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MONTANA FISH AND GAME DEPARTMENT
FISHERIES DIVISION

JOB COMPLETION REPORT
RESEARCH PROJECT SEGMENT

State of Montana

Project No. F-32-R-2 Name Helicopter Mountain Lake Survey

Job No. II Title Survey to Determine Rainbow Trout Distribution in South Fork of The Flathead River Drainage

Period Covered: July 1, 1965 to June 30, 1966

ABSTRACT:

Fish population surveys of 17 mountain lakes and their tributaries in the upper Big Salmon River drainage were conducted in July, 1965. Self-sustaining populations of rainbow trout were found in four lakes. Rainbow trout was the only species found in the upper part of the Big Salmon River drainage downstream to Barrier Falls. Westslope cutthroat trout were the only species collected immediately below Barrier Falls.

RECOMMENDATIONS:

It is recommended that the lake and stream survey be continued to include population surveys of the lower Big Salmon River and Big Salmon Lake.

OBJECTIVES:

This survey is to document the abundance and distribution of rainbow trout in an integral part of the South Fork of the Flathead River, specifically the Big Salmon River drainage. The purpose of the study is to assess the degree of encroachment of the rainbow trout on the native westslope cutthroat trout which is indigenous to the Flathead River system.

TECHNIQUES USED:

A two-man helicopter crew conducted the lake surveys. Monofilament gill nets, 125 feet in length, with a graduated mesh size of 1/2 to 2 inches square were used to sample fish populations. Lake depths were determined with a transistorized Bendix depth recorder. Outline maps of lakes were traced from Forest Service maps and their areas were measured with a planimeter. Population sampling of tributary streams was accomplished by angling with hook and line. Survey data for each lake have been recorded on index file cards and kept on file at the district and Helena offices.

FINDINGS:

Seventeen lakes at the headwaters of the Big Salmon drainage were surveyed July 15 through July 18, 1965 (Figure 1). With the exception of Lena Lake, which is 85 acres in size, these lakes range from 1 to 18 surface acres.

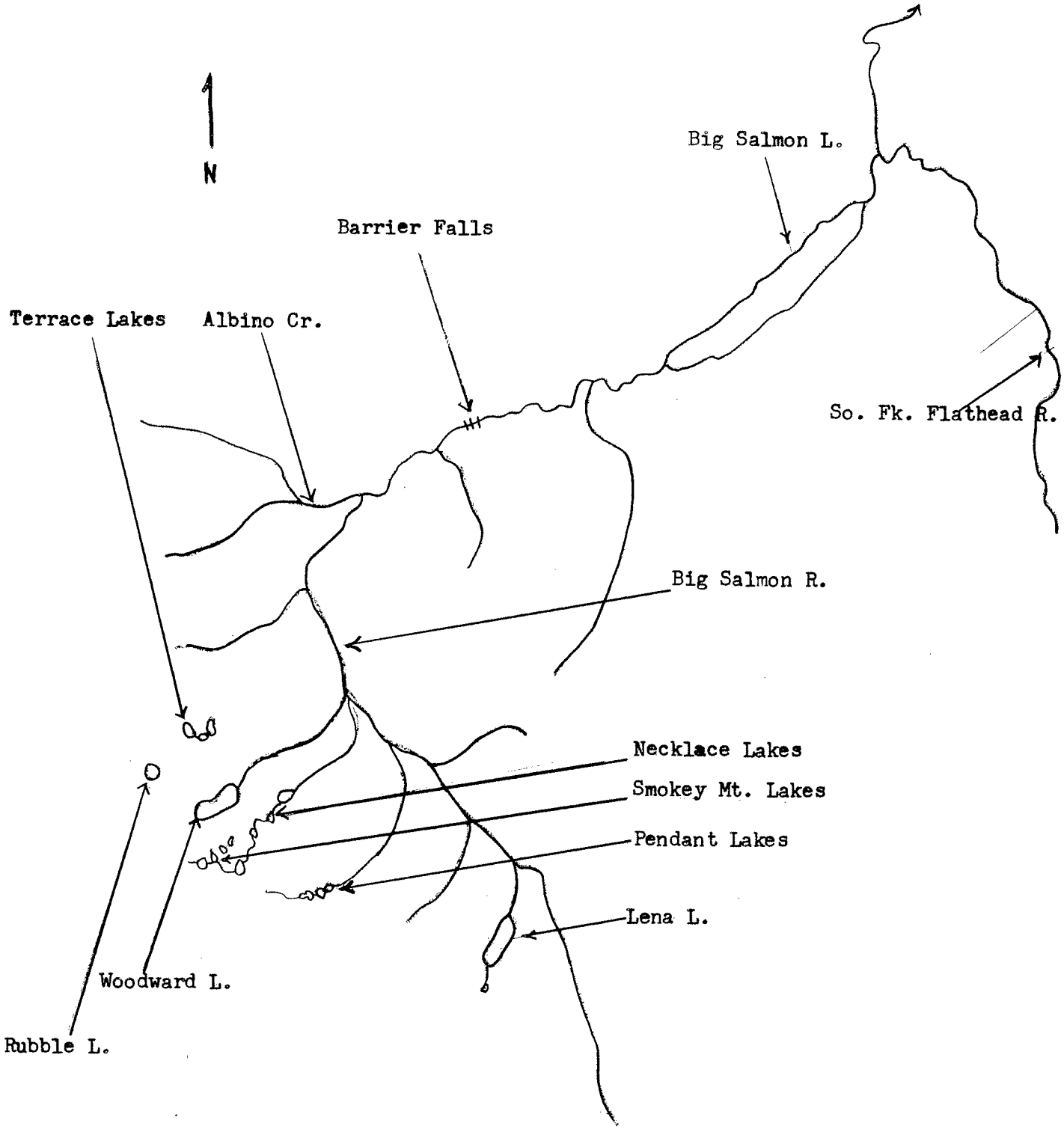

Figure 1. Location of lakes and streams surveyed in Big Salmon drainage.

Seven of the lakes were sampled with either one or two gill net sets overnight. The remaining ten lakes were visually examined and determined to be too shallow to support fish life. These lakes were not netted. The gill net catch data are presented in Table 1.

Table 1. Summary of gill net catches from seven lakes in the Big Salmon drainage July 16-18, 1965.

Lake	Acres	Maximum depth (ft.)	Species	Overnight net sets	Ave. Catch per net	Ave. Length (inches)
Lena	85	70	Rb	*2	0.5	14.5
Smokey Cr. - 1	9	15	--	1	None	----
Smokey Cr. - 4	11	20	Rb	1	5.0	10.4
Terrace - 2	10	30	--	1	None	----
Terrace - 4	11	35	--	1	None	----
Rubble	16	90	--	1	None	----
Necklace - 3	18	25	Rb	1	25.0	10.5

*Represents 4 hour set Rb=Rainbow trout

The lakes found to have a self-sustaining population of rainbow trout in the upper Big Salmon drainage were: Lena, Smokey Creek 4, Necklace 3, and Woodward Lakes (surveyed 1964). Rainbow trout was the only species collected in lakes inhabited by fish.

The mouths of inlet streams cascading down from snow fields above are probably too cold for the successful spawning of rainbow trout. Spawning areas were observed in the outlet streams immediately below the lakes. It is believed that successful spawning occurs only in the outlet streams because of the influence of the warmer water flowing from the lake surface.

The initial introduction of rainbow trout into the headwater lakes of the Big Salmon drainage was believed to have been made by a local outfitter in 1932. It is not known whether these lakes were barren of fish at the time rainbow were introduced or whether there was an established population of westslope cutthroat trout.

Follow-up stream population surveys below the outlets of the lakes were conducted in 1965 by fisheries personnel traveling by horseback. Hook and line sampling of the fish population was conducted downstream in the Big Salmon drainage as far as the mouth of Albino Creek, (Figure 1). Rainbow trout was the only species caught. Later in the season, Big Salmon River was sampled with hook and line by a game warden lower in the drainage immediately below Barrier Falls. The falls are approximately 6 miles above Big Salmon Lake. Westslope cutthroat trout was the only species collected below the falls.

Future population surveys are recommended to determine the distribution of rainbow trout in the lower Big Salmon drainage below Barrier Falls and Big Salmon Lake.

Prepared by Robert Domrose Approved by George D Holton

Date June 13, 1967