

TARGET TAUPO

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

MARCH 2002, ISSUE 39



Department of Conservation
Te Papa Atawhai

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Review of the Taupo Fishing Regulations 1984

As can be seen from the title, our current regulations came into force 18 years ago. Many of these are a roll over of earlier regulations, some dating back to the early years of the fishery. Over the history of the fishery much has changed. Angling techniques and fishing equipment have evolved into different forms. Our fishery monitoring has become more sophisticated to the extent that we now have a very good understanding of the trout populations and the subtle changes in these that occur from year to year. Angler expectations in terms of what they want out of their fishing experience in the Taupo Fishing District have also altered. The Conservation Act 1987 requires us to manage the fishery so that recreational opportunity is maximised while ensuring ongoing sustainability of the resource. Within this context, the regulations should therefore each have a clear purpose in protecting vulnerable aspects of the resource or in facilitating desired fishing opportunities in such a way that they are equally available to all participants. Some regulations will achieve both purposes simultaneously. For example, applying a bag limit to an intensively used fishery is a way of limiting the overall harvest, thereby protecting the resource, while sharing the opportunity for harvest equally among all who fish there.

In the light of the above, it is unlikely that all the regulations made over the years will suit today's fishery. For that reason, we have initiated a major review of the regulations as has been signalled in the last three issues of *Taupo* and in so doing, have called for input from Taupo anglers. To date, we have received 22 submissions which is not many when you consider that 12500 copies of each issue of the magazine were sent on to

anglers. Nevertheless, the comments received have been valuable in helping us form our views on the regulations so far and we thank those anglers who have contributed.

What follows is an array of suggestions for change. In arriving at these suggestions, we have looked at each regulation in turn and considered its relevance for the current fishing environment, the views of anglers (where comment has been received) and consistency with Fish and Game district regulations where appropriate. We have listed only those clauses that we are suggesting might change. Any thing unlisted therefore would remain as is in the current regulations. We anticipate that these suggestions will generate discussion and further submissions from anglers and we welcome this. We also welcome comment on matters that may not be raised in the following.

Suggestions For Change

Regulation 1. Title, Commencement and Application

The wording will change to reflect the new title and commencement date.

Regulation 2. Interpretation

"Artificial fly" includes any lure of feather, fur, wool, or other material ~~of any kind~~ ~~equipment~~ used in the making of artificial flies; but does not include any lure in the tying of which lead or other weight has been incorporated unless the hook incorporated in the lure does not exceed ~~77~~ 18mm length (being the horizontal straight line distance from the rear of the eye of the hook to the rear of the bend) and the gap (being the distance from the point of the hook to the underside of the nearest part of

the hook shank above the point) does not exceed 5.56 mm.

Explanation: Restricting flies to those made of materials "customarily used" may unnecessarily limit the evolution of new innovations utilising modern materials e.g the development of silicon smelt and lummo flies was technically contrary to the regulations because at the time, these were not materials customarily used.

The proposed hook dimensions allow the use of modern size 10 hooks which was always the intent of this regulation.

"Artificial ~~minnow~~ lure" includes spoon-bait, any lure in the form of which lead or other weight has been incorporated to facilitate the casting or sinking of the lure, and any lure which incorporates a spinning device or a device to impart a wobbling or irregular motion to the lure.

Explanation: Taupo anglers rarely if ever refer to spinners, jigs etc as "minnows".

"Commercial smokehouse"

Change the word "canned" to "smoked"

Explanation: Corrects an error that has carried through from previous regulations.

"Length", in relation to any fish, means the total length from the tip of the snout to the tip of the tail fork of the tail.

Explanation: Makes the measurement consistent with our data collection method, Fish and Game council's definition and most marine fishing regulations

"Lure" means any artificial ~~artificial~~ fly, and any artificial ~~minnow~~ lure.

Explanation: Historically, there has been little demand to use natural insects and some anglers have indicated they believe the practice is inappropriate in the Taupo fishery.

~~"Natural fly" includes spiders and insects, but does not include anything the use of which is prohibited by regulation~~

~~47(1)(c) - of these regulations -~~

~~Notes~~

Delete this definition as not needed if "natural fly" is removed from the definition of lure

"Open season", in respect of the Taupo District, means -

(a) The 1st day of December in any year to the 31st day of May in the year next following (both days inclusive) in respect of the following waters:

(i) That portion of the Tongariro River between ~~its source~~ Pouu intake at NZMS 260 TL9 539268 and a point being the usual site of a landmark that is 500 metres, more or less, upstream of the point where the river is joined by the Whilikahi Stream:

Explanation: The Tongariro and Waipakahi rivers upstream of Pouu intake contain high numbers of generally small trout and receive little attention from anglers. Over harvest is not an issue and so a more liberal open season (e.g. Oct - June) is appropriate.

(ii) Waiotaka, (iii) Wainarino, (iv) Taurangi Taupo, (v & vi) Hinemaiaia and (vii) Waitahanui. No change to the locations where winter closure and summer open seasons apply but grid references to be included to accurately identify these points.

(ix) All rivers and streams entering that portion of Lake Taupo that lies north and west of a line between Rangitira Point and the wharf at Tokaanu; but excluding the mounds of the Tongariro River and that portion of the Kuratau River upstream from the Kuratau hydro-electric supply dam and that portion of the Waihaba river upstream of Tieke falls:

Explanation: A small resident fishery exists above the falls and the intent is to make the upper Waihaba consistent with other similar rivers on the western side of the lake.

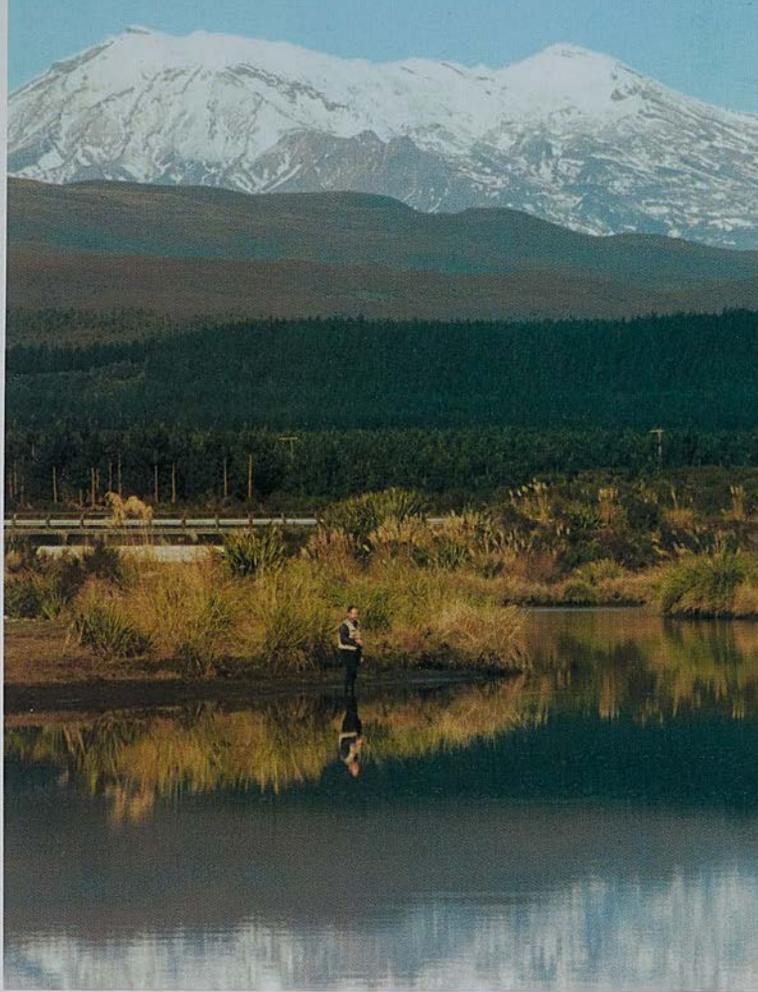
(b) The 1st day of October in any year to the 30th day of June in the year next following (both days inclusive), in respect of

It was a great Summer for cicadas. Few anglers realise that currently the use of live cicadas is legal in the Taupo fishery.

Photo: Glenn Maclean



It is proposed to close the lake Otamangakau fishery a month earlier to protect the spawning fish which congregate in Lake Te Whaitau, prior to running the Te Whaitau stream. Photo: Iain Maxwell



the following waters:

- (i) That portion of the Kuratau River upstream from the Kuratau hydro-electric supply dam, the Tougariu river upstream of Poulu intake and the Waitaha river upstream of Tieke falls.

Explanation: Creates additional opportunity and makes these waters consistent with the season for upper Kuratau.

- (ii) The Whanganui River and those portions of the upper tributaries of that river, including the Otamangakau Lake and the Wairebu Canal, that lie within the district.

Explanation: In recent years, increasing numbers of anglers have been targeting fish in Te Whaitau as they congregate there on

their spawning run in early winter. This is potentially detrimental to the summer trophy fishery in Lake Otamangakau which relies on the fish surviving a number of years to reach large size. Our suggestion is to close the season a month earlier. This will provide protection to a portion of the spawning run while still allowing for a harvest of these fish in April and May.

- (c) The 1st day of October in any year to the 31st day of May in the following year (both days inclusive) in respect of the following waters:

- (i) Lakes Otamangakau and Te Whaitau and the Wairebu and Te Whaitau canals

Explanation: As per our suggestion above, this is a new regulation which creates an open



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season for the Otamangakau fishery which is one month shorter than is currently the case. Replaces the existing (c) which becomes (d).

"Strike indicator"

- (a) Means any synthetic or natural yarn and its means of attachment ~~attached~~ to the line or cast and used by the person fishing as an aid to detect a strike: but
- (b) Does not include -
 - (i) Any other material or any object attached to the line or cast; or
 - (ii) Any synthetic or natural yarn to which has been added any material or chemical (other than a colour dye or surfactant line floatant preparation):

This change legalises the use of a small clip with which to attach the yarn to the flyline. While no changes are suggested to the intent of this definition we have received a number of submissions both in support of and opposed to the existing regulation and some comment is warranted. The existing regulation was brought in to deal specifically with the problem of "float fishing" which developed when there were no restrictions on indicator types. In this regard, it has been very successful and the problem has disappeared since the introduction of "yarn only" indicators. These indicators themselves have not generated any unfavourable comment from anglers over the period since their introduction though some anglers would like to be able to use other forms of indicators as well. The review so far has generated opposition to the current rule from only two sources albeit one of these has been responsible for a number of repetitions of the same submission. This is hardly an overwhelming motion for change and our suggestion is "if it ain't broke, don't fix it".

In addition to all of the above definition amendments, insert a new definition "Commercial Vessel" being a boat consistent with the definition of "Commercial ship" under section 2 of the Maritime Transport Act 1994.

(2) For the purposes of these regulations, a person who is fishing shall be deemed to be fishing both at the place from where he that person is fishing and also at any place reached by his that person's line and lure.

Explanation: Neutral gender

Regulation 3. Fishing prohibited in certain waters

In (1), (2) and (3), add in the words "at any time" so that they each read: "No person shall take trout at any time....." etc

Explanation: Makes the intent of the regulation clearer

In (1)(c), add in the words "and tributaries" after "The Te Waiarau stream"

Explanation: Makes it clear that the whole of the Otamangakau spawning stream catchment is closed to fishing.

Regulations 6, 7 and 8. Licences

We have been for some time endeavouring to complete the review of our licensing structure. We are unclear on what amendments to these regulations might be appropriate until the outcome of the licence review is known. Therefore we would not recommend any change at this time.

Regulation 9. Replacement of lost or damaged licence

If any person to whom a whole season licence has been issued under these regulations proves to the satisfaction of the Director-General, by such evidence as the Director-General requires, that any whole season licence has been lost or mutilated or become illegible, he may at any time during the currency of the whole season licence, on payment of a fee of \$1.00, obtain from the Director-General a replacement

Explanation: The cost of issuing a replacement licence is part of the general administrative costs covered by licence fees.

Regulation 10. Rights conferred by licenses

(3) Delete this clause which allowed for the use of a tourist fishing licence within the district as tourist fishing licenses no longer exist.

Regulation 14. Prohibitions relating to trout fishing

Change the fishing start time for each day from 5.00am to 4.00am.

Explanation: Provides an opportunity to fish in the dark before dawn over spring and summer while still allowing a period where trout can access the stream mouths undisturbed.

Regulation 16. Restrictions on methods of fishing

(1) No person shall take trout by any means other than with one rod and running line, or use for the purpose of taking trout.

(a) ~~Any stickbaiting or foothooking gear.~~ (This restriction is superfluous because the type of gear it refers to is already prohibited by the definitions of artificial fly and lure.)

or

(b) Any gaff;

or

(c) Any spear or similar implement, or speargun;

or

(d) Any hook which has a distance greater than 14 mm between the point and the shank;

or

(e) Any ~~two~~ artificial fly having attached to it more than one hook or with any lure, a hook that is not a single-pointed or single barbed hook; (Allows the use of lures with two or more hooks e.g.

diving minnows, so long as each hook is a single hook).

or

(f) Any net, trap, wire netting, or similar device;

or

(g) ~~More than two flies.~~ (This is the restriction that limits the number of flies or lures to two. There is no fishery management reason why this limitation should apply and indeed many fly fisheries around the world allow the use of multiple lures. We would consider relaxing the restriction on the number of flies or lures or doing away with this restriction altogether. We are keen to hear what you think about this provision).

or

(h) ~~Any powerline.~~ (Sections b and f are at odds with allowing the use of downriggers. The intention would be to allow the use of these types of equipment subject to the controls imposed by subclause (3A) and all it's parts).

or

(i) Any fish attracting electronic

It would be legal to use lures with 2 or more single hooks attached.
Photo: Glenn Maclean



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An angler could have more than one assembled rod in the boat under the proposed change. Photo: Rob Marshall



device; (The current wording could arguably render echo sounders illegal which is not the intent. The proposed wording would clarify this.)

or

- (j) ~~Any out-rigger or similar device,~~
- or
- (k) ~~Any out-rigger like device;~~ (Is covered by other regulations and in itself a meaningless provision)
- or
- (l) Any line incorporating or containing wire, lead, or any other metal except as provided in sub-clause (3) of this regulation.

(A) No person shall:

- (a) Foulhook or attempt to foulhook

any trout;

- (b) ~~Take part with a set rod, unless he or she is fishing from a boat and all persons on board hold an appropriate current licence to fish~~
- (c) ~~When fishing for trout with a rod and running line from a boat, have in his possession any other assembled rod;~~
- (d) ~~Operate or be in charge of a boat from which a set rod is or set rods are being used in contravention of any provisions of these regulations;~~

Explanation: The current regulation was seen as necessary when the use of set rods was allowed because it is virtually impos-

It would no longer be necessary for everyone on board to be licensed when set rods are being used. Photo: Rob Marshall



was allowed because it is virtually impossible to determine who is actually fishing when no one on board is actually holding a rod. The regulation has created controversy at times and has generally been unpopular with boat anglers. In proposing this amendment, it is still the intention that the licensed people on board are in fact the people who are fishing. Therefore people who are observed undertaking any activity that could be construed as fishing (e.g. winding in the line when a ranger approaches) and who are subsequently found to be unlicensed, will risk prosecution. Note that the person in charge is also liable if set rods are in use and an offence is committed. This is necessary for cases where an offence is clearly committed but the actual offender cannot be proven. For example, a boat with three people is stopped with three set rods and only two licensed anglers. Was one angler fishing without a licence or was a licensed angler fishing with two rods?

Prohibiting the carriage of additional assembled rods serves no practical purpose. Anglers may only use one rod at a time and that is covered by 16 (1) and (4) (b) above.

(e) ~~(No person shall) in waters reserved for natural fly or artificial fly fishing only add to or attach to the cast, line or fly -~~
 (i) ~~Any spinning attachment; or~~
 (ii) ~~Any thing made from lead, glass, plastic or wire, material or fixture existing or to increase the~~

~~sinking or buoyancy of the line. Any weight such that the aggregate weight of all flies and attachment exceeds 3 grams.~~

Explanation: This proposal recognises that the most commonly used method of fly fishing the Taupo rivers is to use a "bomb" as a weight to get the fish catching fly down on the bottom. It is suggested that anglers be allowed to use alternative (and perhaps tidier) methods to achieve the same result. At a combined weight of 3 grams, the gear will still not be heavy enough to facilitate casting (as in spinning for example). To put this in perspective, a typical size 10 "bomb" in current use weighs around 1 gram. In submissions received so far we have had both support and opposition to this notion. We anticipate considerable debate.

Regulation 17 Restriction on lures

Subject to subclause (2) of this regulation, no person shall, in fishing for trout, use -

- (a) ~~Any lure containing the feathers of any bird absolutely protected under the Wildlife Act, 1953, or~~
- (b) ~~With any lure, any medicated or chemical preparation other than a preparation used solely for the purpose of flooding a dry artificial fly; or~~
- (c) ~~Any mollusc, or the freshwater crayfish (Roura), or worms, or the creeper, or the buhu or matai grub~~

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The provision prohibiting the use of flies imitating trout roe is clearly outdated given the wide spread acceptance of glow-bugs (right) and even more traditional patterns such as the Red Setter (left). Photo: Glenn Maclean

or any other insect, or fish, or fish roe, or any imitation of any mollusc, or worms, or the creature, or the body, or scales, or gills, or fish roe, but the shell of any mollusc may be used in the preparation of any artificial minnow.

Explanation: These restrictions regarding imitating prey items serve no practical purpose. Flyfishing is often about trying to imitate what trout are feeding on and this suggestion will remove the basis for any controversy, such as occurred in the past over whether glowbugs, red setters or any number of other flies imitate roe.

Regulation 18. Restrictions on use of boats

(1) No person shall take trout from a boat in the following places:

- (a) That part of the Waikato River lying between a straight line commencing at the shore end of the rock mole at the outlet of Lake Taupo and extending across the outlet for a distance of approximately 40 m to the normal site of a landmark on the western shore of the outlet, and the control gate bridge on the Taupo-Rotorua highway;

- (b) ~~Within 100 m of the Tokaanu Wharf~~ (With the structural demise of the wharf and the weed growth in the vicinity, boat anglers encroaching on fly fishers on the

wharf is no longer an issue).

- (c) That portion of the Tongariro River upstream from a position at the head of that stretch of water known as Downs Pool which is the normal site of a landmark;
- (d) Those portions of Lake Taupo contained within arcs of circles having a radius of ~~300~~ 200 m from the centre of the mouth or mouths of all rivers and streams entering the said lake (except the Tongariro and Tauranga-Taupo Rivers and the Waikino and Otupoto Streams). (Provides more opportunity for trolling and jugging especially where the stream mouth is not a recognised flyfishing location or the drop off is within 300 metres. A distance of 200 metres will still keep boat anglers well clear of fly fishers in the popular river mouths).
- (e) ~~That portion of the Hinemaitahi River which lies downstream from the lower Hinemaitahi hydro electric dam~~: (Fishing from a boat is not specifically prohibited on any other eastern tributary other than the upper Tongariro and is not practical anyway).
- (2) No person shall take trout from any boat in:
 - (a) The Tokaanu Tailrace ~~between the~~



It is proposed to reduce the boat exclusion zone around the stream mouths (as indicated by the white, black and yellow post) to 200 metres. Photo: Glenn Maclean

- (a) ~~The Tokaanui Tailrace below the State Highway 41 bridge, or~~ (currently upstream of the bridge is reserved for fly fishing and therefore fore boats must be anchored under (2) (c). It is proposed to allow spin fishing in this area and therefore it is necessary to widen (2) (a) to cover the whole fishable length of the tailrace)
- (b) ~~The Waikato River below the control gates at Taupo and the Huka Falls, or~~ (this restriction serves no practical purpose).
- (c) Waters that are reserved for ~~natural or~~ artificial fly fishing unless the boat is securely anchored parallel to the river flow with not more than two anchors.

Regulation 19. Tagged trout.

(1) ~~Any angler taking any trout bearing a tag or distinguishing device shall forthwith deliver to the Director General or to an officer of the Department of Conservation, full particulars in writing of the tag or distinguishing device, the place where and the date when the fish was taken, and, if it is reasonably possible to do so, the weight, sex, and length of the fish.~~

(2) No person shall mark any living trout by attaching thereto a tag or other distinguishing device or by dipping or removing a fin or fins, except with the prior written authority of the Director General

Explanation: There is no way of enforcing a regulation that requires people to send in details of tagged fish. People who are interested tend to bring the information in anyway

Regulation 20. Bag and Size limit.

(1) ~~No person shall on any one day take and keep more than 3 trout, and no person shall continue to fish on any day on which he has already taken 3 trout~~ except that for Lakes Moawhango and Kūwatau, the Waikato river from the Taupo control gates down to Huka falls, the Waipakiki river upstream of Rangipo dam and the childrens pond at the National Trout Centre, there shall be no restriction on the number of trout that can be kept on any one day. (This will improve opportunity by allowing anglers to continue to fish after taking the daily limit. Note that fish not returned immediately after capture is deemed to have been taken (Reg 20 (4) whether they are retained dead or a live



It is suggested spawning should be allowed in the Tokerau Tailrace upstream of the bridge (it is already permitted downstream.) Photo: Glenn Mackay

This prohibits the potential for keeping a number of fish alive in a pool and sorting out the best three at the end. For the exempted locations listed a bag limit is not necessary for management purposes).

(2) No person shall have in his possession any trout in his possession which is less than 45cm in length, or, in the case of trout taken from the Waikato River from the Taupo control gates down to Huka Falls does not exceed 35cm in length or, in the case of trout taken from the Kerikeri River upstream from the bridge to the Hapuku Falls does not exceed 30cm in length except that for the Waikato River from the Taupo control gates down to Huka Falls Lakes Moawhango and Kuratau, the Waipakiki river upstream of Rangipoua and the childrens pond at the National Trout Centre, there shall be no length restriction in the case of trout taken. (placing a size limit on trout at these locations serves no useful purpose).

(3) Every person taking a trout of a length less than that specified in subclause (2) of this regulation shall, whether it is alive or dead, immediately return it into the water from which it was taken

(4) For the purpose of subclause (1) of this regulation any person who takes a trout and fails to return that trout immediately to the water from which it is taken shall be deemed to have taken and kept that trout.

Regulation 21. Register for trout (smoke-houses, motel freezers etc)

(2) The entries to be made in accordance

with subclause (1) of this regulation are as follows:

- (a) The date and time of deposit of the fish on the premises;
- (b) The number of fish;
- (c) The total weight of fish;
- (d) The name and address of the owner of the fish;
- (e) The number and the type of the licence (if any) of the owner of the fish;
- (f) The address (if any) to which the fish are to be forwarded or the name and address of person taking delivery of the fish;

Explanation: Makes requirements more logical if follow up on specific fish is necessary. The owner of the fish may not have caught them and may not necessarily be an angler so the requirement for licence details is not meaningful.

Regulation 24. Maximum weight of trout.

In the above title, replace the word weight with number

(1) No licence holder or other person shall deposit, and no manager or person in charge of any commercial freezing chamber or commercial smokehouse shall accept for deposit, in any such premises, trout if the licence holder or other person already has in any one licence weight of 23 kg of any one fish or total of 12 trout deposited in the premises.

(2) No one person shall on any one day deposit in any commercial freezing chamber or commercial smokehouse any trout in excess of the bag limit

~~any trout in excess of the bag limit provided in these regulations~~

Explanation: Trying to control the number of fish people take through trout storage regulations is not appropriate, this issue is already covered by its own specific legislation. The existing weight restriction is dated and somewhat arbitrary. We believe allowing up to four daily limits to be stock piled for smoking etc is a reasonable option for anglers who spend a number of days fishing and want to smoke all their fish in one batch.

PART V

Regulations 25 - 37. Canning of trout.

it is suggested that we delete this whole section.

Explanation: This whole section attempts to control the amount of fish being stock piled/processed as well as prohibiting the trade or sale of trout. These matters are already well covered in other specific legislation. As it stands, the canning regulations are much more stringent than those applying to the freezing of fish and place unnecessary requirements on anglers who like to preserve and store their trout in cans.

Regulation 39. Taking of fish for Disciplinary, scientific, or other purposes.

It is proposed to add in a new subclause as follows

(c) The Director General or his appointee may authorise persons who are disabled, within the meaning of the Disabled Persons Employment Promotion Act 1960, for the purpose of recreation only, to take sports fish by any means that would otherwise be unlawful.

Explanation: Provides opportunity to anglers who might otherwise be unfairly restricted because of a disability. Over the years we have received several such applications but under the current regulations are unable to issue any authorisation. This proposal is consistent with Fish & Game regions that already have this provision through the Fresh Water Fisheries Regulations 1983. Any applications for such an authorisation would be treated individually on their own merits.

Regulation 41. Taking, possession or sale of indigenous fish.

This regulation was recently amended to allow for a controlled harvest of smelt within a specific season (Dec - Feb) for members of

the Tuwharetoa tribe. The revised regulations will incorporate this amendment unchanged.

Explanation: A three year field trial determined that a surplus of smelt is available for harvest without threatening the sustainability of the smelt population and therefore the food resource for the trout. Ngati Tuwharetoa have long held the view that the introduction of trout had an impact on the native species that were present and that were regarded as an important food resource for the tribe. The iwi of Tuwharetoa, recognising the primary importance of the trout fishery, have therefore worked with the Department to establish a smelt fishery where individuals must be permitted and must fish within strict conditions including daily individual catch limits.

Regulation 42. Fish not to be liberated without authority.

Delete this section.

Explanation: Already covered in other legislation.

Regulation 45. Licences saved.

Delete. This was an administrative consequence of the last review which is no longer relevant.

Regulation 45A Fishing Competitions.

Amend so that the existing clause will read: "No person shall promote, organise or participate in a fishing competition where an entry fee is charged or where a total prize value exceeding \$5000 is offered unless the competition has been approved in writing by the Director General."

Insert an additional clause that reads: "In approving fishing competitions, the Director General may set down conditions as appropriate to protect the sustainability of the trout populations and overall angling values."

Explanation: Small competitions run by family or social groups have no significant impact on the fishery and obtaining a permit would continue to be a straightforward exercise so long as the competition met the agreed criteria. The new clause will provide a mechanism for the Department to control aspects of large "commercial" competitions to minimise or eliminate adverse impacts from these.

THIRD SCHEDULE

Column 1 Description of Waters	Column 2 Lures Permitted
<p>1(a) All rivers and streams within the Taupo District, and all tributaries of any such river or stream including</p> <p>(i) That portion of the Hinemaitaia Stream up to the lower Taupo hydroelectric supply dam; and</p> <p>(ii) That portion of the Kuratau River up to the Kuratau hydroelectric dam; and</p> <p>(iii) That portion of the Tongariro River up to Regg's Falls, and the Poulu Stream; and</p> <p>(iv) That portion of the Tokaanu Tailrace upstream of the State Highway 41 bridge; and</p> <p>(v) That portion of the Waikato River from the landmark at the outlet of Lake Taupo downstream to the control gates bridge, but excluding those portions of the Hinemaitaia Stream, the Kuratau River, the Tongariro River, the Tokaanu Tailrace, and the Waikato River not specified in subparagraphs (i) to (v) of this paragraph</p> <p>(b) Those portions of Lake Taupo and rivers or streams contained within the arcs of circles having a radius of 300 200 m from the centre of the mouth or mouths of all rivers and streams entering or leaving the said lake except the mouths of the Waikino and Tupoto Streams and the mouth of the Tokaanu Tailrace</p> <p>(c) Within a radius of 300 200 m from the sandy point located approx. 780 m south of the mouth of the Kuratau River and marked by a landmark</p>	<p>Natural fly or artificial fly.</p> <hr/> <p>Natural fly, artificial fly, or artificial minnow lure.</p>
<p>2 All waters not specified above</p>	<p>Natural fly, artificial fly, or artificial minnow lure.</p>

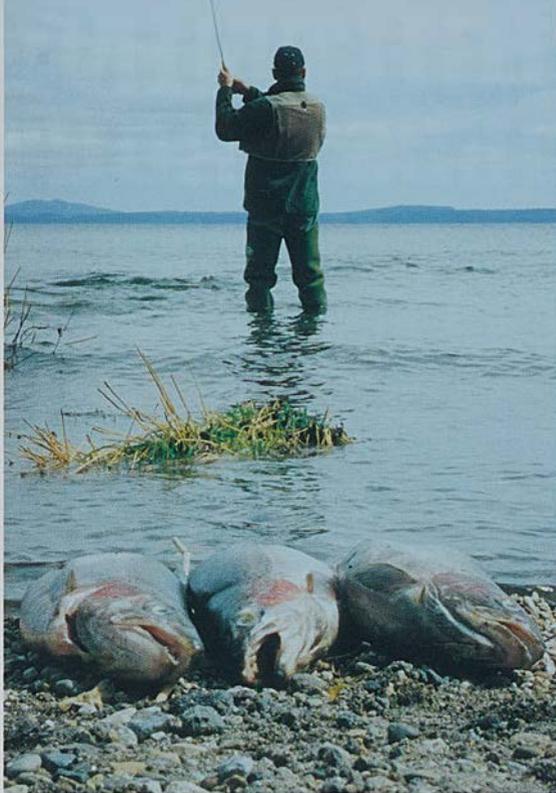
These changes reflect changes already discussed in the document and also allow spin fishing in the Tokaanu tailrace above the bridge (spin fishing is already permitted below the bridge and there appears no good reason why it should not also be permitted above).

FIFTH SCHEDULE

This lists the angler organisations represented on the Taupo Fishery Advisory Committee. It is proposed to amend the list by deleting "~~Tuangi/Tongariro Trout Unlimited~~" and adding in "*The Moteroapa Boating Association*" and "*The Tonguiriro National Trout Centre Society*".

Explanation: The role of the Advisory Committee is to provide a communication link between anglers and the fishery managers and to provide advice on signif-

icant issues to the Minister and the Department. To be effective, the committee needs to be representative of as wide a cross section of the angling community as is possible. "Trout Unlimited" have not been represented for a number of years now and the Department understands that the Tuangi/Tongariro branch is no longer a viable group. The inclusion of the two new groups proposed above will depend on their acceptance of the role and the Minister's approval.



The next step

The above proposals are just a start and are open for comment and debate. They are not all inclusive or exclusive and the Department welcomes submissions on the matters raised as well as issues that may not have so far been covered. In order to progress to the next stage which will involve consultation with Ngati Tuwharetoa and the Taupo Fishery Advisory Committee, we have set a closing date for submissions being Friday, 19th April 2002. If you would like to make a submission please address it to:

**The Area Manager
Taupo Fishery Area
Private Bag
Turangi.**

It is proposed that anglers could continue fishing after keeping 3 fish so long as they release any further fish that they catch. Photo: Rob Marshall

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LIGHTNING KILLS TROUT

A recent report indicated that late afternoon on Saturday 10 January between 20 and 30 trout were floating in Jerusalem Bay at the north-west end of Lake Taupo. Most of the fish were freshly dead but some were still alive although showing obvious distress. Signs of a poison operation planted along the beach naturally caused the observer to think that contact with poison was the obvious cause of the fish dying. However, if poison were involved we would have expected to see a large quantity of smaller fish like bullies or smelt floating dead as well.

By Michel Dedual

Michel is the Fishery Area Scientist

Hailing originally from Switzerland, Michel is also a very enthusiastic angler.

Could these floating trout have been the results of a disturbed poaching operation? This scenario doesn't stack up either because it is unlikely the fish would be half dead and without any obvious netting marks.

In the absence of a water sample and the carcass of one of the dead trout, we are not in a position to positively ascertain the cause of death. However, it was a strange coincidence that the sighting of these dead fish occurred almost immediately following a violent hail storm that swept across the northern lake accompanied by a trail of lightning. Since lightning is known to kill fish, especially in fish farms, we believe that electrocution by lightning is the most plausible explanation for the death of these trout.

What is Lightning?

Physics tells us that lightning happens when a cloud builds up a separation of electric charge. The bottom of a cloud (facing the earth) has a negative charge while the top expels positive charges up and out into the upper atmosphere. The cloud therefore has extra electrical energy on the side facing the earth, and eventually it dumps this energy down towards the earth, which tends to have

a positive charge compared to the cloud's underbelly. When the strike begins, a series of small pulses of electricity comes down from the cloud towards the earth at high speeds (about 50,000 km per second). These pulses are called steps, and the trail they pulse down along is called the step leader. The air is ionised along the step leader and so this column of air becomes a good conductor of electricity. When the step leader (which is so faint that it is practically invisible) hits the earth, a "conducting wire" of air is set up from the cloud to the earth. Now charge can flow, but the first charges to move are the ones at the bottom of the wire (near the earth). So, the strike (which is now visible) starts at the bottom (the earth) and runs upwards from the ground!

In a few milliseconds a lightning strike discharges an electric current, having an intensity from 10,000 to 25,000 amperes and a voltage of 10 million to 100 million volts. At the same microsecond the temperature of the air on the lightning trajectory will rise up to 30,000°C. This instant heating causes the air along the lightning's path to expand. The air then quickly cools, and contracts. The rapid outward and then inward movement of air creates waves in the air. These are sound waves, or thunder. Often thunder rumbles because the sound from different parts of a lightning strike reaches you at slightly different times.

Where does Lightning Go?

A lightning strike takes the easiest path (of least electric resistance) to the earth. When lightning hits water nobody knows exactly how far the electricity travels. It appears that the charge spreads out as an expanding sphere and so it would weaken rapidly as the area of the sphere increases. However, considering the awesome power of the light-

ning it is likely that at some distance from the lightning strike (depth), a fish could be electrocuted and killed. Large fish, which draw more electricity than small fish, may be killed selectively. Similarly the deeper the fish are below the surface of the water, the safer they will be.

The amount of electrical current necessary to cause death depends upon many factors, but especially the electrical resistance of the water. The electrical resistance of the water depends on the amount of "salts" present in solution. If the water is poor in salts as occurs in l'au po, then the fish may become the easiest path and the electricity will go through the body of the fish rather than through the water. In waters rich in salts like the sea, the current will often flow "around" the fish, since the water in this case provides the path of least resistance.

What Does Lightning Do to Fish?

The entrance and exit points of the current are accompanied by localised burns because of the high rise in temperature. However, scorched skin or burns are not usually present unless the fish comes into direct contact with the electrical device (such as a shocking probe). Burns are never evident after lightning strikes.

In the body the different tissues types have different resistance; in decreasing order of resistance are bones, fat, tendons, skin, muscles, blood and nerves. Because the blood is a good conductor of electricity every organ in the body may be affected by electricity flowing through its blood system. There can be massive internal haemorrhage close to the fracture, and numerous small haemorrhages spread throughout the body. The internal organs appear very reddish or congested. There may also be blood pooled around the heart and numerous blood clots present.

In humans the worst path for current to flow is "hand to hand" because it passes through the brain region and is lethal in 60% of the cases. The path from a hand to a leg is not so severe, killing in only 20% of cases.

For a fish this means that its position in relation to the path of the lightning may affect the severity of the injury. If the fish is parallel then the current will go mainly along the skin. But if it is perpendicular then the

current may go across the body. In such instances the heart is the most likely organ to be affected because of the volume of good conductive tissue (blood).

Electricity can also damage the skeleton of the fish in different ways. The brutal muscular contraction following electrocution can cause fracture or dislocation of the bones. This bone damage is obvious on X-ray photographs. The fractures are usually evident below and just posterior to the dorsal fin. This is the centre of flexure of the tail, and the largest muscular forces are exerted here. Consequently, this is the common site for the vertebrae to break. The bone can also be damaged by the destruction of its blood system. Lightning can also affect mammalian eyes, and cataracts are the most common result of exposure to the intense brightness of lightning. Cataracts usually appear between four and six months following the exposure. We are, however, not aware of any cases where lightning has been proven to have caused cataracts in fish. The fish that survive the experience of being hit by lightning generally have an increased respiratory rate, will feed poorly and take on darker pigmentation. Other fish, however, appear perfectly normal.

Violent late afternoon storms were a feature of January but this is the only incidence of possible lightning strike that we are aware of. However we would be very interested to hear from people witnessing floating fish after such storms. The diagnosis would be greatly improved if you could collect and preserve by freezing affected fish. Indeed, any time you observe large numbers of dead fish please collect a sample and contact us immediately.

Nature, Nurture & Nutrition

by Cam Speedy

Cam co-ordinates animal pest and threatened species management for the Tongariro Taupo Conservancy. Cam and his team also oversee weed management and habitat monitoring

Deer herds are hugely influenced by their environment. As deer try to survive in the wild, they change and adapt according to the environmental conditions that prevail. This article looks at the role nutrition plays in shaping a deer herd.

Deer are very adaptable creatures. Their ability to modify their form and behaviour to suit the prevailing environmental conditions makes them one of the more successful groups of modern-day mammals throughout the world. Within New Zealand, where deer have been introduced to an unfamiliar environment, we see huge regional variation in deer that are the same species. Deer have been here only a 100 years, and they continue to actively adapt to our New Zealand conditions - both behaviourally and anatomically. While some of the variations we see, espe-

cially within our red deer herds, can be explained by the different genetic backgrounds of the animals originally liberated, within more geographically distinct regions much of the variation is related to environmental factors, factors that operate upon how a deer's genetic make-up actually expresses itself. Of all the many environmental factors that can have an influence on an animal's physical form, nutrition is probably the most significant.

What a deer eats, or more importantly what it can find to eat, makes it what it is. I believe genetics plays a relatively minor role in comparison. In the case of farmed deer, nutrition is tailor-made. Domestic deer are given access to the right food at the right time of year, or as best the farmer can achieve, for most of their lives. But out in the bush it is much more of a look-after-yourself situation. Nutritional requirements of deer vary considerably from season to season, and between animals of different ages and sexes. If the habitat within a herd's home range does not provide all the essential components for a full lifecycle, the herd will suffer. Body size and weight, antlers in males, and reproductive success in females, may all be compromised depending on what is missing.

The critical time for a stag is the period from late autumn to early spring. Stags are run down from the rut at the end of autumn and they must overwinter in good condition if they are to be competitive next year. That is why high-energy (carbohydrate) autumn feed like acorns and other mast is such a vital part of deer habitat in the northern



The Tongariro National Trout Society

The centre is managed by the Department of Conservation in association with the Tongariro National Trout Centre Society. The role of the Society is to promote and foster public interest in, and understanding of, the Taupo fishery, other freshwater fisheries and freshwater ecology through development of the Trout centre wider promotion and education programmes.

To join the Society, fill out this form and send \$25.

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*Opposite: This large sika stag represents the sort of quality that can be found in the front country.
Photo: Lance Barnard*





A typical mature stag
from the central high
country - carcass 270kg.
Photo: Sean Speedy

hemisphere environments where deer evolved. If a stag is in poor condition when spring arrives, he will spend much of the antler growing season playing catch-up replenishing his body condition and his antlers will grow poorly. Once antler growth starts, stags need access to good supplies of protein. Up to 80% of growing antler ("velvet") is protein. This means a stag must have access to good sources of nitrogen and protein through this period (legumes like clover, lucerne and *Lotus* are ideal). The major chemical components of hard antler are calcium and phosphorus (about a third by weight each) so access to soils with good phosphate levels and high pH is important too. So important is it for male deer to grow big antlers to attract and defend a mate that nutrient is even activated from the bones to boost production if needed. In the gigantic Irish elk (*Megaloceros*, which is now extinct), this actually caused a type of male osteoporosis! There are a dozen mineral elements other than phosphorus and calcium required for antler development. Some are needed in only minute quantities but play a vital role in this incredibly rapid tissue growth process. Wild deer must source these minerals and trace elements from the

forage available within their home range. However, plants can't take up these compounds if they are not present in the soils, so the bottom line from a nutritional perspective is that some environments will just never grow big antlered stags, no matter what genetic qualities the animals may have.

Once a stag's antlers, however big, are grown out in late summer, there are many weeks to laze and feed up before the rut. Late summer is a cruisy, laid-back period for a stag. In contrast, this is a very important time for the hind, especially for those that are raising a fawn. This critical period can often influence whether a hind will cycle during the rut. Late summer/autumn drought conditions can be a problem in some environments but generally most deer herds in New Zealand benefit from an autumn flush that lifts hind condition and, while the stags are busy thinking about "love", the hinds catch up.

Another critical time for hinds is late spring when fawns are born. The hind must have access to good forage at this time to produce milk. If nutrition is poor the fawn will be a major drain on the hind as, like the stag, she activates nutrients from her own body to



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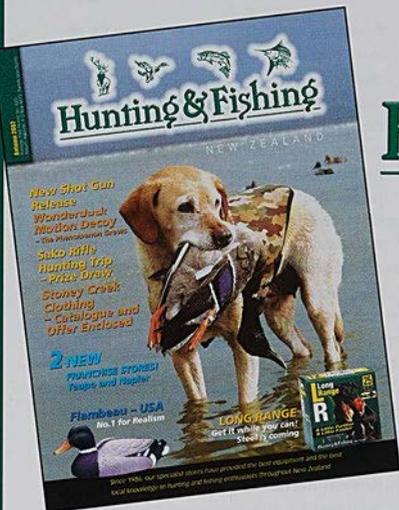
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Paul (Wooly) Woolhouse

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Guns & Tackle has been the fastest growing outdoors business in Hawkes Bay since current owners Paul and Kris Woolhouse took over in 2000.

Paul (Wooly, as most people call him) already offers a huge selection for the hunting and angling enthusiast and sees joining the *Hunting & Fishing NEW ZEALAND™* franchise as a way to expand even further.

The store, which is easily located on the seaward side of SH2 as you enter Napier from the North, has one of the best displays of mounted game and trophies you are likely to encounter. Inside you'll also find another reason this business is so popular - friendly, specialist staff! While there are no egos, you need to know that Paul is a lifetime angling and hunting enthusiast specialising in saltwater boat fishing, trout fishing and duck hunting.

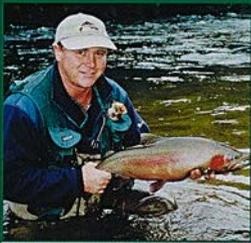
Store Expansion - Taranaki

Taranaki - News

Taranaki's new owners relocated this franchise into bright new premises, doubling the size of the store to allow a much bigger selection. Located two doors west at 178 Gill Street, check out the new expanded selection and displays.



New Franchise Taupo



Mike Stent - a current member of the New Zealand Fly Fishing Team.

Taupo

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Taupo now has its own *Hunting & Fishing NEW ZEALAND™* franchise. Proprietor Mike Stent has steadily built this business since he purchased it in 1993. Last year the store was expanded to enlarge the outdoor clothing section and fully display the comprehensive range of fly fishing equipment.

Mike has joined the *Hunting & Fishing NEW ZEALAND™* franchise as a further step forward and his customers will benefit immediately as he plans to expand his firearm department, carry a basic/essential range of saltwater tackle, increase his selection of backpacking/camping - outdoor equipment, and to offer *Hunting & Fishing NEW ZEALAND™* brand clothing.

If visiting or passing through Taupo this autumn or winter, Mike and his team offer a wealth of knowledge on what's happening in the lakes, rivers and mountains around Taupo. Mike's expertise as an angler is legendary. He guides and is a current and long-term member of the New Zealand Fly Fishing Team.

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compensate (same trick, different function - perhaps that is why a hind looks for a stag with big antlers to mate with?) As the fawn grows through summer it must continue to access good milk and forage supplies if it is to grow large enough to survive its first winter. Many fawns do not.

So we can see from this brief summary that it is not just macro-nutrition (something to chew and digest) that is important to deer in a nutritional sense. The relative proportions of protein, energy and minerals in what they chew are also important to different deer in different seasons. At a micro-nutritional level all deer need access to the right combination of minerals and trace elements for optimum growth. The chemical make-up of the soil and the types of plants available to deer in a given environment are hugely important in how they actually express their genetic make-up.

Sika deer are an especially useful example of how nutrition can influence genetic expression under different circumstances. The central North Island sika herd has a reasonably discrete range of some 8,000 square kilometres. Across that range we see an almost unbelievable variation in deer size, shape, colour, antler form and general appearance. This is even more remarkable when one considers that the current population of an estimated 15,000 animals was founded on as few as five released animals. The gene pool was not large. While sika have hybridised with red deer to a certain degree, without doubt the central North Island high country itself is responsible for much of the variation we observe in this herd today, in particular the local soils and plant communities that dictate deer nutrition.

Across the central North Island sika range, a complex mosaic of habitats provides a variable mix of good and bad habitat qualities. Generally, this range has leached porous, mostly volcanic ash and pumice-based soils which are acidic (this has a major influence on calcium and phosphate availability). The region is also naturally deficient in many minerals and trace elements like copper, selenium and cobalt. Some plants adapted to survive in low fertility environments have the ability to concentrate the limited minerals and trace elements available from

their surroundings and to store them for use as required. No prizes for guessing which plants the deer like the most. These plants were the first to disappear from the browse tier when deer went through their initial post liberation eruptive population peak in the 1930s and yet it was probably these very plants that allowed those first few generations of deer to do so well. The problem is that the browsing regimes imposed by those first few generations were not sustainable. The accumulations of minerals that plants may have taken a lifetime to take up from poor soils would have been removed in a very short time by the rapidly expanding population. The result is that today much of the browse tier in the central North Island high country contains plants which now offer rather poor nutritional value to deer. Not surprisingly, the sika deer which occupy the central and western part of their range are small (mature hind carcass weight <20kg); they grow slowly (some hinds don't start breeding until four years old); and antler development is poor. Deer condition fluctuates greatly but general condition is poor and both reproductive rates and fawn survival are relatively low. This part of the range is generally more remote with rugged terrain and dense habitat that sees fewer effective hunters. Average life expectancy for a hind that survives her first winter as a fawn is consequently almost twice as long as a hind living in the more accessible front country. Despite getting older, they don't get bigger!

In the front country up against the lower altitude forestry and pastoral landscapes to the north and east, the habitat is more diverse. The growing season starts earlier and lasts longer and the deer may even have access to legumes like clover, *Lotus* and (for very brave deer) green crops during the growing season. Deer with access to such nutrition do extremely well. This is reflected in deer that are generally in good condition, grow faster (most hinds are breeding at three years old and some at two years) and have larger body weights (mature sika hind carcass up to 35kg); while stags have stronger antler development (look how many top sika trophies come out of areas like Poronui, Clements Road or Puketitiri). To the south, the montane shrubland habitats around the "Gentle Annie" may look

marine sediments add considerably to the mineral content of the soils here. This is an area that grows very good deer, deer that grow fast (many hinds breeding at two years of age) and reach relatively high body weight (sika hind carcass weights up to 45kg), while the stags again show strong antler development (c.f. the "Sparrowhawk" sika.) This highlights the importance of good soils in deer performance. If the right building blocks are available, a deer is better able to reach its full genetic potential.

Most of the best sika stags shot each year in the central North Island are taken from either the country that borders the developed land to the north or east, or the sheep and cattle country to the south. The fact that the south produces the biggest antlers at a younger age is due to the greater levels of calcium and phosphorus in the soils. Few (if any) big stags come from the central or western parts of the range. I guess it comes as no surprise that the habitat features that grow good timber, meat and wool also contribute to higher quality deer. However, the risks of living nearer to human populations are much higher for deer in the front country and life expectancy is

greatly reduced as a result. There are obviously a few that manage to escape the gauntlet of rifles, spotlights and dogs, at least for a few years, and it is some of these we see at the "Sika Trophy Competition" each year. However, the average life expectancy of sika deer in the front country is less than 2.5 years for stags and just over 3.5 years for hinds, very different from that in the high country. The sika example, presented here in a rather simplistic form, provides a useful overview of how and why nutrition at both macro and micro levels influences not only how deer grow and look but also how they perform. One thing should be very obvious from this overview: productive, sustainable habitat which provides for the complex needs of a deer herd through a full annual cycle is a fundamental requirement for quality animals. Deer body weight, reproductive success and antler quality are useful barometers for the health of the habitat in which a herd lives because whatever the genetic origins of a deer, its genes will not express properly unless the building blocks are available.

North Island PEST Fish Survey

In the last issue of *Target Trout* (#38) we highlighted that a nationwide survey to describe the distribution of pest fish species was about to begin. A four-person team led by Liz Keys is currently working its way around the North Island and so far the team has visited the Wairarapa, Wellington and Palmerston North regions.

In the Wairarapa region, Lake Wairarapa and its associated waterbodies turned up abundant numbers of perch, goldfish and rudd. We also found silver mullet in the Oporua floodway and tench in the Kourarau dam.

In the Wellington region koi carp and perch were caught in Whitby lakes and tench (mainly juveniles) in the lower Whitby pond. Forest Lakes (which include Lake Waitara and Lake Kapuherehere) had high numbers of tench and perch and in addition rudd were found in Lake Waitara. Apparently this lake is

known to have some of the best tench fishing in New Zealand. One lake that was searched but appears to be free of pest fish is Lake Pencarrow. We found nothing but native fish, here's hoping it stays that way!

Sites fished in the Palmerston North region also had their fair share of pest fish. The wet pond at Massey University had thousands of juvenile perch, goldfish and one fish that appears to be a koi/goldfish hybrid. We were also keen to explore a possible sighting of koi carp in Esplanade Lagoon but due to large numbers of waterfowl on the lake at present, we were unable to set our nets. One female koi carp was also caught in Lake Papaitonga.

The team is now heading to the Whanganui/Taranaki region for another 10 days of fishing (lucky for some) and then on to East Coast/Hawkes Bay as we work our way up the Island.



WAIPA

TRAP RESULTS - 2001

By Rob Marshall

Rob is the Fishery Area Ecologist and is responsible for the fishery monitoring programmes.

It seems like only yesterday when we finished constructing the Waipa trap and began trapping fish. In fact it was four years ago. In this time 16,071 rainbow and 1969 brown trout have been measured and clipped and 10,600 hours of staff time have been spent to process the fish and maintain the integrity of the trap. The trap has survived numerous floods including the third and fourth largest floods (in July 1998) since flow measurements in the Tongariro River began in 1957. As you may recall the trap didn't come out of these floods totally unscathed but the damage was quickly repaired and trapping has continued unhindered ever since.

At the beginning of each year we review the results from the past year's trapping. For instance, the average size, weight and condition of the fish and the total size of the population are compared to those of previous years. These are the bread and butter results of any trapping programme. Simply knowing how big and healthy the fish are tells us a lot about the fishery and what is acting upon it. Similarly, knowing how many fish run the river each year is a very good indicator of the likely size of the overall spawning run across the fishery.

In this article we present last year's trapping results and compare these to previous years. We also present a breakdown of the population structure which we can now determine after four years of trapping, and discuss the timing of the rainbow and brown trout runs in 2000 and 2001.

Table 1 shows the number of trout running the Waipa River each year. The number of both rainbow and brown trout trapped since 1998 has increased, with the peak run of rainbows in 2000 and browns in 2001. Since 1998 there have been strong runs of fish in the river which is indicative of successful spawning and survival. It is interesting to note the large number of fish in 2001 given that most of these fish would have been produced in 1998, a year of low runs and relatively unstable conditions for trout production.

Table 2 presents the length, weight and condition of fish trapped since 1998. Such numbers are very typical of what we expect from the Taupo fishery, except for 1998 when the average weight of rainbow trout was half a kilogram greater than in 2001. When you consider that last year the average rainbow trout weighed 1.88kg (greater than 4lb), you can

Table 1. The number of rainbow and brown trout running the Waipa River since 1998

Species and sex	1998	1999	2000	2001
Rainbow female	1949	3666	4109	4229
Rainbow male	1151	2451	2707	2261
Rainbow Total	3100	6117	6816	6490
Brown female	312	287	413	381
Brown male	257	157	257	292
Brown Total	569	444	670	673

Table 2.1b average length, weight and condition of trout trapped in the Waipa trap since 1998

Average length (mm)	1998	1999	2000	2001
Rainbow male	579	528	542	537
Rainbow female	581	525	542	541
Rainbow Total	581	526	542	540
Brown male	647	591	616	627
Brown female	622	586	593	600
Brown Total	633	588	603	612
Average weight (kg)	1998	1999	2000	2001
Rainbow male	2.29	1.68	1.85	1.77
Rainbow female	2.48	1.75	2.02	1.94
Rainbow Total	2.4	1.72	1.95	1.88
Brown male	3.32	2.56	2.84	3.08
Brown female	3.17	2.59	2.75	2.89
Brown Total	3.26	2.58	2.79	2.97
Average condition factor	1998	1999	2000	2001
Rainbow female	45	44	46	44
Rainbow male	42	41	42	41
Brown female	47	46	47	48
Brown male	45	44	43	45

appreciate the size of fish in 1998. As discussed in earlier issues of *Target Taupo*, this increased average size likely reflected temporary changes in the lake caused by ash inputs from the 1995 and 1996 eruptions of Mount Ruapehu.

Now that we have four years of trap data available, it is also possible to look at the structure of the population, through the use of fin clips. Every fish trapped on its way up the Waipa Stream has a portion of one fin clipped to identify it as having run the river that particular year. Only paired fins are clipped so the swimming ability and balance of the fish are not affected.

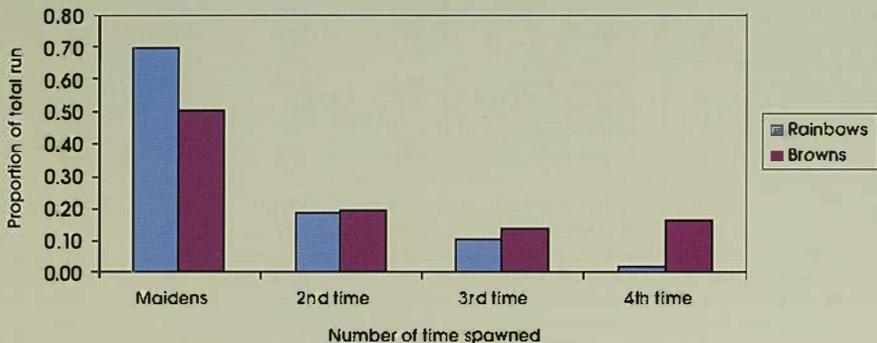
In 1998 every fish trapped had its right pectoral fin clipped. Each year the fin clip is changed so that the total number of years a fish has spawned can be established by the total number of clipped fins it has. For example, in 1999 the right pelvic fin was clipped and last year the left pectoral fin was used. Check the fish you catch and you might see one of these fin clips. New or fresh clips are quite obvious as half the fin is missing. Old clips are more difficult to identify as over time the fin grows back to a near normal shape. If you look carefully though you will

be able to see a distinct line or scar across the fin running perpendicular to the fin rays.

Using the presence or absence of fin clips we are able to analyse the structure of the spawning population in 2001 as graph 1 illustrates. Maidens or fish that are spawning for the first time in their lives represent the majority of the population. These are largely the progeny of fish that spawned in 1998. They lived for the first 9 to 18 months of their lives in the Waipa and Tongariro Rivers, then made their way down to Lake Taupo where they fed and grew to maturity, before running back up the river at approximately three years of age. These maidens are obviously a very important component of the fishery.

The next category of fish are those that have spawned twice. As you can see most fish only spawn once and then die. However, some do survive to spawn again and in 2001 repeat spawners made up approximately a third of the rainbow run and half of the brown run, which highlights their importance to the fishery.

The graph reveals some interesting differences between the rainbow and brown trout



Graph 1. Breakdown of the 2001 Wāpā rainbow and brown trout run by the number of times each fish had spawned.

runs in 2001. It is apparent the differences in proportion of previous spawners in the relative populations is due to the numbers of fish spawning for the third and fourth times. Sixteen percent of brown trout trapped were spawning for the fourth time compared to only 1% of rainbows. These fish are likely to be around seven years of age, which is considered fairly old for rainbows but not so for browns.

It is common to think of rainbow and brown trout as very similar fish. After all, they live in the same lake and are both called trout. However, this is almost where the similarity ends, as the above results begin to show. Not only do rainbow and brown trout have different post-spawning survival rates, they differ in their schooling behaviour, physiology, catchability, growth, size and genetics. In fact brown trout are more closely related to Atlantic salmon than they are to rainbow



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trout which are in turn more closely related to Pacific salmon. This is an important point to remember when attempting to target brown trout with angling methods normally used to catch rainbows.

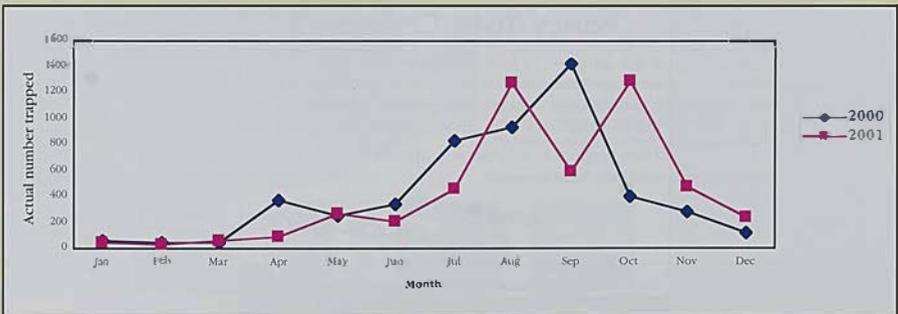
At the end of each spawning migration those rainbows and browns that survive spawning return to the lake. They are the kelts or slabs that you catch throughout spring and early summer that are in very poor condition after months in the river. Their entrance to the lake coincides with the migration of smelt onto the sandy shallows in preparation for spawning. The kelts gather in these areas to take advantage of the relatively easy pickings where they are also very available to anglers. It isn't long before many of them regain the condition lost and in fact sometimes it is very difficult to tell the difference between a maiden fish and one that has spawned before. The value of these kelts has been discussed in detail in issue 35 of *Target Taupo*, and the high incidence of repeat spawners in last year's trap run is a good example. Without them the run would have been much smaller.

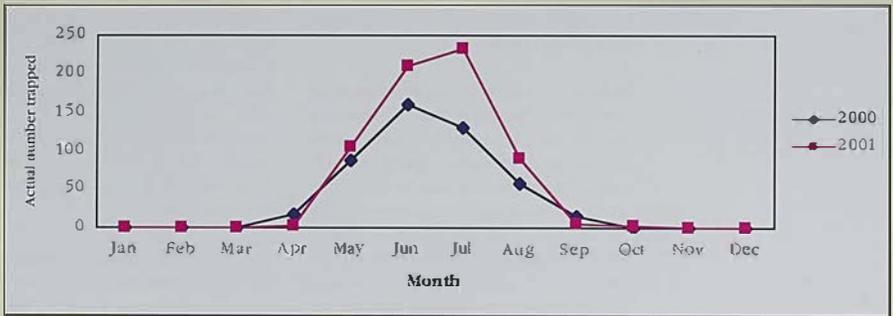
Graphs 2 and 3 illustrate the timing of last year's rainbow and brown trout run compared with 2000, and highlight the late peak in the rainbow run during October and the extended nature of the run right through to Christmas. When we consider that spawning was unseasonally late in 2000, this further emphasises just how late it was in 2001. This is likely to be due to a combina-

tion of the settled weather patterns and low flow conditions in the river during winter and the effect of the 1998 floods. With the 1998 floods destroying most of the early spawning that year, it is likely that the maiden fish produced were slightly younger than usual and therefore matured late, effectively causing a late winter run last year. Angler catch rates over winter reflected the timing of the run in the Waipa, with both the Tongariro and Tauranga-Taupo Rivers rising later than usual.

The Waipa trap is up and operating for 2002 and staff are enjoying a bit of a rest over the warmer, drier summer months. Things will no doubt hot up again (figuratively speaking) come autumn with the onset of winter snow and an increase in the number of fish running the river. The trap will hopefully survive another winter and provide us with yet more information about the fishery.

Graph 2. Timing of the rainbow trout run in the Waipa River - 2000 and 2001





Graph 3. Timing of the brown trout run in the Watpa River - 2000 and 2001.



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TV Programme Features Fishery Staff

By Rob Hood

Rob is one of the Taupo Fishery Area operations staff who undertake many of the field activities involved in managing the Taupo fishery.

Touchdown Productions with assistance from DOC is currently producing a series of programmes following staff at work throughout New Zealand. The Taupo Fishery Area was invited to participate and I was selected to be our (somewhat reluctant) "hero" for the three days of filming.

Most anglers are aware of our extensive monitoring and management activities, however the general public often have little understanding of our role in managing the Taupo trout fishery. For example, two commonly held misconceptions are that Taupo Fishery Rangers only check fishing licences and breed trout to stock the lake. We therefore took the opportunity to show the diversity of our operations to the general public and hopefully by doing so will improve the understanding of the fishery.

Whilst filming was generally about following me at work, a considerable effort was made by others in the fishery team to show the film crew some of our routine tasks, including drift diving, electric fishing, catfish monitoring, fish trapping operations and angler surveys. Filming generally was accomplished without too many problems. Waipa

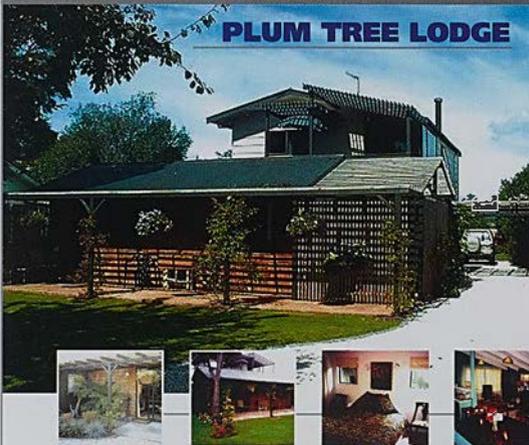
trap really came through with the goods and produced several good fish to film, which was very fortunate considering that we were filming in mid-November. The angler surveys also went well and as is usual, the many anglers interviewed were all found to be complying with the regulations (much to the disappointment of the film crew who seemed convinced that we were going to find poachers around every corner). I found the experience in dealing with the media an education though at times it was difficult to try and keep the action realistic without any embellishment creeping in. An example of this was having to spend several minutes declining (as politely as possible) to be filmed hugging a tree!

Whilst I have had to accept a bit of friendly ribbing, the occasional "Troy Dan", or "Ranger Robert Redford" remarks, I am confident that the 10 programme series will give a good insight into the wide range of work undertaken by the department throughout New Zealand.

At this stage the series is likely to air on TV 1 beginning 18 February.

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A Funny Old Season

By Glenn Maclean

Glenn is the manager of the research and monitoring programs in the Area, and is editor of Target Taupo.

Table 1 Average catch rate by month of anglers interviewed on Lake Taupo, October 2001 to February 2002 (some data still to be analysed).

The fishing this summer has proven a real mixed bag depending on when and where anglers fished and not helped at all by the prevailing weather over the holiday break. The average catch rate of anglers interviewed between October and February was 0.36 fish per hour or one fish every 2.8 hours. This is a very good catch rate for Lake Taupo yet we know there will be some of you reading this thinking this is not the quality of angling experienced. So what was going on?

If we break the lake catch rate down for anglers fishing in the north and south, a pattern emerges (Table 1).

	North	South
October	0.24	
November	0.36	0.76
December	0.40	0.55
January	0.10	0.31
February	0.17	0.23

In every month the fishing was better in the south and over the spring period it was outstanding. At the northern end though, the fishing was much more mediocre. We are

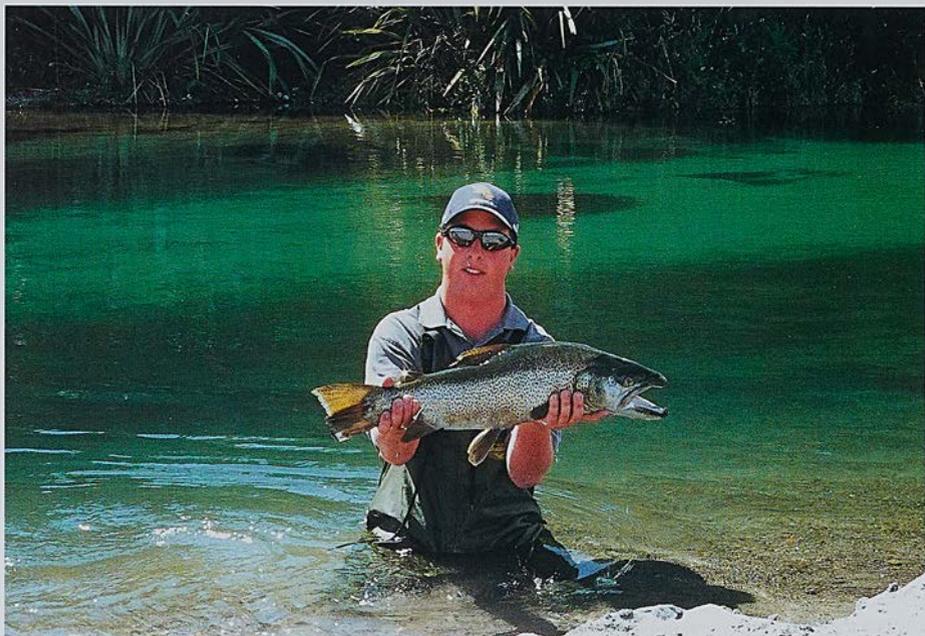
also aware from reports and surveys that the fishing in the Western Bays up to Christmas was very good though we don't have enough data to separate this region out.

The high overall catch rate is consistent with our acoustic survey results. We don't have a final estimate of the number of trout at this stage due to a computer hardware problem affecting our analysis package. This will be resolved shortly but having done the survey for many years I have a good idea of the result simply from the number of trout traces I saw on the 120km of transects surveyed. Last December two features were very obvious, there were a lot of fish in the south and west and a lot more large fish than normal well offshore in the open waters.

This result along with a consideration of the weather patterns last year provides an explanation for the second feature of the lake fishery this summer: the very variable quality of the fish. In *Target Taupo* #35 we discussed the role of fish which spawned the previous winter (kelts) in the fishery. We highlighted that after spawning these fish drop back to the lake, where they encounter the shoals of spawning smelt on the sandy shelves and around the river mouths and so

From left Joos, Jo and Heather Hood each with their first trout ever. These were all caught last night before school, in Stamp Bay, in the first week of December. The rainbows held by Joos and Jo are characteristic of the warden fish this summer and were part of a wonderful week's fishing. Photo: Ross Hood





"I come to NZ and missed my annual fishing trip with my mates in Australia. The fish we usually catch weigh less than a pound. Wait till the boys see this."
James Boyd of Bendigo, Victoria with a prime Taupo brown from the lower Waitohimui, January 2005.
Photo Adam Wallis

can quickly recover condition. However their migration back down the river is very passive and to a large extent dependent on high flows to sweep them along. As we are all aware from the power crisis, last winter and spring were unusually dry. Not until December did high flows occur and many of the kelts were several months later than usual in reaching the lake.

This could cause two effects. Firstly, the fish which survived may be in even poorer condition by the time they reach the lake than normal and secondly, they have missed several months of easy feeding on spawning smelt and so simply haven't had the opportunity to regain condition by the time they are caught by visiting anglers at Christmas. These fish feeding vigorously close to the shore were easy to catch, so figured predominantly in angler's bags and resulted in a perception of poor quality fish. This was not helped by the lack of maiden fish in the catch, particularly in the north. The occurrence of maiden fish has been very unpredictable. They have been a much bigger component of the catch in the south and west, but even so there have been periods or locations where they have disappeared

completely only to suddenly appear in large numbers.

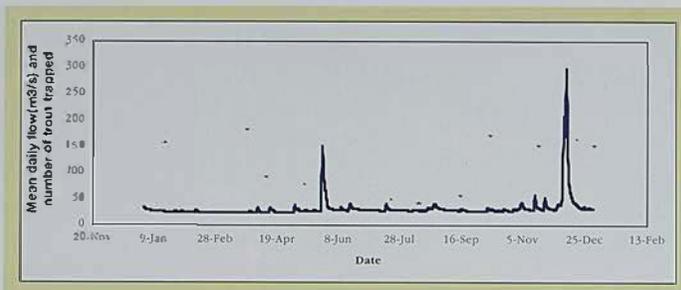
The acoustic survey provides a hint. It appears many of the maiden fish have been much slower than normal to move in from the open waters where they live as juveniles. We hypothesise that this reflects a subtle change in the functioning of the lake this summer, quite possibly as a consequence of the unusual weather (and as a consequence water and nutrient inflow) patterns.

The appearance of the maiden fish is also subtly different from that in recent years. Rather than being almost obese this year, these fish look like salmon, much more lean and fit. They are in great condition and when opened up almost pink with large amounts of fat lining the organs. Indeed, several long-time anglers swear they taste even better than normal! This subtle change in body shape is likely another reflection of recent changes in the functioning of the lake ecosystem.

As predicted, in amongst these fish are occasional fish of approximately 3kg. We expect some very good fish to be caught over the

Graph 1

Number of juvenile trout trapped each month and mean daily flow in the Tongariro 20 November 2000 to 13 February 2002



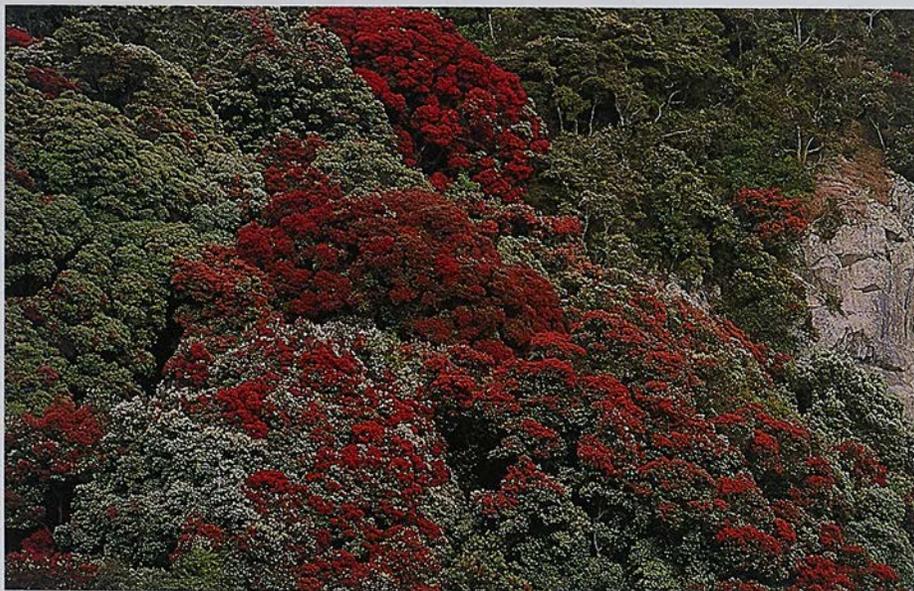
next few months. All in all the winter river fishing is shaping up to be very solid, perhaps even better than that. The strong winds over the Christmas break were a bane for anglers but a positive aspect is that the angling harvest was much less than it might have been. Similarly the maiden fish holding offshore have not been exposed to the usual angling pressure, and given the large numbers of fish in the lake the spawning runs next winter should be very strong.

The settled conditions over winter and spring in the rivers were ideal for spawning and subsequent juvenile survival. By early December our monitoring indicated the rivers were alive with fry. The floods in mid-December caused some concern though our monitoring (graph 1) indicates these did not

have a significant impact on juvenile numbers. Let's hope so. This monitoring is undertaken in the Tongariro, in which the floods were large but not excessive. It appears the floods in the other eastern tributaries, in particular the Hinemaiaia and Tauanga-Taupo, were much more extreme. The impact on these fisheries is likely to be more severe.

The fishing in Lake Otamangakau has been steady, characterised by fish of both species being in very good condition with a number of fish in the 3.5kg to 4kg range. However, we are only aware of a handful of fish exceeding the magical 4.45kg (10lb) mark. It will be interesting to see what shows up in the 'Te Whai'au trap run this winter.

Christmas anglers arrived too late to witness the stunning flowering of the pohutukawas on Motuhiko Island last spring. Photo: Glenn Hodson



Tongariro Forest Possum Control Summary

In September 2001 a large area of Tongariro Forest Conservation Area was poisoned with 1080 baits distributed by aircraft. Following is a summary of that operation and the results it achieved

What Happened?

DOC and the Animal Health Board (AHB) funded Horizons.mv to reduce possum populations within Tongariro Forest Conservation Area and some adjoining private land in September 2001. The AHB objectives were to reduce the incidence of Bovine TB in local cattle herds while DOC saw the operation as an important management action to protect the forest's many ecological values, including the Tongariro Forest kiwi population. The operation covered 19,980ha including almost all of Tongariro Forest Conservation Area south of the Mangatepopo and Wanganui Rivers, as well as a number of associated adjoining reserves around Raurimu and Owhango, and parts of the Timewai and Raurimu Landcorp Farm Blocks (see map).

How Did it Happen and When?

The objectives of the operation were to reduce the possum population to a level where fewer than 20 possums were caught per 1000 trap nights (2.0%) and rats and mice to near zero density. It was also anticipated that a large reduction in stoat density would occur as a result of the operation, benefiting kiwi chicks born through the 2001/02 kiwi breeding season.

Twenty millimetre cereal pellet baits containing 0.15% 1080 (by weight) were aerially broadcast at 3kg/ha over the operational area on 19 September. This followed 2kg/ha of non-toxic cereal pellet pre feed a week earlier. Baits were delivered by aircraft using navigational guidance systems to ensure baits were evenly distributed; that they were only dropped within the operational area; and that sensitive areas such as waterways could be specifically excluded. A printout of the flight lines where the toxic bait was actually dropped appears on the map.

All toxic baits were dyed green but the pre feed bait was not.

As a result of concerns expressed by the Owhango community, approximately 600ha of

its water supply catchment was ground treated with hand laid baits similar to those used in the aerial work. A small amount of aerial bait application occurred in the very headwaters of the water supply catchment. The Department is grateful for the co-operative way with which Owhango community representatives worked with the Department to resolve these issues.

Why was Possum Control required?

Possums are major vectors in the transmission of the livestock disease Bovine TB to domestic cattle and deer. Past experience has shown that maintaining very low densities of possums significantly reduces the levels of TB in domestic stock.

Possum browsing is also severely affecting the health of the forest types within the Tongariro Forest Conservation Area. Possum-palatable tree species like kamahi, rata, mahoe, live finger, pate, Hall's totara and *Pittosporum turneri* show clear evidence of possum damage. The operational area contains a nationally significant population of the threatened plant *Dactyloctenium aegyptium* (wood-tose), which is also severely affected by possum browse.

In addition to habitat destruction, possums, together with stoats, ferrets, cats and rodents, pose a significant predatory risk to a wide range of wildlife that live in the operational area. Tongariro Forest is the site of the Western North Island Brown Kiwi Sanctuary – one of only five kiwi sanctuaries nationally. A significant reduction in the possum, rodent and predator populations is likely to greatly improve the chances of the kiwi population recovering. A total of 32 radio-tagged kiwi were monitored through the operation and the fates of kiwi chicks born during the 2001/02 breeding season are currently being followed to determine the effects of the operation on increasing young kiwi survival. Tomits were also monitored before and after the operation and the recovery of rodent and stoat numbers is the subject of extensive study within the operational area.

Why Was This Method Used?

The method of aerial broadcasting 1080 cereal baits described above has been shown

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to be a very effective and environmentally safe form of possum control when undertaken by trained professionals. In June 1995 a similar aerial operation in Tongariro Forest (but using carrots instead of pellets) achieved a possum kill rate of greater than 90%, which provided protection from possum impact for almost five years. This is the only method able to cover such a large area cost effectively in a short timeframe while targeting both possums and rodents. The September 2001 operation is anticipated to provide six to eight years of protection from possum impacts. Rodent and seal populations are expected to recover within a year.

What Were the Results?

Pests

● Possums

Trap-catch monitoring of possum densities was undertaken both before (May 2001) and after (November 2001) the operation by private contractors. A total of 18 lines of 20 traps set for three fine nights were used in May 2001 for the pre-operational assessment. This resulted in an average of 60 possums being caught per 1000 trap nights, on traps raised off the ground to protect kiwi. After the operation possum monitoring involved 18 lines adjacent to the pre-operational lines (200m parallel), plus 16 lines of 10 traps in the 900ha water supply catchment (600ha of which were ground treated), all set for three fine nights. This resulted in an average post-operational trap catch of fewer than two possums per 1000 trap nights, again on raised trap sets. This is well below the target. Possum trap catch rates will be assessed at regular intervals over the next few years.

● Rodents

The numbers of rodents (rats and mice) leaving footprints in baited tracking tunnels with ink pads and blotting paper was also used to assess the rodent kill following application of toxic bait. The results from tracking tunnel assessments across the forest in both October and December suggested a very high level of rodent kill initially, however mice had started to increase again slightly by the December assessment. Rodents will be monitored twice annually over the next three years to determine how they recover following the operation.

Water Sampling

Water samples were taken at both the Owhango and Raurimu community water supply intakes prior to, during, and after the operation. No detectable trace of 1080 was found in any water samples analysed by Landcare Research at Lincoln.

Native Species' Monitoring

● North Island Brown Kiwi

There were 32 kiwi carrying radio transmitters in

Tongariro Forest at the time of the operation. All these birds are still alive five months after the operation. A total of 11 kiwi chicks hatched by radio-tagged breeding adult birds since the application of toxic bait have also been monitored. While five chicks have been preyed upon since stoats started to re-invade the forest in January, five chicks are still alive including one that is now larger than 1000g (a size where they are thought to be safe from stoats), suggesting the operation has had some benefit to chick survival. This compares with a normal year when less than 5% of chicks survive, the reason kiwi are sliding into certain extinction without management intervention. Kiwi will continue to be monitored as part of the Tongariro Forest Kiwi Sanctuary over the next four years.

● Tomtits

Tomtits are small insectivorous birds which forage for insects on the ground and in the canopy. In previous aerial 1080 possum control operations tomtits have been one of the more vulnerable non-target species. A total of 15 male tomtits were banded at two sites prior to the application of toxic bait one within the treatment area and one outside the treatment area. Two weeks after the operation, 15 of 15 birds were found still alive at the non-treatment site, and 14 of 15 were still alive where toxin had been applied. A second

method of assessing forest bird abundance was also used to assess tomtit impacts. This method could not detect any impact on tomtits either. Subsequent monitoring of tomtit nesting success shows high levels of chick survival in the forest following the operation. Nesting success will continue to be monitored over the next three breeding seasons.

● Other Outcome Monitoring

Over the next few years, DOC staff will be monitoring the recovery and fruit production of various forest trees such as hinau and pokaka, and threatened plants such as *Dactyloctenium*, *Pittosporum turneri* and mistletoe as a result of the operation. This monitoring will provide information on the longer term benefits of the operation to conservation values and provide guidance for future management.

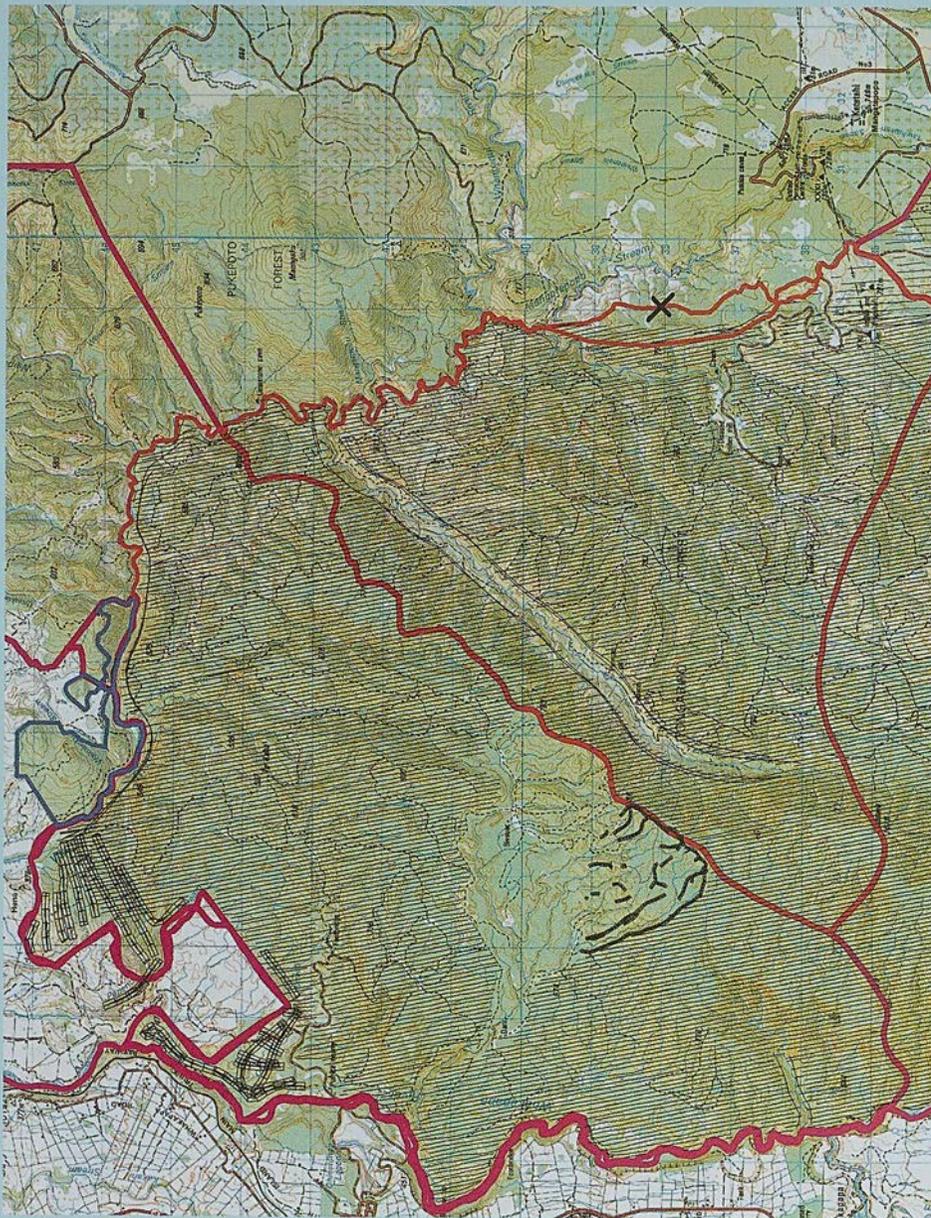
Deer By-Kill

Large numbers of dead red deer were observed following the operation, possibly due to the prefeeding, the long period of settled weather while toxic baits were on the ground, the timing of the operation, and perhaps the larger (20mm) baits used. Small numbers of deer have been seen throughout the forest since the operation.

Kiwi chicks like this one are unlikely to survive to adulthood without human intervention.
Photo: Rainbow NZ



Map of Tongariro Forest operational area showing flightlines from the aircraft GPS systems where toxic baits were actually dropped.







Tongariro National Trout Centre Society

Tongariro National Trout Centre Society News

By Graham Hamilton,
Chairman of the
Building Committee,
TNTCS

Visitor Centre Nearly Complete

In partnership with DOC, the society has a plan to cover the next decade. The objectives of the plan are to develop a facility to provide:

- Information of interest and practical value to anglers and the public about the Taupo fishery, including its ecology, history and use
- A picture of the Department's fishery management and research activity
- An educational role to inform young New Zealanders (and others) about the freshwater environment and trout fishing.

Since 1983 \$280,000 has been spent by the Tongariro National Trout Centre Trust, Tuangi Lions and the local Rotary Club in establishing the Centre. Grants of \$53,000 were also provided. The next stage of the plan was to build a visitor centre to include an auditorium and advocacy displays. The TNTCS has taken over from the old Trust and the first task was to purchase an existing workshop building while putting in place a licence to occupy the site. Local Taupo architect Fraser Cameron, who recently gained a top award for the reconstruction of the viewing chamber (the original was destroyed by flooding) showing trout in a natural spawning stream was given the brief to design the new visitor centre.

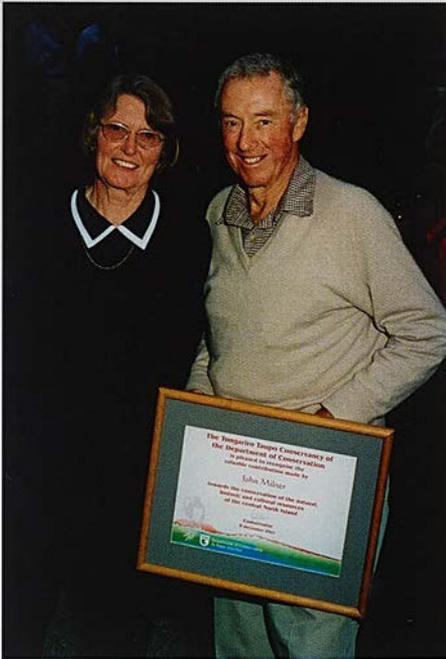
In November a contract was signed with Stanley Construction Limited, of Matamata, at a cost of \$171,800 to carry out the work. A tourism grant of \$50,000 along with \$25,000 from the Lottery Grants Board assisted with funding. The extremely wet December certainly let the builders know what a waterlogged environment was like! In spite of the weather, by the end of December the job was 30% completed and since the holiday break the weather has allowed very good progress to be made towards practical completion by early March.

It is pleasing to see already how well the building fits with the natural beauty of the surroundings and once the landscaping, which includes local stone is completed it will be a welcome addition to what is already an outstanding facility. Planning for the advocacy and interpretive display area is well advanced under the guidance of Scott Lee and his subcommittee.

Most folks are aware of the open fish-out days in which children are taught to cast and allowed to catch a trout which is weighed and measured with a certificate being issued. Last year 1500 children took part. In addition 2800 children were involved in school visits. To assist the dedicated volunteer members and DOC rangers a full-time teacher is to be sought under the LEOTC (Learning Experience Outside the Classroom) scheme to further enhance the educational opportunities offered by the centre.

Future projects include a simple shelter for use by busloads of children on wet days and the construction of a 1930s' angler's cabin. Like the fishery the centre is unique in New Zealand.

and while a local attraction it is considered, by those of us hooked on trout fishing, to be of national importance. Improved road signage by Transit is attracting more local and overseas visitors. As a Taupo licence holder please take time out on your next trip to wander around the Tongariro National Trout Centre and experience first hand what is on offer, then take the positive step of becoming a member.
Tight lines.



As of early February we are thrilled to have the following local businesses as Benefactor Members:
 Anglers' Paradise Resor:
 Bridge Tongariro Fishing Resort and Conference Centre
 Extreme Backpackers
 Grahm Pyatt Guiding Services
 Parklands Motor Lodge
 Southern Lake Taupo Adventure Golf
 Tokaanu Lodge Motel
 Tongariro Realty - First National
 Tongariro River Motel
 Turangi Smokehouse
 Tuangi/Whanau RSA
 Tongariro Lodge
 Judges Pool Motel
 with particular mention of Anglers' Paradise Resor: whose \$500 contribution was gratefully received.

TNIC Society Chairman, John Milner, accompanied by wife Val, was the delighted recipient in December of a Conservation Award from DOC for his many years of dedication in the Children's Fishing Days and in getting the society and centre up and running.



This sequence of photographs shows the conversion of the former workshop into the new visitor centre



Indexing the Waipa Spawning Run

By Michel Dedual and
Glenn Maclean

The Taupo fishery, like any other fishery, involves two key elements: a population of trout and anglers to fish for them. The fish left to their own devices will adjust to the conditions as they have done for millions of years before humans appeared on the planet. Providing fish have access to good quality water in sufficient quantity they'll survive. However, we influence the environment in all sorts of ways and the better we understand the biology of the fish the better we are able to protect their requirements. Of course the amount of fish that are taken by anglers can play a key role in the persistence of the species. Many species worldwide, especially marine, have been over-exploited almost beyond repair.

It is important to understand that even if the quality and quantity of water remain constant, significant variations in fish numbers will occur naturally and we will have good and poor years. Such fluctuations are typical of a wild fishery. As long as the production of fish is sufficient to produce a surplus of fish over that required to sustain the fishery, this surplus can be harvested by anglers and the fishery will remain in good health. The fishing pressure as indexed by the number of licences sold (graph 1) increased until the late 1980s and has fallen somewhat since. It is difficult to make any prediction of the trend of fishing pressure in

future. However, even if the number of anglers doesn't increase further we expect an increase in harvest caused by the ongoing improvements in fishing technology and knowledge. This scenario becomes even more serious if increased fishing pressure is accompanied by a deterioration in water quality or quantity with a subsequent decline in trout production (numbers). Unfortunately or fortunately depending on how you look at it, fishing success does not decline in direct proportion to the decline in fish numbers. Without additional controls the harvest will be a greater proportion of the total production when trout numbers are low, further exacerbating the impact.

To manage the fishery efficiently we need to know how many fish are spawning, how many juveniles are produced, how many fish reach maturity in the lake (and are available to anglers), and how many are caught. The more years we collect this information the better we will understand the relationships between the trout population and anglers and the better we'll be at managing the fishery. We undertake a number of monitoring programmes to collect this information but one of the key components is the characteristics of the annual spawning run.

For the past four years the number of fish spawning in the Waipa Stream has been recorded. This data provides us with some



Graph 1: Total number of Taupo fishery licences sold 1950/51 to 2000/01 season

By trapping the spawning run in the Whitikau Stream in 1995 we were able to calculate the total rainbow run in the Tongariro that year at 60,000 fish. Photo: Glenn Maclean



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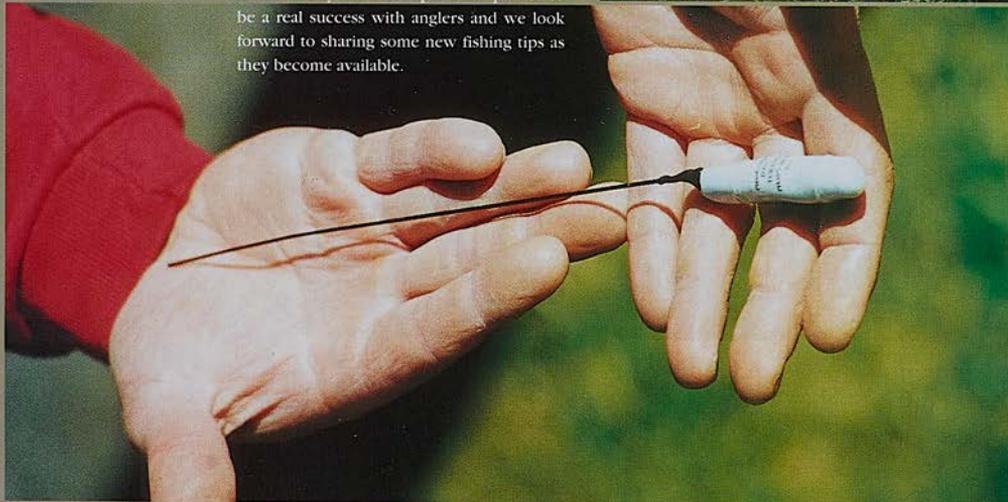
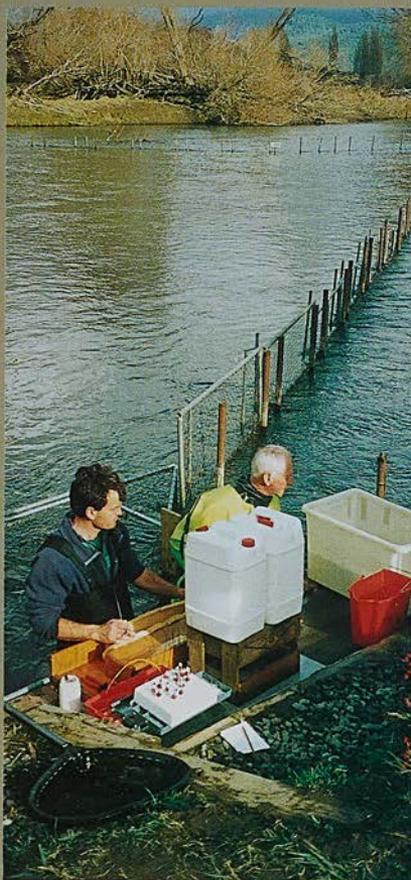
very valuable information about the variation in fish numbers that can be expected from one year to another. The data also provides us with information on adult survival after spawning, overall condition and size of the fish, sex ratios, residence times, and so on.

However, if we could index the Waipa run to that of the whole Tongariro run, this would provide us with even more valuable information. The Tongariro is the single largest spawning run in the fishery. In 1994 through to 1996 we successfully attempted to index the Whitikau run (another tributary of the Tongariro) to the Tongariro but at considerable cost. In a heroic effort we tried to install and maintain a trap in the lower Tongariro river. We learned the hard way that maintenance of such a trap was not an option, even to trap just a sample of fish. Instead we caught 92 fish in the lower river by angling, which were fitted with radio tags and their progress followed. Of the 52 tags we could track to their spawning sites, 12 went into the Whitikau Stream. In the same year (1995) we operated a fish trap on the Whitikau Stream, trapping 11,140 rainbows. Assuming

Glenn Maclean (left) and Norrie Ewing prepare to insert a tag into a rainbow trout in the lower Tongariro River 1995

23% of the total Tongariro run used the Whiti kau Stream (and making allowance for the angling harvest which was also measured) this equates to a total Tongariro run of 60,000 fish. However maintaining a fish trap in the Whiti kau Stream was in itself a major task and in 1996 it was destroyed in a major flood. We had an estimate for the Tongariro run for a single year but we recognised that using the Whiti kau Stream as a long-term index of this run was not a practical option. As a consequence we turned to the smaller and more manageable Waipa Stream, the next significant tributary upstream of the Whiti kau. We have now successfully trapped the Waipa Stream since 1998. Given the long-term viability of monitoring this run, we intend this winter to index the run to that in the Tongariro, using a similar methodology as was applied to the Whiti kau. One slight difference is that we intend to tag the fish at the delta rather than in the lower river. The plan is to tag approximately 100 fish in May/June with radio tags and follow their progress up the river over winter. Since the first radio tracking experiment in 1995 the Tongariro River has changed dramatically. We are also interested to see if the fish have changed their behaviour as they run through the river and if so in what way. For example the tails of some pools were very popular for spawning in 1995 but others were not. Similarly 20% of trout spawned below the Highway Bridge. We will also gather some more information about the relationship between river condition and trout movement. Finally the first experiment proved to be a real success with anglers and we look forward to sharing some new fishing tips as they become available.

A radio tag as used to follow the movements of trout in the Tongariro River. Photo: Glenn Maclean



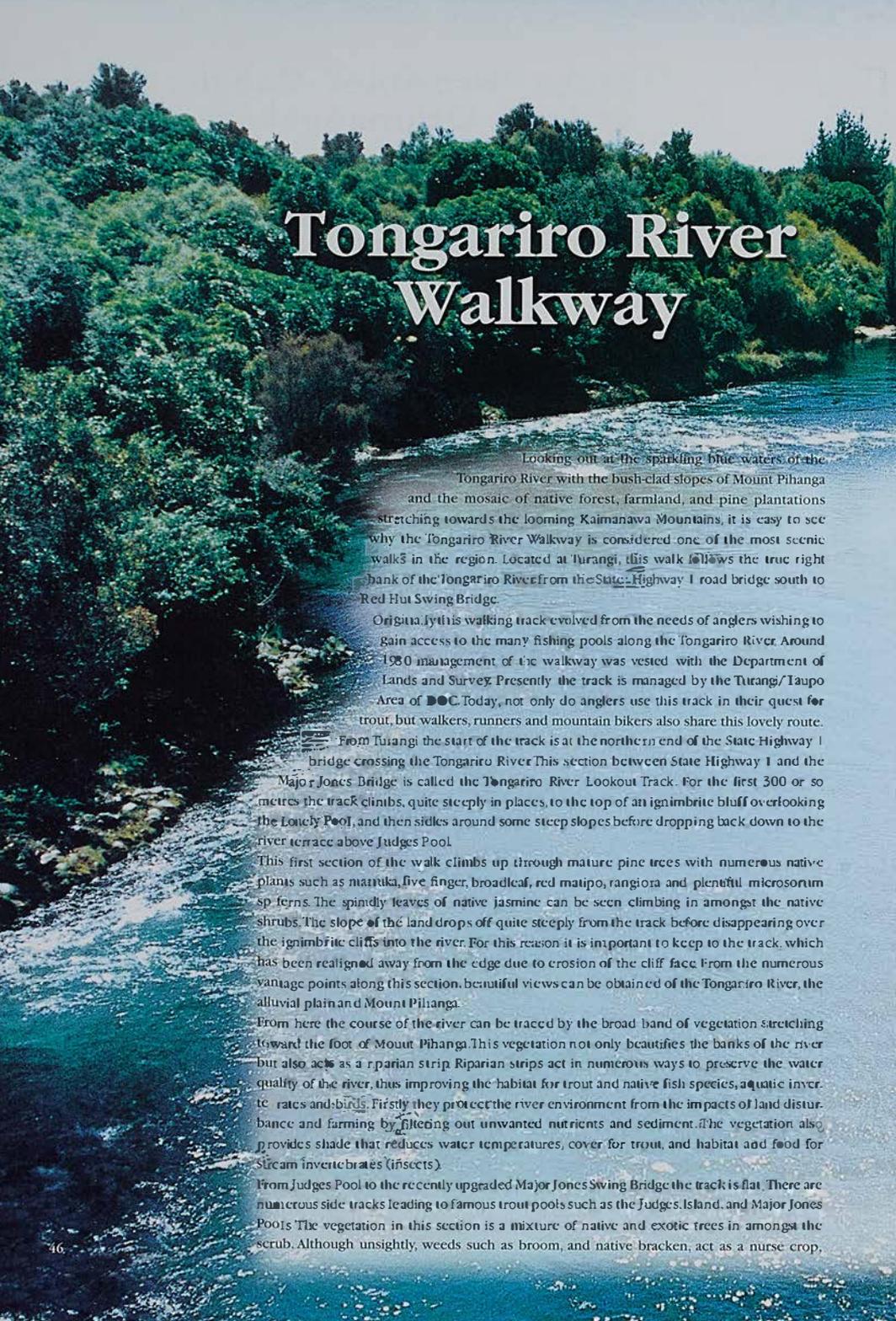
Huge “Brownie” Caught at Lake Otamangakau

Anglers have a reputation for exaggerating details of their catch (it is tradition after all) so Ranger Rob Hood was more than a little sceptical when during a routine angler survey local angler Peter Deakin claimed that he had caught and released a “brownie” that weighed about 800lb”. The “brownie” was caught at Lake Otamangakau and best of all he had photos to prove it! The photos were presented several days later and the story unfolded. Peter was on a recent trip accompanied by another local angler, John Logie,

when they saw a horse (brown of course) stuck in lake-edge mud. After strenuous efforts they were still unable to free the horse. After contacting the police, the owner of the horse arrived and the horse was pulled into the lake with a boat, then swum back to the launching ramp where it was released back to its owner. It just goes to show that you can only believe fishing tales that come from the “horses mouth”!

*Peter Deakin with his 'trophy' prior to release
Photo John Logie*





Tongariro River Walkway

Looking out at the sparkling blue waters of the Tongariro River with the bush-clad slopes of Mount Pihanga and the mosaic of native forest, farmland, and pine plantations stretching towards the looming Kaimanawa Mountains, it is easy to see why the Tongariro River Walkway is considered one of the most scenic walks in the region. Located at Turangi, this walk follows the true right bank of the Tongariro River from the State Highway 1 road bridge south to Red Hut Swing Bridge.

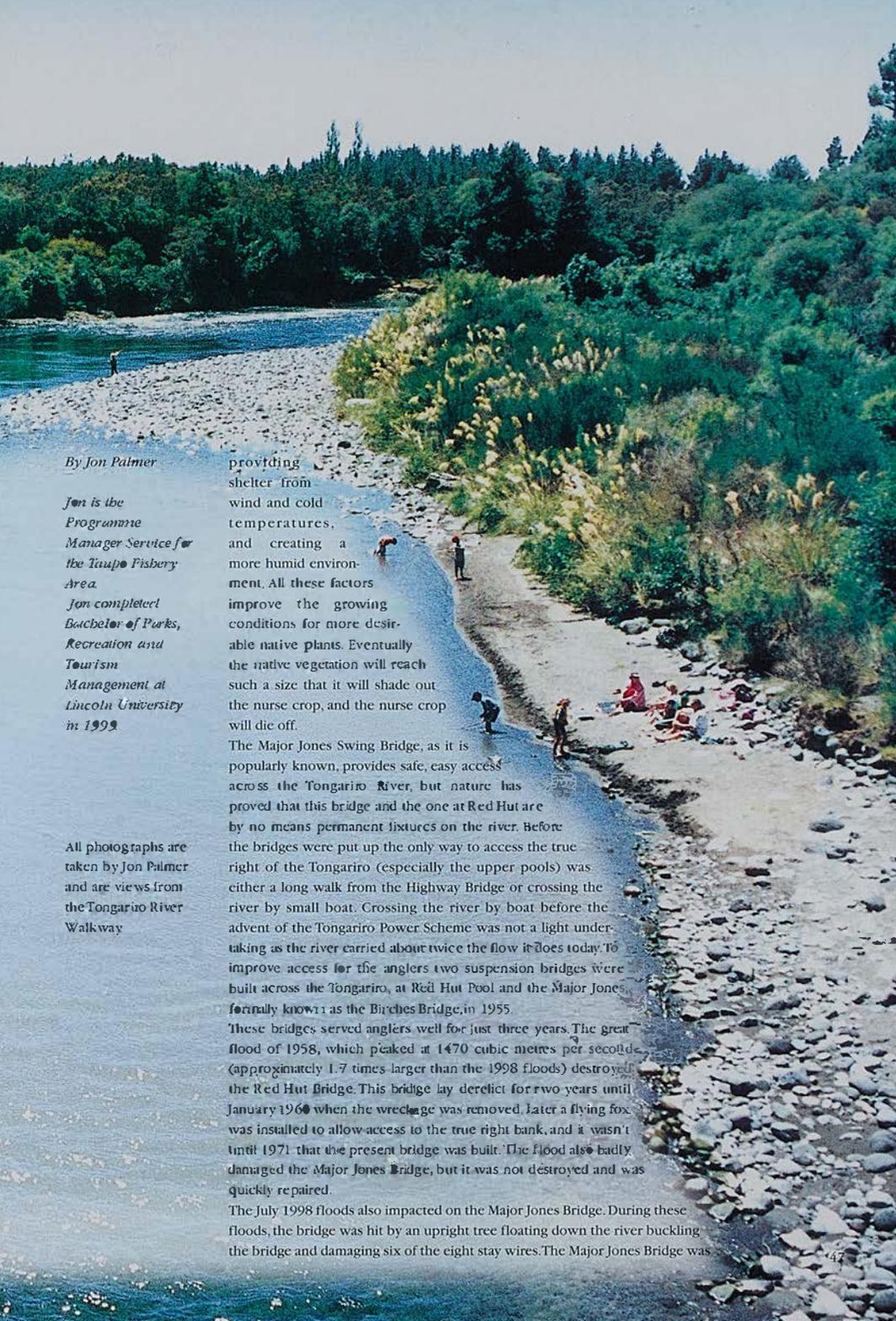
Originally this walking track evolved from the needs of anglers wishing to gain access to the many fishing pools along the Tongariro River. Around 1980 management of the walkway was vested with the Department of Lands and Survey. Presently the track is managed by the Turangi/Taupo Area of DOC. Today, not only do anglers use this track in their quest for trout, but walkers, runners and mountain bikers also share this lovely route.

From Turangi the start of the track is at the northern end of the State Highway 1 bridge crossing the Tongariro River. This section between State Highway 1 and the Major Jones Bridge is called the Tongariro River Lookout Track. For the first 300 or so metres the track climbs, quite steeply in places, to the top of an ignimbrite bluff overlooking the Lovely Pool, and then sidles around some steep slopes before dropping back down to the river terrace above Judges Pool.

This first section of the walk climbs up through mature pine trees with numerous native plants such as mātūka, five finger, broadleaf, red matipo, rangiora and plentiful microsorium sp ferns. The spindly leaves of native jasmine can be seen climbing in amongst the native shrubs. The slope of the land drops off quite steeply from the track before disappearing over the ignimbrite cliffs into the river. For this reason it is important to keep to the track, which has been realigned away from the edge due to erosion of the cliff face. From the numerous vantage points along this section, beautiful views can be obtained of the Tongariro River, the alluvial plain and Mount Pihanga.

From here the course of the river can be traced by the broad band of vegetation stretching toward the foot of Mount Pihanga. This vegetation not only beautifies the banks of the river but also acts as a riparian strip. Riparian strips act in numerous ways to preserve the water quality of the river, thus improving the habitat for trout and native fish species, aquatic invertebrates and birds. Firstly they protect the river environment from the impacts of land disturbance and farming by filtering out unwanted nutrients and sediment. The vegetation also provides shade that reduces water temperatures, cover for trout, and habitat and food for stream invertebrates (insects).

From Judges Pool to the recently upgraded Major Jones Swing Bridge the track is flat. There are numerous side tracks leading to famous trout pools such as the Judges Island, and Major Jones Pools. The vegetation in this section is a mixture of native and exotic trees in amongst the scrub. Although unsightly, weeds such as broom, and native bracken, act as a nurse crop,



By Jon Palmer

Jon is the Programme Manager Service for the Taupo Fishery Area.

Jon completed Bachelor of Parks, Recreation and Tourism Management at Lincoln University in 1999.

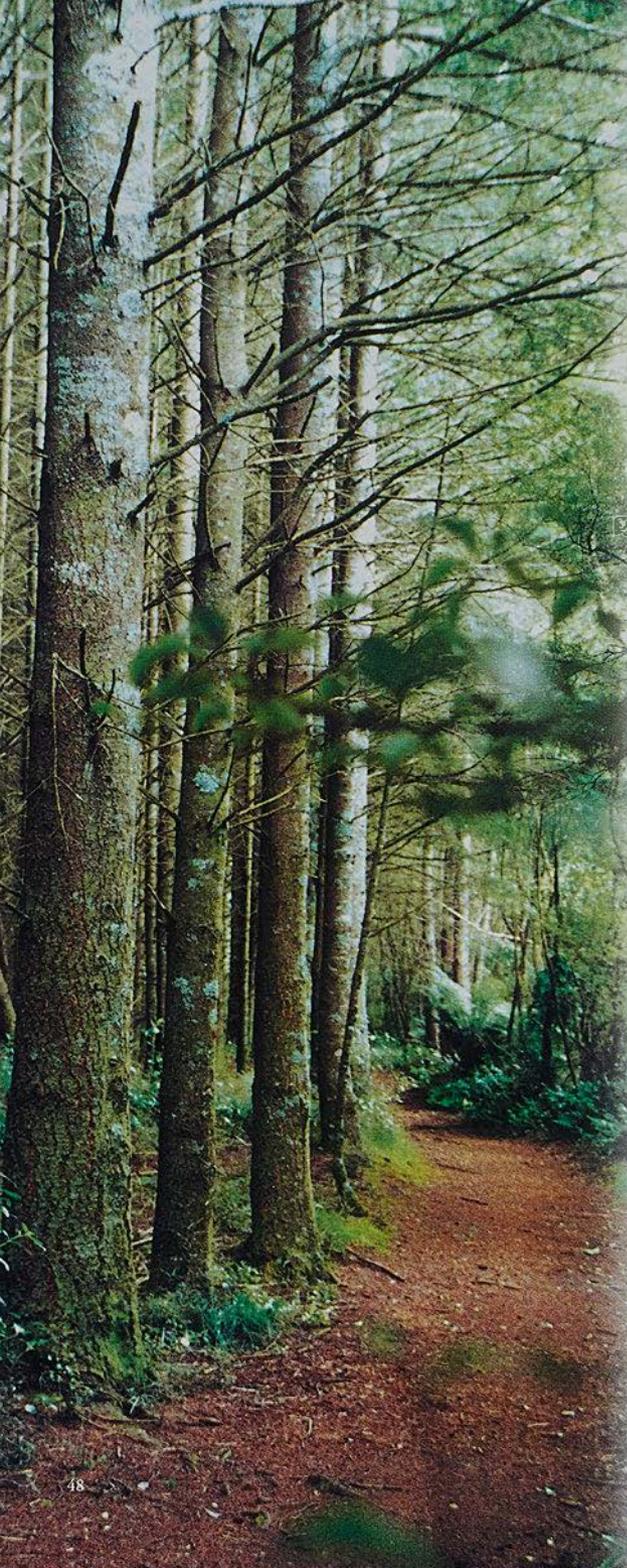
All photographs are taken by Jon Palmer and are views from the Tongariro River Walkway

providing shelter from wind and cold temperatures, and creating a more humid environment. All these factors improve the growing conditions for more desirable native plants. Eventually the native vegetation will reach such a size that it will shade out the nurse crop, and the nurse crop will die off.

The Major Jones Swing Bridge, as it is popularly known, provides safe, easy access across the Tongariro River, but nature has proved that this bridge and the one at Red Hut are by no means permanent fixtures on the river. Before the bridges were put up the only way to access the true right of the Tongariro (especially the upper pools) was either a long walk from the Highway Bridge or crossing the river by small boat. Crossing the river by boat before the advent of the Tongariro Power Scheme was not a light undertaking as the river carried about twice the flow it does today. To improve access for the anglers two suspension bridges were built across the Tongariro, at Red Hut Pool and the Major Jones, formerly known as the Birches Bridge, in 1955.

These bridges served anglers well for just three years. The great flood of 1958, which peaked at 1470 cubic metres per second (approximately 1.7 times larger than the 1998 floods) destroyed the Red Hut Bridge. This bridge lay derelict for two years until January 1960 when the wreckage was removed. Later a flying fox was installed to allow access to the true right bank, and it wasn't until 1971 that the present bridge was built. The flood also badly damaged the Major Jones Bridge, but it was not destroyed and was quickly repaired.

The July 1998 floods also impacted on the Major Jones Bridge. During these floods, the bridge was hit by an upright tree floating down the river buckling the bridge and damaging six of the eight stay wires. The Major Jones Bridge was



closed for four weeks while repairs were completed.

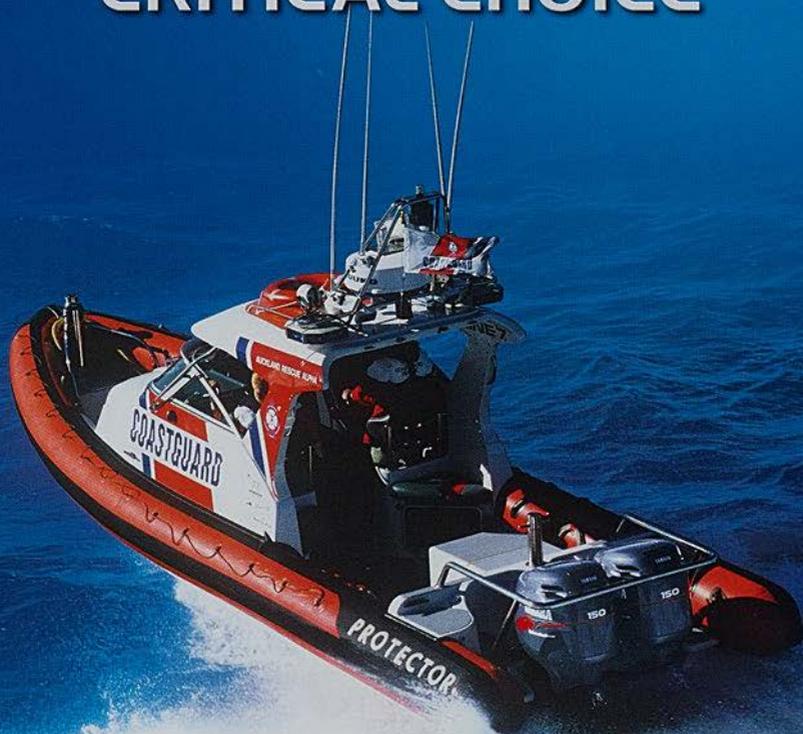
Around the Major Jones Bridge there are plenty of native trees to observe such as beech, kowhai, torara, kanuka, red matipo and five finger. From here the track continues south and enters a stand of larch and douglas fir. After crossing the Mangamawhitiwhiti Stream and passing the Hydro Pool the track climbs up well above the river and skirts around the edge of farmland for the next 2kms. This area offers extensive views of the Kaimanawa Ranges and surrounding landscape. On the right-hand side of the track the vegetation changes to mature kanuka forest. Within this forest many large trees are now reaching the height of the canopy and these will eventually overtop and shade out the kanuka.

About 1km from the Major Jones Bridge is the Kamahi Pool Anglers' Access Track. This track leads to not only Kamahi Pool but also to Admirals Pool. Care should be taken when accessing Admirals as the side tracks are continually being washed out and are steep and slippery. From these side tracks you can see where the river between the Stag Pool and Admirals Pool has eroded the bank and exposed several layers of geological history. The most prominent layer is the band of white Taupo pumice. When Taupo erupted in 1860AD the surrounding countryside was blanketed with between 60 and 100 cubic kilometres of tephra, here resulting in a pumice layer several metres thick. Beneath the pumice several different layers can be seen that are the result of huge ancient lahars originating from Mount Ruapehu which pre-date the Taupo eruption. Nearer river level, alluvium can be seen, which indicates that the Tongariro River used to run a similar course 1800 years ago. It is well worth walking this extra bit of track as Kamahi Pool is a beautiful deep pool surrounded by tall black beech trees; a perfect place not only to fish but also to swim and picnic.

Back on the walkway, the track continues past the farmland, through a stand of Douglas fir, and drops down through scrub to the run below Cattle Rustlers Pool. Here, and at other places within close proximity to the river, aquatic birds including shags, white-faced heron, grey and mallard duck, and more rarely blue duck can be observed. The track then climbs opposite the Tongariro National Trout Centre.

Here the forest takes on a mature look because of the large red beech trees and more open understory. Along the track amongst the understory, kiokio fern (*Blechnum* spp) abound. Forest birds such as the fantail, bellbird, tui, grey warbler, silvereye, native wood pigeon, and on

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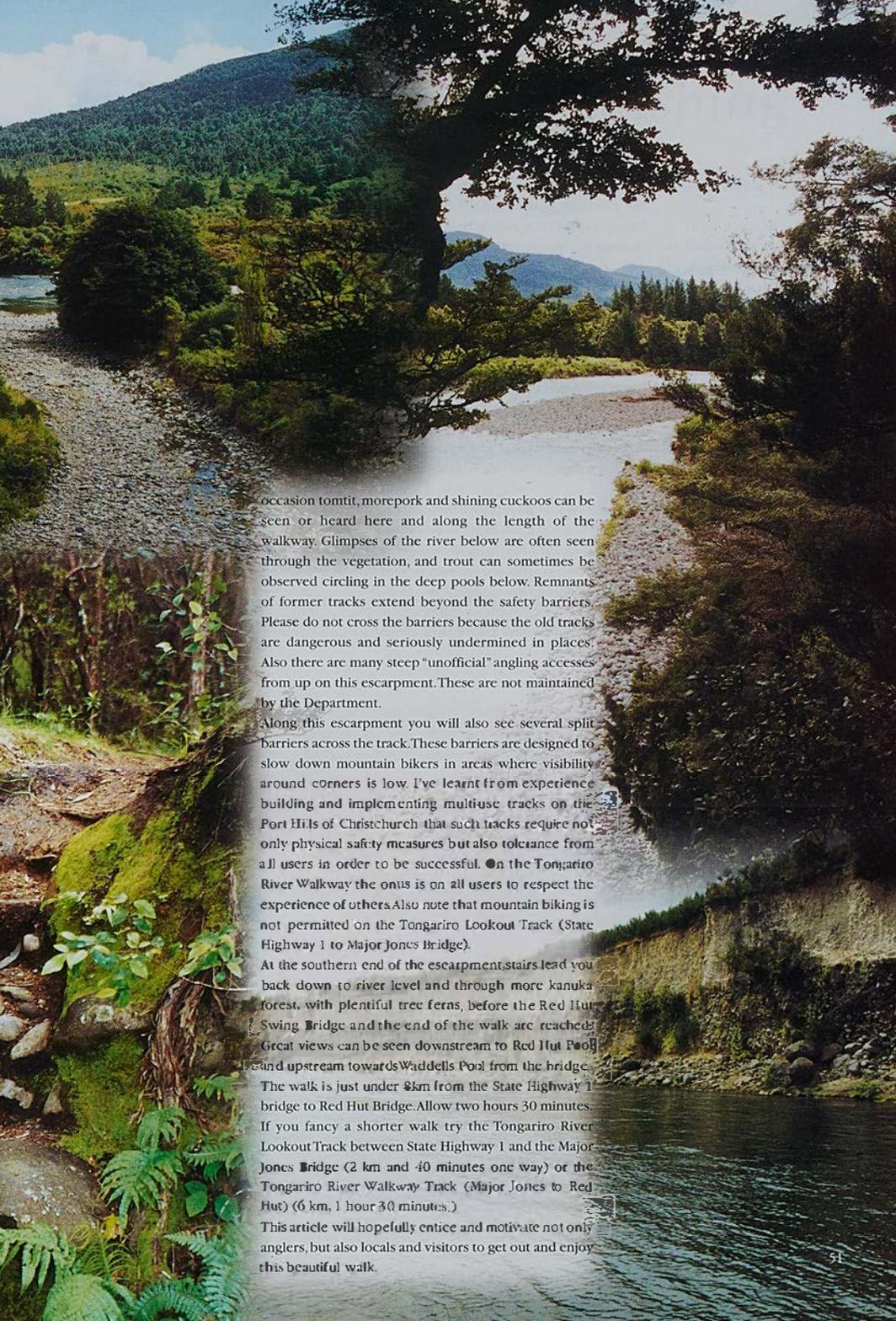


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On occasion tomtit, morepork and shining cuckoos can be seen or heard here and along the length of the walkway. Glimpses of the river below are often seen through the vegetation, and trout can sometimes be observed circling in the deep pools below. Remnants of former tracks extend beyond the safety barriers. Please do not cross the barriers because the old tracks are dangerous and seriously undermined in places. Also there are many steep "unofficial" angling accesses from up on this escarpment. These are not maintained by the Department.

Along this escarpment you will also see several split barriers across the track. These barriers are designed to slow down mountain bikers in areas where visibility around corners is low. I've learnt from experience building and implementing multi-use tracks on the Port Hills of Christchurch that such tracks require not only physical safety measures but also tolerance from all users in order to be successful. On the Tongariro River Walkway the onus is on all users to respect the experience of others. Also note that mountain biking is not permitted on the Tongariro Lookout Track (State Highway 1 to Major Jones Bridge).

At the southern end of the escarpment, stairs lead you back down to river level and through more kanuka forest, with plentiful tree ferns, before the Red Hut Swing Bridge and the end of the walk are reached. Great views can be seen downstream to Red Hut Pool and upstream towards Waddells Pool from the bridge. The walk is just under 8km from the State Highway 1 bridge to Red Hut Bridge. Allow two hours 30 minutes. If you fancy a shorter walk try the Tongariro River Lookout Track between State Highway 1 and the Major Jones Bridge (2 km and 40 minutes one way) or the Tongariro River Walkway Track (Major Jones to Red Hut) (6 km, 1 hour 30 minutes.)

This article will hopefully entice and motivate not only anglers, but also locals and visitors to get out and enjoy this beautiful walk.

TFAC Representing Taupo Anglers

By *Strato Cotsillius*

Previous issues of *Taupo Taupo* have outlined the functions of the Taupo Fishery Advisory Committee (TFAC) and in issue number 37 Graham Whyman representing the Tongariro and Lake Taupo Angler's Club emphasised the importance of feedback from anglers both to the committee and to DOC, to ensure the experiences and aspirations of anglers are fulfilled whenever possible.

There is no substitute for first-hand information and we urge anglers to let us have your thoughts on the numerous issues which currently face the fishery or will do so in the years to come.

Poaching, water quality, hydro generation, trout imports and guide licences are but a few of the issues currently being debated which need angler participation, not only to ensure moves which threaten the fishery receive the maximum of opposition from anglers, but also to ensure that actions taken by TFAC and DOC reflect the wishes of the anglers themselves. The review of the Taupo Fishing Regulations,

which is currently being undertaken by DOC and is featured in this issue, has resulted in a number of useful submissions from anglers. Hopefully the discussion document beginning on page 4 will elicit many more to be evaluated by the fishery managers together with TFAC and then subjected to further discussions with anglers themselves.

This is the way the system should work and we strongly urge you to put your concerns and suggestions on paper and forward them to the committee or to DOC, Private Bag, Turangi. As you will notice when you read the discussion document there are a number of quite major changes suggested.

You may however, wish to communicate direct to your representatives, who are listed below.

Strato Cotsillius National fishing interests
 telephone (04) 472 7827,
 fax (04) 472 9982,
 email g.h.co@xtra.co.nz
Chris Jolly Taupo Commercial Launchmen's Association
 telephone (07) 378 0623,
 email chris@chrisjolly.co.nz
John Davis (Chairperson)
 Taupo Fishing Club
 telephone/fax (07) 378 2303
Alan Simmons - New Zealand Professional Fishing Guides Association
 telephone (07) 386 7574,
 email alan@fishnhum.co.nz
Graham Whyman - Tongariro and Lake Taupo Angler's Club
 telephone (07) 386 8996,
 email sport.life@xtra.co.nz
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Take a Kid Fishing

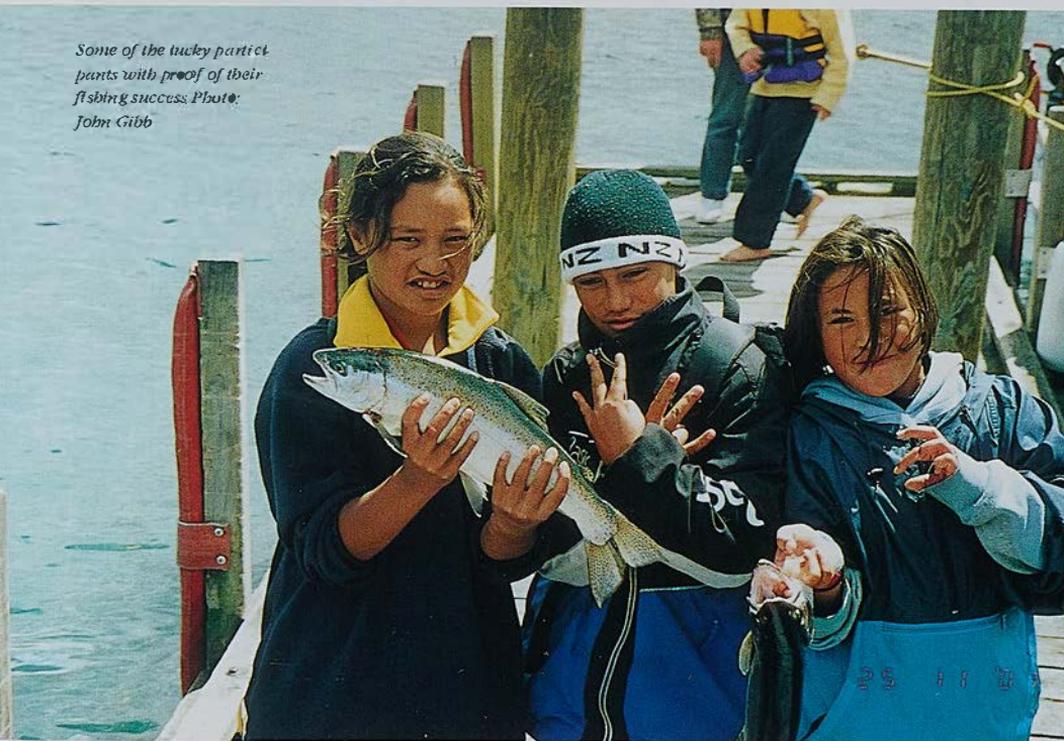
Early on the morning of the last Sunday in November several Taupo Fishing Club members gathered at the Two Mile Bay boat ramp to take a group of excited local primary and intermediate school kids on board their boats. The occasion was part of the national Take a Kid Fishing promotion backed by the New Zealand Sports Industry Association and Sanforis Fisheries. This three-year programme is aimed at getting youngsters involved in recreational fishing based on the theme of "Show me a kid who loves fishing and I'll show you a kid who's hooked on life".

The Taupo Fishing Club embraced the idea and invited local primary and secondary schools to nominate children to take part. Fourteen club members and supporters donated their time and the use of their boats and fishing gear and the Taupo Sea Scouts

kindly lent suitable lifejackets for the young anglers. DOC provided fishing licences

Twenty children from schools between Wairakei and Waitakanui took part on the day and were spread around seven boats. A total of 25 trout were landed, the heaviest weighing 2.1kg. The boats returned to the ramp at 11am and the group adjourned to the fishing club rooms for a barbecue lunch and prize giving. The Fly and Gun Shop generously donated a rod and reel set and several other fishing items. All the children emerging went into a draw for the rod and reel and those catching the three heaviest trout shared the other prizes. More importantly, all the kids received a certificate recording their participation and all went home with beaming smiles to show off their catches to their families.

*Some of the tucky partici
pants with proof of their
fishing success. Photo:
John Gibb*



Dear Mr Gibbs

As you remember, earlier in the year I wrote to you asking if it was legal to use an electric powered reel for trolling on Lake Taupo. The reason for this was so that my Poppa can still go fishing after suffering a slight stroke.

After receiving your reply that it was perfectly legal, I set out to try and develop the reel. My dad suggested a 12v car window winder motor. I made up a bracket to mount the motor to the reel and then made a rubber drive wheel so that it drives on the outside edge of the reel drum. I tested the speed and found it to be ideal.

The next item to work out was the switch mechanism. I made up a switch box out of an old mustaid tin and mounted a pole switch. This gives two directions, in or out. The motor pivots so that it can be engaged onto the reel, another switch was used so that as the two wheels contact the electric motor starts and rotates in the selected direction.

I decided that it would be even easier for Poppa to use if the line was able to be fed across the reel. A lever was fitted that allows for simple finger movement on one end near the main handle.

Next came time to test the invention. I decided that because we weren't going to our family bach at Taupo I would test the reel by towing my brother's skate board loaded with bricks along the footpath. It worked really well and was very easy to use. My Poppa hasn't used it for fishing yet but if he doesn't use it my Dad said he will!

Thank you for your time.

Hayley Stewart

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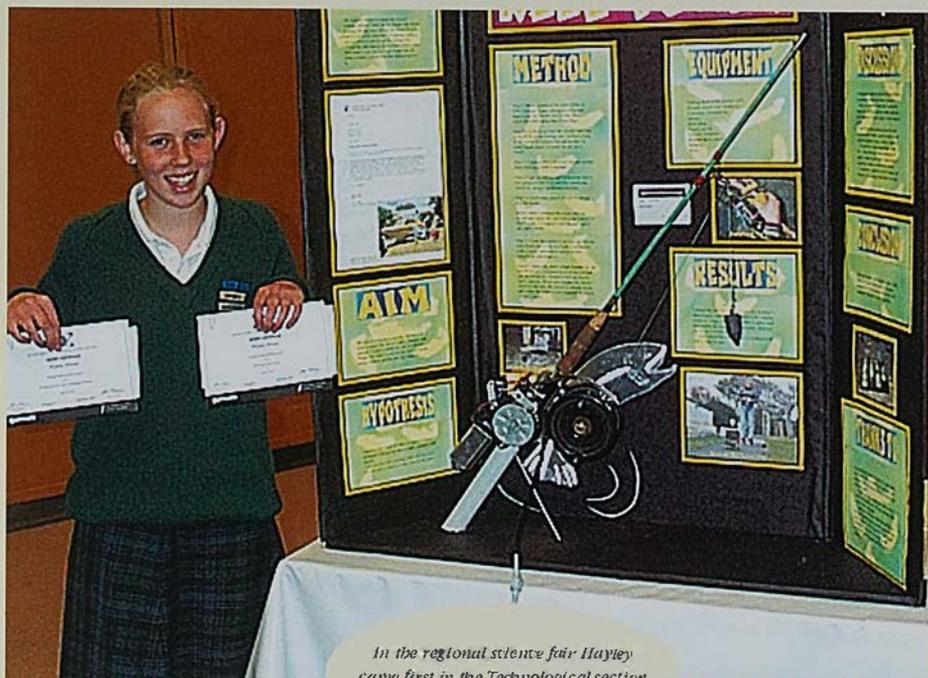
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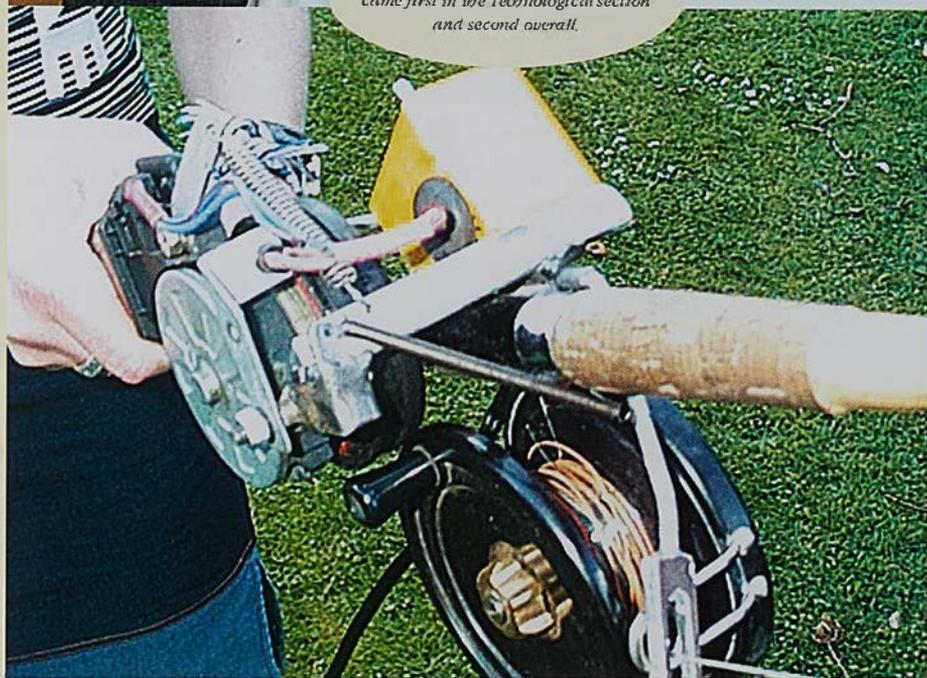
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In the regional science fair Hayley came first in the Technological section and second overall.



Fishery Boats Upgraded

Some major changes to our small fleet of boats were made last November. The Turangi boat, Kotuku, was replaced and a new motor was installed on Koaro. Kotuku had provided excellent service since it started in 1984, however it was becoming obvious that we needed to upgrade to ensure that we were able to work reliably and safely on Lake Taupo.

A 5.5m Surtees was selected as the new Turangi boat and in keeping with long standing tradition to name our boats after native species beginning with K, Jim Maniapoto named the new vessel Karearea (New Zealand falcon). There were several key features of this boat that fulfilled our operational needs whilst also satisfying stringent Maritime Safety Authority requirements. The hull handles Lake Taupo conditions very well and is designed so that the lowest section floods while the boat is at rest. This increases stability and is especially beneficial while we are alongside angler's boats conducting surveys and licence checks. There are many other minor design features that make working on the boat easier, such as foldaway seating, abundant storage and fold-down canopy design just to name a few.

The motor selected for Karearea was a 100hp four stroke which is identical to the motor that has powered Kahu (our 5.5m "Rainco" boat based in Taupo) since 1999. The main advantages of fourstroke motors are that they

are very reliable, provide long service life and have excellent fuel economy and very low emissions and noise. These advantages make a huge difference to working conditions on the boats as anyone who has spent long days talking over and breathing smoke from older two-stroke motors will confirm, as well as being much more environmentally friendly.

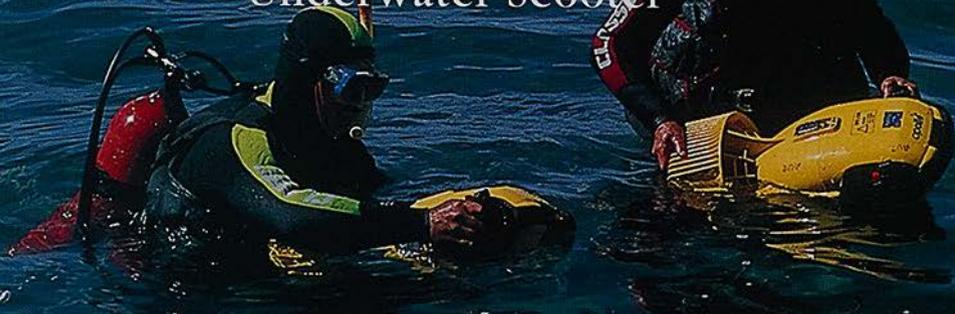
As converts to four-stroke outboards it was natural to select a 115hp four-stroke to replace Koaro. This 5.5m boat is our heavy-duty work boat and is used for all of the acoustic survey work (see *Target Taupo*, issue 38, "Measuring the Number of Trout in Lake Taupo") and other tasks such as diving operations and smelt monitoring (requiring use of a large winch). The transom had to be modified to accommodate the larger motor so while this work was being done some minor hull corrosion was also removed. As can be expected during an installation like this, several other minor problems emerged which needed rectifying, the worst of which was a leak around the trim tab mounts which filled approximately one third of the "sealed" part of the hull overnight!

Both vessels have been put to the test thoroughly throughout our summer operations and we are pleased with the improvements. We have also received plenty of positive comments from anglers about Karearea when out conducting surveys.



Ranger Bryon Taylor with our new 5.5m workboat which is based at the southern end of the lake. Photo: Rob Hood

Counting Trout by Underwater Scooter



Michel Dedual (left) and Errol Cudby prepare to trial the scooters.

Photo: Glenn Maclean.

In the last issue of *Target Taupo* we discussed how we count the number of trout in the lake each spring using a sophisticated echo sounder. This sounder is very clever but the narrow acoustic beam required to explore the lake depths effectively means the practical use of the machine is limited to water deeper than 20m. To count the trout up on the limited shallow areas around the lake edge, other approaches are necessary. Previously we had towed a diver on a manta board trailed 100m behind the boat. However we were concerned that trout may spook from the boat and so not be seen and

counted by the diver.

To overcome this problem we recently trialed the use of self-propelled underwater scooters. These scooters, which are powered by 12-volt battery, pull the diver along. The trial proved very successful. The scooters were easy to use, some might say fun to use, and large numbers of trout were seen. These trout didn't show any undue alarm and often stayed in sight for several minutes. We wondered if the noise of the propeller might disturb the fish before we saw them but there was no indication that this occurred at the moderate speed setting used. Indeed while slaloming around rocks in Kawakawa Bay, Glenn Maclean came face to face with a trout at 2m which, until it saw Glenn, appeared totally relaxed.

Given these results we intend to use this method next spring to increase the precision of our estimate of trout abundance in the lake. We envisage selecting a number of suitable sites spaced around the lake, from which a sample would be selected at random. At each site the diver would make a series of zig zags across the shelf out to 20m deep counting all the trout seen. Each change in direction will be marked with a small buoy so that we can follow the course later by boat using GPS to calculate the area covered and hence density of trout seen.

It is certainly not the worst part of our job.

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Taupo-nui-a-Tia –

The 2020 Taupo-nui-a-Tia project is a three-year project to produce a strategy that will assist local communities around the lake to develop in a sustainable way while protecting the environment. The joint bidders to the Sustainable Management Fund, Environment Waikato and Tuwharetoa Maori Trust Board, lead the project which aims to produce an integrated development strategy for Lake Taupo involving tangata whenua, community groups and central and local government agencies. Agencies involved include Lakes and Waterways Action Group, Tuwharetoa Maori Trust Board, Taupo District Council, Environment Waikato, DOC, Department of Internal

Affairs, Ministry for the Environment and Lake Taupo Management Board.

It is intended that 2020 Taupo-nui-a-Tia will be a long term-vision integrating social, environmental and economic knowledge. The project has three strands. In the community strand a report summarising what the community values about Lake Taupo has been produced. Fourteen values ranging from trout fishing, safe to drink and quality inflowing water to commercial values were identified. The next step involves determining the role the many agencies play in protecting or enhancing these values. In the iwi strand a hui a iwi was held in October to

The strategy will assist the development of local communities while protecting those aspects of the lake and catchment that we value so highly.

Photo: Glenn Maclean



Towards a Sustainable Lake

introduce the plan and hapu workshops to identify lake values for the iwi management plan began early this year. In the science strand an inventory of all the information relating to Lake Taupo has been completed and teams are now reviewing different aspects relevant to the community values. For example a comprehensive review of the Taupo Fishery and the threats facing it was undertaken by Glenn Maclean and Michel Dedual (DOC), David Rowe (NIWA) and David Speirs (Environment Waikato). These reports are currently being reviewed before being printed. The next step involves ranking the values in terms of the perceived and scientific risk to these and to identify options

to reduce the risks. Part of this will involve the development of an integrated environmental monitoring framework and identification of future research and knowledge needed to support the monitoring programme.

There is considerable water to flow under the bridge but the involvement of so many different groups working towards a goal of integrated and sustainable management of Lake Taupo is a big step forward

How Many Fish are in the Children's Pond?

A common question to staff at the Tongariro National Trout Centre is "how many trout are in the Children's pond and what happens to them?"

At the end of each year the pond is emptied and the 2+ year old trout remaining which average around 400g are offered to Fish and Game Councils free for use in children's fishing venues in other parts of the country. The councils have only to finance transport costs to their venues, which is usually done by sponsorship.

The pond is then restocked with 1+ year old trout in preparation for the coming year's action. For the 2001 year 4700 trout were stocked in December 2000. Of these, 1800 were caught by children, 700 (a tanker load) went each to Taranaki and Wellington Fish and Game and the 700 odd remaining were released in the Waikato River downstream from the Lake Taupo outlet. "But that's only 3900," some of you will be saying. Of the rest, some are counting errors, some died naturally, some were taken by shags and some illegally, some went to displays and yet others to university research.

Last year our hard-working volunteers from the Tongariro National Trout Centre Society, led by John Milner with support from his wife Val, staffed five open days, one school holiday event and 27 school group fishing experiences. On each of these days each

child received tuition in fly fishing and then caught a trout from the pond. This year they are being even more ambitious with seven open days planned plus 26 weeks during school terms where they set aside a day per week for bookings by school groups.

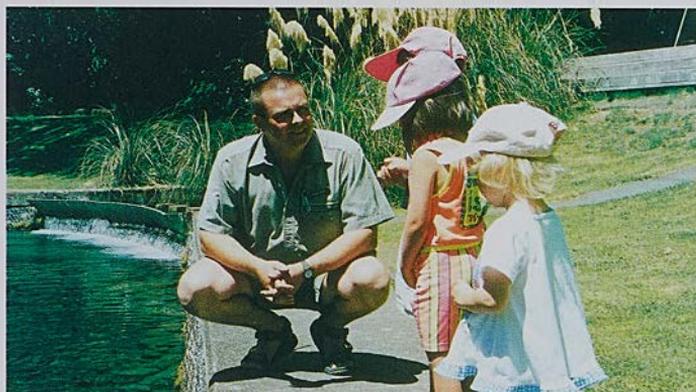
The open days are for 6 to 14 year olds to be taught fly fishing with all equipment supplied. They run from 9am to 3pm on the days below and numbers are limited to ensure each child receives the very best experience, hence the need to book. A Taupo fishing licence is required and can be purchased on site for \$3.

So how many fish are in the pond? - it depends what time of year you visit and how many children have already proudly taken home a trout.

For all bookings telephone Mandi Coffin (07) 386 9213 on weekdays between 9am and 4pm. The open days this year are set for:

Sunday 14 April
Sunday 19 May
Sunday 30 June
Sunday 14 July
Sunday 18 August
Sunday 22 September
Sunday 6 October

The pond is a magnet for young children. Ranger Rob Hood answers questions from three enquiring minds. Photo: Jon Palmer



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December Flood Causes Major Changes to the Tauranga-Taupo River

As any of you who tried to travel State Highway 1 between Taupo and Turangi on the weekend of 8 and 9 December will know, extensive flooding closed the road for long periods. When it finally receded the extent of the damage, particularly in the Tauranga-Taupo, became evident.

The river had broken its bank below the Cliff Pool and reclaimed its old path through the quarry, although apparently unsure of its old path, it hedged its options and spread out to cover everything, re-entering the river channel at several points from the Crescent downstream. It left over 2 km of the old channel dry, trout stranded, catfish (from flooded quarry ponds) redistributed along the river and a lot of in stream debris. Angling access tracks and roads were washed out and the 2 km of track alongside the dry channel made redundant.

*The Tauranga-Taupo River looking downstream from the break-through into the quarry.
Photo: E. Cudby*

The catchment authority, Environment Waikato, called meetings to discuss the problem and possible solutions and in January had contractors in the river bed removing obstacles between the Crescent and State Highway 1 bridge. As this issue goes to press another meeting will discuss further options. It is unlikely that the old channel will be reinstated because any bund capable of withstanding further floods would be a substantial undertaking and even then would not guarantee success because the land that has been quarried is now lower than the river. It is also realised that the disused quarry provides a buffer where floods can spread out to relieve pressure on the bottleneck at the State Highway 1 bridge.

Western Bay catchments were also hit hard by the same storm, in particular the Whareroa and Whanganui which deposited huge rafts of pumice out into the lake.





The Tauranga-Tararua River looking upstream. Crescent at lower left with water flowing out of both arms into the original channel and the dried section at right.

Photo: E. Cadby



The Old Rock Pool used to be a popular angling location.

Photo: Graham Dean



The flow through the quarry following the flood is very confused and poorly defined

Photo: Graham Dean



Local anglers quickly salvaged fish trapped in the old channel and released them back into the river. Bryce Curie (left) and Andrew Brown (right) with a taurangiāhuia brown.

Photo: Graham Dean

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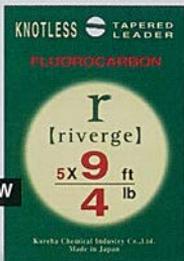
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Successful Summer Angling Seminars

For the third year in a row the summer angling seminars attracted large crowds. This year the seminars were held at Wharewaka Point at the northern end of the lake and Omori Reserve at the south. At Wharewaka Point a crowd of approximately 120 enjoyed the best weather of the Christmas break. We were a little bit worried that people would want to make the most of the fine weather by going fishing, and no doubt some did, but we still managed to get a good turnout. Unfortunately the weather wasn't good for the second seminar at Omori Reserve and towards the end a heavy shower made things a bit unpleasant for the 80 people present.

For those of you who haven't attended one of our seminars, we discuss many aspects of fishing in Lake Taupo, all of which are designed to improve your success and enjoyment. John Gibbs, the Fishery Area Manager, talked about how you can get the best out of technology like echosounders and GPS. He then discussed in detail the various deep trolling methods: leadlines, wirelines and downriggers, and finished with a brief rundown on the main fishing and boating regulations.

Glenn Maclean, the Technical Support Programme Manager, presented information on the lifecycle of Taupo trout and explained how you can use this knowledge to identify where to target trout at different times of the year and in different places. He then talked about harling and the relatively new, but increasingly popular method of jigging.

Finally Fishery Ecologist Rob Marshall talked about what to do with your fish once you catch them. He covered the principle of catch and release and its applicability in the Taupo fishery, how to release trout properly giving them a good chance of survival and how to kill and look after fish that you decide to keep.

For the staff running the seminars it is very encouraging to see a lot of people in the crowd with a notebook and pen, scribbling down points of interest and asking some really good questions. Perhaps the best measure are the regular comments from anglers who attended earlier seminars and who tell us it has made a big difference to their success. The seminars will be held again next year and the locations advertised in *Target Taupo* closer to the time.

In addition to the summer lake seminars we run winter seminars covering many aspects of fly fishing in Taupo rivers. They have been running for two years now and although very successful and popular we believe they could be even better. Large numbers of people attend each year, which makes it very difficult to get the information across to everyone. For example, part of each seminar involves a casting and mending demonstration in the Tongariro River, which in theory should be very effective but when you have 150-200 people lined up along the banks of the river, it is hard for all of them to see, let alone hear an explanation of what is being demonstrated. It is our plan to review how we run these seminars this year, with a view to improving the overall presentation. We will hopefully be able to utilise the new audio-visual equipment at the Tongariro National Trout Centre to accurately demonstrate what in the past has proved very difficult. We will keep you posted via *Target Taupo* as to the structure and timing of the next river seminars.

TEAM PROFILE

Dave Hart

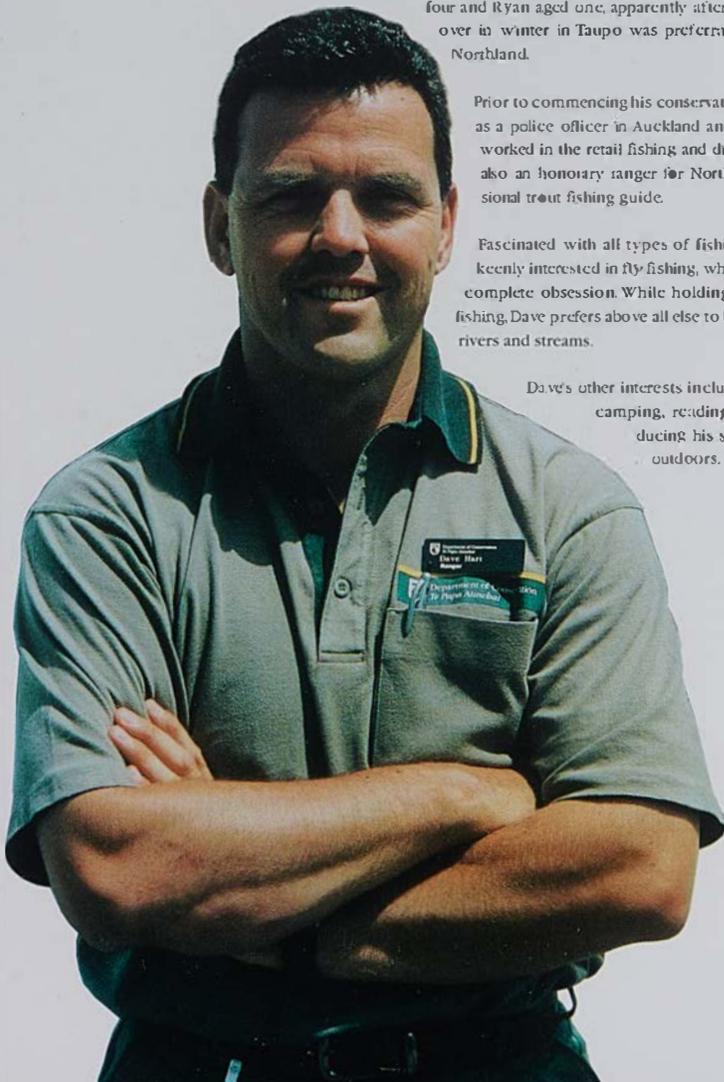
The newest member of the Taupo Fishery Area team, Dave Hart took up the Taupo-based ranger's position in November 2001 following the departure of Chris McMillan to Southland.

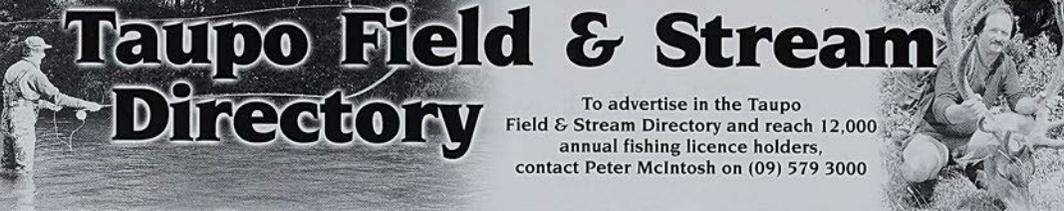
Dave moved from the Bay of Islands with his wife Tara and their two boys, Daniel aged four and Ryan aged one, apparently after convincing Tara that being frozen over in winter in Taupo was preferable to being rained on all year in Northland.

Prior to commencing his conservation career Dave served for 14 years as a police officer in Auckland and the Far North and more recently worked in the retail fishing and diving industry in Kerikeri. Dave was also an honorary ranger for Northland Fish and Game and an occasional trout fishing guide.

Fascinated with all types of fishing since childhood, Dave is most keenly interested in fly fishing, which his wife prefers to describe as a complete obsession. While holding a strong interest in saltwater fly fishing, Dave prefers above all else to be fly fishing for trout in wilderness rivers and streams.

Dave's other interests include fly tying, scuba diving, kayaking, camping, reading, cooking hot curries, and introducing his sons to the joys of fishing and the outdoors.





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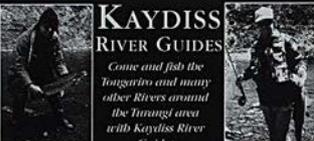
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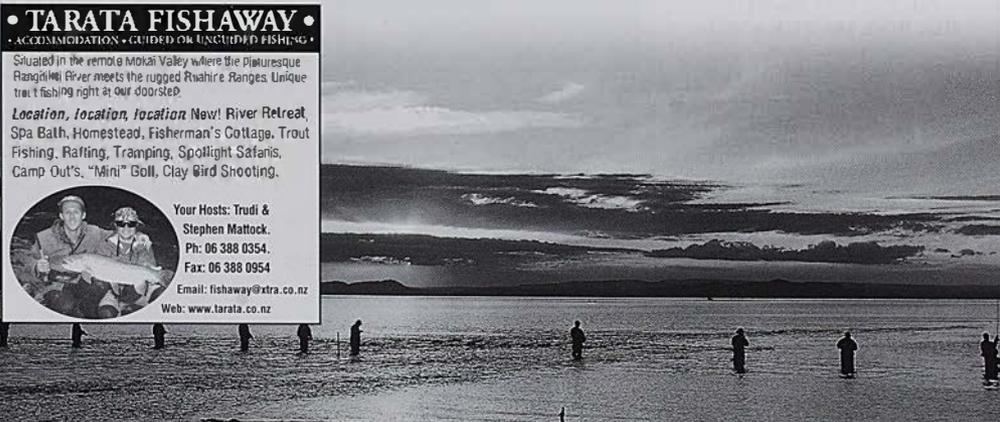
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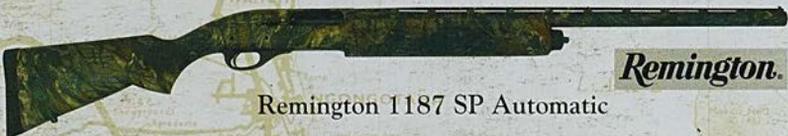
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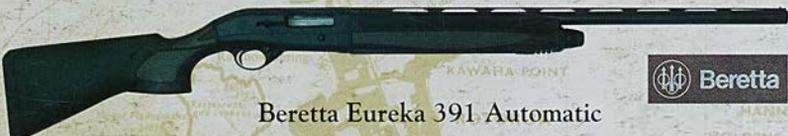
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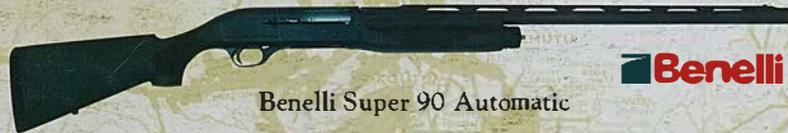
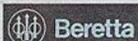
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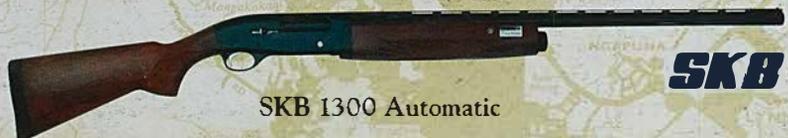
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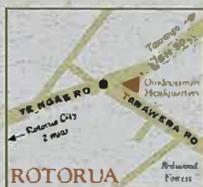


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