MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

FISHERIES DIVISION

Job Progress Report

State: Montana

Title: Northwest Montana Fisheries Investigations

Project No. F-7-R-29

Title: Inventory of waters of Project area

Job No. I-a

Period Covered: September 1, 1979 through September, 1980

Report Period: February, 1979 through September, 1980

OBJECTIVES

Objectives of the job are; 1) determine the success and harvest trends of kokanee and cutthroat trout at Lake Mary Ronan on the opening day of fishing season and randomly throughout the year, 2) to obtain fish population trend information on lakes and streams to inventory habitat and biological communities and evaluate changes that may occur, 3) to obtain survey information from small valley lakes and streams and apply management measures as needed, 4) make reconnaissance surveys of streams and watersheds to offer recommendations on road construction activities near streams or stream crossings involved with the state and federal highway departments or state and federal forest service timber sale road construction, 5) to obtain flow measurements of selected streams to determine minimum flow requirements for salmonid fishes, and 6) to obtain fish population data from follow-up surveys of high mountain lakes to determine whether or not reproductive success has been obtained.

ACCOMPLISHMENTS

Opening day creel census is collected annually from Lake Mary Ronan and occasional "spot" creel checks are conducted throughout the year. Catch success on opening day in 1980 averaged 4.4 fish per angler as compared to 2.1 in 1979. There was a significant change in the species composition of the catch. Cutthroat trout comprised 49 percent of the catch as compared to only 3 percent in 1979. Kokanee made up only 46 percent of the catch as compared to 94 percent in 1979. Only 1 percent of the anglers caught limit catches (10 fish) as compared to 5 percent in 1980. The percent of successful anglers (those catching 1 or more fish) increased from 63 percent in 1979 to 84 percent in 1980.

Because of travel restrictions, only one day was censused during the summer (mid-June). The catch rate of both kokanee and cutthroat was 0.36 fish/hour. Winter anglers (3 censused days) averaged 1.0 fish per angler hour in 1980 of which 95 percent were kokanee.

The average length of mature spawning kokanee (males) continued to increase in 1980. Over the past five years, 1976 through 1980, kokanee averaged 12.4, 14.1, 14.6, 14.7 and 15.0 inches respectively. This increase in average size is believed to reflect the reduced stocking rate (from 600,000 to 400,000 fish) put into effect in 1976. This stocking rate was increased to 500,000 fish in 1980 in an effort to improve the stock density and improve the catch success rate. A corresponding decrease in average size kokanee is expected.

Initial surveys were conducted for No Tellum Reservoir and Lost Lakes. Both lakes appeared to have adequate depths to sustain fish populations and have been stocked with westslope cutthroat trout. Success will be evaluated by either gill net surveys or reported fishing success by anglers.

Several large lakes were surveyed to determine the success of mysis (*Mysis relicta*) introductions collected from McGregor Lake. Mysis introductions ranging from an estimated 2,000 to 14,000 individuals were planted in 1975 into Lake Blaine, Dicky, Tally, Middle Thompson, Swan, Bull, Spar and Holland Lakes. In 1980, mysis collections were made at night using a meter net towed at slow speeds for a period of 10 minutes at depths ranging from 20 feet to 50 feet. In addition, vertical tows were hauled from near bottom to the surface. All sampling efforts, with the exception of the Swan Lake introduction,appear to have been unsuccessful. A total of 53 adult mysis organisms were collected from 3 to 10 minute horizontal tows and two vertical tows. Sampling efforts in all lakes sampled in 1980 will be repeated in 1982. Other studies have indicated that it takes from 5 to 7 years following an introduction to verify the establishment of a viable mysis population.

The size and age group composition of spawning year-classes of kokanee were determined for several lakes in Region One. Those fish were collected with gill nets and with seines from Swan, Lake Mary Ronan, Middle Thompson, Crystal, Whitefish, Bitterroot, McGregor, Ashley, Tally, Blaine, Bull, Spar and Dickey Lakes. River collections were taken from the Whitefish and Flathead Rivers.

Stream profile stations were established at three stations each on the Whitefish, Stillwater and Thompson Rivers. From three to four cross-section transects were established at each transect site. In 1981, cross-sectional stream profiles will be measured along with corresponding volume flows to determine the wetted perimeter-discharge relationship

at each of three flow regimes, when runoff flow is receding, intermediate flow, and late summer-early fall flow (low flow). From this data an inflection point will be established, where the increase of the wetted perimeter of the stream is less rapid as discharge increases. Instream flow recommendations will then be selected at this inflection point.

During the project period, a total of 52 hydraulic stream projects affecting fish habitat were reviewed. This includes 23 submitted by the U.S. Forest Service and 29 projects by municipal, county and state highway department agencies. These projects resulted in field reviews followed by specific written recommendations.

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Waters referred to:				
	Lake Mary Ronan	07-7700-03	Tally Lake	07-9060-03
	No Tellum Res.	07-8128-05	Middle Thompson	
	Lost Lake	11-9000-20	Lake	05-9232-03
	McGregor Lake	05-9216-03	Swan Lake	07-9000-05
	Lake Blaine	07-5380-03	Bull Lake	11-8040-03
	Dickey Lake	11-8220-03	Spar Lake	11-9640-03
	Holland Lake	07-6780-03	Crystal Lake	11-8180-03
	Whitefish Lake	07-9540-03	Ashley Lake	07-5222-03
	Bitterroot Lake	07-7300-05	Whitefish R	07-4980-01
	Flathead River	07-1560-01	Stillwater R	07-4420-01
	Thompson River	05-7248-01		

Key Word: Mysis