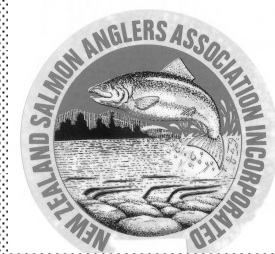


# **NZ Salmon Anglers Newsletter**

**AUGUST 2008 Number 97**



**Spectacular High Country - One Tree Swamp  
Ova Planting Site 2008**

**Official Newsletter of the New Zealand Salmon Anglers Association Incorporated  
P.O. Box 1113, Christchurch 8140**

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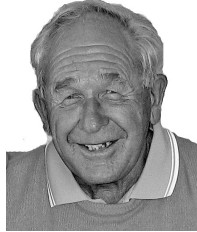
**Committee Meetings:** The Committee meets on the first Monday each month (except January) at 7.30 pm in the Fish & Game premises, 3 Horatio Street, Christchurch. Members and supporters are welcome to attend these meetings.

**Honorary Auditor:** Trevor Hayes

**Life Members:** Lindsay Dell, Ron Dougherty, Tim Ellis, Brian Foley, Trevor Hayes, John Healy, Ken Hughey, Ross Lightfoot, Athol Price, Stephen Sparrow

**Disclaimer**

The opinions expressed in any letters and articles in this newsletter are the authors' own and are not necessarily those of the New Zealand Salmon Anglers Association (Inc) or the Editor.



## EDITORIAL

President, Ron Stuart, is having a winter escape on the Oz Sunshine Coast - your timing is perfect Ron, as we are continuing to have cold, wet weather in Canterbury. We trust you and Elaine are enjoying the sunshine and beaches and recharging your batteries to face whatever curly issues are thrown at you by NZSAA and the salmon fishery.

In Ron's absence, Vice President Tim Ellis, has penned the following few thoughts:

I recently went down to the Ashburton District Council's inspection of the stock water schemes over the area from the Rangitata to the Rakaia. This was a field day prior to the formal hearing of the consent application to which NZSAA had made a submission. Our concerns were on fish screening and on the Acton intake and dam built approximately 500 metres downstream of the southern end of the SH1 road bridge at Rakaia. This dam has been built of large square concrete blocks joined together. This edifice was constructed in 2001-02 using a non-notified consent process. We submitted that it was in contravention of the Water Conservation Order and a potential danger to jet boaters who do not know the river and may enter its up-river intake thinking it is one of the normal streams on the river. I did this some years ago and fortunately the high water allowed me to jump the boat off the top of the dam without damage to the boat or myself. It is built on the river bed and

during high water flows is very dangerous if you get into the wrong stream.

On 12 August I attended the consent hearing in Ashburton and presented a submission on behalf of NZSAA. The Department of Conservation presented submissions on the inefficiencies of the stockwater scheme, over-allocation of water, lack of fish screening and also the need for the Acton Race intake structure to be properly authorised by DOC. Fish & Game had the same concerns as DOC and also raised the matters of the Rakaia and Rangitata Water Conservation Orders, the unsuitability of open races as habitat for salmonids, the loss of diverted salmon and, again, the impact of the Acton weir on salmonids and boats. We now await the Commissioners' decision and the conditions that may be applied to any granting of the stockwater consents.

Peter Robinson, (NZSAA member, F&G councillor and Volunteer Extraordinaire) also appeared again before the beaks (sorry, CPW Commissioners) to follow up on matters that arose from our initial hearing. Peter's further submission is reported on page 12.

Vice President, Ron Dougherty, has also been busy with consent issues and has attended hearings regarding local issues on stormwater and industrial discharges to our rivers.

Elsewhere in this newsletter is a report from John Hodgson on NZSAA's ova planting activities. The extreme weather

conditions have certainly physically challenged our volunteers particularly on the remote high country sites. Given the difficult access and weather close-out following ova planting, I believe we need to review the wisdom of using these most remote sites which limits participation to the younger and fitter.

It will soon be the time to get out and cut the broom and other rubbish that damages vehicle paintwork when we go down those tracks to the rivers. Give us a call and tell us about maintenance that is required on your favourite access track. We will be calling for volunteers to help out with this task.

We are still seeking replacements for NZSAA Secretary, Treasurer and Newsletter Editor. The newsletter you are reading is the August publication - it's late, but that is the best we can do given the lack of publication assistance. It's too much to expect one person to continue with all these jobs. Please talk to your friends, colleagues, fellow anglers and anyone else who may have an interest in our organisation and who could give some time to any one of these administrative jobs. The newsletter is our major communication with members and we would be reluctant to see it go. However it may well be necessary to reduce publication frequency or go to another news source if we can't share the load.

It's great to see that Ross Millichamp is making good progress with his recovery. We wish him well with his rehabilitation and echo his own wish to get back on the river soon and do some fishing. Go for it, Ross.

**Tim Ellis**

**VICE PRESIDENT**

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# **Take a Kid Fishing**

**at The Groynes, Christchurch**

**Sunday 19 October 2008**

**For young people aged 17 years and under.  
The fish-out ponds will be stocked with salmon donated by  
Isaacs Salmon.  
Bring all the family. It's free, including the fishing licence  
for the junior anglers for the day.**

**9 am–1 pm: 12 years and under**

Limited loan rods & bait available for the morning. One lake is reserved for children 8 years & under where an expert angler will assist for a limited time, tackle supplied.

**1 pm–7 pm: 17 years and under**

Kids 17 & under are permitted to fish. Own fishing tackle is required.

Adults may assist but are not permitted to fish.  
Caravans on site food & drink can be purchased,

***See how to cook your catch = Talk to the chef  
PHIL KEEN, Executive Chef  
at JO SEAGAR'S COOK SCHOOL & CAFÉ, Oxford  
Filleting & Cooking demonstration 10 a.m. 10.30***

**We would welcome any NZ Salmon Anglers Association members who are available on the day to assist with tuition/supervision of the young anglers, cleaning and weighing fish.**

Enquiries to Dave Denton ph. 03 3182762, fax 03 3182760,  
email [dmdenton@xtra.co.nz](mailto:dmdenton@xtra.co.nz)

## Salmon Eyed-Ova Planting 2008

*By John Hodgson*

This is now the fourth year of intensive egg planting. Each year has its own problems and this season is no different. The activities took place in the same streams as in the previous three years with the exception of One Tree Swamp which Fish & Game suggested we could use. The sequence of events was as follows:

### **Porter River, 28 May 2008 -107,000 eggs**

Side-stream Wednesday 28 May: Because the Rakaia volunteers were not ready to do planting in that river the next weekend (Queens Birthday) the eggs were given to NZSAA and were going to be placed on Thursday 29 May. For some reason this was brought forward to 28 May. This meant going to Montrose first to collect the eggs and also meant that Dirk Barr left home at 4 am because he felt it necessary for the eggs to be put through the sorting machine before we took them away. An amazing effort on such a cold and frosty morning. At the Yaldhurst carpark the outlook was not good with one volunteer not turning up and another coming down with the flu. So there were just us three, Ron Stuart, Warren Mackie and myself.

The trip from Montrose was by the bottom road and up Porters Pass. Once there we parked on the main road side of the stream and soon had the shovels etc down the hill with the aim of getting the long RUSSI (Remote Unattended Salmon Spawn Incubators) boxes, stored in the nearby scrub, back into the stream. Luckily the depressions in the stream bed were still there and, after considerable effort, Ron and Warren had the boxes in place. We climbed back up the hill, had lunch in sunshine and then took the eggs down and placed them in the boxes



*Placing eggs at the Porter River*

This year we are trying a variation in the internal filling of the RUSSI boxes, the bottom layer being stream-side stones, then several layers of 12mm plastic mesh, and on top of this a 5mm mesh tray on which the eggs are placed. It will need good observations this season to determine what is good and what not to do for next season. I am inclined to reason that the boxes are being overloaded and the egg numbers should be a maximum 20,000 for long boxes and 9,000 for the short boxes. If we had more volunteers for the 28 May planting we could have used some Jordan Scotty boxes utilising the weir constructions further upstream. They are still intact and were successful last year.

#### **One Tree Swamp - 97,000 eggs**

This area is extensive and is excellent for Scotty box and RUSSI box use. It is a natural salmon spawning area but the logistics of getting there are not good and require at least a 1km walk and a crossing of the Hawdon River beds. This is too far to expect volunteers to carry equipment.

A small team went up to place two long and one short RUSSI boxes in place ready for the eggs when available. Peter Robinson took his vehicle and my trailer with the boxes etc across the Hawdon River bed and Steve McNeill walked and sighted out the route across, which required considerable time to do. Once on firm ground, Peter managed to get within 150 metres of the stream that we used.

On Saturday 7 June the weather report was not good but we took a chance and a small team left the Yaldhurst Pub car park at 7.30 am. As an emergency factor, Rusty brought some hatching buckets from Montrose in case we didn't make it. We walked from the Mouth White Bridge area, with everyone carrying something. It was a cold north-west breeze turning southerly later. We were to have had lunch back at the cars but decided to go because the weather was closing in. We got down Porters Pass 1 hour before the snow started at about 1.45 pm.



*Placing the eggs in the RUSSI boxes at One Tree Swamp*



*One Tree Swamp:*

*“Man, it’s freezing -  
let’s get out of this  
place before it snows!”*

#### **Hacketts Stream, Saturday 14 June - 62,000 eggs**

With 15 volunteers we arrived on site by the irrigator pump and used the weirs that were still in place from last season. After 29 Jordan Scotty boxes had been loaded and placed, it was obvious that the second part of the eggs was too advanced and was hatching, so it was decided to put them in a RUSSI box that had been left on the bank further downstream by the willows.

I was concerned that the eggs were too warm overnight and so I put a thermometer in the middle of the eggs before we left Yaldhurst. At Hacketts Creek the recording was 14.2°C and the stream temperature was 10.0°C. (Montrose temperature is between 9.1° and 9.9°C at this time of the year.) Temperature containment is an important factor when consideration of hatch results is being made.

*Hacketts Creek:*

*Ken Paterson and  
Dave Leigh loading  
the Scotty Box trays*





*Hacketts Creek: Placing the Scotty Boxes in the Weirs*

### **Island Hills, Hurunui**

Monday 2 June: Paul Hodgson and I took a repaired long RUSSI box up to put in the Dove Stream. There was a small fresh in the stream so it was decided to leave it in a safe position nearby.

Saturday 21 June: Six of us went to the Dove Stream and on arrival were greeted by a very heavy frost. We also took another narrower and longer RUSSI box to place beside the first box. All went well but I am still concerned about overloading the boxes. 80,000 eggs between the two boxes.

Having photographed both the Glencoe and the Dove and visited many times to view the streams, because of the many small freshes I consider it is not a suitable area for Scotty boxes. Having said that, I do intend to build a few weirs and observe how they stand up to the freshes and floods.

Of interest, 100 metres downstream of the boxes is what appears to be a salmon redd. On our way home we stopped at the bridge and four of us walked downstream to where the Mandamus enters the Hurunui. We saw a further 3 redds that we assume were salmon redds because trout spawn at a later date.

Thursday 17 July: Paul and I repeated the walk downstream from the bridge to where the Mandamus joins the Hurunui. The stream had a bigger flow of water compared to the walk on 21 June. I was hoping to get better photographs of the three redds using a polarising filter but the mistiness of the water prevented this. However the walk had its compensation as half way down when crossing the stream we disturbed a spawned salmon resting near the bank. It did not have the strength to swim against the flow and drifted downstream.

On the way home we called in to Ed Shand's new home near the Balmoral forest and I asked him about the history of salmon within the Mandamus system. He said there were good numbers of salmon returning to spawn in the late 1970s and after this the fishery appeared to be declining. He had hoped that the Sisters Stream salmon farm would help the Mandamus stream but it did not. It is at least 15 years since the last salmon has been observed so, if we have managed to restart the salmon runs in the Mandamus, we have achieved something.



*Dove Stream: Lunch reward for a job well done.*

### **Summary**

There were some difficulties this year with the production of eggs at Montrose. This affected our planned programme of ova planting and full use of the Scotty Boxes was not possible with the consequent time and manpower constraints to place ova before hatching.

However, whatever the problems and frustrations that occurred during planting time, it is far superior to doing nothing. My observations are that there is always a hatch taking place - how many is another matter.

As always, a hearty thanks to the dedicated bunch of volunteers who turn out regularly in all weathers to get the job done.

***John Hodgson***

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## **Central Plains Water Hearing 26.8.08**

### **Further submission by Peter Robinson**

I have been requested by New Zealand Salmon Anglers Association to comment on three main topics, including (1) the supplementary evidence of Mr Hay and Mr Lewthwaite regarding Hacketts Creek; (2) the supplementary evidence of Dr Hayes for Fish and Game regarding Waimakariri flow options; and (3) in response to a question put to Mr Ellis during our initial appearance regarding access, new information presented by Mr Lewthwaite in his supplementary evidence.

#### **Hacketts Creek**

NZSAA is in general agreement with the findings of Mr Hay on both the Hacketts Creek canal and in relation to the risk of fish stranding from operation of the proposed diversions and artificial channels.

Regarding the two options put forward by Mr Lewthwaite (CPW consultant) for Hacketts Creek, the siphon option is strongly preferred by the NZSAA, so long as that the matters raised by Mr Hay in his supplementary are suitably provided for.

I also note that Mr Lewthwaite states that after viewing photographs provided with NZSAA's submission showing volunteers carrying out ova planting, that he "*expects scale of construction need not be any more disruptive than what is already done as part of fishery enhancement works.*" This statement lacks credibility as any enhancement work carried out by NZSAA is done by hand moving a few boulders and stones, and cannot be compared to a major construction project that would involve much earthmoving carried out by heavy machinery.

As noted by Mr Hay, site remediation is therefore an important requirement following construction, as is minimisation of disturbance and risk of sedimentation during the construction phase itself.

#### **Waimakariri Flows**

NZSAA is in general agreement with the findings of Dr Hayes. In particular we agree that "*the more that the flow is reduced the more risk there is of an adverse effect on instream values*"

With regard to the Waimakariri River, the NZSAA's preferred minimum unmodified flow for B block water has already been stated as 120 cumecs as opposed to de Joux's option of an unmodified 100 cumecs. We believe that an unmodified 100 cumec flow does not in fact protect flows that are preferred by salmon anglers. For instance, expert angler Dirk Barr catches most of his salmon at a modified flow of 105-114 cumec. The commonly accepted fishable flow range of modified 50-80 cumec translates to an unmodified flow of 75-105 cumec, which goes beyond the de Joux alternative of an unmodified 100 cumec.

Adopting the approach taken by Dr Hayes in his supplementary, an unmodified 120 cumec flow equates to an actual (modified) flow at the OHB of 95 cumecs.



A modified flow of approx 100 cumecs is accepted by our members to be a vital flow for ensuring a healthy productive instream environment and angling opportunities. As noted above, this view is supported by the findings of Hayes. Any reduction in maximising the times this modified 100 cumec flow can be realised will have a significant negative impact on the rivers viability as a salmon fishery and NZSAA are adamant this flow regime should be protected. The more often the river can achieve and naturally maintain a modified flow of at least 95 cumec, for example on the flood recession, the less risk there is of an adverse effect on instream values.

#### **Rakaia Access**

Geoff Canham's (May 2008) evidence regarding access is endorsed by the NZSAA.

At our previous hearing fellow submitter Tim Ellis was asked by the commissioners to provide clarification on access points. In response I note these were clearly identified in appendices to Mr Canham's initial evidence (being Fish and Game access brochures showing available access to the Rakaia and Waimakariri Rivers).

NZSAA is concerned that Mr Lewthwaite's supplementary evidence suggests large semi permanent flows will be maintained adjacent to the riverbank. Mr Ellis in his initial submission noted the access problems currently experienced in the Rakaia River as a result of channels being artificially maintained against the riverbank. The proposed diversions are much larger, and therefore pose an even greater threat to access across the riverbed to the main channels of both rivers.

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# **2007-2008 Salmon Management Report for the North Canterbury Region**

*By Steve Terry, Fish & Game Officer*



Last year North Canterbury salmon anglers experienced the best returns since 1997. The standout wild spawning stream in the Waimakariri River was the Poulter River with the highest return on record at 1,600. Manuka Point Stream in the Rakaia River also saw its highest ever returns at 990 salmon. Both the angler catch and total run were the highest seen in a decade from both rivers and angler optimism increased significantly. Other east coast salmon rivers showed similar improved trends.

The salmon monitoring program in North Canterbury remained unchanged last season. All of the key spawning streams were intensively monitored and a number of secondary streams had one off spawning counts carried out at the peak of the spawning run. These secondary spawning streams are not regularly monitored as their overall contribution to the total run is usually minor. This confirmed again with this year's observations, although the number of salmon in these streams followed similar trends to the primary streams with significant increases to that seen in the last ten years.

Research into spawning stream residency time continued in the Waimakariri River headwaters in Cora Lynn Stream with a trap installed at the beginning of April. This research was abandoned 6 weeks later following concerns that trap avoidance may be endangering the success of spawning salmon and the trap was removed.

A recent salmon enhancement review confirmed that the enhancement program undertaken was beneficial while sustainable for the wild fishery and was therefore continued with only minor changes with strong volunteer support for the hatchery at Montrose and enhancement of spawning streams in both the upper Rakaia and Waimakariri Rivers through ova planting.

## **RESULTS**

### **Residency Research**

An aerial spawning count was carried out on Cora Lynn Stream prior to installing the trap and 20 salmon were counted above the trap site. The trap was installed in early April and removed in mid May following concerns that salmon appeared to be reluctant to enter the trap. This concern was further validated following the appearance of 15 redds over a short time frame in the hundred odd metres below the trap. This area had not previously been used as an intensive spawning area. There is a large pool directly below this stretch of the stream where salmon hold up prior to entering the spawning stream. It seems likely salmon ventured up to the trap and either headed back to the holding water or proceeded to create redds immediately below the trap if they were ready.

During the period the trap was operating only 20 salmon were tagged despite the number of salmon accumulating in the pool below increasing to an estimated 300 before the trap was removed. Aerial counts of these salmon showed that the majority of these salmon had been in this pool for over a month.

Of the salmon that were either tagged or already above the trap site prior to its installation, only a few were recovered during foot surveys, with aerial counts confirming the remaining salmon above the trap were all still active well over a month after the trap was installed or they were tagged. An aerial count was carried out 2 days after the trap was removed and all but a handful of salmon had moved well above the trap with most actively digging redds. A final aerial count was carried out in Cora Lynn on the 1<sup>st</sup> July with 64 of these salmon still alive. A residency time cannot be calculated accurately but observations would indicate a residency time of well over a month in this stream including the time spent in the holding water at the bottom of the stream. A residency time of 35 days was calculated as appropriate for this computer program to give a realistic figure of the total number of salmon likely to have spawned last season.

#### **Rakaia River**

The total run in the Rakaia was almost double that seen the previous season and the highest seen in over a decade. Angler catch and spawning escapement increased in similar proportions. The total catch was not boosted significantly by Montrose hatchery returns with the hatchery accounting for around 5% of the returns to the river. Mellish Stream, a tributary of Lake Heron which flows into the Rakaia River a few kilometres above the Glenariffe had 400 salmon return, equal to a similar number recorded in 2006 which was thought to be one of the better returns on record to this stream.

#### **Waimakariri River**

Waimakariri anglers' perceptions of a good season were well justified with angler catch, spawning escapement and the total run also the highest in over a decade. The Poulter River which often accounts for a reasonably large proportion of the run accounted for over half the salmon returning to the Waimakariri last season. Returns to the Silverstream hatchery were also better than those seen since large numbers of salmon were released in the nineties with 360 salmon returning to the trap.

#### **Angler Catch**

Angler catch has been calculated for both the Rakaia and Waimakariri Rivers. Both these rivers had significant increases in angler catch over previous seasons to sit at a long term median level for each river. The angler catch as a percentage of the total run was 41% in the Rakaia and 52% in the Waimakariri.

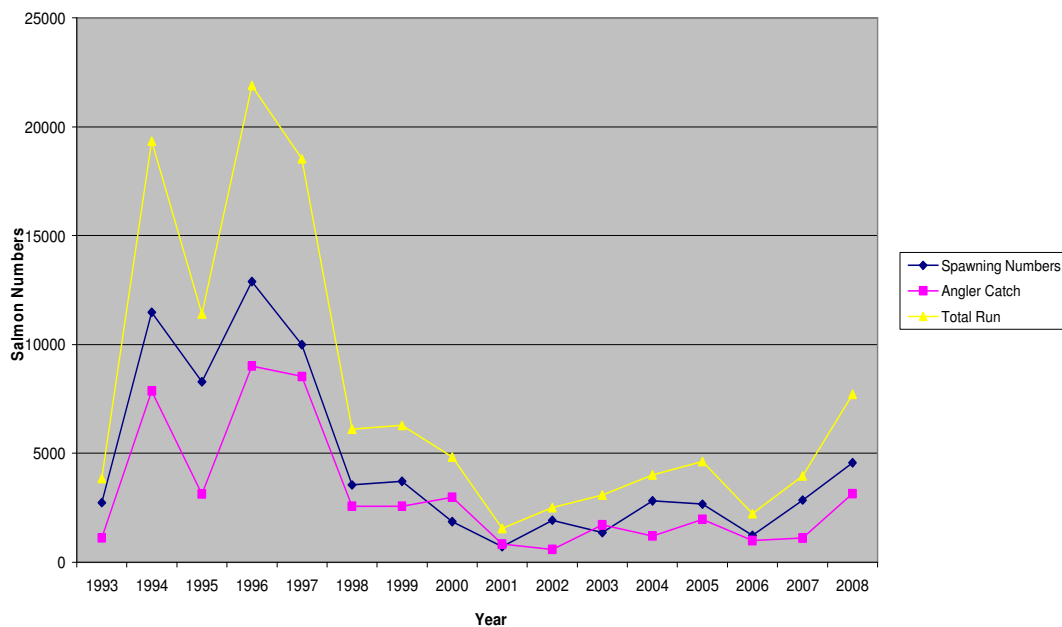
#### **Natural Spawning**

Wild returns to the Rakaia headwaters were the highest seen in over a decade, with the exception of the Hydra Waters which had an average return and less salmon than expected considering the overall strength of the run. Total returning numbers to the Waimakariri tributaries were also the highest seen in over a decade, however the Poulter returns significantly boosted this total with most other spawning streams experiencing relatively average returns.

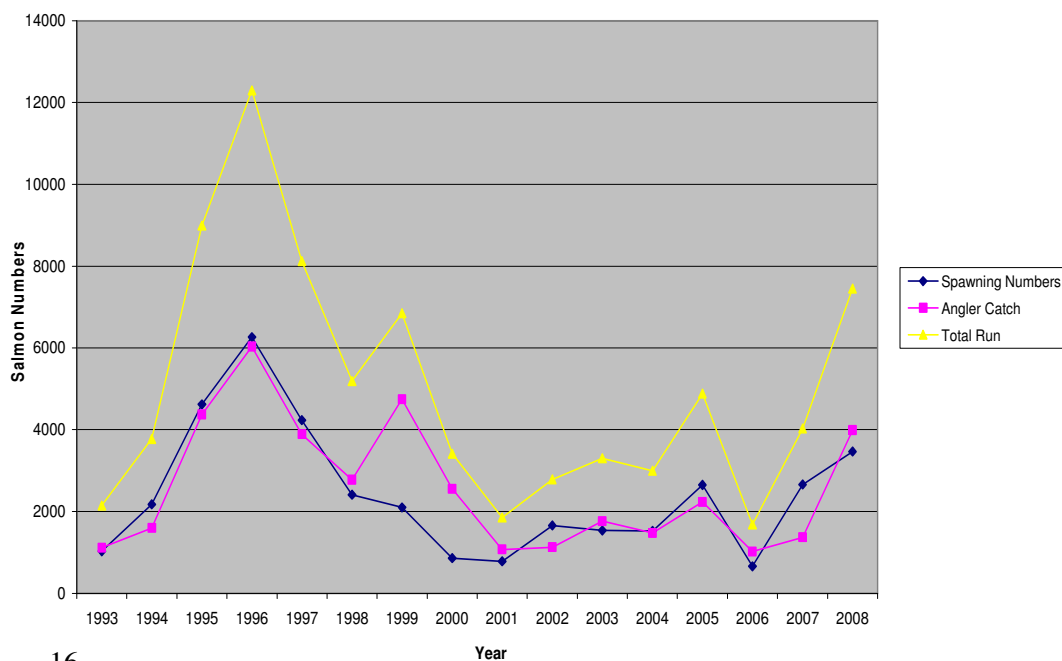
#### **Hurunui / Waiau River Salmon Returns**

The total run is not calculated for the Hurunui or Waiau Rivers as the area under the curve model cannot be used when only one aerial count is conducted. The aerial trend count of these rivers was conducted on the 15 May, when 614 salmon were counted in

**Rakaia River Returns 2008**



**Waimakariri River Returns**



the upper Waiau and 138 in the Hurunui. This is the highest number seen in the Waiau River since aerial counts began. However the Hurunui count showed very poor returns considering the positive reports from anglers who frequented this river throughout the season. The flow in both the north and south branches of the Hurunui was the lowest seen for many years. This appears to have forced salmon to spawn in a much shorter stretch of the south branch than usual. There were only a few salmon seen in Landslip Stream in the north branch which is the main spawning stream above Lake Sumner. It is unknown why this occurred, but one possible explanation is that very low, warm flows in the stretch of water above the lake led to salmon avoiding this area for spawning.

The angler catch survey seemed to confirm the positive reports anglers had for the Hurunui, with an estimated 441 salmon caught, while only 111 were calculated to have been caught in the Waiau. Unfortunately, due to the relatively low number of anglers who successfully fished these rivers that were contacted during the phone survey, there is a large degree of error associated with these calculations. Whilst the estimate of angler catch varies from year to year, actual angler harvest and spawning numbers will more likely have followed trends similar to the Waimakariri and Rakaia Rivers.

Other than the number of salmon returning to a river, angler catch is affected by the number of days the rivers have been fishable which is influenced by the frequency and duration of floods. All the main salmon rivers on the East Coast tend to mirror each other in these aspects.

#### **Rangitata / Waitaki / Opihi River Salmon Returns**

Salmon returns for the Rangitata and Waitaki Rivers showed very similar characteristics to the North Canterbury Rivers with very good returns last season. The angler catch survey calculated that North Canterbury anglers caught an estimated 938 salmon in the Rangitata River, 422 in the Opihi and 156 in the Waitaki which is up significantly compared to recent years' catches. However, as with the Waiau and Hurunui Rivers, these results are subject to a high margin of error due to the small number of anglers contacted who successfully fished these rivers.

#### **Angler Catch by Central South Island Licence Holders**

Angler catch records from Central South Island Fish & Game phone surveys show 725 salmon were caught in the Rakaia River, 81 in the Waimakariri River, 17 in the Waiau River and 19 in the Hurunui River by Central South Island anglers. Previous phone surveys indicate that very few salmon are caught in all but the main North Canterbury Rivers by Central South Island anglers and this is also true of this year's surveys.

#### **DISCUSSION**

Last season saw a pleasant and unexpected increase in numbers of salmon returning to all the East Coast salmon rivers. In addition, a reasonably high proportion of the salmon run was caught by anglers, especially in the Waimakariri River. This increase in the proportion of the salmon run caught is due to persistent angling pressure in the lower reaches of the river and relatively few freshes which deters salmon from heading upstream. These prolonged periods with low flows meant the salmon congregated in the lower reaches of the river for long periods of time allowing anglers plenty of catch opportunity.

Hatchery releases had only a minor influence on the total salmon run in both the Rakaia and Waimakariri Rivers last season. Anglers reported catching fin-clipped salmon in all the main East Coast salmon rivers last season. In the Rakaia salmon fishing contest it appears that approximately 10 percent of salmon taken were Montrose salmon. However, the Montrose salmon only made up about 5% of the total run last season.

Many anglers may not have noticed whether the salmon they caught was fin clipped, therefore specific questioning about fin clipped salmon in the angler survey is of no use to calculate total angler catch of these fish. However, it can be assumed that angler catch rate will be the same for Montrose fish as wild run Rakaia fish therefore 41 percent of the Montrose salmon returning to the Rakaia River will have been captured. This brings the angler catch of Montrose salmon to 174 and the total return of Montrose salmon to the Rakaia River to around 0.7 percent (423) of the initial 60,000 released. A significant number of Montrose salmon were also reported caught at the Rangitata River mouth.

Preserving the pristine state of our spawning streams is critical to the ongoing sustainability of our nationally significant salmon fisheries. One way Fish and Game does this is by monitoring the main spawning streams in the Rakaia and Waimakariri Rivers immediately prior to spawning each season. The purpose of monitoring is to observe any irregularities, obstructions, stock or fencing issues in the streams that might have an impact on salmon spawning.

All the primary spawning streams usually have good stable flows and there are normally no obstructions for salmon passage upstream. However, in recent years some problems have resulted from an increase in intensive farming practices in the high country. We now observe increased numbers of stock entering these key spawning streams and grazing along their margins. As a result, reaches of some of these streams now have muddy silt beds instead of clean gravels. In technical terms, the substrate in these reaches has changed from low to high 'embeddedness', meaning that the space between large gravels has become choked with fine sediments.

These reaches are effectively ruined as spawning habitat for two reasons:

Salmon require clean, loose gravels that can be moved around to create redds in which eggs are laid and fertilised. Fine sediment 'locks' the larger gravels together making redd creation difficult if not impossible.

Salmon ova buried in river gravels require oxygen to survive. This oxygen is carried down to the ova by the subsurface flow of water between gravel particles. Fine sediment slows or stops this flow of water which, in turn, starves ova of oxygen.

This is a major cause for concern. However there is good cause to believe the problem is not insurmountable. Most high country farmers are very proud to have salmon spawning streams running through their property. These streams are also protected by Environment Canterbury plans which contain rules about stock access into salmon spawning streams. Fish and Game intends to work collaboratively with high country farmers and Environment Canterbury to find solutions that protect and restore these critical habitats under increasing pressure.

Steve Terry  
**Fish & Game Officer**

10<sup>th</sup> August 2008

### Rakaia Tributaries

Year	Hydra Waters RT=14.67	Manuka Pt RT=16.7*	Double Hill RT=13.95	Glenariffe RT=18.5	Mellish Strm & Goat Hill Strm	Montrose Trap Census	Nat Spawning Excl Mont-rose	Spawning Numbers	Angler Catch	Total Run	% of Run Mont-rose
1993	1113	209	704	<u>713</u>	'		2739	2739	1116	3855	
1994	4021	467	2491	<u>4497</u>	'		11476	11476	7861	19337	
1995	3689	386	1185	<u>3026</u>	'		8286	8286	3120	11406	
1996	4653	811	1985	<u>5442</u>	'		12891	12891	9008	21899	
1997	2998	966	2401	<u>3630</u>	'		9995	9995	8531	18526	
1998	1559	216	857	<u>912</u>	'		3544	3544	2567	6111	
1999	1510	302	377	<u>1528</u>	'		3717	3717	2567	6284	
2000	812	175	604	<u>271</u>	'		1862	1862	2975	4837	
2001	476	43	103	<u>100</u>	'		722	722	829	1551	
2002	1382	193	258	<u>93</u>	'		1926	1926	585	2511	
2003	674	196	284	<u>89</u>	'	120	1243	1363	1714	3077	8.8
2004	1456	298	303	649		110	2706	2816	1195	4011	3.9
2005	898	289	306	325		850	1818	2668	1958	4626	31.9
2006	357	87	132	147	400	110	1123	1233	994	2227	8.9
2007	1471	286	243	583	90	180	2673	2853	1110	3963	6.3
2008	1499	990	463	811	550	250	4313	4563	3149	7712	5.5

Note: 2006 Mellish Stream Max 350, Lower Goat Hill Strm Approx 50

### Waimakariri Tributaries

Year	Poulter RT=21*	Winding Crk RT=15.42	Cass Hill RT=16.7	Cora Lynn RT=16.7	Hacketts Crk &	Silverstream Trap Census	Nat Spawning excl Silverstream	Spawning Numbers	Angler Catch	Total Run	% of Run Silverstream
1993	304	327	213	186			1030	1030	1116	2146	
1994	363	236	438	285		855	1322	2177	1597	3774	39.27
1995	1225	1011	817	337		1230	3390	4620	4372	8992	26.62
1996	1559	2336	1045	508		818	5448	6266	6033	12299	13.05
1997	726	824	1362	491		830	3403	4233	3893	8126	19.61
1998	505	417	840	389		260	2151	2411	2778	5189	10.78
1999	593	417	302	289		500	1601	2101	4748	6849	23.80
2000	166	86	185	80		347	517	864	2553	3417	40.16
2001	63	27	117	28		547	235	782	1075	1857	69.95
2002	878	313	148	69		250	1408	1658	1128	2786	15.08
2003	414	183	342	Not Counted^		600	939	1539	1764	3303	38.99
2004	480	278	251	312		205	1321	1526	1475	3001	13.43
2005	960	689	320	381		300	2350	2650	2234	4884	11.32
2006	89	88	131	101	80	170	489	659	1022	1681	25.80
2007	521	433	532	788	110	275	2384	2659	1373	4032	10.34
2008	1601	443	386	355	320	360	3105	3465	3991	7456	10.39

Notes: 2006 Hacketts Creek Foot count 60, One Tree Swamp 20.  
Cora Lynn 2003 had main stem of the Waimak flowing through it

**Waiau & Hurunui Trend Counts**

	Date	Hurunui Trend Count	Date	Waiau Trend Count
1995		89		243
1996		47		420
1997		329		393
1998		114		146
1999	11-May	129	11-May	281
2000	10-May	64	10-May	111
2001	3-May	20	3-May	87
2002	9-May	132	9-May	162
2003	7-May	151	7-May	203
2004	10-May	106	10-May	121
2005	24-May	93	24-May	197
2006	16-May	37	16-May	66
2007	8-May	80	8-May	168
<b>2008</b>	<b>15-May</b>	<b>138</b>	<b>15-May</b>	<b>614</b>

**Waiau & Hurunui Angler Catch**

	Hurunui Angler Catch	Waiau Angler Catch
1996	714	63
1997	826	305
1998	665	70
1999	559	496
2000	195	253
2001	15	30
2002	113	40
2003	307	40
2004	439	40
2005	268	110
2006	128	18
2007	109	16
<b>2008</b>	<b>441</b>	<b>111</b>

**Angler Catch as a Percentage of the Total Run**

Season	Rakaia	Waimakariri
92-93	29	52
93-94	41	42
94-95	27	49
95-96	41	49
96-97	46	48
97-98	42	54
98-99	41	69
99-00	62	75
00-01	53	58
01-02	23	40
02-03	56	53
03-04	30	49
04-05	42	46
05-06	45	61
06-07	28	34
<b>07-08</b>	<b>41</b>	<b>52</b>



# Atlantic Salmon

*by Ron Dougherty*

In the late 1960's three of us from the Marine Department travelled to the Southland Acclimatisation Society's fish rearing ponds under the combined road-rail bridge just out of Lumsden. We were to use an electric fishing machine to ensure that some of the ponds were completely clear of fish before a new batch of trout fingerlings were put in for growing on. At some time long before, the ponds had held Atlantic Salmon.

In early winter in the middle 1980's I was sent to the "Joint MAF/BP" salmon facility at the head of Big Glory Bay on Stewart Island. MAF/BP had a few experimental sea cages full of Quinnat Salmon. This was in the very early days of diversification into Aquaculture. The salmon stocks came from South Pacific Salmon Farm just below Lake Coleridge Power Station tailrace.

After a few days, once I had picked up the routine, I was left on my own for periods of several days at a time, as the BP men wanted to go back to Half Moon Bay and work on prefabricating some additional salmon pens (sea cages).

My day wasn't particularly involved:

"Chase the seals off the walkways."

"Check that the seals haven't ripped the nets."

"Top up the food hoppers, check that they work."

"Try some hand feeding." (Being winter, the fish weren't feeding very well at all).

"Pump out the floating feed store." (Actually an all-but derelict fishing boat.)

"Meet the radio schedules." The only means of communication in or out from Big Glory Bay. If the radio was left on all night, it became a very loud alarm at 7.30am, full of cross-talk from all the cray and fishing boats.

I was there for 18 days and in all that time it was fine for about 3 hours - the only afternoon I had left my camera behind at the house. The electrical storms were spectacular and so was the volume of rain that fell. On one occasion, after a night of thunderstorms and rain, the entire Big Glory Bay (far bigger than all of Lyttelton Harbour) had a deep tea-coloured layer of fresh water lying on top of the sea water.

The fish in the cages couldn't cope with this, refused to come up through it, didn't eat at all. This effect lasted for several tides. It was quite weird. The outboard on the dinghy used to mix up the two waters and leave a blue line across the water, one out to the farm and one back to the house. The tides moved them around, sort of like con-trails in the sky. Eventually the wind, tides and additional rain dispersed the effect.

However, to get to the point:

Amongst the sea-cages of Quinnat Salmon was a far smaller cage of Atlantic Salmon, the adult survivors of some excavated redds located in a headwaters tributary of the Waiau River in Southland. They were all but off their food too, were extremely lethargic and knocked about by bashing into the nets of the sea-cage.

*(Continued on page 22)*

One day, all the men came back and harvested a batch of salmon from a cage. While they were there I asked if we could lift up the netting so I could have a look at the Atlantic Salmon. When we did, we found that the bigger female salmon were fully sexually mature, with loose, free-running ova, and the males were full of milt. One of the men made up a small "box" out of wood and mesh and a couple of female salmon were stripped, fertilised with milt, and were taken ashore and buried in the stream at the head of Big Glory Bay. What happened subsequently, I never heard. From what I saw of the fish, they were a sad and sorry lot, small and stunted, and not at all as majestic as I thought they should be.

On returning to Christchurch I had to submit a report on my stay and I mentioned the Atlantic Salmon being there. Subsequently, some time later, they were shifted up to Glenariffe and continued their bored lives there. I lost track of them but I think they were shifted back to Southland.

Now there are reports of landlocked salmon in the headwaters of the Waiau and Lake Manapouri. They deserve a medal for persistence.

**Ron Dougherty**

## **From Overseas:**

### **Three Pesticides Singled Out as Threat to Salmon**

*From an article by Robert McClure, Seattle Post Intelligencer Reporter*

From Los Angeles to the Canadian border, three pesticides synthesised in the 1950s and '60s are increasing the chance of extinction for more than two dozen imperiled salmon stocks, says a draft study by federal fisheries experts. "Overwhelming evidence" suggests the pesticides are interfering with the ability of salmon to swim, find food, reproduce and escape bigger fish trying to eat them, says the evaluation issued by the National Marine Fisheries Service. The fish in question, all protected under the Endangered Species Act, include threatened Puget Sound chinook. If the pesticides are used as currently authorised by regulations, "all (threatened salmon) populations will likely show reductions in viability," the 377-page study concludes.

"These are pesticides that Environmental Protection Agency has swept under the rug for years," said Joshua Osborne-Klein, a lawyer with the Earthjustice law firm in Seattle. "These are three that stood out as the nastiest of the (pesticides) that are still in widespread use." The fish scientists will soon review 34 other, newer pesticides to see how they affect salmon as part of a settlement with environmental groups. The first three pesticides considered were:

**Chloripyrifos** (also known as Dursban and Lorsban), **Diazinon** (also known as Knox Out, Spectracide and other brand names) and **Malathion**. These pesticides are variously used on vegetable, fruit and nut crops, for home use on lawns, plants, vegetables, fruit trees, shrubs and other trees, and industrial uses and to control mosquitoes and fire ants.

The Fisheries Service now has to say what should be done to control use of the three pesticides. The agency could order restrictions on their use, or even halt their application.

Heather Hansen, director of the pro-pesticide Washington Friends of Farms and Forests, questioned some of the assumptions used by Fisheries Service scientists. In one exercise, for example, fisheries scientists said concentrations of chlorpyrifos as low as 3 parts per billion could kill half the fish exposed over a four-day period. "That's what happens if you hold them in that concentration for four days. That never happens in the real world," Hansen said. "It tends to be a pulse, and then it's gone." She said measurements in the field by the Washington Ecology Department are finding "very, very, very low levels - levels that are far, far below what have ever been considered cause for concern."

However, the Fisheries Service study said at the concentrations expected in the wild, "population abundance likely would decline and recovery efforts would be slowed ... risk of extinction would increase substantially." Small side channels where salmon are most likely to hang out when they are young are the part of the streams where pesticide concentrations tend to be highest, the study says. For fish not killed outright, the study says, the pesticides' tamping down of the salmon's sense of smell is particularly important, because young salmon learn to avoid predators when they smell the blood of other young fish in the water. If they fail to pick up the scent, they get chomped, too. The insecticides also impair the salmon's ability to swim.

Insecticides harm salmon in another way, the study says: They kill off insects that young fish eat. So the young fish are hungry as well as hit by toxins. Adult salmon are affected, too. If their sense of smell is diminished, it can interfere with reproduction, because female salmon use a special odour to signal males that it's time to excrete their sperm.

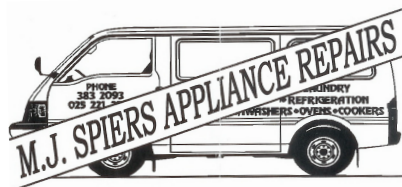
*Reported by CORANZ NewsWatch 15 August 2008*



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