

Acclimatisation Society: Tauranga.

Title of Job: A survey of McLaren's Falls lake.

Objectives: To evaluate the success of stocking the lake with Rainbow Trout.

Discussion: McLaren's Falls lake was formed in the 1920's by the construction of a small Hydro-dam for the Tauranga Electric Power Board.

Up until 1958 the lake was stocked annually with Brown trout, then this stocking policy was changed and Rainbow trout fry and fingerlings were released into the lake. However in December 1970, 15,000 Brown trout fry were released into the lake !!!!!

Findings: The survey of McLaren's Falls lake was undertaken in October 1971. At the time of the survey only one 1½" gill net was available for sampling purposes. Four sets in the lake were made using this net, though no fish were caught.

McLaren's lake is fed by three rivers; the Opuaki, Mangapapa rivers which flow directly into the southern end of the lake and the Ngauwahine river which is diverted into the lake western side of the lake via an underground pipeline.

Heavy silting of the lake has occurred over the years and it is only at the spillway and lake outlet that deep water is to be found. (actual depths of the lake were not taken but it would appear that the deepest part of the lake would not exceed 30 feet.)

Construction of the dam has restricted the movement of native fish and eels into the lake. A release of smelt into the lake was made, but the success of this venture appears to be doubtful.

Conclusions: It would appear ~~that~~ from this survey that McLaren's lake is an established brown trout fishery and it is very questionable that the continued stocking of the lake with rainbow trout will change the situation. The release of brown trout fry in 1970 when rainbow trout were not available shows a complete lack in any management policy that the society might have had, rather it would have been

more prudent if the society had refrained from stocking that year, particularly as the society released further rainbow fry into the lake in December 1971. It was only after this liberation that the society requested urgent measures to be undertaken to reduce the population of brown trout. It was reported that during the 1971 liberation of rainbow fry that brown trout were observed feeding on the liberated rainbow fry.

Recommendations: Further survey work will be necessary on the lake, for the present findings are only based on limited sampling, visual observations and discussions with society officers.

Further gill netting, using a selection of mesh sizes would be advisable to gain a better knowledge of the trout population and feeding habits.

A study of the fauna of the lake to ascertain what feed is available to the trout. Such a survey should have been carried out before the liberation of smelt, which were introduced to supplement the apparent limited food supply. There would appear to be no areas around the lake suitable for smelt to spawn in.

From discussions it would appear that trout in McLarens lake will readily take a sinking worm. As fishing in the lake is hard the society could be advised to open the lake to worm fishing as a practical method in helping reduce trout.

D.J.P. Turner
Technical Field Officer.

7th December 1971.

Below are notes taken by P.J. Allen in December 1972, these were never written up, the note book being handed to me following Mr Allens death.

McLarens Lake.

12/11/72 5 nets layed. Stocking Rainbow fry Dec 1971, 10,500.
see D. Turners report re Brown trout 1970.

Annual stocking 10,000 rainbow fingerlings.

→ Fauna. Frogs, snails (Corrolla ~~sp.~~) weed (Potamagetan sp.) raupo.

Smelt. 12 - 15 years ago approx 10,000 Smelt (Retropinna sp.) were air-dropped into the lake. none survived???

1st net set lifted 4pm (no mention in note book where in lake nets were set) 4 brown trout (slabby condition) caught in 3½ and 4½ inch mesh.

Details: 58.5cms 4lbs 6ozs male (1) *
57.5 " 3lb 13ozs " (2) *
47.5 " 3lb 1oz " (3) *
47.5 " 2lb 10ozs Hen (4) *

Gut contents (1) remains of flying beetle
(2) punice, 40 Olinga, wool, beetle larvae.
(3) Olinga, beetle larvae, snail.
(4) reabsorbing ova, new ova forming, gut empty.

* Scales taken from fish and read by Dr Hunt at Turangi.

13/11/72. 2nd net set overnight results as follows:

Brown trout.				Rainbow trout		
length	weight	sex		length	weight	sex
53.00	3lb 8ozs	jack		44.5cms	2lb 10ozs	hen
48.00	2" 10 "	"		50.0 "	2lb 10ozs	jack
49.5	2" 15 "	"		49.5 "	3lb 2ozs	hen
42.0	2" 2 "	"		33.0 "	3lb 2ozs	"
45.0	2" 6 "	"		46.0 "	2lb 12ozs	"
49.0	2" 15 "	"		34.0 "	1lb 1oz	"
46.5	2" 6 "	hen		45.5 "	2lb 6ozs	"
52.0	3" 2 "	jack		36.5 "	1lb 9ozs	"
51.0	2" 15 "	"		37.0 "	1lb 8ozs	"
51.0	2" 15 "	"		30.0 "	14ozs	?
53.0	3" 4 "	"				
52.0	3" 8 "	"				
23.5	7 "	?				
45.0	2" 6 "	hen				
52.5	2" 12 "	"				
48.5	2" 9 "	jack				
29.5	12 "	?				
30.0	13 "	?				

Total 18 brown trout
10 rainbow trout
28 fish.

Majority caught in 4½ and 3½ inch mesh net.
3 fish in 2½ inch mesh net.

13/11/72 continued. Stomach contents of the fish caught revealed small numbers of the following: beetles, caddis (Clinga), snails, weed and one bully. Four fish in the sample appeared to have been damaged by eels. Some of the trout caught appeared to have been fin clipped. Rainbow trout - left pectoral and right pelvic. Brown trout - right pelvic. Maximum lake depth does not exceed 30 feet. pH 7.0 surface. pH 7.0 bottom.

14/11/72. Set 3 5pm Monday night.

Length	weight	species	sex.	
47.5cms	2lb 5ozs	Rainbow	hen	1*
37.0 "	1lb 8ozs	"	"	2*
35.5 "	1lb 6ozs	"	"	3*
36.5 "	1lb 6ozs	"	"	4*
35.0 "	1lb 4ozs	"	"	5*
42.5 "	2lb 4ozs	Brown	"	
47.5 "	2lb 7ozs	"	jack	
47.0 "	2lb 14ozs	"	"	

* Scales taken from 5 rainbow trout and sent to Dr Hunt, Turangi.

Set 4 the nets were set at the east end of the lake underneath the blue gum trees. 15/11/72 Morning set. Five fish caught all Brown trout - males.

Length	weight	sex	
53.5cms	3lb 9ozs	jack	(1)
47.5 "	2lb 12ozs	"	(2)
46.5 "	2lb 10ozs	"	(3)
48.0 "	2lb 9ozs	"	(4)
50.5 "	3lb 3ozs	"	(5)

Stomach contents: (1) caterpillar, beetle, bully.
 (2) snails (Potamopyrgus antipodum & corolla.)
 (3) nil.
 (4) green beetles, mayfly (Nesameletus),
 (5) green beetles, small koura, mayfly (Nesameletus)

Ngamuwahine River: inlet to McLaren's Lake.

The river enters the lake via double concrete pipes. Potamogeton sp. weed on the bottom of the inlet in clumps. Snails very common (Potamopyrgus sp) and freshwater mussel (Sphaerium novae-zelandiae) were seen as well as water boatman. (This small area has presented the most fauna seen so far - snails 5-6 per square inch.)

Length of the lake to confluence $1\frac{1}{4}$ miles, width 90yds approx.

Plans for the dam to be raised another 3-4 feet, will enable diversion of more water.

Age of Trout by scale rings.

- Brown trout.
- (1) only one scale salvaged, regeneration scale, age probably 3-4 years. undeterminable.
 - (2) 2-3 year old trout.
 - (3) 3 year old fish going into 4th year.
 - (4) 3 year old ?
- Rainbow trout.
- (1) 3 year old
 - (2) 2 year old entering 3rd year.
 - (3) 2 year old.
 - (4) 3 year old ?
 - (5) 2 year old

Because of little change in the temperature of the lake throughout the year these trout do not show clear differentiations between summer and winter rings (method used for aging from scales), the winter band being composed of rings close together, summer further apart. This makes it very hard to ascertain an accurate aging, however the results given are an approximate age and should not differ much from the actual age.

Most of the fish from which scale samples were taken had some regeneration scales, these are new scales which replace any that get lost, they have a nucleus which blots out the earlier years of growth and interferes with age determination.

Copy of Dr Hunts findings on scales from McLarens Lake.