NORTH ISLAND ADVISORY SERVICE

FISHERIES MANAGEMENT DIVISION

MINISTRY OF AGRICULTURE AND FISHERIES

JOB No. 7

INTRODUCTION

This report describes the release of Salvelinus fontinalis (Eastern brook trout or char) into the Aorangi Stream, the possible factors influencing their survival, and methods used to determine whether the population was still present.

LOCATION

The Aorangi Stream is a tributary of the Moawhango River. The headwaters drain the "Bowery", a swampland region which lies between the Three Kings and Stowmans ranges. These ranges form part of the major Kaimanawa mountains, south of Lake Taupo. The stream flows in a southerly direction for approximately twenty kilometers before joining the Moawhango River some sixteen kilometers east of Waiouru. The Moawhango itself is a major tributary of the Rangitiki River and has its source further up in the Kaimanawa ranges. It flows in a southerly direction, passing through Ministry of Defence property east of Waiouru and finally joining the Rangitiki River just south of Taihape. Access to the Aorangi Stream is through the Ohinewairua sheep station and require the use of four-wheel drive vehicles.

BACKGROUND INFORMATION

Interest was centered on the Aorangi stream two years ago when the Wellington Acclimatisation Society chose it as a suitable spot to carry out an experimental release of S. fontinalis.

The aim of the experiment was to try and establish a breeding stock for further liberations and also to act as a reserve stock should the present population in the headwaters of the Moawhango be affected by the Tongariro power scheme. This river will be dammed and diverted into the Tongariro river and a large fluctuating lake will be formed.

PHYSICAL CHARACTERISTICS OF THE STREAM

The stream flows through tussock grassland, native bush and finally, farmland before entering the Moawhango. A natural velocity barrier approximately six kilometers from the source, divides the stream into two fisheries. In the upper fishery the water is very clear and little algae growth is present, while in the lower fishery the water becomes murky and algae growth is widespread. The upper region of the stream was chosen for the release of S. fontinalis as the stream there offered shade, shelter, and an abundance of benthic organisms, an absence of competition from other fish. The stream has numerous shallow pools formed from depressions in the volcanic substrate. In some areas there were small amounts of sedimentary gravel scattered on the solid stream bottom. This gravel, although rare, appeared suitable for spawning.

conditions during potential spawning periods could also limit survival of ova.

S. fontinalis populations in this country are normally found in headwater areas free from major competition of other exotic fish (Lane E.D. and Skrzynski, W. 1972). A study of the Moawhango in 1966 by Cudby (1966) also showed this to be the case.

The fish released into the Aorangi may also have shown this tendency and moved into the headwater regions which were inaccessable during this survey.

Freshes since the release of the fish may have forced them over the velocity barrier into the lower reaches where competition with the established rainbow and brown trout has proved too great. The survival rate of S. fontinalis in America is low when in competition with other fish species (Trippensee 1953).

RECOMMENDATIONS

No further surveys on this population are warranted as it appears the release has been unsuccessful. Future releases should consist of a larger number of fish (at least 500). Such fish should be of known age and, if possible, sex. Tagging the fish would also assist future surveys.

published May 1974

ACKNOWLEDGMENTS

Thanks to Mr L. Campbell for permission to cross his land.
Mr T. Powell for assistance during the survey, and the Wellington Acclimatisation Society for the use of their landrover and field staff.

REFERENCES

Cudby, E. J. 1966 — Moawhango River Survey 5pp (Unpublished Marine Department report).

Lane, E.D. & Skrzynski, W. 1972 — Distribution of native and introduced fishes in the Hinds River System 29pp. Fisheries Technical Report No. 87.

Trippensee, R.E. 1953 — Wildlife Management 572pp. McRaw-Hill Book Co. Ltd.

Executed By: - A. S. Turner Electric Fishing Technician

J. Meredith-Young Science Technician

Supervised By:- R. W. Little - Senior Freshwater Fisheries Officer

B. Brun - Chief Fisheries Advisor.