FRESHWATER FISHERIES ADVISORY SERVICE

MARINE DEPARTMENT

INVESTIGATION REPORT

North Island JOB NO. 4

ACCLIMATISATION SOCIETY DISTRICT: Tauranga

TITLE OF JOB: A survey of the Ngamuwahine River and its tributaries.

OBJECTIVES:
1. To evaluate the spawning potential of the river.
2. To assess the present trout population.

INTRODUCTION

The Ngamuwahine River was first stocked with brown trout (Salmo trutta) approximately 12 years ago. The precise date of stocking and numbers of fish released is not known due to the loss of Society records for that period. Since that time no further stocking with brown trout has been carried out, though regular stocking with rainbow trout (Salmo gairdneri) has been undertaken. Up until the present time the river has primarily held rainbow trout.

Local fishermen reveal conflicting opinions over the stocking of the river with brown trout. Some feel that fishing in the Kaimai River system was adversely affected by the introduction of brown trout, for up until the time of the brown trout release good rainbow trout fishing was to be had, but is now practically non-existent. Other anglers feel fishing has improved with catches of both fish to be had. Both factions agreed that the most successful fishing method for brown trout in the river was the dry fly.

Another interesting point which came to light on the survey was the description given by three separate sources of two "types" of brown trout to be taken from the water; the normal fish and a different "type" caught in the upper reaches and rapids of the river.

METHODS

The survey of the Ngamuwahine River and its tributaries was carried out between 21 August 1970 and 7 September 1970.

Bottom fauna samples were collected using a standard square foot Surber Sampler. Electric fishing was carried out using Marine Department Type "A" Electric Fishing Machine. The p.H of the waters surveyed was tested using the Nesslerizer Comparator Disc method.

FINDINGS

DESCRIPTION:

The Ngamuwahine River rises in heavy native bush in the north western reaches of the Kaimai Ranges and flows in a south-easterly direction for eight miles, where it joins with the Te Ahuru Stream to form the Mangakarengorengo River. The Ngamuwahine River has two major tributaries, the Mangaputa Stream and the Margatotara Stream (see location map).

PHYSICAL FEATURES:

From the headwaters of the Ngamuwahine River to the junction of the Margatotara Stream the river flows through heavy native bush. In this area the width of the river varies from eight feet to twenty feet. The major part of the flow is shallow over a bedrock bottom with pools up to fifteen feet deep occurring approximately every 150 yards.

In these upper reaches the bed of the river is composed of rhyolite bedrock with large boulders, and only small deposits of fine gravel. The river is very susceptible to flooding and within the last two months the river rose as much as fifteen feet above its normal level.

The major part of this survey was undertaken in the Ngamuwahine River, from the bushline downstream to the confluence with the Te Ahura Stream.

Like the upper reaches of the river, this area has a rhyolite bedrock bottom with large boulders, some areas of small gravel suitable for spawning can be found. Along the edges of the river and at the tails of the pools there are deposits of silt.

For the most part the river is 25-35ft wide, but in some areas up to 50ft in width. The pools in these lower reaches vary from 4 to 20ft deep.

The banks of the lower reaches of the Ngamuwahine are mostly covered with scrub, although some stretches pass through pastures and are bordered with grass.

Flood debris was observed as far as up to 15ft in some trees, showing that, like the upper reaches, this part of the river is subject to high flood intensity.

As stated before the Ngamuwahine has two major tributaries; one of these, the Mangaputa Stream, joins the river in thick native bush. Like the main flow, it has a rhyolite bedrock bottom with large boulders. A visual survey shows very little suitable spawning gravel.

The second tributary, the Mangatotara Stream, follows the bush line and is bordered on one side with gorse, bracken and native bush, and on the other side by farm pastures. The bottom is mainly sandstone with small rocks. There are large pools up to 10ft deep and these pools have a very silty bottom; in places the silt may be 3ft deep. The banks of the stream are undermined in parts and the recent floods have caused large portions of the bank to fall into the stream.

BOTTOM FAUNA:

Bottom fauna samples were taken where possible to gain a qualitative idea of the types of food organisms available to the trout. As can be seen from the previous section the river substrate is such that it will not support a high population of fauna at any time. Additionally as the river is susceptible to heavy flooding, such fauna as there is must suffer severe depletion during these occurrences. Counts of fauna taken were low verifying the premise, but slightly higher numbers were gathered from the Mangatotara station.

The predominant species of larval organisms found is stated below:

Mangatotara - Muscidae (Two winged fly)
Zephlebia (Double gilled mayfly)
Deleatidium (Single gilled mayfly)

Ngamuwahine - Helicopsyche (Spiral cased caddis)
Deleatidium (Single gilled mayfly)
Nesameletus (Double gilled mayfly)

Native crayfish, or Koura, were found in all waters.

NATIVE FISH:

Electric fishing of both the Ngamuwahine River and Mangatotara Stream revealed no Galaxids or bullies. The possible reasons for this is the susceptibility of the river to major flooding and the barrier to fish movement upstream formed by a small power dam approximately 1½ miles below the confluence of the Ngamuwahine and Mangakarengorengo.

Small numbers of long finned eels (Anguilla dieffenbachi) and short finned eels (Anguilla lis) were present in all the waters surveyed. The largest caught was a long finned eel of 7lbs which contained an 8" trout.

TROUT:

Electric fishing was tried in the hope of obtaining samples of trout, but unfortunately, due to the condition of the rivers at the time of the survey, only limited stretches of the main river could be worked. During the fishing of these stretches no fish were seen or caught.

One brown trout was taken from the Mangatotara Stream (weight 1lb, length 36.5cms, male). This was the only trout caught on the entire survey.

With the realisation that successful electric fishing could not be undertaken it was necessary to estimate the trout population from bank observations. Using this method, it was estimated there is at least one takeable fish (over 1½lbs weight) to every pool in the river.

Some pools held up to five fish, the majority of the fish in these pools were brown trout. Only three rainbow trout were observed on the survey.

SPAWNING CONDITIONS:

Spawning gravel is very limited in the Ngamuwahine and its tributaries, and is found mainly at the tails of pools and in some of the deeper sections of the lower river.

These conditions are basically due to the type of river bed existent (Rhyolite bedrock). Similar conditions are to be found in the tributaries, together with a heavier silt covering on the rocks.

During the survey only three redds were found, these being in a pool, at a depth of about four feet.

CONCLUSIONS

1. As reported, a full and detailed analysis of the present trout population of the Ngamuwahine River and tributaries could not be carried out due to adverse river conditions.

2. Spawning in the Ngamuwahine River system appears to be very limited. What spawning occurs was found to be in "deep" water. The Ngamuwahine River apparently has a late spawning run and this could be the reason for the small numbers of redds or pairs of spawning trout seen.

3. The present trout population, though low, appears to be the natural number the river can hold. Increase in stocking would probably result in the fingerlings becoming a food source for the present population.

4. A further electric fishing survey of the river system should be carried out early next year (February-March) when the rivers are at their lowest. It will then be possible to get a better coverage of all waters. This survey would also give an idea of the success of spawning in the river by enumeration of trout fry caught.

5. In a river of this nature with limited natural spawning, over-planting with any other fish is likely to have a major effect on the existing population. Changing the species of fish stocked should be undertaken with utmost caution. A recommended stocking rate will be given after further electric fishing of the river system.

Executed by: D.J.P. Turner
Technical Field Officer

I.F. McMillan
Electric Fishing
Technician

Supervised by: M. Beam

R. Little
Fisheries Scientists

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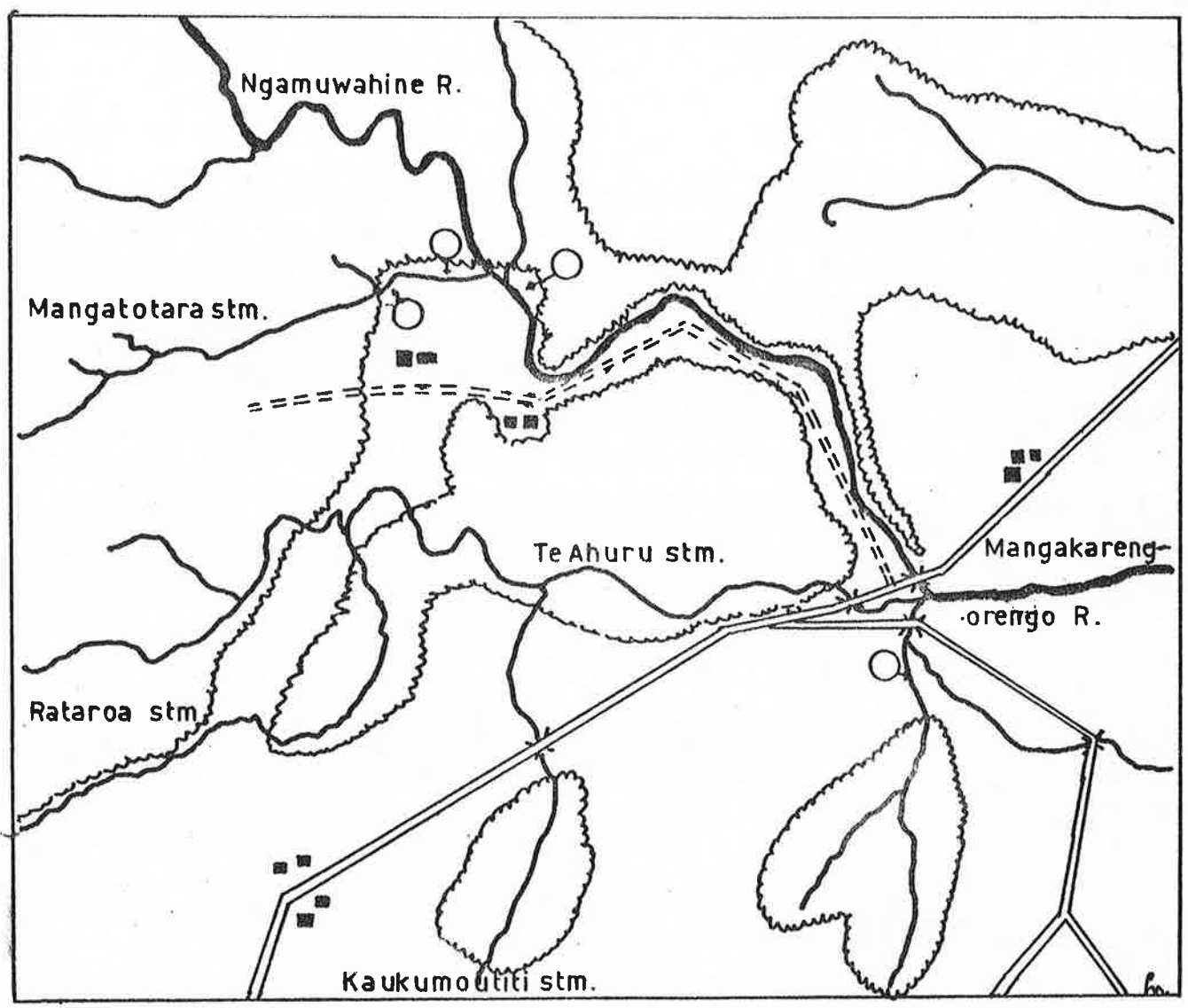
farm track.
sample areas.
native bush.
scale. (miles)
Location Map.
SURVEY AREA.
NGAMUWAHINE RIVER
& TRIBUTARIES.
TAURANGA ACCLIMATISATION
SOCIETY.
Ngamuwahine R.
Mangatotara stm.
Te Ahuru stm.
Mangakareng-
orengo R.
Rataroa stm.
Kaukumoutiti stm.