MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

FISHERIES DIVISION
JOB PERFORMANCE REPORT

STATE: Montana

PROJECT TITLE: Flathead Lake Fisheries Investigations

PROJECT NO: F-33-R-13

JOB NO: I-b

JOB TITLE: Measure annual trends in recruitment & migration of kokanee populations & identify major factors affecting trends

PERIOD COVERED: July 1, 1978 to June 30, 1979

OBJECTIVES

It shall be the primary objectives of this job to establish relative abundance of the six major game fish species with the present emphasis on kokanee. A secondary objective will be to identify the environmental factors affecting population changes.

ACCOMPLISHMENTS

Population indices for kokanee 10 inches and longer were established by conducting hydroacoustical surveys during the months of July, August and September. These indices represent fish density estimates made by review of the magnetic tapes on an oscilloscope in the laboratory by the direct count method. Densities reached a maximum in early August at 205.6 fish/hectare (83.3 fish/surface acre). However, a concentration of 87.2 fish/hectare (37.3 fish/surface acre) was established on a greater area of the lake and is believed to be representative of the average concentrations of salmon. A midwater trawl was used in conjunction with the acoustical surveys to verify fish species and sizes.

Periodic creel checks were made during June through August in six of the nine major kokanee fishing areas. Catch rates ranged from 1.28 fish/hour in early July to 5.1 fish/hour in late August. The average size of the 1978 male kokanee caught during the summer was 290 mm (11.4 inches) total length. In 1977 the male salmon averaged 280 mm (11.0 inches) total length. Scales samples were taken from the creeled fish and from those collected in the trawl to establish growth measurements for the 1978 growing season.

Otoliths were collected from mature salmon utilizing three river and eight lakeshore spawning sites. Male kokanee in the lake averaged 347 mm (13.7 inches) total length, while river run males averaged 333 mm (13.1 inches) total length. Age analysis using the otoliths indicated four-year-old salmon were the dominate age group represented in both lake and river spawning sites. Age and growth data from 1972 through 1978 was entered and is on storage for future analysis in the Montana State University Campus computer located in Bozeman.

Kokanee fry recruitment to Flathead Lake from upper river spawning sites was monitored by drift nets. Fry were found in the Flathead River near Kalispell from late March through early June. Daily maximum-minimum flow fluctuations occurring in the Flathead River near Columbia Falls were summarized for a period of September through May for the years 1978 through 1973. These figures are available to assist in evaluating the influences of operational discharge patterns from Hungry Horse Reservoir upon the kokanee spawning, incubation and hatching.

Extreme cold weather caused Flathead Lake to completely freeze over on January 9, 1979. With the exception of a few small holes that appeared near the mouth of the Flathead River on February 5, the lake remained ice covered until March 25, a total of 75 days. This is the longest period of ice cover on record. The last complete freeze-over on the lake occurred in February of 1962 and lasted but a few days.

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Waters Referred to:

Flathead Lake	07-6400-03
Flathead River Sec 02	07-1560-01