

MONTANA FISH AND GAME DEPARTMENT
FISHERIES DIVISION

JOB COMPLETION REPORT
RESEARCH PROJECT SEGMENT

State of Montana

Project No. F-32-R-5

Name: Helicopter Mountain Lake Survey

Job No. I

Title: Survey of Lakes in Swan River,
Middle and North Fork of Flathead
River Drainages

Period Covered: March 31, 1968 to April 1, 1969

ABSTRACT:

Fish population surveys of 28 mountain lakes outside wilderness areas in the Swan, Middle Fork, and North Fork of the Flathead River drainages were conducted in July and August, 1968. Trout populations were present in 12 lakes. Fish species collected were cutthroat trout (Salmo clarki), rainbow trout (Salmo gairdneri), mountain whitefish (Prosopium williamsoni), and longnose sucker (Catostomus catostomus). Physical and chemical data (depth soundings, water temperature profiles, specific conductance, pH and total alkalinity) were collected in conjunction with fish population data.

An additional 44 small lakes in close proximity of the lakes surveyed were observed from the air and designated as being too shallow for fish management.

RECOMMENDATIONS:

Management recommendations made for lakes surveyed are presented in tabular form (see table 4). Air plants of westslope cutthroat trout fry were recommended for 20 mountain lakes.

OBJECTIVES:

The purpose of this survey is to inventory fish populations of mountain lakes inaccessible to wheeled vehicle travel but outside wilderness and primitive area boundaries. This is a continuing project.

TECHNIQUES USED:

A two-man helicopter crew conducted the lake surveys. Monofilament gill nets, 125 feet in length by 5 feet in depth with graduated mesh size of 3/4 to 2 inches square, were used to sample fish populations. Gill nets were set from pontoons of the helicopter as it taxied across the surface of the water. Total lengths of all fish collected were recorded. Scale samples were collected for age and growth analysis. Outline maps of most lakes were drawn from U. S. Forest

or U. S. Geological Survey maps and surface areas were traced with a planimeter. Lake depths were recorded with a Lowrance Fish Lo-K-Tor. Temperature profile data were recorded with a thermistor thermometer. Lake elevations were recorded from altimeter readings. Data for all lakes surveyed were recorded on index file cards and kept on file at the district and Helena offices. Lakes too shallow for fish management were identified by location (township, range and section) and are shown in table 1.

FINDINGS:

The mountain lakes surveyed in the summer of 1968 include 8 lakes in the Swan River drainage, 15 lakes in the Middle Fork of the Flathead River drainage and 5 lakes in the North Fork of the Flathead River drainage. These lakes lie at elevations ranging from 3,630 to 7,890 feet. Maximum depths ranged from 14 to 145 feet. The surface area of these lakes ranged from 3.2 to 146 acres, although only 4 lakes exceeded 50 acres. Surface temperatures ranged from a low of 38° to a high of 69° F. Water chemistry data collected include pH, alkalinity and standard conductance. A summary of the physical and chemical data collected from the helicopter mountain lake survey in 1968 is presented in table 2.

An additional 44 lakes in which the entire lake basin could be observed by air were considered too shallow for fish management. No other data were collected from these lakes.

Fish populations were found to be present in 12 of 28 lakes sampled with gill nets. Eight lakes sampled had adequate or over-abundant populations of game fish. Remnant populations of trout were present in 4 lakes.

Although mountain whitefish was the only game fish species collected from Stanton Lake, cutthroat trout are known to have been caught by fishermen. Stanton Lake also supports a population of longnose suckers. A summary of the mountain lake gill net sampling data is shown in table 3.

A total of 20 lakes were recommended for stocking. These include 5 lakes in the Swan River drainage, 12 lakes in the Middle Fork of the Flathead River drainage, and 3 lakes in the North Fork of the Flathead River drainage. Management recommendations for all the lakes sampled with gill nets are shown in table 4.

Table 1. Mountain lakes observed by helicopter considered too shallow for fish management, July-August, 1968

Middle Fork Drainage:

Lake	Immediate drainage	No. of lakes	Location		
			T	R	S
Gunsight	Shafer Cr.	1	26	13	30
Geifer	Devil Cr.	1	28	15	1
Forester Mt.	Moose Cr.	1	28	15	15
Lower Sheep	Sheep Cr.	1	28	16	4,5
Upper Spruce	Charlie Cr.	1	28	16	27
Lower Spruce	Charlie Cr.	1	28	16	27
Skiumah	Skiumah Cr.	1	31	18	24,25
Cascadilla	Cascadilla Cr.	2	31	17	33
Unnamed	Stanton Cr.	1	30	17	16
Lost Hair	Lost Hair Cr.	1	30	17	33
Unawah Mt.	Elk Cr.	1	28	16	20
Stanton Glacier	Stanton Cr.	3	30	17	27

Swan and South Fork River Drainage:

Unnamed	Squeezer Cr.	2	23	16	28,33
Inspiration	Inspiration Cr.	2	23	16	10
Gildart	Warrior Cr.	3	24	16	16,20,21
Bunker	Bunker Cr.	1	25	16	4
Crevice	N. Fork Lost Cr.	3	25	16	31,32

North Fork Drainage:

Chain #2	Red Meadow Cr.	1	35	23	21
Unnamed	Red Meadow	1	35	23	21
Unnamed	Moose Cr.	1	35	23	15
Herrig Mt.	W.Fk.Swift Cr.	1	34	24	14,23
Unnamed	W.Fk.Swift Cr.	2	34	24	11
Unnamed	W.Fk.Swift Cr.	6	34	24	26,27
			(33	23	6
			(33	24	1
			(34	24	36
Mystery	*Dog Cr.	1	33	23	8
Unnamed	*Dog Cr.	2	33	23	28,29

*Stillwater River Drainage

Table 2. Summary of physical and chemical data collected for mountain lakes surveyed by helicopter July and August, 1968

Lake	Location			Elevation	Surface	Maximum	Surface	pH	Standard	Total
	T	R	S	(feet MSL)	area	depth	temp.	units	conductance	alkalinity
					(acres)	(feet)	(degrees F.)		(micromhos/cm)	(p.p.m.)
<u>Swan River drainage</u>										
Beaver	18	16	5	4000	26.4	55	65	7.0	13	9
Cat	22	16	32	6400	14.0	50	52	8.1	171	90
Hall	26	17	2	5100	21.1	64	58	8.0	114	84
Pony	22	16	28	6340	26.2	28	57	8.1	177	97
Rumble, Upper	21	16	36	7890	27.2	55	38	7.6	91	53
Rumble, Lower	21	16	36	6800	11.2	97	50	7.9	94	56
Scout	22	19	11	5300	15.0	17	55	8.5	187	95
Trinkus	25	17	9	5875	11.8	65	57	8.1	173	96
<u>Middle Fork Flathead River drainage</u>										
Almeda	29	17	24	5950	17.2	20	54	8.2	124	77
Bergsicker	27	16	14	4790	5.0	18	54	8.0	162	89
Bradley	27	14	22	5360	36.0	25	63	7.9	85	43
Castle	27	14	9	6100	18.0	25	62	8.0	109	63
Cup	27	16	4	5810	17.0	35	53	8.1	141	80
Dickey	27	17	13	7100	32.0	14	50	8.0	84	50
Elk	28	15	10	5150	22.4	95	58	8.3	135	75
Flotilla	27	14	28	6400	146.0	140	64	7.7	50	34
Tunnel	30	17	35	4950	13.7	25	45	7.9	81	48
Marion	29	16	19-20	3630	12.1	145	58	8.2	149	85
Moose	28	14	13	6040	67.2	13	66	8.0	137	76
Stanton	30	17	2-11	4440	77.0	29	58	8.1	141	77
Sheep, Upper	28	16	5	6100	4.1	23	55	7.9	124	73
Shelf	25	13	7	6000	8.0	20	69	8.2	189	95
Tranquil, East	28	15	4	6000	12.2	23	60	8.1	126	64
Tranquil, West	28	15	9	6000	51.6	95	58	8.2	178	94
<u>North Fork Flathead River drainage</u>										
Chain #1	35	23	20	1070	4.8	54	53	7.7	116	53
Chain #3	35	23	21	6930	27.7	105	60	7.7	87	45
Chain #4	35	23	22	6780	17.6	14	63	7.9	70	44
Link	35	23	28	6380	28.8	20	62	8.0	125	66
Shorty Creek	35	23	20	6600	3.2	23	57	7.8	102	55
MSL=mean sea level										

Table 3. Summary of fish collected by overnight gill net sets from mountain lakes surveyed by helicopter July and August, 1968

Lake	Immediate drainage	Species and number caught	Game species average length (inches)	Game species size range (inches)
<u>Swan River drainage</u>				
Beaver	Beaver Cr.			
Cat	Cat Cr.			
Hall	Hall Cr.	*Rb (15)	*Rb (12.5)	(8.2-15.4)
Pony	Pony Cr.	*Rb (2) Yct (1) Wct (1)	*Rb (11.4) Yct (13.5) Wct (11.0)	(10.1-16.6)
Rumble, Upper	Rumble Cr.			
Rumble, Lower	Rumble Cr.	Yct (17)	Yct (10.2)	(7.0-12.5)
Scout	Scout Cr.			
Trinkus	Bond Cr.	*Rb (44)	*Rb (10.0)	(6.1-16.4)
<u>Middle Fork Flathead River drainage</u>				
Almeda	Essex Cr.			
Bergsicker	Bergsicker Cr.			
Bradley	Bradley Cr.			
Castle	Castle Cr.			
Cup	Charlie Cr.			
Dickey	Dickey Cr.			
Elk	Elk Cr.			
Flotilla	Lake Cr.	Yct (40)	Yct (11.5)	(8.5-14.5)
Tunnel	Tunnel Cr.			
Marion	Marion Cr.	*Rb (47)	*Rb (9.7)	(6.6-14.3)
Moose	Moose Cr.			
Stanton	Stanton Cr.	Wf (20) FSu (17)	Wf (7.2)	(6.2-11.2)
Shelf	Spotted Bear R.			
Tranquil, East	E. Tranquil Cr.	Yct (4)	Yct (14.4)	(12.7-16.0)
Tranquil, West	W. Tranquil Cr.	Yct (1)	Yct (12.8)	(12.8)
<u>North Fork Flathead River drainage</u>				
Chain #1	Chain L. Cr.			
Chain #3	Chain L. Cr.	Yct (16)	Yct (11.4)	(6.6-15.7)
Chain #4	Chain L. Cr.	Yct (29)	Yct (8.9)	(7.0-11.4)
Link	Link Cr.	Yct (10) Wct (10)	Yct (13.3) Wct (10.8)	(7.6-17.1)
Shorty	Shorty Cr.			

*Includes RbXct hybrid

1/ Rb=rainbow trout, Yct=Yellowstone cutthroat trout, Wct=Westslope cutthroat trout, FSu=longnose sucker, Wf=mountain whitefish

Table 4. Management recommendations for mountain lakes surveyed by helicopter in July and August, 1968

Lake	Code number	Recommendations for stocking
<u>Swan River drainage</u>		
Beaver	No code	Stock Wct. fry
Cat	7-5660	Stock Wct. fry
Hall	7-6600-3	None, adequate population of Rb.
Pony	7-8300-3	Stock Wct. fry
Rumble, Upper	No code	Stock Wct. fry
Rumble, Lower	No code	None, adequate population of Yct.
Scout	7-8560-3	Stock Wct. fry
Trinkus	7-9120-3	None, over-abundant population of Rb.
<u>Middle Fork Flathead River drainage</u>		
Almeda	No code	Stock Wct. fry
Bergsicker	No code	Stock Wct. fry
Bradley	8-8240-3	Stock Wct. fry
Castle	8-8200-3	Stock Wct. fry
Cup	No code	Stock Wct. fry
Dickey	No code	Stock Wct. fry
Elk	8-8540-3	Stock Wct. fry
Flotilla	8-8560-3	None, over-abundant population of Yct.
Tunnel Creek	No code	Stock Wct. fry
Marion	8-9200-3	None, over-abundant population of Rb.
Moose	8-9260	Stock Wct. fry
Stanton	8-9780-3	None, over populated with Wf. and FSu.
Sheep, Upper	No code	Stock Wct. fry
Shelf	8-9660-3	Stock Wct. fry
Tranquil, East	No code	Remnant population of Yct., stock Wct. fry
Tranquil, West	No code	Remnant population of Yct., stock Wct. fry
<u>North Fork Flathead River drainage</u>		
Chain #1	No code	Stock Wct. fry
Chain #3	No code	None, adequate population of Yct.
Chain #4	No code	None, adequate population of Yct.
Link	8-9120-3	None, adequate population of Yct., Wct.
Shorty Creek	No code	Stock Wct. fry

Rb-rainbow trout, Wct=westslope cutthroat trout, Yct=Yellowstone cutthroat trout, FSu-longnose sucker, Wf=mountain whitefish.

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