Ref ID: 71474

JOB COMPLETION REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. F-7-R-1 Work Plan No. VII Job No. VII-A

Title of Job: The Effects of Logging on Pinkham Creek's Fish Population.

Objectives:

So far as is known, no information is at hand on the change if any, of a stream population after a drainage has had timber removed. This project is aimed to determine what changes may take place in a stream population after virgin timber has been removed.

Techniques Used:

The stream was divided off into one tenth of a mile units and by a random selection of numbers, 300 foot sections were chosen that were to be sampled along the stream. Sixteen sections were chosen but only four were actually sampled for fish populations as the remainder were inaccessible. The sections that were sampled were marked and roughly mapped. Sampling was done with an electric shocking device and each station was blocked off with 1/2-inch, square mesh nets. All fish were weighed and measured and scale samples were taken of all fish.

Findings:

Pinkham Creek is a small tributary of the Kootenai River (Fig. 1). The surrounding region is heavily timbered and has been logged only slightly along the stream bottom and this is restricted to the lower end of the stream. The most common trees in the area are fir, pine and larch. In the summer months the extreme lower end of the stream seeps underground.

Major logging operations are contemplated in 1952 and at present a good road is being constructed to the headwaters of the stream. More sections would have been sampled if this road had been completed. The average width of the stream in the four sampling sections was 14 feet. The stream bottom was mainly gravel and rubble. The sampling sections had the following number and types of pools:

Section 1	4 type 2 pools the remainder riffle area,
Section 2	no pools all riffle area,
Section 3	1 type 2 pool the remainder riffle area,
Section 4	4 type 2 pools the remainder riffle area.

No obstructions were observed in any portion of the stream. Most of the stream bank is brushy with much of it overhanging. The temperatures taken from July 31 to August 2 were from 54 degrees F. taken at 8:45 A.M. to 63 degrees F. at 3:00 P.M. The dissolved solids from a water sample of July 31, were 123.1 ppm.

The following is the number and weight of fish caught:

Section 1	47 eastern brook trout weighing 2.29 pounds, and 26 rainbow trout weighing 1.81 pounds.
Section 2	30 eastern brook trout weighing 1.99 pounds, and 7 rainbow trout weighing 0.49 pounds.

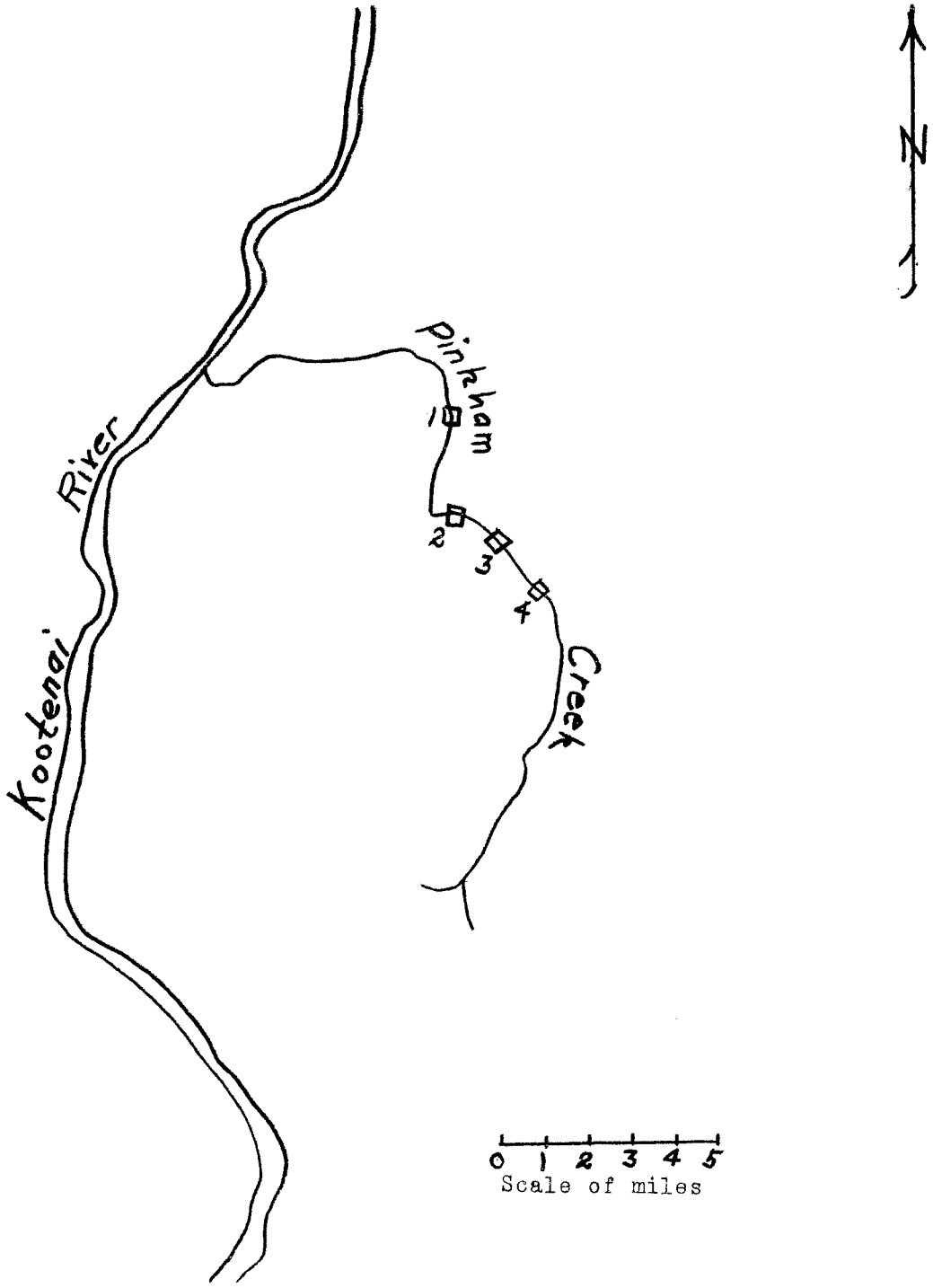

Figure 1. Pinkham Creek showing location of sampling sections.

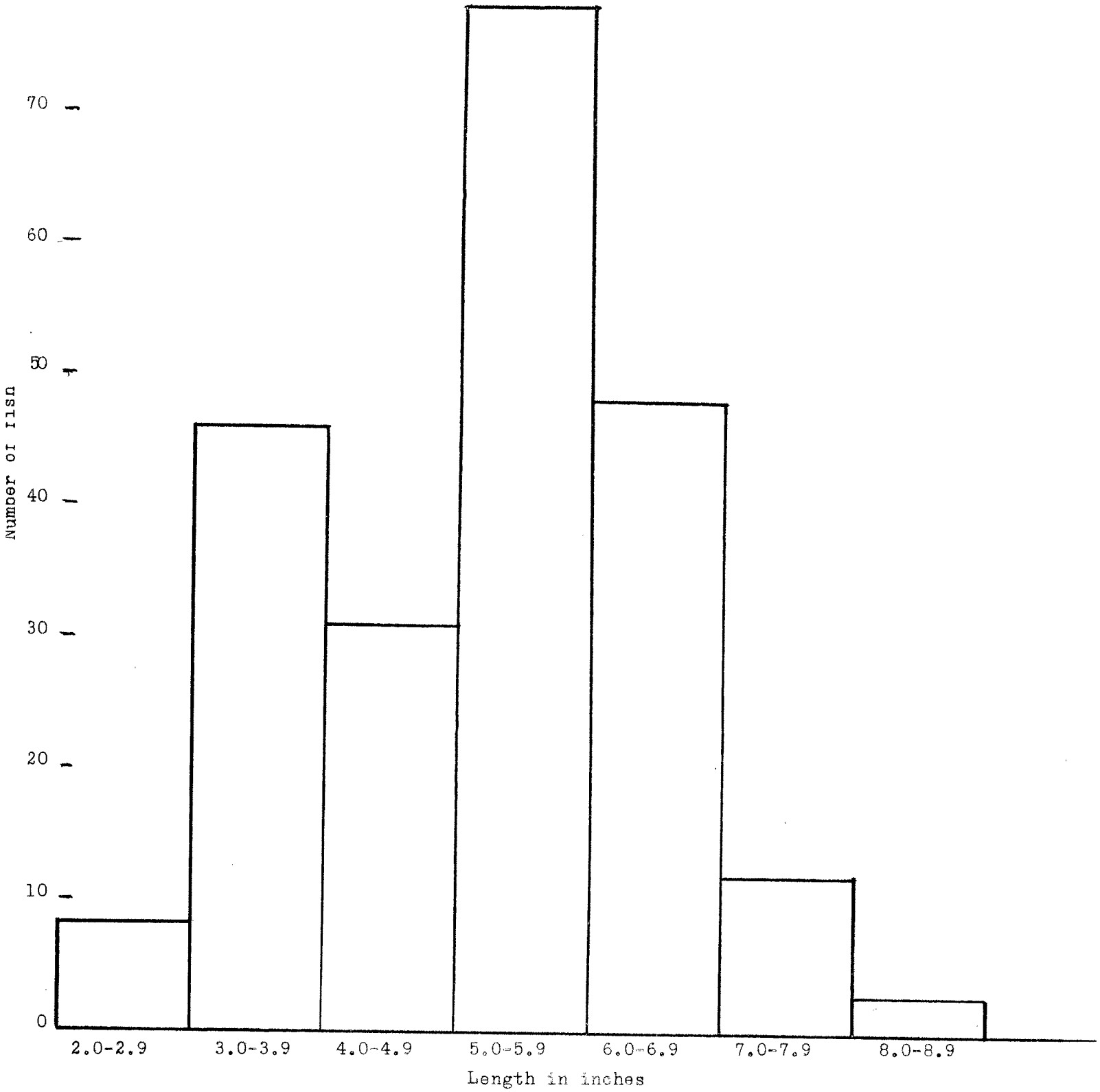

Figure 2. Length frequencies of eastern brook trout in Pinkham Creek.

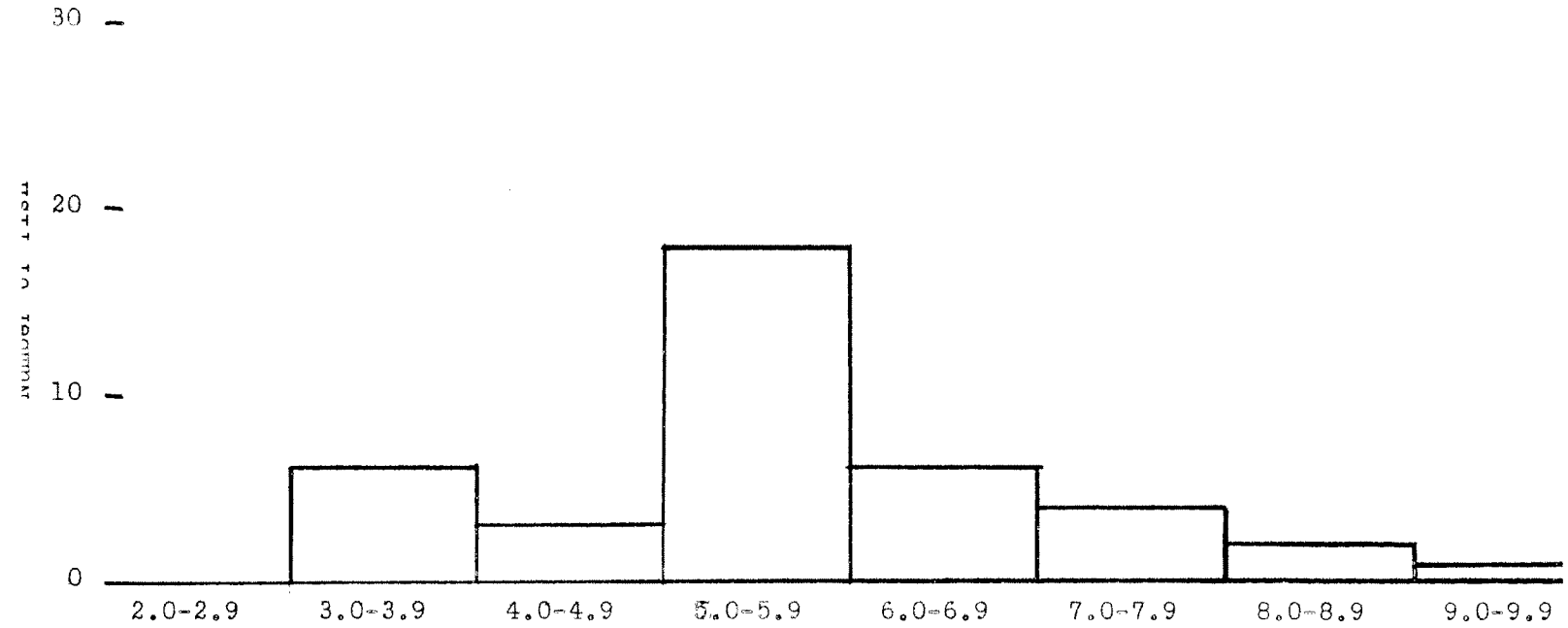

Figure 3. Length frequencies of rainbow trout in Pinkham Creek. (One was 1.5 inches long.)

Section 3 — 40 eastern brook trout weighing 2.13 pounds and 7 rainbow trout weighing 0.59 pounds.

Section 4 — 109 eastern brook trout weighing 6.48 pounds, and 1 rainbow trout weighing 0.27 pounds.

Section 1 is furthest downstream and the others are numbered upstream respectively. Eastern brook trout and rainbow trout were the only species of fish found in the stream.

The five year plan of fish distribution and management call for a planting of 4,000 yearling cutthroat trout each year.

Analysis and Recommendations:

This stream is definitely an eastern brook trout water in which not many reach legal size (7.0 inches and over). Of the 226 eastern brook trout captured, 15 were of legal size or 6.6 percent (Fig. 2), and of the 41 rainbow trout, 7 were of legal size or 17.1 percent. The condition factor ($C = \frac{100{,}000\ W}{L3}$) of the eastern brook trout averaged 36.2 and that of the rainbow trout 36.6. In the length frequency graph for the eastern brook trout, two distinct modes appear one at the 3.0-3.9 inch group and the other at the 5.0-5.9 inch group. No age-growth studies have been made using the scales but the assumption is being made that these two modes are the zero-plus age class and the one-plus age class respectively. Insufficient number of rainbow trout (Fig. 3) were captured to determine their age by this method.

It is recommended that this study be continued, that changes in population composition may be observed should they occur as logging proceeds and that more stations be sampled as the upper parts of the stream become accessible.

Summary:

Four randomly selected sections (300 feet long) were sampled and 226 eastern brook trout and 41 rainbow trout were found. Fifteen of the eastern brook trout were 7.0 inches long or longer and 7 of the rainbow trout were 7.0 inches or longer. The condition factor for the eastern brook trout was 36.2 and rainbow trout 36.6. By a length frequency graph the eastern brook trout exhibited two distinct age groups, the zero-plus and the one-plus. Insufficient number of rainbow trout were obtained for ageing by this method.

Data and reports:

Original data is with the fisheries biologist at Somers, Montana.

Prepared by Frank A. Stefanich — Approved by R. V. Lamkin

Date December 27, 1951