

FRESHWATER FISHERIES ADVISORY SERVICE

MARINE DEPARTMENT

INVESTIGATION REPORT

JOB NO. 49

ACCLIMATISATION SOCIETY DISTRICT: Westland

TITLE OF JOB: West Coast Creeks Survey

OBJECTIVES: To determine the reasons for the low trout populations and determine the amount of food available to trout.

An investigation of Duck, Harris and Murray Creeks, situated in the Kokatahi farming district, Westland, (Map reference NZMS 10, Sheet 22) was made by officers of the T.F.S., Marine Department and Electric Fishing Team, Wellington.

This was carried out from 13 February - 16 February 1963. The survey was cut short due to heavy rain in the district and flooding of the above creeks. Bottom Fauna samples were taken in each stream, using standard Surber Sampling equipment, and the results are shown on field sheets and tables. More sampling would have been done but for the adverse weather conditions and depths of the streams during the visit.

DUCK CREEK

Duck Creek rises from Manks Tarn, a small spring and rain fed tarn S/W of Lake Kaniere, in the foothills of the Browning Range. For the first 2 miles it flows through heavily wooded hills before entering the Kokatahi Valley. From here on it is fed rapidly with small spring streams

which drain this fairly swampy region. It follows a winding course for approximately 7 miles before entering the Kokatahi River N/W of Langford. From its entry into the valley down to the Main Stream, the bank growth is mainly grass, willow and native bush plus very heavy patches of gorse and blackberry. In many places access through this to the stream is difficult. The stream bottom consists of gravel, pea-gravel and sand in the upper reaches. In the mid-reaches it becomes more stony, and in the lower-reaches goes again to finer gravel and sand, with large mud banks and flats near the confluence with the Kokatahi River. It was seen to flood fairly rapidly during heavy rainfall in the lower and mid-reaches. There are large beds of weed in the lower and mid section, Elodea Hirnwart, cress and milfoil which should provide excellent cover for trout.

BOTTOM SAMPLES

Bottom samples were taken at 4 stations. Results are shown on table enclosed.

WATER SAMPLE

A water sample was taken near the mouth. Analysis showed a total dissolved solid content in the water of 30 parts per million. This is within the range acceptable to trout and about average for those waters in New Zealand that have been measured.

ELECTRIC FISHING

Electric fishing was carried out on Duck Creek at 5 stations on 15 February 1963. Only 10 brown trout were caught, 8 of these at station 2D (Longford Bridge), and 2 caught at Station 5D (Kokatahi School).

Another 2 trout were observed, 1 large at Station 2D and 1 small at Station 3D (1 mile above Kokatahi).

Many l/f and s/f eels were seen during electric fishing. Most of these in the lower and mid-reaches.

GUT CONTENTS

Gut contents of 2 large brown trout were examined, the results are shown on table enclosed.

FORAGE FISH

Bullies and Galaxias were observed during electric fishing and B/sampling. In some sections the bullies were in large numbers. Some specimens were caught and sent to Wellington for examination.

CONCLUSIONS & RECOMMENDATIONS

- (1) Duck Creek has a reasonable amount of food available for fish.
- (2) It contains large numbers of eels in the lower and middle reaches, and these will compete with trout in food supply available.
- (3) Spawning conditions are fair throughout.
- (4) It is suggested that a liberation of trout be made, from Kokatahi School down to the Outlet. These should be as large as can be obtained 8" - 10". Perhaps salvaged fish from another district would be available. This could be done for 2 or 3 years and the stream be given a further survey to obtain data on survival and rate.

MURRAY CREEK

Murray Creek rises in a swampy area between the Kokatahi and

Hokitika Rivers approximately 2 miles S/E of Kowhitirangi. It follows a winding course for about 3 miles through farmlands before entering the Kokatahi River, 1 mile above Longford Bridge. Like Duck and Harris Creeks it is fed rapidly by springs and drains; it gains volume quicker than the others. Banks are mainly grass, willow, native bush, gorse and blackberry, very dense in places. The bottom is mainly gravel, pea-gravel and sand. It has also large weed beds like the others.

BOTTOM SAMPLES

Bottom fauna were taken at 2 stations only, due to flooding and time available. Results are shown in the table.

WATER SAMPLES

A water sample was taken near the outlet. Analysis showed a total dissolved solid content of 40 parts per million. This is within the range suitable for trout and slightly above average for New Zealand waters examined.

ELECTRIC FISHING

Electric fishing was attempted in one of the drains on 16 February but due to weather conditions and flooding, had to be abandoned. During the short time fished at this station 3M, a few l/f and s/f eels were seen, also a number of bullies. The water was coloured and none of these were caught, because of poor visibility.

FORAGE FISH

During bottom sampling, large numbers of Galaxid fry were seen in the headwaters. Many bullies were also observed, these in the lower part of the stream.

CONCLUSIONS

- (1) As far as could be ascertained during the brief time spent on this creek there is a fair amount of food available to fish.
- (2) Cover for trout is good throughout.
- (3) Spawning conditions are fair.

HARRIS CREEK

Harris Creek rises in swampy country about 3 miles S/W of Kowhitirangi, between the Kokatahi and Hokitika Rivers. It follows a winding course through farmland, before entering the Kokatahi just west of Longford. Many springs and drains run into it like the others. Banks are much the same, and bankside vegetation the same, willow, native bush, gorse and blackberry. In the lower portion this is very dense and access nearly impossible except by an established track. The bottom consists mainly of sand and gravel. There are also large weed beds as in Duck and Murray. In the upper reaches the weed-beds were in the process of being draglined.

BOTTOM SAMPLES

Bottom samples were taken at 2 stations, results are enclosed.

WATER SAMPLE

A water sample was taken near the outlet. Analysis showed a dissolved solids content of 45 parts per million. This is within the range suitable for trout and above the average for the New Zealand waters examined.

ELECTRIC FISHING

No electric fishing could be carried out on this Creek, due to flooding.

FORAGE FISH

Bullies were observed during B/F sampling at both sampling stations 1H and 2H.

TROUT

Only 1 large brown trout (3-4 lb) was seen during sampling (1H).
The water was clear on this day. No other trout were seen in the creek.

CONCLUSIONS

- (1) A fair amount of food is available to fish.
- (2) Cover for trout is good throughout except where the dragline has been operating in the upper reaches.
- (3) Spawning conditions are fair in the lower reaches **only**.

GENERAL CONCLUSIONS

All three creeks surveyed tended to rapid flooding during heavy rain although the bottoms and banks appeared to be fairly stable.

At present stocking is only recommended in the lower area of Duck Creek. If this is successful then further stockings can be considered in the other creeks.

Executed by: J. GALLOWAY } TECHNICAL
& } FIELD
E. MOORE } OFFICERS

Supervised by: E.D. LANE } SCIENTIFIC
& } OFFICERS
E. LEWELL }

TABLE I

MURRAY CREEK - GENERAL

<u>Station</u>	<u>Date</u>	<u>Temp.</u>	<u>W.R.</u>	<u>Cusecs</u>	<u>Bottom & Weeds</u>	<u>Remarks</u>
1M	14.2.63	14.44 ^o C 16.40 hrs	-	30-35	P. Gravel, sand, Milfoil, Elodea, Cress, Redshank	Water sample taken, B/F sample.
2M	14.2.63	14.44 ^o C 15.35 hrs	-	8-10	Stones, gravel sand Cress, Milfoil, Elodea	B/F sample
3M	14.2.63	-	-	3-4	Stones, shingle sand Milfoil, Carex, Cress, Azotta	Many Galax. & Bullies observed.

TABLE II

HARRIS CREEK - GENERAL

<u>Station</u>	<u>Date</u>	<u>Temp.</u>	<u>W.R.</u>	<u>Cusecs</u>	<u>Bottom & Weed</u>	<u>Remarks</u>
1H	14.2.63	13.33°C 12.15 hrs	-	10-15	Gravel & Sand. Cress, Potamogeton	1 Brown Trout observed. B/F sample. Water sample.
2H	14.2.63	13.33°C 11.10 hrs	-	5-6	Gravel, sand Elodea, Cress, Redshank	Recent bulldozing in area for new bridge. B/F sample.
3H	14.2.63	13.30°C	-	6-8	Sand, Mud Milfoil, Cress, Elodea	Very heavy weed. Deep, Rapid water.

TABLE III

MURRAY CREEK - BOTTOM FAUNA

%age of animals at each station.

<u>Station & No. of Samples</u>	<u>Date</u>	<u>Water</u>	<u>Av. No. in Section & Range</u>	<u>Trichoptera</u>	<u>Ephemer- optera</u>	<u>Coleoptera</u>	<u>Odonata</u>	<u>Annellida</u>	<u>Diptera</u>	<u>Mollusca</u>	<u>Platyhel- minthes</u>	<u>Neurop- tera</u>
G-3	14.2.63	Rapid Riffle Flat	128 77-193	23.4%	38.9%	12.7%	-	11.7%	8.3%	3.6%	1 only	-
H-3	14.2.63	Rapid Riffle Flat	154 119-212	27%	43.5%	12%		5.4%	3%	8.3%	2 only	1 only

TABLE IV

HARRIS CREEK - BOTTOM FAUNA

%age of animals at each station.

<u>Station & No. of Samples</u>	<u>Date</u>	<u>Water</u>	<u>Av. No. in Section & Range</u>	<u>Trichoptera</u>	<u>Ephemer- optera</u>	<u>Coleoptera</u>	<u>Odonata</u>	<u>Annileda</u>	<u>Diptera</u>	<u>Mollusca</u>	<u>Platyhel- minthes</u>	<u>Neurop- tera</u>
E-3	14.2.63	Rapid Riffle Flat	473 353-597	17.9%	24.3%	8%	.125%	33%	.25%	13.7%	2.7%	
F-3	14.2.63	Rapid Riffle Flat	255 211-363	65%	5.6%	3%	-	14.9%	-	9.7%	.78%	.65%

TABLE V

DUCK CREEK - E.F.M.

<u>Station</u>	<u>Date</u>	<u>Temp.</u>	<u>W.R.</u>	<u>Cusecs</u>	<u>Bottom & Weeds</u>	<u>Remarks</u>
1-D	13.2.63	14.75°C 0900 hrs	-	36	Shingle, sand, mud. Nattela, Elodea, Cress, Hornwart, Redshank, Carex	Water sample & B/F sample taken near Outlet. Eels & bullies observed. Parts opened up by drag-line.
2-D	15.2.63	14.5°C 1045 hrs	7.5K	2-3	Stones, sand, gravel. Algal film edges.	8.B. trout caught. Many L/F and S/F eels seen B/F Sample. Sawmill on left bank near bridge. 1 large trout observed.
3-D	15.2.63	15°C 1245 hrs	7.8K	6-8	Stones, gravel, sand. Carex, Elodea, Milfoil	1 small trout, many L/F & S/F eels. B/F sample.
4D	15.2.63	18.5°C 1400 hrs	-	7	Stones, gravel, sand.	Bullies & eels.
5D	15.2.63	14.8°C 1600 hrs	-	20	Stones, gravel, sand. Elodea, Hornwart, Natella Quillwart.	2 large B. trout caught. Stomach contents taken. Many eels.
6D	15.2.63	-	-	3-4	Gravel, sand, schist.	Eels and bullies. B/F sample.

TABLE VI
DUCK CREEK - BOTTOM FAUNA

<u>Station & No. of Samples</u>	<u>Date</u>	<u>Water</u>	<u>Av. No. in Section & Range</u>	<u>%age of animals at each station</u>						
				<u>Trichoptera</u>	<u>Ephemer- optera</u>	<u>Coleoptera</u>	<u>Odonata</u>	<u>Annelida</u>	<u>Diptera</u>	<u>Mollusca</u>
A-3	13.263	Riffle Flats	60 36-99	37.8%	17.7%	39%	2.5%	3%	-	-
B-3	"	Riffle Flats	253 184-346	59.5%	24.7%	14.8%	.4%	1%	.6%	1%
C-3	"	Rapid Riffle Flat	185 123-218	34.6%	55%	-	-	11%	1 only	-
D-3	"	Rapid Riffle Flat	27 15-36	25%	50.2%	16.2%	1 only			1 only

TABLE VII
DUCK CREEK - GUT CONTENTS

<u>Length</u>	<u>Weight</u>	<u>Sex</u>	<u>C/Factor</u>	<u>Pycnocentria</u>	<u>Rhyacop./Hydro</u>	<u>No. of animals in stomach</u>		
						<u>Olinth</u>	<u>Pseudonema</u>	<u>Parnid</u>
479cm.	1340 grams		44	165	2	7	2	-
575cm.	1802 grams		35	498	-	4	-	1