JOB COMPLETION REPORT
INVESTIGATIONS PROJECTS

State of Montana

Project No. F-7-R-9 Name Northwest Montana Fishery Study

Job No. II Title Productive Capacity of Smith Lake Rearing Pond With More Than One Age Class of Fish

Period Covered: May 1, ~~1958~~ 1959 - April 30, ~~1959~~ 1960

Abstract: In August 1958, 15,800 cutthroat trout fry (1,000 fry/acre) were scatter planted by boat in Smith Lake Rearing Pond. The pond was drained in July 1959. A total of 5,659 cutthroat trout and 44 rainbow trout were recovered, or a survival return of 36.1 percent. The average length of the cutthroat trout was 5.1 inches and average weight 0.04 pounds with a range in size from 3.6 to 6.9 inches. The rainbow trout averaged 6.2 inches and 0.09 pounds with a size range from 5.2 to 7.9 inches. The pond was replanted in September with 25,000 cutthroat trout fry (South Fork of the Flathead River stock).

Objectives: The primary objective of this study will be to determine the effects of succeeding plants of cutthroat trout upon a known fish population. The pond will be drained, the fish captured and 40 percent of what has been the average maximum production (pounds) planted back into the pond. An additional plant of fry will also be planted in the pond.

Procedure: In April, the screen in the spillway of the lake was checked to make certain it was operating properly. The spring run-off was observed and when the high water started, most of this water was diverted around the lake. The screen was cleaned periodically. On July 6 planks were removed to gradually lower the level of the pond. The pond was completely drained by July 16. On six separate days, while the lake was draining, 100 fish were weighed and measured. As was demonstrated in previous years, high temperatures killed the stranded fish in the remaining shallow pools. All live fish that were captured were transfered to the Creston Fish Hatchery. A measurement was made at the Creston Station to check the average weight of the fish. Eight 5-pound lots were selected and the fish counted in each lot. The figures on average weight were identical.

The planks were replaced in the spillway on July 20 to refill the pond. On September 16, 25,000 cutthroat trout (South Fork of the Flathead River stock) from the Hamilton Fish Hatchery were spot planted in the pond.

Findings: In 1958, 15,800 cutthroat trout fry were scatter planted by boat in the lake. A total of 5,659 cutthroat trout were recovered from the lake in 1959. In addition, 44 rainbow trout were captured. The combined survival of fish was 36.1 percent with a total increase in weight of 223.3 pounds.

The average length of the cutthroat trout was 5.1 inches and had an average weight of 0.04 pound, with a range in size of 3.6 to 6.9 inches.

The rainbow trout averaged 6.2 inches and 0.09 pounds with a size range of 5.2 to 7.9 inches. This was the first record of rainbow trout being collected in the pond or inlet stream.

The complete history of the production in Smith Lake is presented in Table 1. The 1959 fry plant was reduced to 15,800 (1,000 fish/acre) to reach a more realistic figure for planting fry per surface acre in a fish barren lake. The combined survival in 1959 (36.1 percent) is very similar to the survival percentages received during the period 1953-1957. These

Table 1. Number of Cutthroat Trout Planted and Recaptured in Smith Lake Rearing Pond for the Years 1951 through 1958.

Year	No. of fish Planted in Previous Yr.	Method of Release	No. of Fish Captured	Percent Return	Weight Gain	Range in Length	Average Length
1951	30,000	One spot	1,707	5.7	135.5	2.9-9.2	6.0
1952	29,000	One spot	1,670	5.8	218.4	4.6-9.2	7.5
1953	25,000	Scatter	5,882	23.5	572.6	2.4-9.4	6.9
1954	25,000	Scatter	9,076	36.3	584.6	2.9-8.6	6.0
1955	25,070	One spot	8,288	33.1	548.2	2.7-8.7	5.7
1956	25,200	Scatter	11,368	45.1	556.8	3.3-8.2	5.3
1957	25,200	One spot	9,847	39.1	417.9	3.8-6.7	5.3
1958	15,000(fry)	Scatter	987	6.6	24.7	3.6-7.1	4.7
	7,935(5.3")	One spot	3,753	47.3(21)	143.0(167.7)	5.7-10.3	7.9
1959	15,800	Scatter	5,659	32.7	220.7	3.6-6.9	5.1

years were considered a stable period in this lake's production. The total weight gain (223.7 pounds) for the production period was 41.7 percent of the 1953-1957 average. It has been assumed that the maximum production of fish in pounds had been reached but a variation could result in the ratio of the average size to the total number of fish recaptured. However, the number of fish planted in 1959 was reduced more than 500 fish per acre, the average length and size range remained very nearly the same as the total lengths and size ranges of former years.

During the latter portion of this study, Departmental policy on cutthroat trout was revised. This revision was designed to preserve and extend the distribution of the cutthroat trout native to the west slope of the Continental Divide. The Yellowstone River strain of cutthroat trout formerly used in the Smith Lake project was obtained from the Georgetown Lake Station.

The 1960 production year will provide an opportunity to review the capabilities of the west slope cutthroat trout obtained from Big Salmon Lake, a tributary of the South Fork of the Flathead River.

Recommendations: It is recommended that this study be continued, with the exception of changing the stock of cutthroat trout to the west slope strain so that a comparison of this strain and the Yellowstone strain can be made.

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Date April 30, 1960