JOB COMPLETION REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. F7R9 Name Northwest Montana Fishery Study

Job No. I Title Inventory of the Waters of the Project Area

Period Covered: May 1, 1959 - April 30, 1960

ABSTRACT:

This report contains a summary of work carried out under Project F7R9. Surveys were conducted on thirteen lakes and twenty-three ponds. Detailed information regarding fish population, water chemistry, and water volumes were compiled on nine lakes.

Electro-fishing data is presented on six streams. Creel data is presented for one lake.

OJBECTIVES:

The purpose of this project is to determine the physical, chemical, and biological characteristics of the waters of highest importance for fishing in the project area, and where practicable to obtain estimates of existing or potential fisherman use.

TECHNIQUES USED:

Surveys were conducted as outlined in the Montana Stream and Lake Survey Manual. Sampling of fish populations in lakes was carried out by using experimental gill nets. These nets are 125 feet long and 6 feet deep, with 25 foot sections of 3/4, 1, 1¼, 1½ and 2 inch (bar measure) mesh. Physical features of lakes were mapped from aerial photographs; work maps included lake bottom contours. These bottom contours were determined by the use of the echo sounder except on mountain lakes, small lakes and ponds where soundings were accomplished with a hand line.

Stream population inventories were carried out with a portable generator which produces 220-volt, 60-cycle alternating current. Electrodes of the paddle type were used in all shocking. Representative sample sections were established. Three passes were made through the sections wherever possible. Cresol was used in sampling streams in areas inaccessible to vehicles.

Field survey data collected on this project are transferred to permanent standard file cards.

FINDINGS:

The project leader and project biologist assumed duties in this study area the first part of July. Survey work included in this report is limited to measurements and observations made since approximately July 10, 1959.

Preliminary surveys, consisting of aerial mapping, land ownership and access, were conducted on 13 lakes and 23 ponds. These ponds are locally referred to as the Pothole Lakes. Detailed information regarding fish population, water chemistry, and water volumes were compiled on nine lakes. Historic information and survey data were summarized. This information was used in determining access needs and in development projects involving chemical treatment to control undesirable species of fish. To date, two of these lakes have been rehabilitated. It is anticipated that rehabilitation projects will be submitted on four of these lakes this coming season. Survey information was also used in amending the fish planting program so as to make better use of hatchery fish. Many of the ponds surveyed were too shallow to permit overwintering of fish populations. Through negotiations with the Indian Irrigation Service, a plan was formulated whereby surplus irrigation waters will be used to increase the depth and size of some ponds in the Ninepipe area. This will provide suitable depth for fish life and also enhance the use of these ponds by migratory waterfowl.

Present fishing regulations on lakes in this area permit angling on a year-around basis. During the spring months there is a closure 300 feet into the lakes from any tributary stream mouth.

In recent years winter angling for lake whitefish (Coregonus clupeaformis) has grown to an important fishery. Regulations permit the taking of 20 whitefish per day. Many people of the area feel that a reduction of this limit would be desirable. In an effort to obtain management information on the lake whitefish, the project biologist in 1959 conducted a winter creel census on Echo Lake in Flathead County near Bigfork, Montana. This lake is approximately 2 miles long by $1\frac{1}{2}$ miles wide. There are numerous bays and islands with coniferous-timbered shore areas. These sheltered areas and the proximity to Kalispell, Montana, make Echo Lake a popular winter fishing area. Most winter fishing effort on this lake is for whitefish. The census consisted of one man conducting interviews with fishermen and recording on a standard form the number of persons in each party contacted, the species harvested, and the time spent fishing. The 1959 census covered a period from January 27 to February 28. In this census some anglers voiced opinions that this check was conducted too early in the season while others insisted that the good fishing period was over. During the winter of 1960, creel checks were again conducted. The census covered a period from January 16 to February 28. Creel checks during this year were confined to Sundays and holidays; the days of greatest use.

Table I is a summary of the information collected for the years 1959 and 1960. From this table, it is evident that yellow perch comprised over 85 per cent of the winter fishery during the census period. In most interviews during the winter seasons of 1957 and 1958 fishermen reported good catches of whitefish. During the 1960 census, fishermen reported seeing large numbers of smaller-sized whitefish; however, they were not successful in harvesting these smaller fish.

TABLE I

Summary of Creel Checks, 1959-1960. Echo Lake, Flathead County, Montana

Period	No. Fishermen interviewed	Hours fished	Species				
			Y.P.	LWF	Rb	S.F.	L.M. Bass
Winter							
1959	161	529	429	124	92		
1960	208	650	1186	25	9	87	5

From the information obtained it does not appear that a complete winter survey would be feasible or justifiable. Undoubtedly the problem of varying success in catching Lake Superior whitefish can best be explained by reviewing the history and published reports on the management of this species.

Eddy and Surber[1] describe this species in its native range in the Great Lakes region. The lake whitefish is one of the most important species in the commercial fisheries of Lake Superior. The hatchery operations by the State of Minnesota and the Indian Service undoubtedly account for the availability of this species for introduction into Echo Lake. While little information is available as to the first introductions, it is accepted that this whitefish was introduced into Echo Lake in the years 1920 to 1929.

Records from the Somers Fish Hatchery[2], Somers, Montana, indicate that this unit was working extensively with whitefish in the years 1920 through 1942. During this period several shipments of whitefish eggs were received from Minnesota and Ohio. Records pertaining to distribution of these fish are incomplete. In reviewing old hatchery records and logs, it is quite evident that activities were not limited to lake whitefish, but included most of the whitefish available in western Montana.

The early surveys of the fishes of Glacier National Park[3] include reports that the lake whitefish was believed to occur in Lake McDonald on the west side of the continental divide; however, in 1934 extensive gill netting did not capture any of this species and it was concluded that the lake whitefish was not in the waters west of the continental divide. The predominant whitefish reported in the early surveys on the west side of the divide were Rocky Mountain whitefish (Coregonus williamsoni) and the pygmy whitefish (Coregonus coulteri). Specimens of these two species were reported in both winter census periods on Echo Lake.

In most areas where lake whitefish are present, the species is not considered a sport fish. Anglers have little success in capturing this species due to its habit of feeding almost exclusively on plankton and small insect larva.

A recent bulletin published in Wisconsin[4] reports on management of lake whitefish in Lake Superior. Gill nets and pound nets are used to capture the whitefish. Yearly catches have varied from 50,000 pounds to a high of more than 765,000 pounds. It is reported that population build-ups of this species occur in cycles, giving a bumper crop for two or three years and then almost nothing for a few years. Regulations protect this species for one month during its spawning run. For the remaining 11 months any fish 17 inches or over is legal when caught in legal fishing gear. In this study it is reported during years of poor harvests on legal-size fish that there is always an abundance of undersized whitefish.

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[1]Samuel Eddy and Thaddeus Surber, Northern Fishes. Minneapolis: The University of Minnesota Press, 1947, pp. 101-103.

[2]Somers' Hatchery Operational Log.

[3]Leonard P. Schultz. Fishes of Glacier National Park, Montana. U. S. D. I. Conservation Bulletin 22. 1941. pp. 23-26.

[4]George R. King. Some Views on the Whitefish Fishery. Wisconsin Conservation Bulletin. January 1960. pp. 25-26.

It appears that the cyclic trait of this species reported in Wisconsin is reflected in the anglers' harvests in Echo Lake. It is anticipated that future creel checks by the Enforcement Division will substantiate this cyclic trait on the lake whitefish.

Good management of a renewable resource can be described as harvesting the maximum amount possible whild still maintaining a stock for renewal of future generations. With knowledge from the literature of the life history of this species, it appears angling is the least of all the influences on the populations of whitefish in Echo Lake.

It is suggested that no change in regulation is necessary in the management of the sport fishery of lake whitefish in Echo Lake.

Electro-fishing was limited to 6 streams within the study area. The streams inventoried were in the vicinity of Libby, Montana. This area has been extensively logged and there has been considerable habitat destruction in the form of road construction in stream channels. The streams when shocked ranged in water volume from 14.9 c.f.s. to 35.5 c.f.s. Evidence on the flood plains of these streams indicate that spring run-off is severe, possibly due to the extensive logging carried on in this area, and other man-made changes on the watershed.

Table II is a summary of the electro fishing data compiled on these streams.

TABLE II

Summary of Electro-Fishing Data-Kootenai Drainage 1959

Stream & Location	C.F.S.	Total length of all sections	Species	Length in inches Up to 4"	4" to 7"	7" to 14"
Big Cherry Creek T29N, R31W, S27	27.7	600'	Rainbow	3	14	
West Fisher River T26N, R30W, S1	25.3	500'	Rainbow	6	19	
			Rb. x Ct.	1	2	
			Eastern brook		2	
			Whitefish			1
Pipe Creek T32N, R31W, S21	35.5	372'	Rainbow	19	63	11
			Rb.x Ct.		6	
			Eastern brook	1	5	1
			Dolly Varden	3	1	1
			Y. Cutthroat			1
O'Brien Creek T31N, R3W, S32	21.3	174'	Cutthroat		10	17
			Eastern brook	8	9	12
Flower Creek T30N, R31W, S20	14.9	400'	Cutthroat	2	8	8
			Eastern brook		4	5
			Dolly Varden		8	3
Fisher River T26N, R29W, S5			Rainbow	1	12	1
			Cutthroat			1
			Y. Cutthroat		1	1
			Whitefish	1	5	78

Information gathered was used in formulating a management plan for the fisheries of the area.

SUMMARY AND RECOMMENDATIONS:

This report briefly relates some of the work accomplished in the project area in connection with the state-wide lake and stream inventory. It does not include all of the data collected and all of the work accomplished on this project. Work not included in this report is filed on data cards in the district office.

In order to bring about improvements and formulate future fisheries management plans, it is recommended that this study be continued.

Prepared by Boyd R. Opheim

Date April 29, 1960 Approved by George D. Holton