were much greater this summer over the previous year. A summer such as the one we have just experienced, with very few floods and cooler than average temperatures means the survival and growth of juvenile trout in the rivers are very high. These trout will enter the lake next autumn, becoming available for the lake anglers in the summer of 1998/1999.

Work Begins on the Waipa Fish Trap

Recently we received a resource consent from Environment Waikato, issued under the Resource Management Act, which permits us to build our proposed fish trap in the Waipa Stream, a tributary of the Tongariro River. In addition, the Department of Corrections has given us permission to access the site through Rangipo Prison farm and DOC has granted the fisheries section permission to site the trap within Kaimanawa Forest Park.

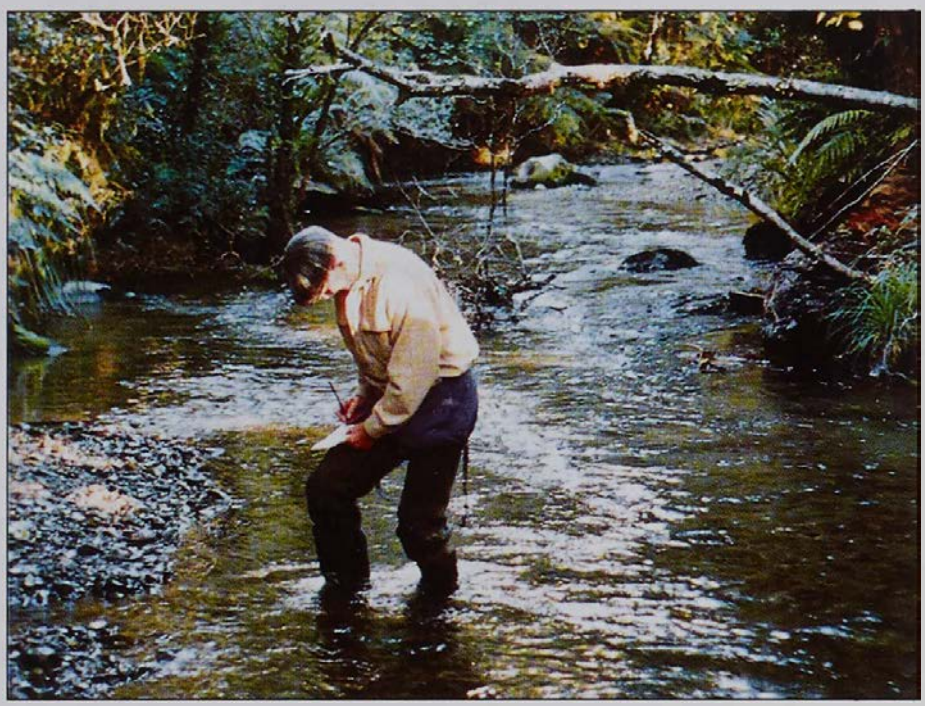
Now that the paperwork is out of the way staff are busy designing and assembling the trap structure in our workshops using materials salvaged from the old Tokaanu fish trap. The trap will be very similar to the one installed on the Te Whaiau Stream at Lake Otamangakau, which has proven to be an excellent design.

The old Whitikau trap hut is also being modified to make it more comfortable and, together with the trap materials, will be flown onto the site in the next couple of months, using an Iroquois helicopter.

It is planned to use this winter to get the trap up and running and to iron out any of the inevitable teething problems which occur. By the end of the winter we should have developed an efficient operating procedure which will stand the trap in good stead over the next 10 or 20 years.

The Waipa Stream was selected as the site for a long-term trapping station to monitor the Tongariro spawning runs because of a number of attributes, including that it is small and stable enough to be able to trap effectively but still contains a substantial run of both brown and rainbow trout. Trapping and measuring the characteristics of spawning fish provide accurate information on trout growth rates, on their rates of survival, on changes in the population structure and the size of the population. For the information to be of greatest use it needs to be collected each year, over a number of years. If at regular intervals a year is missed, or at least if the information is of dubious quality, the data from the whole project is of much less value to fishery managers.

We are confident we can operate the Waipa trap effectively so this will not occur and that the trap will be an integral part of our monitoring and research programmes over the next decade.



Norrie Ewing takes measurements on the site of the proposed Waipa fish trap. This photograph clearly shows the small, bush-lined nature of this important spawning stream

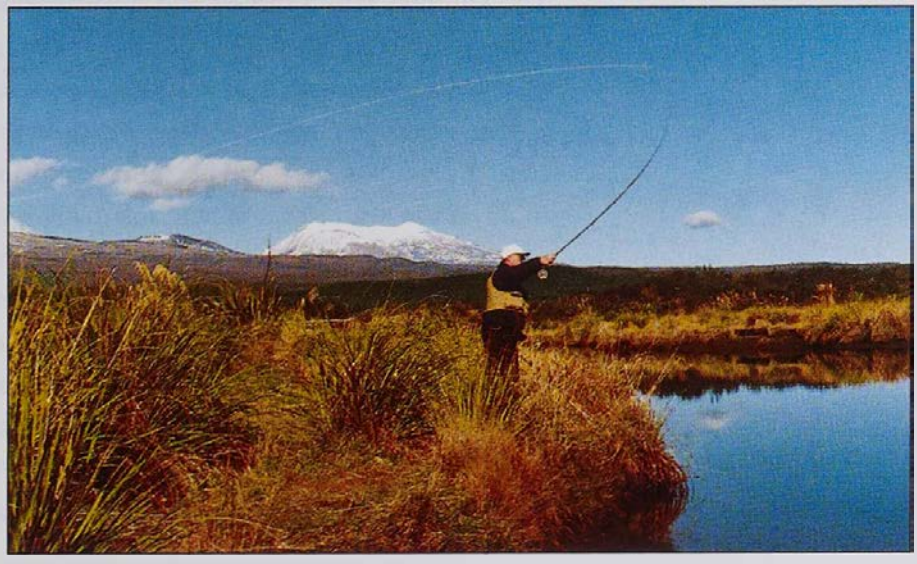
Te Whaiau Fish Trap Operating for Another Winter

The Te Whaiau fish trap, which traps the spawning run from Lake Otamangakau, is once again up and running. Installed on 1 April, this is the fourth winter it has been operated and it will remain in place until the end of August.

The trap is an integral part of the management of the Lake Otamangakau fishery and is operated for the most part by contract worker Bevan Clinch. It can be a very bleak place, and with frosts to -13°C already this year a very cold place, but the opportunity to handle superbly conditioned trophy rainbow trout makes it all worth it.

Anglers passing are welcome to call in. The fish are processed first thing in the morning so if you want to see this it is best to call in the day before and arrange a time to visit with the trap operator. To get to the trap turn down the tarsealed access road to the main Lake Otamangakau boat ramp. This turn-off is just east of the intersection of SH 47 and Lake Rotoaira road. Follow the access road and take the first tarsealed road on your left. When you cross the bridge over the Te Whaiau Stream take the dirt track 50 metres further on, on your left, which will bring you to the trap site. Please try to keep visits between 8 a.m. and 4 p.m. While the trap is manned 24 hours a day the operators appreciate being able to relax and have some time to themselves.

Note that there are a number of hazards around the trap and you should not walk past the warning signs unless accompanied by the trap operator.



Snow on the mountains makes a very scenic backdrop to Lake Otamangakau but ensures some very cold nights for the trap operators

Prosecutions

Winter is upon us again and anglers are reminded that the winter fishing limits on Taupo rivers are in effect from 1 June through to 30 November. These limits are designed to allow the fish to spawn undisturbed in the upper reaches of the rivers and so ensure the continuation of the fishery. Please leave these fish alone.

Fishing without a licence continues to be the most prevalent and re-occurring fishery offence. Of the 303 anglers checked since 1 April 1997, 8.25% have been fishing without a licence. If this level of non-compliance continues into the new season we will put extra effort into checking licences to ensure all anglers pay their fair share towards the management of the fishery.

Prosecutions for fishing without a licence since 1 July 1996 have drawn a total of $2,510 in court fines, or almost 66% of the total fines to date.

Please remember to carry your licence with you at all times!

Kia ora koutou katoa

Lake Otamangakau Water Quality Monitoring

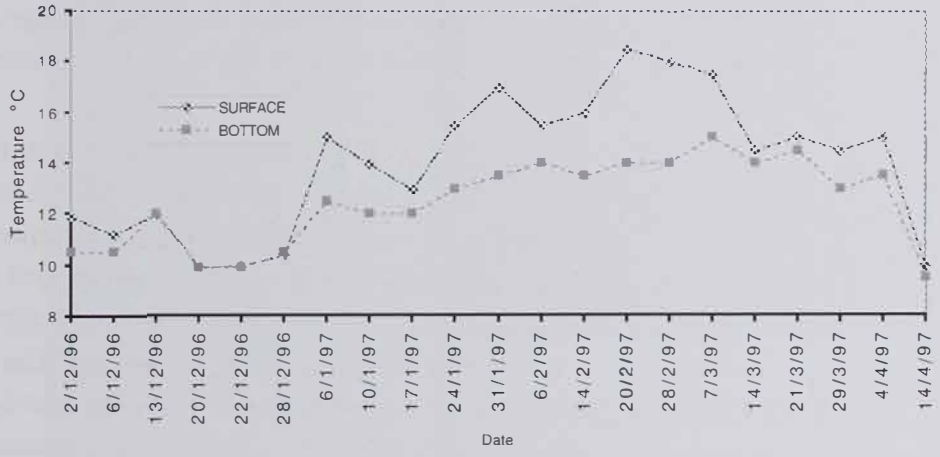
For the fifth summer running we have monitored the water quality at Lake Otamangakau. This involved measuring parameters including water temperature and dissolved oxygen at five sites around the lake on a weekly basis from early November 1996 to April 1997. This year sampling coincided with the tracking of radio-tagged trout in the lake.

The summer was a mixed bag weather-wise. We had a windy spring with many cool days. This did not really improve over the early part of the summer with snow falling on Mount Ruapehu in December. However, despite the unsettled weather we did not experience much rain. In late summer and autumn conditions were very dry resulting in all of the water that would normally have been diverted into Lake Otamangakau having to be returned to the Wanganui River to meet the minimum flow requirements. The Electricity Corporation of New Zealand took advantage of this to completely shut off the Whakapapa intake so that it could carry out tunnel maintenance.

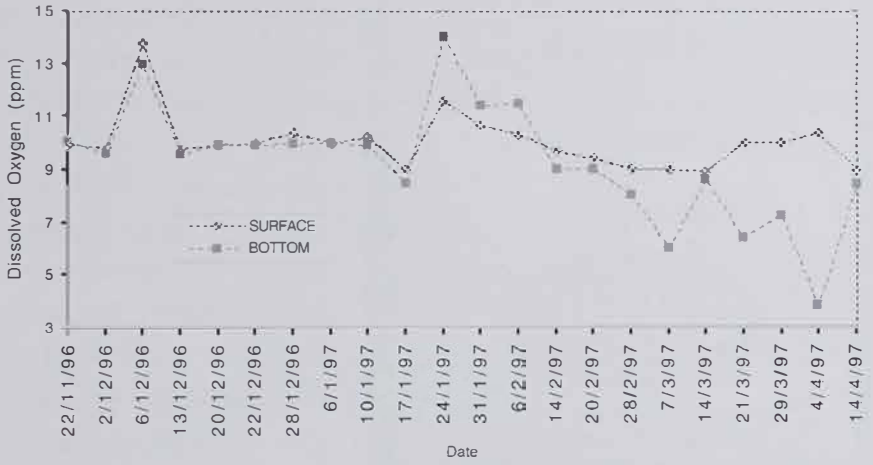
This resulted in the main body of the lake lying stagnant, with any water diverted into the lake down the Te Whaiau Canal being returned to the Wanganui River through the drain valve on the dam wall.

The lake stratified (a layer of warm surface water lying on top of and not mixing with a layer of cooler bottom water) for most of the summer. However, the stratification, with at the most a 5°C variation between the surface and the bottom waters, was not as strong as has been observed in past summers. At no stage did the water quality drop below critical levels for trout. The following graphs show how the water temperature and dissolved oxygen levels, at the surface and at the bottom of the lake, changed over the sampling period. The sample site is in the main body of the lake.

Of note this year was a decrease in the dissolved oxygen levels in the autumn. This did not coincide with a period of high water temperatures. The most likely cause is the autumn die-back of aquatic plants. Bacteria attack the dead vegetation and the resulting biological activity uses a high proportion of the dissolved oxygen in the water.



Graph 2: Water temperature in the main body of Lake Otamangakau over the summer of 1996/97



Graph 3: Dissolved oxygen levels in the main basin of Lake Otamangakau over the summer of 1996/97

Iain Maxwell Joins Eastern Fish and Game Council

Conservation Officer Iain Maxwell, who has been a member of the fisheries team since 1992, left in mid-June to join Eastern Fish and Game Council, based in Rotorua.

Iain began as a fish trap operator before becoming a permanent member of staff involved in much of the technical and survey work in September 1995.

Becoming an important member of staff, Iain also developed his deer stalking and duck shooting skills during his time in Turangi.

Iain is the second member of the Taupo fishery management team to join Eastern Fish and Game, following in the footsteps of Rob Pitkethley who left last year.

We wish Iain all the best in Rotorua, may he enjoy working on the first Saturday in May each year.

Exchange of Knowledge Between DOC and South Island Fishery Scientists

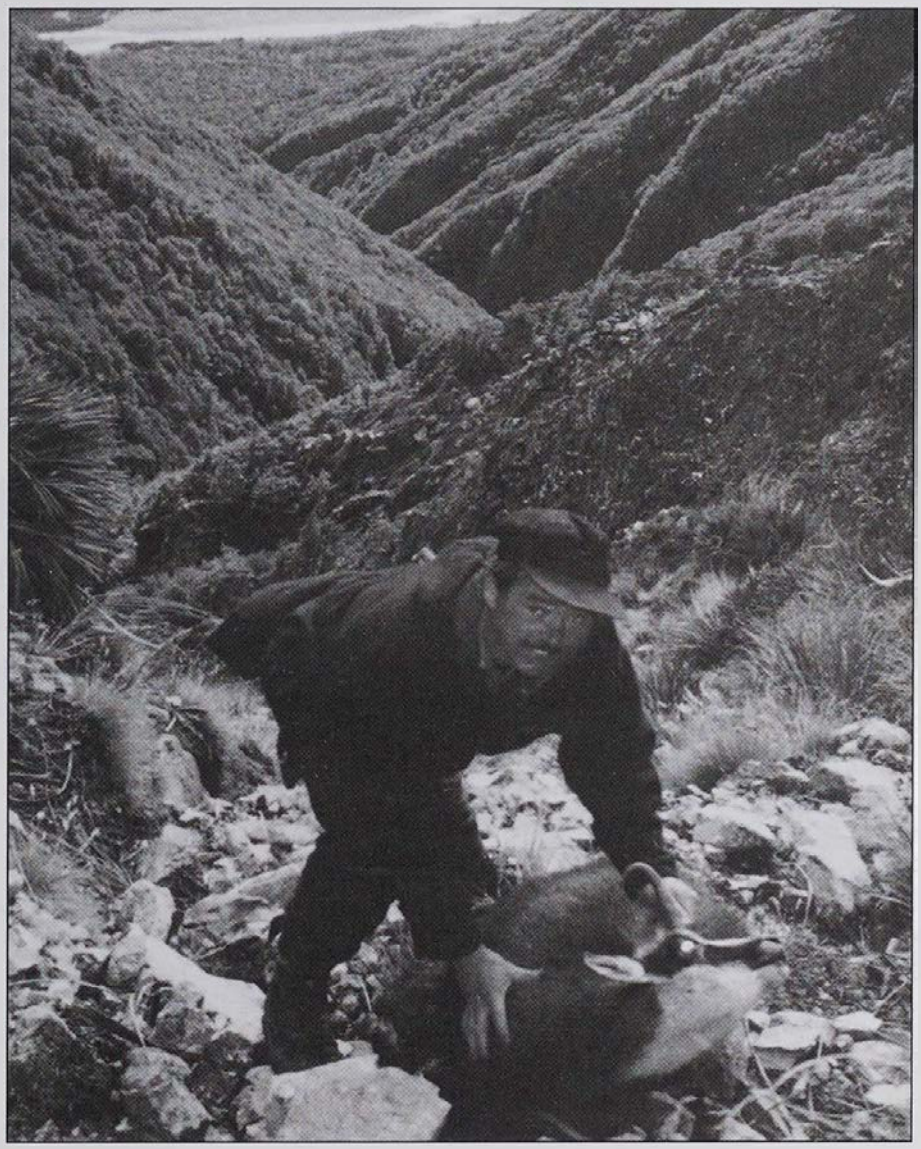
Marlborough Electricity is in the process of seeking a resource consent to build a dam on the Wairau River south of Blenheim. This river is two to three times larger than the Tongariro and contains populations of brown (sea running and resident) and rainbow trout as well as quinnat salmon. The main concern of local anglers and Nelson Fish and Game Council is that the erection of a dam on the Wairau River could impede the movements of fish, particularly during their spawning migration. In order to get better information on these movements it was decided to radio track some fish, in particular brown trout, over a season. A similar experimental design was proposed as we had used two years ago in the Tongariro River. Dr John Hayes and Rowan Strickland from Cawthron Institute in Nelson invited Michel Dedual, who was responsible for the Tongariro research, to visit in April and to show them the tagging and radio tracking techniques we had used. One major difference to the Tongariro project though, is that aircraft and/or jet boats will be used to follow

the fish owing to the size of the Wairau River catchment.

Michel was welcomed with warm hospitality and an introduction to mountain hunting above the Wairau River. After a radical climb from the river flats (195 metres altitude) to the open tops at 1900 metres, a well deserved spell was used to enjoy the breathtaking scenery. The highlight of the day took the shape of a chamois buck proudly standing on a narrow ridge 300 metres away, staring toward Michel and John. The majestic silence was abruptly broken and after one and a half hours' searching in difficult country the chamois was recovered in a narrow gully. This was certainly an unforgettable experience for a central North Island bush hunter!

We wish John and Rowan all the best for their research.

A memorable moment



Winter Angling Prospects

Indications are that it will be a winter remembered for the very large size and exceptional condition of the fish, rather than outstanding success.

The November 1996 acoustic count estimated a population of 117,000 trout, down from a peak of 205,000 in 1994. This is still much higher than the 68,000 measured in 1989 and should reflect a reasonable winter on Taupo rivers. Angling success on the rivers does not vary in direct proportion to the number of fish present. With very low numbers of fish the fishing is correspondingly very poor and as numbers rise so too does success but only up to a point. Above this though, angling success increases only gradually despite there being many more fish in the river. Comparison of previous winters' angling success with November acoustic counts suggests this occurs once the count exceeds approximately 100,000 trout.

So far this season the fishing has been steady. For the second season in a row the upper Hinemaiaia River fished very well over the last month before it closed on 31 May. Anglers prepared to walk into the upper Waimarino River also found lots of fish and some good runs entered the Waitahanui River in late May. The Tongariro River has been consistent throughout its length, the early season fishing in the upper river better than in recent years.

Undoubtedly the feature of the fishing so far though is the outstanding size and condition of the trout. We are aware of a number of double figure rainbows taken out of the upper Hinemaiaia and others from the Waitahanui and Tongariro. Similarly, we have received numerous comments from anglers about the size and condition of the fish they are catching. They really are something special this year!

With this in mind anglers are encouraged to make the most of this winter.

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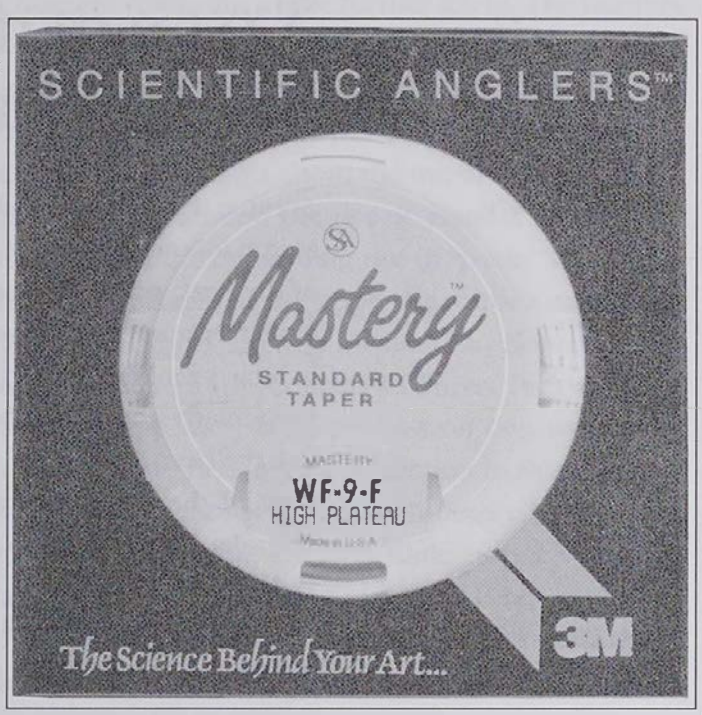

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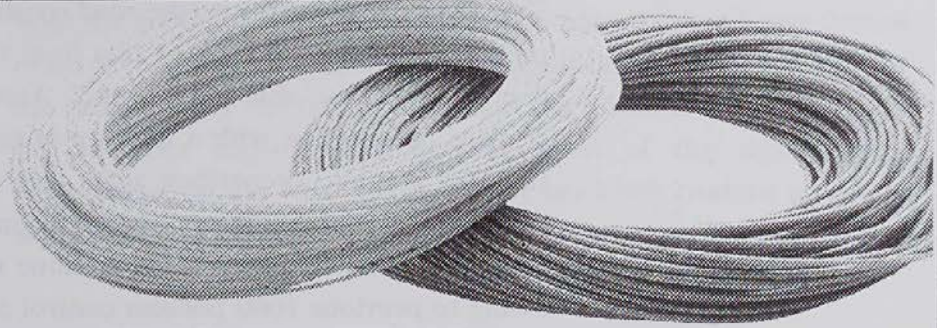

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Autumn Hunting Summary

by Cam Speedy

Autumn 1997 was a real mixed bag. A warm, settled period in late March followed by a wet, wild spell early in April, was followed by one of the best Indian summers on record, lasting well into May. Whether it was related to the weather, 1080 poison, high hunting pressure, habitat problems or a combination of these factors, the roar wasn't particularly vocal anywhere this year. Peak for the red stags appears to have been 11-12 April although some good stags were taken in the west of the conservancy earlier on, during the later days of March. The sika stags started to appear from about 11 April having been few and far between prior to this. Probably the most intense rutting occurred in the period 8-15 May, although the Anzac week, as is often the case, produced the most stags. A reflection, I suspect, as much related to the hunting effort as to stag activity levels.

High numbers of hunters targeted the conservancy again this year. Tongariro Forest saw heavy pressure from Easter through the first three weeks of April. A number of parties flew illegally into the area creating over-crowding problems in places. The poor communication between parties accessing by road and those accessing by air resulted in at least one "near miss" hunting accident at the peak of the roar. Hunters are reminded that helicopter access to Tongariro Forest is generally not permitted, nor is it needed given the extent of quad/motor bike access available on the network of old logging tracks.

Clements Road received its usual attention from late March to mid-May. Deer density handy to the road continues to decline under such pressure, but back an hour or two from the road pockets of higher deer numbers are still to be found. Animal quality from this area remains outstanding with a number of fine trophies entered in the Heli-Sika Trophy Competition again this year. Kiko Road was also busy with very high hunter numbers at times.

Large parts of the conservancy continue to have low deer numbers owing to previous 1080 possum control operations, but parts of the Hauhangatahi Wilderness Area, Rangitikei Remote Experience Zone, the more remote parts of the Kaimanawa RHA back from Clements Road, and the Waipakihi Valley, produced reasonable hunting

opportunities for hunters venturing a little further afield. The hunters who appeared to have most success, as is usually the case, were those hunters who had done their homework and spent time learning specific country in previous years and/or prior to the rutting season. Staff received a number of complaints about the use of dogs again this roar. The complaints centred around the use of "bonnet dogs" along Clements Road at night, and the continuing use of "packs" of dogs to flush deer from the manuka faces in the upper Ngarururoro catchment around Boyd Lodge. Hunting at night is prohibited. However, one dog per hunter is still permitted in Kaimanawa Forest Park and will continue to be, at least, until the public process on dog use in the conservancy is complete (see "Bitz 'n' Pieces" section in this issue for an up-date). How a hunter chooses to use such dogs remains their choice provided the dog is permitted, it is under strict verbal or physical control at all times, is kennelled at night and is not kennelled in or under huts. The ethics of various hunting methods are a value judgement which, as long as they are legal, the Department has little control over.

In excess of 3200 permits were issued for conservancy during the February to May 1997 period. While some 100 hunting diary returns had been received when copy for this issue of *Target Taupo* was required for the printers (6 June), insufficient data was available to warrant any sort of analysis. Data for the period and acknowledgement of diary prize-draw winners will be presented in the November issue. In the meantime, we encourage you to return your hunting diaries for renewal and analysis. Every hunter returning a hunting diary not only will have a chance to win one of six great prizes valued at over $1250 but will also receive a copy of this magazine.

With the good growing conditions this autumn, the first heavy dumps of snow this winter are likely to bring significant growth down out of the canopy. Deer rely on this food source at this time of year so watch the weather maps and make the most of the opportunity. Concentrate on the 1050 metres (above sea level) contour on north-sloping faces when the weather clears and the sun comes out.

Why We Need to Monitor the Trout Harvest

by Glenn Maclean

Over the 1995/96 season we carried out an intensive survey to estimate the total trout harvest from Lake Taupo and the Tongariro River. The results, which were published in issue 23 of Target Taupo (November 1996), indicated a total lake catch of 99,140 legal-sized trout, of which 79,705 were harvested (killed).

Comparing these results and those of an earlier survey over the 1990/91 season with estimates of trout productivity in the lake in the late 1980s confirms that, in years of low trout numbers, angling harvest can potentially have a major impact on the fishery. In some years angling harvest may be as much as 30% to 50% of the total trout production, which is an extremely high level to harvest any wild fishery.

In Taupo the effect of such a level of lake harvest is that few trout survive life in the lake to reach maturity and therefore run the rivers to spawn. The fishery has never reached the point where there are insufficient fish spawning to sustain the wild fishery. However, the spawning fish are also the fish which support the winter angling in the Taupo rivers, and as the late 1980s highlighted it takes many more fish in the spawning migrations to make for good river fly fishing and satisfied anglers. Therefore the impact of very high harvest is on winter angling success rather than the sustainability of the fishery.

It is essential that managers follow trends in trout numbers and the trout harvest so that should the two come too close together we can take the necessary action to ensure sufficient fish survive to run the rivers.

Trout numbers are monitored each November by undertaking an acoustic survey of the lake. First done in 1988 as part of a two-year study of trout production by Dr Martin Cryer, the November count provides an index of trout numbers. There are always fish entering the population as they reach legal length and others dying, being caught or making their spawning migration. The November count, while not including all the fish available to be caught by anglers during the course of the whole season, provides an accurate means of

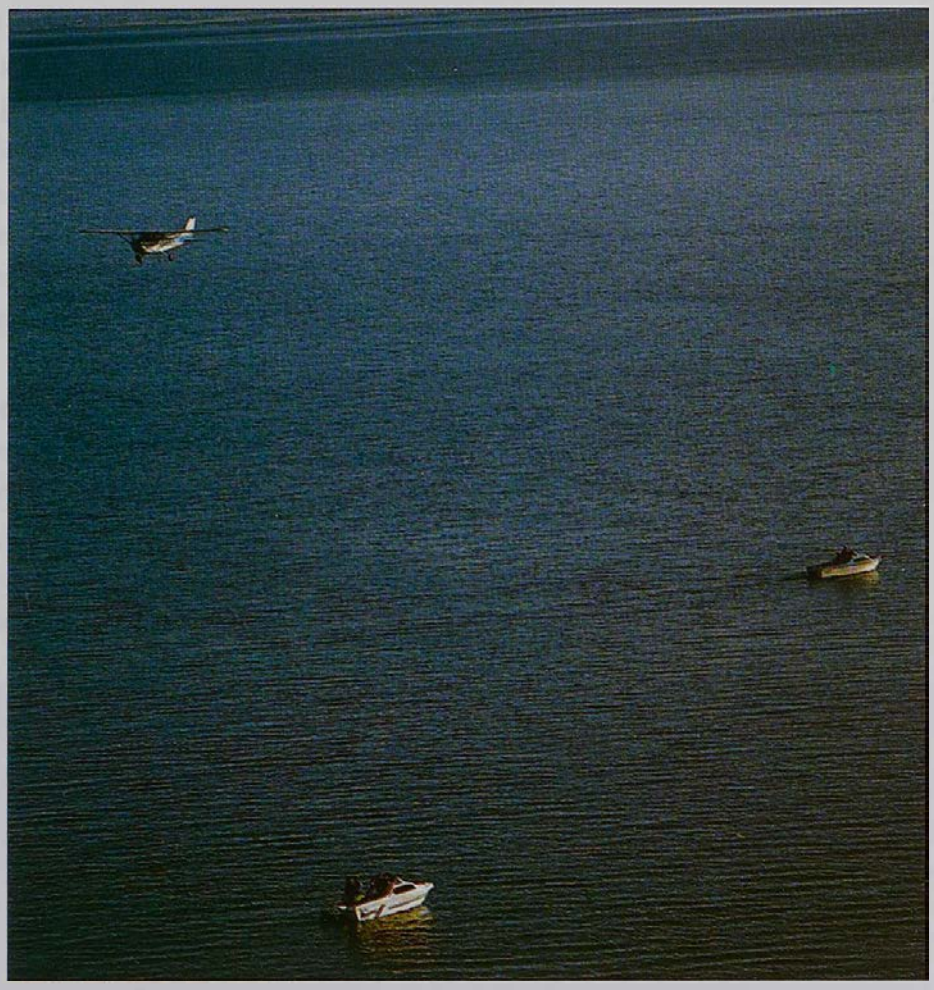
comparing the trout population from one year to another.

Since counts began numbers reached a low of 68,000 trout in November 1989 and peaked at 205,000 legal-sized fish in 1994. Numbers have since declined to an estimated 117,000 trout last November. Such a cyclic pattern of fluctuation is typical of wild fish populations and we would expect numbers to decline further before the next upturn occurs. The impacts of the eruption of Mount Ruapehu and unseasonal floods in late 1995 on the young of that year make this a certainty.

Given that the trout population in the immediate future is likely to be small it is essential that the trout harvest over the next couple of years is not so large as to further reduce the population to such levels that winter angling becomes futile.

To achieve this requires an accurate estimate of the level of trout harvest on an annual basis. As it is not practical to undertake a full

Observation from the air is an ideal way to count anglers but when the lake is busy, the continual turns can be hard on the stomach.



season-long harvest survey every year, we instead repeat the full harvest survey every five years. In the intervening years we undertake a smaller version using a modified methodology designed by Rob Pitkethley who oversaw the last year-long survey. Using information from the full surveys Rob was able to optimise the design so as to get the greatest amount of information for the available resources. He found that four periods, late winter, spring, late summer weekends and the Christmas break, accounted for 40% of the annual harvest while having a relatively low combined variance. His design involves measuring the harvest over these four periods, including surveying several extra days within the winter and spring periods to increase the accuracy of the final estimate. Each survey day involves a single aerial count starting several hours after dawn, and rather than interviewing anglers at the end of their trip at the boat ramp, data is collected as part of routine licence checks while the anglers are fishing.

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This summer was the first season we have used the modified methodology, which was not available in time to undertake the late winter counts. Instead only spring and summer weekends and Christmas surveys were undertaken and compared with the results from the 1995/96 year-long survey. The results (Table 8) indicate a reduced harvest over that measured the previous season.

Table 8: Comparison of estimate of trout harvest (number of trout killed) 1995/96 and 1996/97 seasons.

Day type	1995/96	1996/97
Spring/summer weekends	9036	6268
Christmas	12,723	8718
Late summer weekends	4574	3897
Total	26,334	18,883

In Table 9 the total amount of angling effort to take this harvest is compared

Table 9: Comparison of angling effort (hours) in 1995/96 and 1996/97 seasons.

Day type	1995/96	1996/97
Spring/summer weekends	35,884	25,327
Christmas	58,006	61,296
Late summer weekends	24,240	31,022
Total	118,130	117,645

Over spring catch rates were almost identical between the two years, but inclement weather last spring severely restricted the amount of angling effort and therefore the catch. However, as table 9 above highlights there was an increase in angling effort over Christmas (3830 hours per day in 1996/97 compared with 3436 hours the previous year) supporting our perception of it being busier on the lake over this holiday period. Despite the greater numbers of anglers they were not as successful as last season. This downturn in the fishery continued on through the late summer.

The estimated harvest last summer (18,883 ± 7045 trout) is 7450 trout less than for the 1995/96 season. If this reduction is consistent over the remainder of the season this would represent a total harvest of approximately 57,220 trout, or 22,485 fish less than the 1995/96 season.

The reduction in harvest is accentuated by the very poor weather experienced through spring. The fishing was as good as the previous year but anglers were unable to take advantage of this traditionally

most productive period. When conditions improved, particularly over the autumn, acoustic surveys showed that the vast majority of fish had moved deep into the lake out of reach of anglers.

Of as great a value to managers is the estimate of total angling effort, which was on a par with last year. In Table 10 estimates of trout catch and harvest are compared with the estimates for total angler effort.

Table 10: Comparison of trout harvest with angler effort

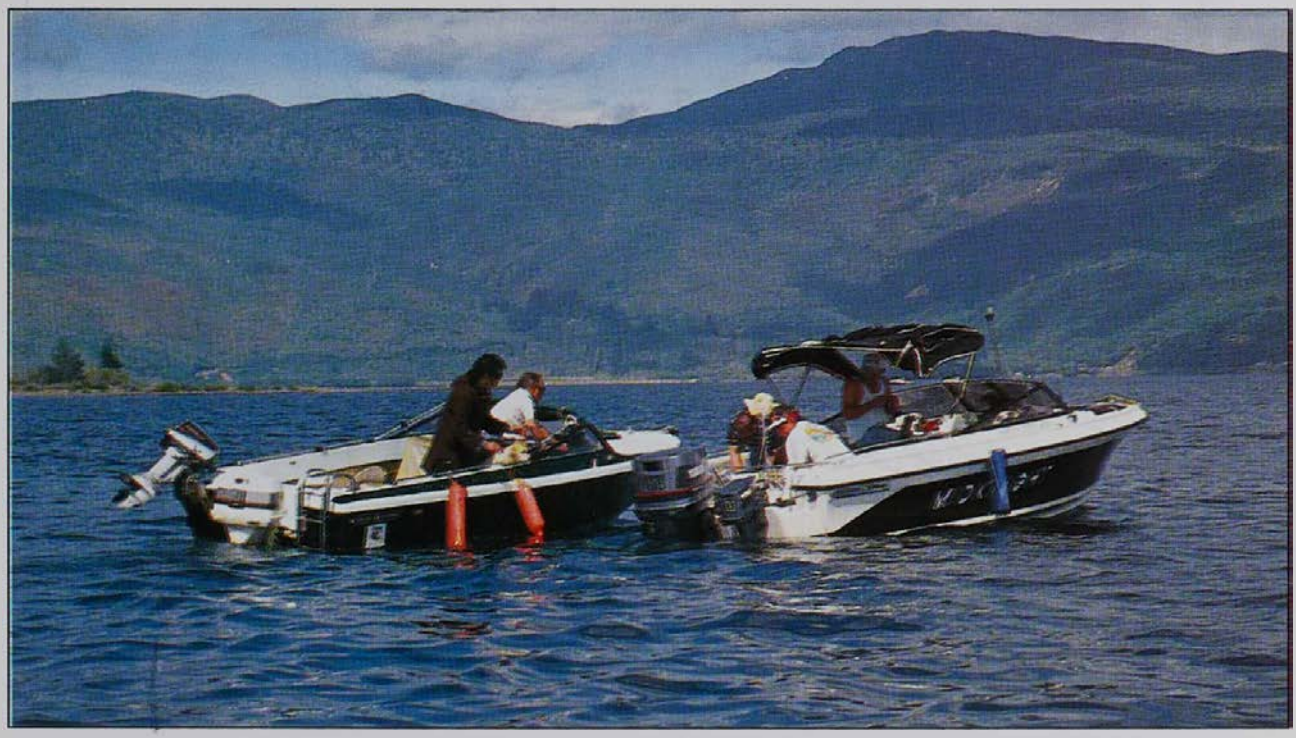
Season	Total catch	Harvest	Effort (hours)
1990/91	82,881	69,248	340,000
1995/96	99,140	79,705	340,940
1996/97	70,952	57,220	339,540

The data suggests that if the total effort does not decline significantly and the weather is more favourable, we should expect a harvest of well over 60,000 fish next season. The estimate over the 1990/91 season occurred at a low point in the fishery, when the trout population was at perhaps a similar size to what we could expect next season. This harvest was too high and as winter anglers from that period will remember, this was reflected by their marked lack of success.

It is difficult to predict whether there will be as many anglers next year. We are taking the conservative approach that the effort will remain similar and so we need to reduce the angling harvest by manipulating the angling regulations. If the effort does reduce this will further aid the fishery, albeit that fewer licence sales will mean there will be fewer resources to manage it.

In order to reduce the angling harvest we have recommended an increase in the minimum legal length to 45cm. The rationale behind this is discussed at length in the last issue of Target Taupo (issue 24, March 1997). This increase came into effect on 1 July 1997 and will reduce the harvest by a further 25%. In practical terms this means a Taupo lake angler will only be able to keep three out of four fish they could keep under the 35cm rule. Some anglers have commented they never catch a fish larger than 45cm. A 45cm trout may not be as large

Catch data is collected as part of routine licence checks.



as you perceive. The calculations about how many fish will be saved were done using data collected from measuring hundreds of fish as part of routine licence checks on the lake over the last two years. The average length of all fish measured on Lake Taupo over the summer of 1995/96 was 491mm (41mm or 1.6 inches larger than the minimum) and 492mm this summer.

By reducing the harvest from the lake more fish will survive to maturity and so run the rivers to spawn. This, in turn, will provide greater opportunity for winter river anglers. Both summer lake anglers and winter river anglers are equally important components of the Taupo fishery and it is essential that the fishery resource is shared fairly between these groups.

Minimum Length Restrictions for Lake Taupo, Lake Kuratau and the Waikato River.

The change in the minimum length restriction from 35cm to 45cm from 1 July 1997 applies to Lake Taupo and all the rivers flowing into it, and Lake Otamangakau.

Under the previous regulation the section of the Waikato River which falls in the Taupo Fishing District (from the control gates bridge to Huka Falls) was also included in the 35cm length restriction. As the increase in the minimum length is solely to protect fish in Lake Taupo (and Lake Otamangakau) it was decided not to include this portion of the Waikato River in the new regulation. Therefore the minimum length remains 35cm in the Waikato River upstream of Huka Falls. It is actually our recommendation to reduce this limit to 30cm to bring it into line with regulations for the remainder of the river which falls in Eastern Fish and Game and Auckland Fish and Game regions. We will be discussing this with the Taupo Fishery Advisory Committee over the coming season.

Similarly, under the previous regulations, a minimum length of 30cm applying to the Kuratau River upstream of the hydro dam was specified. This remains unchanged under the new regulation.

Bitz 'n' Pieces

News Items from Around the Conservancy

Heli-Sika Trophy Hunting Competition

On Sunday, 1 June 1997, a good turn-out at the Spa Hotel in Taupo saw the conclusion of the fifth annual Heli-Sika Trophy Hunting Competition, organised by Custom Cartridges of Taupo. Although the numbers of heads entered were down this year quality was high. A total of 42 sets of antlers was presented for measuring by the Taupo Branch of the New Zealand Deerstalkers' Association (NZDA). Entries included 29 classic eight-point heads and two 10-pointers. A total of eight heads scored high enough (170 Douglas Score or higher) for entry onto the NZDA Sika Trophy Register. In addition to the 42 stags entered, 21 hind jaws were submitted for analysis. Some $20,000 worth of prizes provided by participating sponsors were given away on the day and over 1000 people enjoyed another excellent trade display involving all aspects of hunting and outdoor-related recreation. The top 10 scoring heads were as follows:

Of interest this year was the young age of such high-quality heads. The eight-point heads shot by David Flight and Richard Wall from Lake Taupo Forest, in particular were very impressive, heavy-timbered animals which were estimated to be only 4.5 years old. Bob Neckleson's winning Clements Road head was estimated to be 5.5 years, and Colin Machray's Toropapa head, which had the heaviest beam measured in the five years the competition has been running,

Hunter	From	Antler points	Douglas Score	Location shot
Bob Neckleson	Taupo	10	210.4	Clements Rd Kaimanawa
David Flight	Turangi	8	204.5	Lake Taupo Forest
Colin Machray	New Plymouth	8	195	Toropapa R. Ahimanawa
Richard Wall	Waitahanui	8	188.3	Lake Taupo Forest
Earnst Durrer	Whangarei	8	179.3	Oamaru R. Kaimanawa
Peter McFarlane	Taupo	8	176.1	Kiko Rd Kaimanawa
Alan Foot	Palmerston North	8	171.1	Otupua R. Ahimanawa
Malcolm Hogg	Te Puke	8	170	Tiraki Stm. Kaimanawa
Winstone McNae	Taupo	8	165	Golden Hills Sthn Kaim.
Martin Askes	Tauranga	8	158	Oamaru R. Kaimanawa

A good crowd enjoys the family atmosphere and sika trophies on display at the Spa Hotel in Taupo

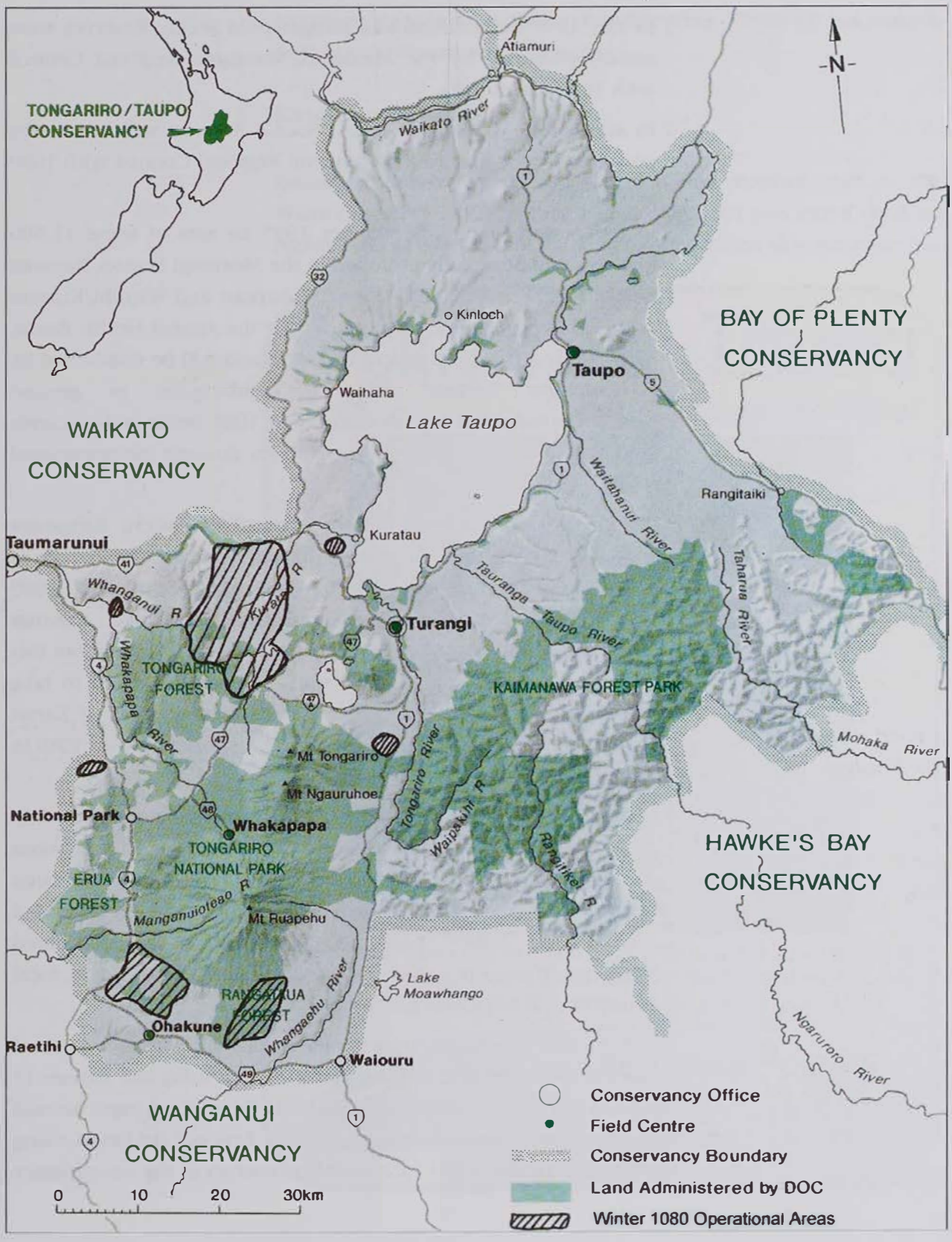
was estimated to be 6.5 years. This information, supported by farmed sika experience, suggests that sika stags can produce their full antler potential early in life if nutritional conditions are right. Further, that the extra trace elements and minerals originating from the 1995/96 eruptions of Mount Ruapehu may be influencing trophy production in the central North Island, a part of the country well known for mineral and trace element deficiencies.

Further information regarding the results of the competition will be made available as the jaw bones are properly analysed and the data added to previous years.

Winter 1080 Poison Operations

A number of possum control operations involving the use of 1080 poison are planned this winter which affect hunting areas within the

Tongariro/Taupo Conservancy



Tongariro/Taupo Conservancy. Details of these are as follows (refer to map on page 45).

1 In May 1997 the Raurimu and Mangatepuhi Scenic Reserves were aerially poisoned by the Manawatu/Wanganui Regional Council with 1080 carrot baits.

2 In August the Whakapapa Island Scenic Reserve will be aerially poisoned by the Manawatu/Wanganui Regional Council with 1080 carrot baits.

3 In the period June to September 1997 an area of some 11,500 hectares will be aerially poisoned in the Moerangi Station, Rotoaira Forest, northern Tongariro Forest, Pukepoto and Waituhi/Kuratau areas. This programme is supported by the Animal Health Board, New Zealand Forest Managers and DOC and will be conducted by Environment Waikato using a combination of ground baiting/trapping and aerially distributed 1080 pellet and/or carrot baits. It will be undertaken in three stages through the operational period.

4 In July to November 1997 3000 hectares of eastern Rangataua Forest Conservation Area will be treated with a combination of 1080/Talon bait stations, ground trapping, cyanide and aerial 1080 pellet poisoning as part of the Karioi Sanctuary Project. Possum control and research staff will be in the forest daily throughout this period undertaking a variety of work. Hunters are asked to take extra care when hunting in this area. Adjoining areas of Karioi Forest immediately to the east are also being poisoned with 1080 in bait stations by Winstones Pulp International.

5 In the period July to November 1997 some 2500 hectares, including parts of Tongariro National Park and adjoining private land between the lower Ohakune Mountain Road and Horopito, will be treated with a combination of bait stations, trapping, night shooting and aerial 1080 pellet poisoning as part of a combined Manawatu/Wanganui Regional Council, Animal Health Board, local farmer and DOC initiative.

There are also significant areas under regular maintenance possum control by both Regional Council and DOC staff using bait stations or hand-laid traps and toxins (cyanide, 1080, Talon, Campaign) around the conservancy. Areas around the Western Bays of Lake Taupo, along the Whakapapa River and various other reserves in the conservancy

may be affected by ground-based maintenance possum control programmes from time to time. Hunters should pay close attention to poison signs in their chosen hunting areas. Please do not remove or tamper with any warning signs.

Kaimanawa Goats

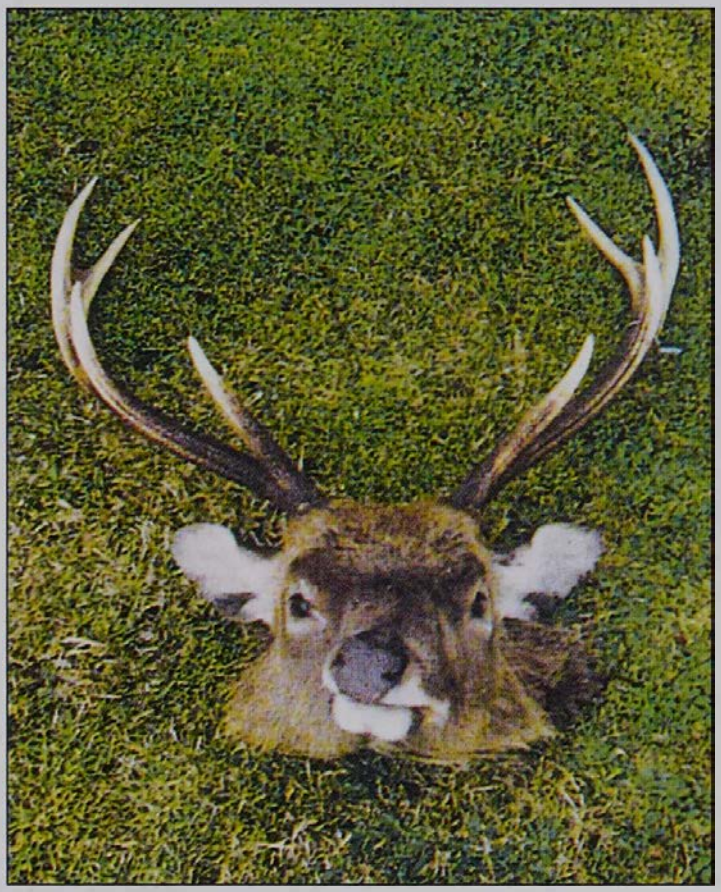
Following the report of a goat killed and another seen in the Waipakihi Valley in December, a large billy goat was found dead on Ngapuketurua over the roar, adding to speculation that someone has

been releasing goats into the Kaimanawa Ranges. If feral goats establish in the Kaimanawa Ranges, the sustainability of deer hunting will be as much at risk as the natural habitat. Anyone with information about goat sightings or kills in the Kaimanawa area is asked to please provide details to the Turangi DOC Office so moves can be made to ensure these animals are destroyed before they establish. Regardless of how poorly hunters or other users feel they are served by the DOC and its policies, such short-sighted activity is not in the best long-term interest of the Kaimanawa Ranges. Any information about illegal releases of animals would be welcomed by the Department.

Dog Policy Update

Progress of the Tongariro/Taupo Dog Policy Discussion Document has been slowed by unforeseen problems in implementing the new legislation and by restructuring of the Department. An early draft has been prepared but the determination of what dog access status ("open" or "controlled") and the conditions for each area of conservation land has yet to be made. Further updates will be provided in future issues of *Target Taupo*.

A nice sika stag with the infliction campylognathie Photograph: P Beijeman



Deer Deformities

The photograph below was kindly provided by local Taupo hunter Philip Beijeman. It shows a nice sika stag with the infliction campylognathie (bent nose). The abnormality has been described in both sexes of red deer and roe deer in Britain and Europe (bent to the right) and in at least two farmed red deer (a stag and a hind) in New Zealand (bent to the left). Now it has been described for wild New Zealand sika (bent to the right). Thanks Philip!

Kaimanawa RHA Study

Readers will recall the recently completed 10-year study titled "Hunting Pressure, Deer Populations and Vegetation Impacts within the Kaimanawa RHA" by Wayne Fraser and Cam Speedy, an overview of which was provided in the November 1996 issue of Target Taupo. In that article we stated that the overview would be followed by two subsequent articles on deer population and vegetation impacts. Owing to the interest in the deer population data we have decided to print them in a range of commercial hunting publications later in the year. A third article detailing vegetation impacts will appear in a later issue of *Target Taupo*.

Team Profile

Bevan Clinch

Bevan is working with the fisheries team this winter on the fish trapping programme under the watchful eye of Norrie Ewing.
Originally from Napier, Bevan was broadening his horizons when he came to Turangi for what was supposed to be two weeks of voluntary work, which turned into three months, and which has now given him a contract over the winter months.
Bevan says the cold winter nights at the trap are worth it when you're rewarded in the mornings by some of the large fish that pass through the trap. He is finding it frustrating though, that the largest fish so far have all passed through the trap on the few occasions the trap has been looked after by other fisheries staff.
Prior to the work here, Bevan was employed by DOC in Hawkes Bay

while attending a Conservation course for six months. The course covered a wide range of work from pest control to track and hut maintenance (this was a good excuse to see the forest parks). Once he had finished this course he arranged some voluntary work with Rob McLay.

When Bevan's contract finishes he hopes to continue his career with DOC or with one of the Fish and Game Councils. Bevan has had a very strong interest in fishing and tramping since he could walk and has advanced to fly fishing over the last four years, with great success in our local rivers this year.

"A great summer has passed for me with the pleasure of catching many good browns from the Tongariro and I hope it will last through the winter," says Bevan.

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