

MONTANA FISH AND GAME DEPARTMENT
FISHERIES DIVISION
HELENA, MONTANA

JOB COMPLETION REPORT
INVESTIGATIONS PROJECTS

State of Montana

Project No. F-7-R-10

Name Northwest Montana Fishery Study

Job No. II

Title Productive Capacity of Smith Lake
Rearing Pond

Period Covered: May 1, 1960 - April 30, 1961

Abstract: On September 16, 1959, 25,000 cutthroat trout fry (South Fork of the Flathead River stock) from the Hamilton Fish Hatchery were planted in Smith Lake Rearing Pond. A total of 2,100 cutthroat trout were recovered during the interim of draining the lake. This is a survival of 8.4 percent. The average length of trout was 4.7 inches (range 2.6 to 7.4 inches) and average weight 0.05 pounds. The pond was re-planted in August, 1960, with 25,600 cutthroat fry (Lauri Lake stock).

Objectives: Recent studies on this lake have dealt with production, stocking levels and methods of planting hatchery reared Yellowstone cutthroat trout. The objectives of this study were to test the survival and growth of west slope cutthroat trout (South Fork of the Flathead River stock) in this lake. A secondary objective will be to summarize and analyze accumulated data.

Procedure: In May, 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 June 21 planks were removed to gradually lower the level of the pond. The pond was completely drained by July 5. On four separate days, while the lake was draining, 100 fish were weighed and measured. High temperatures (90 - 94° F.) killed the stranded fish in the remaining shallow pools. All live fish that were captured were transferred to the Somers Fish Hatchery.

The planks were replaced in the spillway on July 11 to refill the pond. On August 8, 25,600 cutthroat trout fry (Lauri Lake stock) were spot planted in the pond, at the only area accessible by vehicle.

Findings: In 1959, 25,500 cutthroat trout fry were spot planted in the lake. A total of 2,100 cutthroat trout were recovered from the lake in 1960. The survival rate for these fish (South Fork River cutthroat) was 8.4 percent with a total increase in weight of 105.0 pounds (6.2 pounds per surface acre).

The average length of the 10-month old cutthroat trout was 4.7 inches and an average weight of 0.05 pounds, with a range in size of 2.6 to 7.4 inches.

The 1959-60 production year provided the opportunity to measure the capabilities of the west slope cutthroat trout (relatively a non-domesticated stock) and to compare it with that of the Yellowstone cutthroat trout (a domesticated stock). The original stock of cutthroat trout planted in 1959 were obtained from Big Salmon Lake, tributary of the South Fork of the Flathead River. The progeny of this stock has been in the hatchery system (Hamilton station) for five years prior to the planting in Smith Lake.

A history of this lake's production (1951-1960) is presented in Table 1. Maximum production for this lake, 34.4 pounds per surface acre, occurred in 1954, with the highest percent survival of 45.1 percent in 1956. The 1960 production was one-fifth the average production (pounds of fish produced) and survival success for the years 1953-57.

Table 1. Number of Cutthroat Trout Planted and Recaptured in Smith Lake Rearing Pond for the Years 1951 through 1960.

Year	No. of fish Planted in Previous Yr.	Method of Release	No. of Fish Captured	Percent Return	Weight Gain	Pounds per Surface Acre	Range in Length	Ave. Length
1951	30,000	One spot	1,707	5.7	135.5	8.0	2.9-9.2	6.0
1952	29,000	One spot	1,670	5.8	218.4	12.8	4.6-9.2	7.5
1953	25,000	Scatter	5,882	23.5	572.6	33.7	2.4-9.4	6.9
1954	25,000	Scatter	9,076	36.3	584.6	34.4	2.9-8.6	6.0
1955	25,070	One spot	8,288	33.1	548.2	32.2	2.7-8.7	5.7
1956	25,200	Scatter	11,368	45.1	556.8	32.8	3.3-8.2	5.3
1957	25,200	One spot	9,847	39.1	417.9	24.6	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)	9.8	5.7-10.3	7.9
1959	15,800	Scatter	5,659	32.7	220.7	13.0	3.6-6.9	5.1
*1960	25,000	One spot	2,100	8.4	105.0	6.2	2.4-7.4	4.7

*South Fork Flathead River stock of cutthroat trout, Hamilton station; all others were Yellowstone cutthroat, Creston station.

It had been assumed that the maximum of fish in pounds had been reached during the years 1953-57, but that a variation could result in a ratio of the average size to the total numbers of fish recaptured.

It is recognized that a domestic stock will produce more fish (pounds and numbers) in a hatchery than a nondomestic stock, but in gaining quantity losses occur in quality.

Recommendations: It is recommended that a similar test be made with the Lauri Lake strain of west slope cutthroat trout. This will provide

information concerning the capabilities of this non-domestic stock of fish.

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Date March 24, 1961