

## MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

FISHERIES DIVISION  
JOB PERFORMANCE REPORT

STATE: Montana PROJECT TITLE: Northwest Montana Fishery Study  
PROJECT NO.: F-7-R-34 JOB TITLE: Inventory of waters of the project area  
JOB NO.: 1-a  
PERIOD COVERED: July 1, 1984 to June 30, 1985

## OBJECTIVES

1. To determine flow and habitat requirements of the Swan River for the purpose of establishing reservation of flows to provide minimum flow requirements for aquatic life.
2. To monitor kokanee fishery of Lake Mary Ronan by: a) periodic creel census checks (opening day, and occasionally during winter), and b) collecting fish population data with gill nets to determine catch success, size, and age and growth rates of kokanee. The existing data will be summarized and presented as a special project segment.
3. To establish relative abundance indices of kokanee and other associated game fish species in large regional lakes (over 3,000 surface acres). This segment will emphasize initial work on Whitefish and Ashley Lakes. This objective was partially completed. Time constraints prevented obtaining data from several large lakes.
4. To determine fisheries potential of lakes and streams by obtaining chemical, physical, and biological parameters for the management of sport fish species. This objective was met, and the information will be updated in a progress report.
5. To monitor size fluctuations and age of annual kokanee spawning populations in several lakes. This objective was partially met. Kokanee age data compiled for several lakes has not been analyzed.
6. To investigate and approve stream alteration projects as required by the Montana Streambed Preservation and Lakeshore Protection Acts. This objective was met. An update of the projects reviewed will be presented in the progress report.
7. To establish minimum stream flow requirements for aquatic life and other mitigation measures in streams where proposed microhydro development permit application have been received, and to assess

potential adverse effects of fishing values on both migratory and resident trout species. This objective was met. An update of minimum flow determinations for all projects reviewed will be presented in the progress report.

## ACCOMPLISHMENTS

Stream profile measurements were collected at three locations on the Swan River. Further measurements will be required to determine a wetter perimeter-discharge relationship to select recommended minimum maintenance flows for fish and associated aquatic life.

Total estimated winter angling pressure at Lake Mary Ronan for the winter of 1984 was 5,770 angler days with an estimated harvest of 42,528 fish. Winter harvest was 28 fish per acre. Kokanee comprised 99.2 percent of the catch with rainbow trout comprising the remaining 0.8 percent.

On opening day (1984 summer season) anglers caught an average of 3.1 fish from Lake Mary Ronan. Kokanee, averaging 10.8 inches, comprised 91 percent of the catch with rainbow trout and largemouth bass comprising the remainder of the catch.

Gill net surveys were conducted in spring and fall at Lake Mary Ronan. The catch per net night of kokanee was 3.2 fish in the fall of 1984 as compared to 5.3 fish in 1983. The spring netting resulted in a catch of 14.2 kokanee per net night in 1985 as compared to 11.8 fish in the spring of 1984. There appears to be an abundance of kokanee age I+, II+, and III+, however, both age I+ and II+ are decreasing in length.

A final D. J. segment of the Lake Mary Ronan winter creel census study was finalized. A rough draft of the Lake Mary Ronan fish population and water quality monitoring study (1965-1984) was prepared and is presently being edited for final review.

In 1984, baseline monitoring of game fish population trends were initiated for Whitefish, Little Bitterroot, and McGregor Lakes in order to evaluate stocking efforts of westslope cutthroat trout, rainbow trout, and kokanee. Gill nets were employed to accomplish seasonal population trends at three stations at each lake. Data analysis of both wild and stocked fish will include species composition, age and growth, and stomach samples for food item analysis. In addition, monthly temperature profiles were taken along with collections of mysis and plankton analysis at two selected stations. These data are being analyzed and will be incorporated with the 1985 data for a future report.

Preliminary acoustical surveys were conducted during January, 1985, on Ashley and Little Bitterroot Lakes with varying success. In Ashley Lake, fish were concentrated in three dense schools in the vicinity of angler concentrations. In Little Bitterroot Lake, no kokanee schooling activity could be identified after sampling 25 locations spread over six square miles of the lake.

Gill net sampling was conducted for several small lakes to assess the relative abundance of fish and recommend management changes where necessary. These lakes include Estes, Woods, Dollar, and Blue.

Fish population estimates were determined for two stream sections recently designated as catch and release fishing areas. These include the Thompson River from Deer Horn Creek downstream to the West Fork of the Thompson River and the South Fork of the Flathead River from Meadow Creek Bridge downstream to the Spotted Bear Foot Bridge. Data were collected from shocking sections within catch and release areas and nearby control sections to compare population structure, size, and fish density. Data were collected in the summer of 1984 and 1985.

The size of mature spawning kokanee is monitored annually each fall to determine the relative success of both wild and planted kokanee populations. Fish are collected by gill netting, electrofishing or beach seining in conjunction with kokanee spawn-taking operations. Fish samples were collected in the fall of 1984 from 15 lakes. These included Ashley, Little Bitterroot, Glen, Lindbergh, Spar, Tally, Swan, Middle Thompson, Dickey, Lake Mary Ronan, Lake Blaine, Bull, McGregor, Whitefish, and Holland Lakes.

A total of 52 stream hydraulic notices affecting fish habitat were reviewed in Region One during the report period. A breakdown of projects submitted for review by various government agencies is as follows: County 8, Municipal 2, Montana Department of Highways and State Lands 13, and U.S. Forest Service 29.

In addition, 109 stream alteration projects involving the private sector of the Stream Preservation Act (310 projects) were processed. These include 47 projects in Flathead County, 7 in Lake County, 41 in Lincoln County, and 14 in Sanders County.

Recommendations for a total of 40 lakeshore alteration projects were reviewed and recommendations were submitted to local county governments. County governments have the final jurisdiction over the approval of these projects under the Lakeshore Protection Act.

Stream cross-section measurements were determined at several proposed micro-hydro developments in the Flathead and Kootenai River drainage. These streams include Pine, Spread, Barnum, and Stanton Creeks. Fish population data were collected in conjunction with stream profile measurements for Barnum and Ashley Creeks. Minimum flow recommendations will be calculated from a series of measurements based on a wetter perimeter-discharge relationship.

Principal Investigator: Robert J. Domrose, Fisheries Management Biologist

Waters Referred to:

Lakes:	7-5220 Ashley	7-6780 Holland	11-9640 Spar
	8-8200 Blue	7-5380 Lake Blaine	7-9000 Swan
	11-8040 Bull	7-7700 Lake Mary Ronan	7-9060 Tally
	11-8220 Dickey	7-7260 Lindbergh	7-9540 Whitefish
	7-6000 Dollar	7-7300 Little Bitterroot	9-9580 Woods
	7-6280 Estes	5-9216 McGregor	
	11-8380 Glen	5-9232 Middle Thompson	

Streams:	11-0180 Barnum	7-4440 Stanton
	11-5100 Pine	7-4580 Swan
	8-6660 S. Fk. Flathead	5-7264 Thompson
	11-6340 Spread	