MONTANA DEPARTMENT OF FISH AND GAME
FISHERIES DIVISION

JOB PROGRESS REPORT

State Montana Title Northwest Montana Fisheries Investigation

Project No. F-7-R-22 Title Inventory of Waters of the Project Area

Job No. I-a

Period Covered April 1, 1972 through Mary 31, 1973

ABSTRACT

Fish population surveys were conducted on 18 lakes in the Flathead River and Kootenai River drainages in 1972. Water quality data (pH, total alkalinity and standard conductance were collected in conjunction with several fish population surveys.

BACKGROUND

This is a continued project designed to accumulate and update physical, chemical and biological data on waters in Region One.

OBJECTIVES

The objective of this project is to obtain biological, chemical and physical data on lakes, streams and reservoirs and to prescribe management practices where needed.

PROCEDURES

Experimental gill nets 125 feet in length and 6 feet in depth of graduated mesh size from 3/4 to 2 inches (square measure) were used to sample fish populations in lakes. A mite-lite 110 volt AC generator in conjunction with a variable voltage pulsator was the power source used for electrofishing to sample stream fish populations. Individual total length and weight of fish were recorded and scale samples collected. Lake depths were measured with a Lowrance Fish-Lo-K-Tor. All data contained in this report are kept on file at the Region One Headquarters. Fish species abbreviations used in this report are as follows: Wct = Westslope cutthroat trout, Rb = Rainbow trout, DV = Dolly Varden, Kok = Kokanee, Yp = Yellow perch, Wf = Whitefish, Eb = Brook trout, Yct = Yellowstone cutthroat trout, Gr = Arctic Grayling, Ps = Pumpkinseed, Pm = Peamouth, LNSu = Longnose sucker, Sq = Squawfish, CSu = Largescale sucker. A summary of fish population data collected from lakes in Region One between April 1, 1972 and March 31, 1973 is presented in Table 1. Water quality data for several lakes in the region is presented in Table 2.

Table 1. Summary of netting data collected from lakes in Region One between April 1, 1972 and March 31, 1973.

Lake	Surface Acres	No. of Net Sets	Species (Number)	Percent game species	Size Range inches (game species)	Average Length inches (game species)
Flathead River Drainage						
Fran Lake	9	1	Wct (4)	100	Wct(6.0-19.9)	Wct(9.7)
Lake Mary Ronan	1,506	7[1/]	Kok (74) Ps (193) Rb (17)	32	Rb (11.0-13.5) Kok(8.1-13.7)	Rb (12.8) Kok(11.8)
Lake Mary Ronan	1,506	7[2/]	Kok (57) Ps (141) Rb (15)	42	Kok(8.5-14.9) Rb (10.2-15.2	Kok(11.8) Rb (11.5)
Lilly Lake	7	1	Gr (9)	100	Gr (11.0-12.7)	Gr (11.5)
Little Bitterroot	2,925	6[1/]	Ct (1) LNSu(20) Pm (45)	2	Ct (13.8)	Ct (13.8)
Little Bitterroot	2,925	5[2/]	Ct (2) Pm (27) Rb (6) LNSu(8)	19	Ct (11.6-12.6) Rb (7.0- 9.5)	Ct (12.1) Rb (8.0)
Loon (Kraft Cr.)	23	1	LNSU(7)	0	--	--
Peck Lake	22	1	Ct (2) Eb (8)	100	Ct (18.5-19.6) Eb (16.2-19.8)	Ct (19.1) Eb (17.4)
Sawdust Lake		1	--	--	--	--
Shay Lake	17	1	Yct (2) Gr (31)	100	Yct(20.5-21.4) Gr (10.6-12.6)	Yct(20.5) Gr (11.8)
So. Fk. Cold Cr. #1	6	1	--	--	--	--
So. Fk. Cold Cr. #2	5	1	Rb (2)	100	Rb (7.9- 8.8)	Rb (8.4)
So. Fk. Cold Cr. #3	7	1	Rb (9)	100	Rb (6.6-14.2)	Rb (10.8)
So. Fk. Cold Cr. #4	13	1	Rb (11)	100	Rb (7.1-11.6)	Rb (9.8)

Table 1. Continued.

Lake	Surface Acres	No of Net Sets	Species (Number)	Percent game species	Size Range inches (game species)	Average Length inches (game species)
So. Fk. Cold Cr. #5	5	1	Rb (13)	100	Rb (8.3-11.0)	Rb (9.6)
Swan Lake	2,680	10	DV (19) Pm (145) Rb (1) Sq (104) Kok (12) CSu (9) Wf (17) Yp (5)	16	DV (9.6-26.1) Rb (15.6) Kok(9.8-10.6) Wf (7.4-10.7)	DV (17.9) Rb (15.6) Kok(10.2) Wf (8.8)
Kootenai River Drainage						
Cad Lake	12	1	Yp (1)	0	--	--
Dickey Lake	579	4	Eb (5) LNSu(38) Wf (22) Sq (11)	36	Eb (7.0-12.4) Wf (7.6-13.6)	Eb (9.4) Wf (9.9)
Loon Lake	230	3	Rb (12) LNSu(7) Wf (18) Pm (7) LMB (1) Sq (9)	48	Rb (8.4-12.5) Wf (9.8-13.8) LMB(9.8-13.6)	Rb (10.2) Wf (12.1) LMB(6.2)
Fishtrap Lake	49	2	Wct (24) LNSu(59)	29	Wct(6.3-10.1)	Wct(7.8)

1/ Spring Netting Series

2/ Fall Netting Series

Table 2. Water quality data (pH, alkalinity and standard conductance) for lakes surveyed in Region One - 1972.

Lake or Stream	Date	pH units	Total Alkalinity (ppm)	Standard Conductance (micromhos/cm)
Flathead River Drainage:				
Lake Mary Ronan	5/ 1	7.60	65	141
Little Bitterroot	8/16	8.25	53	77
Sawdust Lake	4/12	8.1	158	312
Shay Lake	8/29	8.65	60	122
So. Fk. Cold Cr. #1	8/ 8	7.30	25	56
So. Fk. Cold Cr. #2	8/ 8	7.75	35	76
So. Fk. Cold Cr. #3	8/ 8	7.65	43	96
So. Fk. Cold Cr. #4	8/ 8	7.75	37	97
So. Fk. Cold Cr. #5	8/ 8	7.85	48	95
Swan Lake	8/28	8.15	80	161
Kootenai River Drainage:				
Cad Lake	7/24	8.4	103	215
Dickey Lake	7/11	8.55	120	258
Loon Lake	7/19	7.9	65	155
Clark Fork River Drainage:				
Fishtrap Lake	7/31	7.9	48	110

FINDINGS

Lake Surveys

Flathead River Drainage

Fran Lake, a 9-acre lake, 2 miles east of Condon was netted in June of 1972 to determine the status of westslope cutthroat trout plants. Fran Lake is a closed basin lake which is accessible to fishermen year-round. A total of four trout were captured from one overnight net set ranging in size from 6.0 to 19.2 inches. It is recommended that Fran Lake be stocked with 4" cutthroat on an alternate year basis.

The annual spring and fall fish population data were collected for Lake Mary Ronan to monitor the relative abundance and survival of kokanee year classes. A total of 74 kokanee averaging 10.6 fish per net night were collected from 5 floating and 2 bottom gill nets for the spring netting series. A total of 57 kokanee averaging 8.1 fish per net night were collected from 2 floating and 5 bottom gill nets set during the fall netting series. Collectively, floating gill nets were much

more successful in capturing kokanee. The average catch per net night for floating nets was 13.7 kokanee as compared to 5.0 kokanee for bottom gill net sets. It is recommended that annual plants of kokanee be continued and spring and fall fish population samples be continued to determine the success of these plants.

Lilly Lake, a closed basin lake of 7 acres located one-fourth mile west of Swan Lake, was netted in June of 1972 to determine the success of 3-inch grayling plants made in September of 1970. A winter fish kill was reported for this lake during the winter of 1971-72. One gill net set from shore across a small bay caught a total of 9 grayling averaging 11.5 inches. Grayling over-winter survival appears to be good although apparent low winter dissolved oxygen concentrations caused a partial winter mortality. Winter dissolved oxygen samples should be collected to determine the suitability of future grayling introductions.

Little Bitterroot Lake was sampled with both floating and sinking gill nets during the spring and fall of 1972. Few game fish (cutthroat and rainbow trout) were collected. They comprised 2 percent of the spring catch and 19 percent of the fall catch. Non-game species, peamouth and longnose suckers, comprised the remainder of the catch.

In August of 1972, an attempt was made to determine the survival and relative abundance of mysis relicta (opossom shrimp) introductions into Little Bitterroot Lake. Several thousand of these crustateans were collected from Waterton Lake, Alberta, Canada in September of 1968 and distributed in several large lakes in western Montana to provide an additional forage food base for salmonid species. A total of five 10-minute tows with a meter collection net were made from 20 to 60 feet below the surface. No mysis organisms were collected. It is recommended that further attempts be made to collect mysis organisms. Continued netting efforts should be made to monitor changes in growth and success of trout and salmon introductions into Little Bitterroot Lake.

Loon Lake, a shallow, 23-acre lake in the Swan Valley was netted to determine the success of a grayling plant made in July of 1970. One gill net caught seven longnose suckers. It is recommended that this lake be dropped from the management program.

Peck Lake, a 22-acre lake near Condon, was netted to determine the success of cutthroat trout plants made in 1968. A total of 8 brook and 2 cutthroat trout ranging from 16.2 to 19.8 inches were captured. It is recommended that future stocking be made with fish no smaller than 4" to assure better survival of cutthroat trout intorductions.

Sawdust Lake, a small pothole lake near Creston, was sampled in April of 1972 to evaluate the success of rainbow trout introductions made in 1970. No fish were collected from one overnight net set. Several schools of redside shiners were observed along the shoreline. This area has been subdivided and in the near future will be closed to public fishing. Because of apparent low winter dissolved oxygen concentrations to maintain fish through the winter and forthcoming public access closure, it is recommended this lake be removed from the management program.

Shay Lake, a 17-acre lake located in Swan Valley, was netted in June of 1972 to evaluate the success of grayling plants made in September of 1970. One gill net set caught 31 grayling averaging 11.8 inches and 2 yellowstone cutthroat trout averaging 21.0 inches. It is recommended that grayling and cutthroat trout be planted on an alternate year basis.

Five small mountain lakes, ranging in size from 5.0 to 13.0 acres in the headwaters of the South Fork of Cold Creek drainage were netted in July of 1972. Lakes in this drainage were stocked with rainbow and cutthroat fry in August of 1948. Rainbow trout ranging in size from 6.6 to 14.2 inches were found in 4 of 5 lakes sampled. The upper most lake in the drainage (Lake #1) was void of fish. Sounding data was obtained for 3 lakes, Lakes #3, 4 and 5 with maximum depths for those lakes ranging from 22 to 55 feet. From visual observations, it appears that Lake #1 would have sufficient depth to support a trout fishery. It is recommended that Lake #1 be stocked with westslope cutthroat trout fry.

The fish population of Swan Lake was sampled with 10 gill nets in the fall of 1972 to determine the relative status of the game fish population. Dolly Varden, mountain whitefish and kokanee were collected at the rate of 1.9, 1.7 and 1.2 fish per net night, respectively. Non-game species, peamouth, squawfish, largescale suckers and yellow perch collectively averaged 26.3 fish per net night. It is recommended that netting be carried out periodically, to monitor the status of game fish populations.

Clark Fork River Drainage

Fishtrap Lake, a 49-acre lake in the Thompson River drainage was netted in August of 1972 to determine the species composition and condition of westslope cutthroat trout. Two overnight gill net sets caught 24 cutthroat trout and 59 longnose suckers. Although cutthroat trout are relatively abundant, the fish are small averaging 7.8 inches with a size range of 6.3 to 10.1 inches. Numerous cutthroat fry were observed in the inlet tributary stream. No change in management plans are anticipated.

Kootenai River Drainage

Cad Lake, a 12-acre lake near Happy's Inn was initially surveyed in July of 1973. Cad Lake is a closed basin lake with a maximum depth of 31 feet. Thermocline development began at a depth of 17 feet extending to a depth of 28 feet with a temperature range of 65° to 51° F. Dissolved oxygen concentration through the entire thermocline was 7.6 ppm. One overnight gill net set caught one small yellow perch. It is believed that the lake could support a trout fishery and is recommended for stocking of 1" westslope cutthroat trout.

Dickey Lake was netted in July of 1972 to determine the success of 4" brook trout stocked in 1971. Four overnight gill net sets caught an average of 1.2 brook trout and 5.4 mountain whitefish per net night. Several attempts to establish a trout fishery in Dickey Lake in the past have all met with meager success. Previous introductions include rainbow trout, grayling and kokanee. It is recommended that introductions of brook trout be continued and an evaluation of brook trout, spawning success be determined for Summitt Creek, inlet tributary to Dickey Lake.

Loon Lake, near Happy's Inn was sampled with 3 gill nets in July of 1972 to determine the status of the rainbow trout population. Loon Lake supports a fair population of wild rainbow trout. The average catch per net night of rainbow trout was 4.0 fish averaging 10.2 inches. No changes in management plans are anticipated in the near future.

RECOMMENDATIONS

It is recommended that the project be continued to obtain additional information on chemical, physical and biological characteristics of waters in the project area for the purpose of evaluating present and instigating new management practices.

Prepared by Robert J. Domrose

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Waters Referred to:

Cad Lake	11-8050-03
Dickey Lake	11-8220-03
Fishtrap Lake	05-8800-03
Fran Lake	07-6435-03
Lake Mary Ronan	07-7700-03
Lilly Lake	07-8385-03
Little Bitterroot	07-7300-03
Loon Lake (Kraft Cr.)	07-7440-03
Loon Lake	11-8940-03
Peck Lake	07-8220-03
Sawdust Lake	07-8530-03
Shay Lake	07-8600-03
So. Fk. Cold Cr. #1	07-8757-03
So. Fk. Cold Cr. #2	07-8758-03
So. Fk. Cold Cr. #3	07-8759-03
So. Fk. Cold Cr. #4	07-8760-03
So. Fk. Cold Cr. #5	07-8761-03
Swan Lake	07-9000-05