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: Survey of Spawning Areas of Yellow Perch and Trout.

Objective:

In many animals the period of early life history is the vulnerable period of their lives. The object of this job is to study this period of life of the trout and perch in an effort to establish the interrelation of the fish during this vulnerable period.

Techniques Used:

Tributary streams were sampled by the electric shock method for species composition and to determine the number of fry, if any, present. Perch fry were collected with a fine mesh dip net. The gravel in the tributary streams was screened for trout eggs. The project assistant arrived in the project area too late to observe the actual spawning activities of the yellow perch and trout.

Findings;

Middle Thompson Lake has an area of about 730 acres and is the center of a chain of three lakes (Figure 1). The uppermost lake is called Upper Thompson Lake (about 375 acres) and the lower lake is called Lower Thompson Lake (about 240 acres). This chain of lakes form the Thompson River which flows south into the Clarks Fork of the Columbia River. The surrounding country is mountainous and heavily timbered, mostly conifers. There are two tributaries to Middle Thompson Lake, Slimmer Creek and Davis Creek, and one tributary to Lower Thompson Lake, Boiling Springs Creek. The thoroughfare between the lakes is such that fish may easily travel from one lake to another.

The species of fish captured in the lake are as follows: Columbia coarse scale sucker (Catostomus macrocheilus), Columbia long nose sucker (Catostomus c. griseus), cutthroat trout (Salmo clarki), Dolly Varden trout Salvalinus malma), eastern brook trout (Salvalinus fontinalus), kokanee (Onchorhynchus nerka kennerlyi), large mouth bass (Micropterus salmoides), pumpkinseed sunfish (Lepomis gibbosus), redside shiner (Richardsonius balteatus), Rocky Mountain whitefish (Prosopium williamsoni), squawfish (Ptychocheilus oregonensis), and yellow perch (Perca flavescens). It was found that the cutthroat trout was the trout that spawned at about the same time as the yellow perch and was selected as the trout to be studied in this project. The deepest water found was 150 feet in Middle Thompson Lake. There is much shoal area on the north east sides of the lakes. Boiling Springs Creek, Davis Creek and Slimmer Creek had no perch

present when sampled by the electric shock method on July 29, 1952. No perch were observed in any of the tributary streams between June 5 and September 13, the time this project was under study in the field. The project assistant arrived too late to observe any spawning activities of the yellow perch or cutthroat trout. The cutthroat trout was the dominant spring spawning species of trout found in the lakes.

A trap was installed at the mouth of Boiling Springs Creek to determine any movement of fish into the lake. In twelve days of trap operation (July 17 to 28), 30 cutthroat trout were captured. Eleven of these were young of the year, while the remainder were the one plus age class. On June 29, many cutthroat trout approximately two inches in length were observed in Davis Creek. This stream went dry near the mouth on about August 1.

Yellow perch fry were first observed in schools on June 13, 1952, in four to six feet of water. These were the first perch fry observed. Most of these schools covered an area of approximately 30 square feet. They were noticed to feed on the surface in the evenings. When frightened they immediately went to the bottom, continuing to swim in a school, and then gradually worked to the surface again in about five minutes. On July 1, a large school of perch fry approximately 300 feet long and 20 feet wide was noticed in from six to ten feet of water. Several of these schools were subsequently observed. A dispersion of these large schools toward shallow water was first noticed on July 6 and after August 1, no more schools were observed.

Eastern brook trout and Rocky Mountain whitefish were found with the cutthroat trout in Boiling Springs Creek. In Slimmer Creek, 40 eastern brook trout and one cutthroat trout were found in 100 feet of stream. Only cutthroat trout were found in Davis Creek. Large mouth bass, pumpkinseed sunfish and squawfish were found in the same areas as yellow perch fry.

Analysis and Recommendations:

During the summer months when the tributaries were under observation, no perch were observed in any of the streams. The reason for this may be that the stream temperatures were lower than the lake temperatures during the summer months. The greatest concentration of yellow perch fry appeared to occur just prior to their dispersal into the shallow waters at the edge of the lake. This period of large concentrations appears to be the most suitable time for partial poisoning of the lake. Partial poisoning with the use of rotenone was attempted after the fry had dispersed into the shallow water and was successful, however, it is thought that less poisoning material would be required if the perch fry were killed while in the large schools. No other species of fish was noticed with the schools of perch. However, when the yellow perch were poisoned after dispersing into the shallow waters, sunfish, bass, shiners and squawfish were also killed.

As no observations were made of the spawning beds of yellow perch, it is recommended that this study be started at least two months earlier next year.

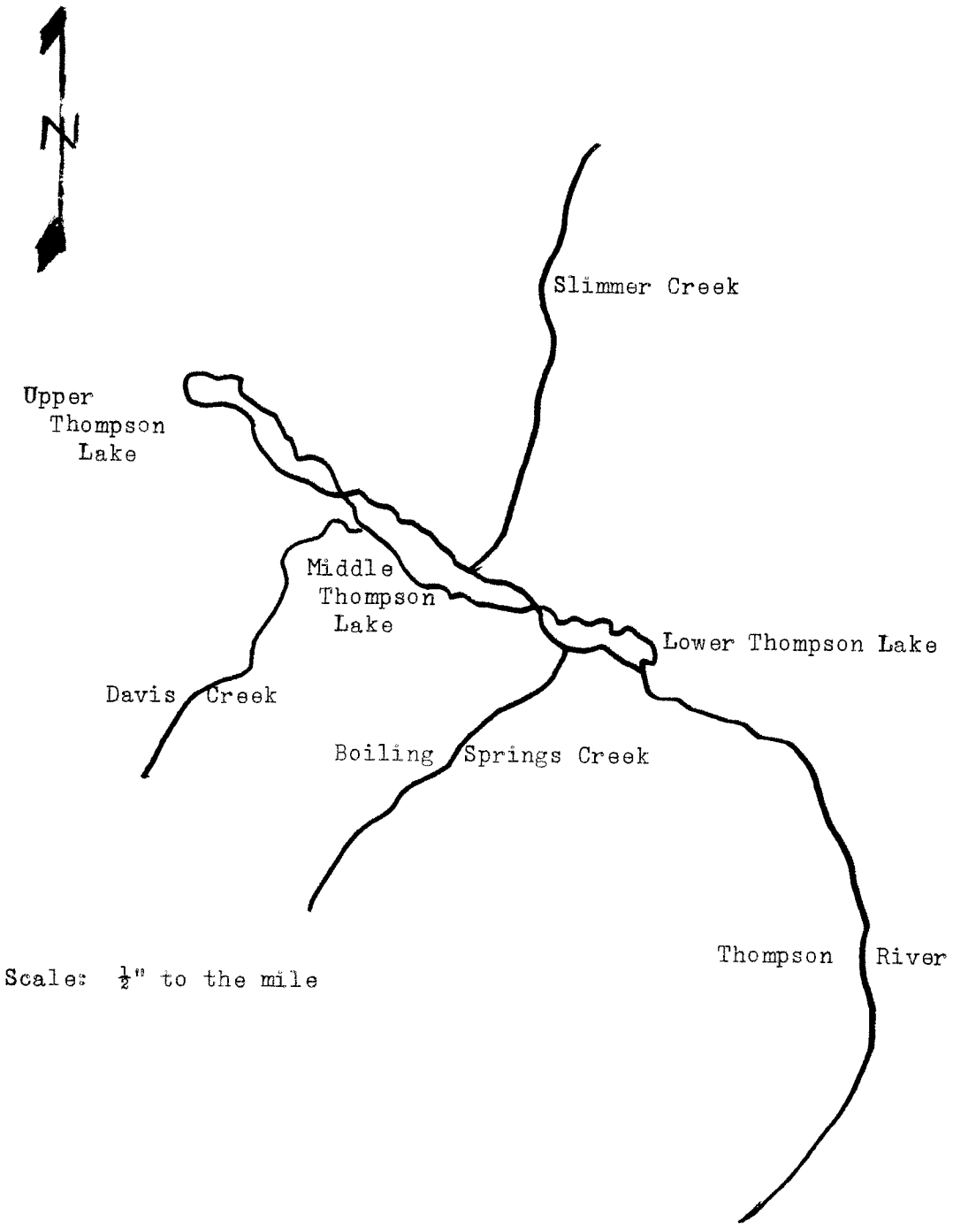

Figure 1. The three Thompson Lakes and the tributaries.

Summary:

Perch fry were found to travel in small schools about the middle of June. Thereafter, these small schools combined to make much larger schools until about the first of July, when there was a gradual dispersion to the shallow water at the edge of the lake. No schools of yellow perch fry were observed after August 1. At no time during the study, was there any indication of strife between the perch and cutthroat trout, as no mixture of these two species was ever observed.

Data and Reports:

All data and reports are with the project assistant at Montana State College, Bozeman, Montana.

Prepared by John Echo Approved by _____

Date May 6, 1953