MONTANA DEPARTMENT OF FISH AND GAME
FISHERIES DIVISION

JOB PERFORMANCE REPORT

STATE: Montana

TITLE: Flathead Lake Fisheries Investigation

PROJECT NO: F-33-R-11

JOB NO: I-a

TITLE: Seasonal, area & depth distribution of cutthroat trout & Dolly Varden in Flathead Lake

PERIOD COVERED July 1, 1976 through June 30, 1977

OBJECTIVES

The primary objective of this job is to identify the diel and seasonal movements of the cutthroat trout and Dolly Varden as they are associated with species habitat preference or with spawning migration activities. The present segment of this job was to define the summer-fall shoreline distribution patterns and prespawning concentrations of these fish in the lake. Associated with the fish sampling, measurements of the basic chemical, physical and biological characteristics of the sample areas were to be made.

ACCOMPLISHMENTS

The present segment of this job was designed to develop and evaluate hydroacoustical assessment techniques when applied to target species, cutthroat trout and Dolly Varden. Acoustical data were collected during 32 cruise days on the lake, of which 15 were conducted during daylight hours and 17 after dark. The sampling was conducted at biweekly intervals during the period July through November, 1976. The daylight cruises were specifically made to define habits and distribution patterns of the target species as well as continuing the monitoring of the overall fish distribution in this lake. Water temperature profiles, secchi disc readings and surface plankton collections were made during the daylight hours.

The acoustical data, which is recorded on magnetic tape, was reviewed in the lab with the aid of an oscilloscope. During the review, attempts were made to distinguish the target species but were discontinued when system calibration problems were encountered. These problems did not allow separation of fish sizes and therefore could not be used to evaluate specifically cutthroat trout and Dolly Varden populations.

The midwater trawl, with an eight by eight-foot opening was used in conjunction with the acoustical surveys to verify species, size and composition. It was fished at depths ranging from surface to 90 feet. Sampling with the trawl which has a cod-end mesh size or 1/8 inch stretch measure was conducted during both daylight and dark hours and at towing speeds ranging from 1.25 to 1.75 meters per second (2.79 to 3.91 mph). To date,

the target species have not been represented in the catch. A trawl with a cod-end mesh size of 1/2 to 3/4 inch (stretch measure) is recommended for future trawling for these target species.

Seasonal and area distribution patterns for cutthroat trout and Dolly Varden were accomplished with the sampling of spawning kokanee population by gill net along the shoreline areas of the lake. Fourteen sampling stations were netted during the months of November and December. Catch and distribution data on the target species has accumulated during past sampling periods and will be summarized and presented in the final report.

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Date: September 28, 1977

Waters Referred to: Flathead Lake 07-6400