JOB COMPLETION REPORT
INVESTIGATIONS PROJECTS

State of Montana

Project No. F7R9 Name Northwest Montana Fishery Study

Job No. III Title Survey of Cutthroat Trout Fishery in the Flathead River and Tributaries above Flathead Lake.

Period Covered: May 1, 1959 to May 1, 1960

Abstract: Attempts to obtain cutthroat trout from the Flathead River for tagging purposes were not successful. Two streams of the North Fork River drainage were sampled by the electric shock method. Observations and sampling procedures did not reveal any spawning activity or redds in Langford Creek. Fry were found and collected starting on July 12 from 5 streams in the North Fork River drainage. Fishermen were contacted along the streams and the size, species, and spawning condition of the fish taken were recorded. A total of 69 cutthroat trout were preserved for taxonomic examination. Twenty-four cutthroat trout from the North Fork River were tagged with plastic jaw tags and released. Scale samples for age and growth analyses were collected from 255 cutthroat trout.

Objectives: The Flathead River and tributary streams above Flathead Lake is providing an extensive fishery on cutthroat trout. The objectives of this investigation are to determine the extent of cutthroat trout spawning areas, time and distance of movement, nature and time of recruitment to the lake, and to develop management measures so that a future fishery can be assured in this area. As an incidental objective, the same information will be obtained on Dolly Varden trout, however, emphasis will be placed on cutthroat trout.

Techniques Used: Various methods were utilized to capture fish from the streams of the Flathead drainage. A pirate trap ($\frac{1}{2}$ inch mesh) was set in the Flathead River in August. Two streams in the North Fork River drainage were sampled by the electric shock method. Specimens were obtained from various tributaries of the North Fork River drainage by sampling with cresol and minnow seines, and by angling. Fishermen were contacted along the streams and the species, size and spawning condition of their catch was recorded. Scales were taken from all fish examined during the study. Plastic jaw tags were received in August and fish captured by angling were tagged and released.

Findings: Many of the objectives of this study were not realized due to the ineffectiveness of the available equipment and a late initiation of the project. Work was not started until June 16 at which time all waters of the study area were high and carrying large amounts of debris, thus preventing the use of pirate traps designed to capture upstream migrants.

The pirate trap was first set in the mouth of the Flathead River below Holt's Bridge on June 26 and was removed the following day. Large logs

and other drifting debris prohibited the use of the trap in the main stre. Only a few rough fish were taken in this 24-hour set. High water prevented the use of the pirate trap until mid-July when it was again set in the Flathead River in the vicinity of Helena Flats above Kalispell. Various locations for setting the trap were attempted, however, the dragging effect of strong currents required that the trap be located in a protected backwater where currents were at a minimum. The pirate trap was set for a total of seven days and checked once each day. A total of 19 rough fish, 4 whitefish, and one Dolly Varden trout were taken during the seven day period. During the same period fishermen were taking good catches of cutthroat trout both above and below the trap location.

Seven 24-hour gill net sets were made in the Flathead River below Kalispell during August. The nets were set at various depths and locations over a period of four days. Only one cutthroat trout was taken in the gill nets.

The use of the pirate trap and gill nets to obtain fish was discontinued due to their ineffectiveness and also the great amount of time required to attend them.

Langford Creek and Cyclone Creek, streams of the North Fork River drainage, were sampled by the electric shock method on July 2, 1959. Each of these streams have lakes at their headwaters.

In one 300-foot section of Langford Creek a total of 32 cutthroat trout and 7 sculpins were captured. The cutthroat trout ranged in length from 2.4 to 5.2 inches (ave. 3.4 in.). Many 2 to 3 inch cutthroat trout could not be captured with the equipment used. The cutthroat trout were marked by clipping the left pectoral fin and returned to the stream.

The sampling of Cyclone Creek was hampered by high water and a low electrolyte content of the stream. One four-inch cutthroat trout caught in the lower blocking net was the only fish taken in a 300-foot section of the stream. Some other fish were observed but could not be taken with the shocker.

Sections of Langford Creek were closely observed during June and July to determine their use by spawning cutthroat trout. No spawning activity was noted. All fish observed or taken by sampling procedures appeared to be immature fish.

An attempt was made to find redds in Langford Creek by sampling gravel areas. A fine mesh screen net was held in the current below the gravel area while the gravel was dug up and washed into the current. No eggs were found by this procedure.

Langford Creek was sampled at various times during the season with a minnow seine and with cresol to obtain fry. Fry were first taken in this manner on July 12. Small schools of fry were found in almost every pool of quiet water at this time. Some of the fry examined had not completely absorbed their yolk sac. Collections of fry were made at various times thereafter during the season. These collections will be examined in the laboratory in conjunction with age and growth analysis.

Cutthroat fry were also obtained on four other tributary streams of the North Fork River by these same methods but were not found to be as abundant as in Langford Creek.

The lower end of Cyclone Creek was sampled in August by use of a minnow seine and by angling. Cutthroat trout ranging in length from 1 to 7 inches were found abundant in the same area where shocking was unproductive in July. Fish 1 to 3 inches long were particularly abundant.

Many attempts were made to obtain cutthroat fry or fingerlings from the North Fork River using a minnow seine. None were taken by this method although a large number of whitefish fingerlings were taken in each sample. Shallow pools, riffles, and stream edges were constantly observed for young cutthroat trout. In one instance only, young cutthroat trout were observed in the North Fork River. This was at the mouth of Teepee Creek where two cutthroat trout approximately 3 inches in length were seen.

A systematic creel census was not attempted during the study, however, fishermen were contacted along the streams at every opportunity. Fishermen were only occasionally seen along the North Fork River until after July 4, when the river began to clear. After this date, fishing pressure increased until the end of August. The number of cutthroat trout by length group taken by anglers checked on the North Fork River is given in Table I.

Table I

Lengths of Cutthroat Trout Taken by
Anglers Checked on the North Fork River

Length in Inches	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-20
No. of Fish	13	90	24	7	4

Only four of these cutthroat trout were in spawning condition. These four were males and ranged in length from 8.8 to 18.9 inches. All were taken during the last two weeks of August. A ripe male cutthroat trout, 8.2 inches in length, was also taken by angling from Big Creek during August.

On June 18, fishermen, congregated just below the dam on the Stillwater River in Kalispell, took cutthroat trout in spawning condition. Anglers were checked in the morning and evening and green ovaries from 11 female cutthroat were obtained. The ovaries were preserved and egg counts will be made. These fish were taken over a four day period after which fishermen were not observed in the area again. Fishermen report taking limit catches during the run. Fish were observed numerous times to be jumping

at the apron of the dam and in the spillways. None were observed to be successful in moving through the spillways although fishermen report they occasionally are. There is a fish ladder on the dam, however its function is doubtful due to its location and need of repair. Fish were observed in the ladder on three different occasions but were not observed to move over the dam. The dam is an old structure and believed to be without function.

A total of 69 cutthroat trout were collected from the North Fork River, five of its tributaries, and from Hungry Horse Reservoir for taxonomic examination. These fish were preserved in 10% formalin solution and will be closely examined and compared to reference collections to determine the taxonomic status of the cutthroat trout in these drainages.

Of all fish examined during the study, only two were definitely Yellowstone cutthroat trout. These were taken in the North Fork River in the vicinity of Coal Creek. One rainbow trout was examined which was reported to have been caught in the North Fork River.

Three of 29 fish taken by anglers who were checked on the Flathead River were rainbow trout and two others appeared to be rainbow-cutthroat hybrids. It is hoped that the taxonomic status of trout in the drainage will be more definitely established through laboratory examination of fish taken for this purpose.

Plastic jaw tags were received on August 25 and twenty-four cutthroat trout were subsequently taken from the North Fork River, tagged, and released. The fish were taken by angling. No tagged fish have been recovered.

A total of 255 scale samples from cutthroat trout were taken for age and growth analysis.

Recommendations: Another summer of work is required before any conclusive recommendations can be made.

Prepared by Howard E. Johnson Approved by George D. Holton

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