MONTANA FISH AND GAME DEPARTMENT
FISHERIES DIVISION

JOB COMPLETION REPORT
RESEARCH PROJECT SEGMENT

State of Montana — Name Helicopter Mountain Lake Survey

Project No. F-32-R-5 — Title Mountain Lake Survey - Blackfoot

Job No. II — River Drainage

Period Covered: July 1, 1968 - June 30, 1969

ABSTRACT:

A pontoon equipped helicopter and two men were employed to survey 31 remote mountain lakes in the Blackfoot River Drainage in Western Montana. Experimental gill nets were used to measure fish populations. Twelve of the 31 lakes surveyed contained fish. Physical features, fish population, age and growth and management recommendations are included in the report.

RECOMMENDATIONS:

Fish populations were found in 12 of the 31 lakes surveyed (Table 1). Gill net catches from 11 of the 12 lakes indicate suitable to dense populations of game fish. Lower Copper Lake has a poor population of rainbow x cutthroat hybrids as indicated by a gill net catch of one small fish. Following are brief remarks on each of the 12 lakes and recommendations for their management.

Bighorn Lake. Lake has an excellent self-sustaining population of Yellowstone cutthroat trout. Due to its extreme remoteness, fishing pressure is practically nil. No stocking is necessary.

Camp Lake. Lake has an adequate rainbow trout population. Natural reproduction is sufficient. No stocking necessary.

Canyon Lake. A limited cutthroat and Dolly Varden population is present. Reproduction is limited and lake is marginal for fishery management. No stocking recommended.

Heart Lake. Lake has suitable grayling population. Reproduction is evident. No stocking necessary at this time.

Lower Copper Lake. Lake has practically no fish population. Reproduction is nil. Recommend stocking with 1300 2-inch Westslope cutthroat trout.

Lower Twin Lake. Lake has good population of Yellowstone cutthroat trout. Reproduction is evident from size composition of net catch. No stocking necessary at this time.

Meadow Lake. This shallow lake is formed by a beaver dam which is kept maintained with help from an outfitter who has a fishing camp at the lake. It contains an adequate population of Yellowstone cutthroat x rainbow hybrids. Spawning facilities are available and no stocking is necessary under present fishing pressure.

Morrell Lake. This lake is also very shallow, but has a good inlet and outlet to maintain proper water temperatures. Spawning facilities are available in the inlet. For its size and depth an adequate population of Westslope cutthroat trout resides in the lake. However, it is believed this population is fragile and would be vulnerable to any substantial increase in fishing pressure.

Otatsy Lake. An overabundant rainbow trout population is present. Spawning facilities are present. An increase in fisherman harvest would be helpful in increasing the size of these fish. No stocking should be done.

Parker Lake. Spawning facilities are adequate to maintain the Yellowstone cutthroat trout population in this lake under existing access conditions. A substantial increase in fishing pressure could be detrimental to this self-sustaining population.

Unnamed (middle lake east of Heart Lake. T16N R8W Sec. 17) This small lake contains a small population of large (13"-15") rainbow trout. There was evidence in the net catch of limited reproduction. It is recommended this lake not be restocked with rainbow trout. Restocking with either Yellowstone or Westslope cutthroat trout is recommended at such time that rainbow may disappear from the lake.

Webb Lake. One of the best Yellowstone cutthroat populations in the Lincoln Back Country resides in this shallow lake. Numerous spring areas in the lake bottom supply fresh water and keep water temperatures low. Natural reproduction sustains the population under present fishing pressure. Any substantial increase in use of this small, shallow lake could be detrimental to the existing fish population.

Of the 19 lakes containing no fish, comments and recommendations are made on five. The remaining 14 lakes are marginal or unsuitable for fishery management, primarily because of shallow depths, unsuitable water temperatures, lack of suitable water supply, or combinations thereof.

3 Monture Creek Lakes. Of the three lakes, only the one in Sec. 17 (T18N R12W) appears entirely suitable for fish. The other two may support fish but appear marginal in depth, except for limited deep areas. Spawning facilities are available in the Sec. 17 lake. At this writing, the lake had already been stocked with 2,300 one-inch Westslope cutthroat trout. These fish were from the Arlee hatchery stock taken from Hungry Horse Reservoir

and considered a desirable Westslope cutthroat strain. They were planted in Monture Creek Lake for a possible brood source if needed at a future date.

Silver King Lake. Lake has no game fish population, but is suitable and has provided fishing in previous years. Lack of fishing access over private land precludes the Fish and Game Department from stocking fish at the present time.

Unnamed (Southern-most lake east of Heart Lake. T16N R8W Sec. 17). This lake appears suitable for fish. It has no noticeable spawning facilities. It is recommended it not be stocked at this time since the adjoining lake contains a rainbow population which can be harvested.

Upper Copper Lake. Lake appears suitable for fish. It may have limited spawning areas near the outlet. It is recommended it be stocked with 1,200 2-inch Westslope cutthroat trout.

Upper Twin Lake. This lake has supported fish in the past. Sufficient natural reproduction evidently does not occur and spawning areas were not observed. However, because of its proximity to main travelled trails in the area it is recommended it be stocked with 6,500 2-inch Yellowstone cutthroat trout.

OBJECTIVES:

The objective of the job is to conduct fisheries surveys on mountain lakes in the Blackfoot River drainage inaccessible by road.

TECHNIQUES USED:

A helicopter equipped with floats was used to transport fisheries survey equipment to the lakes (Figure 1). Survey data from each lake were entered on standard Montana Fish and Game lake survey forms. Sketch maps were constructed for each lake. Maps included information on shoal area, aquatic weed beds, tributary streams and approximate locations of experimental gill net sets. Lake depth information was obtained through the use of a transistorized portable sonar or hand line and plotted on the sketch map. Standard 125-foot long experimental monofilament gill nets were set overnight in assessing fish populations. Net set information and catch were recorded on gill net catch forms. Data from the survey were evaluated and used to formulate a management plan for the individual lakes.

FINDINGS:

Findings for the 31 mountain lakes surveyed in 1966 are summarized in Tables 1 and 2.

Figure 1. Pontoon equipped helicopter used for mountain lake surveys. Echo sounder and gill net storage baskets are also shown. July 1968. Photo by Liter Spence.

Table 1. Data on mountain lakes surveyed in Blackfoot River drainage in 1968

Name of Lake	Location	Depth in feet	Surface acreage	Gillnet hours	Number of fish caught	Species 1/
Bighorn	T17N R8W Sec 34	54	14.4	24	34	Yct
Camp	T17N R11W Sec 32	15	19.3	24.5	26	Rb
Canyon	T17N R11W Sec 28,33	7	19.7	23.5	7	Dv, WSct
Florence	T18N R15W Sec 35	14	16.9	21.5	none	none
Heart	T16N R8W Sec 17,18	50	33.2	22	29	Gr
Lower Copper	T15N R9W Sec 9,10	17	12.7	25	1	Rb x Ct
Lower Keep Cool	T15N R8W Sec 33	4	25.0	10	none	none
Lower Twin	T16N R9W Sec 6	10	15.5	21.5	55	YCt(1 YCtxRb)
Meadow	T16N R9W Sec 18	2	16.8	12.5	32	YCtxRb(2 YCt)
Monture Cr.	T18N R12W Sec 17	45	7.0	24	none	none
Monture Cr.	T18N R12W Sec 18 ($SW\frac{1}{4}$)	18	8.0	24	none	none
Monture Cr.	T18N R12W Sec 18 ($NE\frac{1}{4}$)	16	9.5	24	none	none
Morrell	T15N R15W Sec 23	3	25.5	22.5	19	WSCt
Otatsy	16N R11W Sec 6 17N R11W Sec 32	30	24.3	24	51	Rb
Parker	T16N R9W Sec 9	4	22.0	20.5	58	YCt
Two Point	T16N R9W Sec 10	9	14.7	22	none	none
Unnamed	T15N R15W Sec 26	8	9.8	22	none	none
Unnamed	T16N R8W Sec 15	Unknown	8	none	-	-
Unnamed	T16N R8W Sec 19	2	6.7	23	none	none
Unnamed	T16N R8W Sec 17	22	3.9	24	7	Rb
Unnamed	T17N R15W Sec 2	13	21.3	21.5	none	none
Unnamed	T17N R10W Sec 17	25	9.6	22.5	none	none
Unnamed	T16N R8W Sec 18	7	2.8	none	-	-

Table 1. (continued)

Name of Lake	Location	Depth in feet	Surface acreage	Gillnet hours	Number of fish caught	Species 1/
Unnamed	T16N R11W Sec 36	20	15.2	23	none	none
Unnamed	T16N R8W Sec 17	22	2.3	23.5	none	none
Unnamed	T17N R10W Sec 9,10	2 est.	7.8	none	-	-
Upper Copper	T15N R9W Sec 8,9	33	11.1	24.5	none	none
Upper Keep Cool	T15N R8W Sec 34	5	20.0	none	-	-
Upper Twin	T16N R9W Sec 8	10	6.4	21	none	none
Silver King	T15N R7W Sec 6	73	16.6	21.5	none	none
Webb	T16N R9W Sec 14	4	6.7	25	27	YCt

1/ YCt= Yellowstone cutthroat; Rb= rainbow, WSCt= Westslope cutthroat; YCt x Rb= Yellowstone cutthroat x rainbow hybrid; DV= Dolly Varden, Gr= Grayling

Table 2. Age and growth of fish from mountain lake survey, Blackfoot River drainage - 1968

Lake	Species	Average length at annulus 1/ I	II	III	IV	V	VI	VII
Bighorn	YCt	3.5(32)	6.4(31)	9.7(17)	12.4(13)	14.4(5)	18.2(2)	22.8(1)
Camp	Rb	2.7(24)	5.1(22)	7.6(10)	10.0(3)			
Canyon	WSCt	3.4(4)	5.5(4)	6.0(1)				
	DV	2.2(2)	4.2(2)	6.7(2)	8.8(1)	11.9(1)		
Heart	Gr	6.0(29)	9.0(17)	11.2(4)	13.1(2)			
Lower Copper	RbxCt	4.2(1)						
Lower Twin	YCt	3.6(55)	6.0(51)	8.0(36)	9.6(18)			
Meadow	YCTxRb	2.6(29)	5.4(29)	7.9(19)	10.5(13)	12.3(5)	16.0(1)	
Morrell	WSCt	2.9(19)	5.3(19)	8.1(14)	9.0(3)			
Otatsy	Rb	2.3(45)	5.0(45)	7.2(19)	8.3(4)			
Parker	YCt	3.0(56)	5.5(56)	7.4(43)	9.4(18)	11.2(2)		
Unnamed (middle lake east of Heart Lake)	Rb	4.6(4)	8.3(3)	9.9(3)	12.0(3)	13.0(2)		
Webb	YCt	3.4(25)	6.3(23)	9.9(14)	12.6(11)	15.5(5)	15.0(1)	

1/Numbers in parentheses denote sample size

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