

MONTANA FISH AND GAME DEPARTMENT  
FISHERIES DIVISION  
HELENA, MONTANA

JOB COMPLETION REPORT  
INVESTIGATIONS PROJECTS

State of Montana

Project No. F-7-R-11

Name: Northwest Montana Fishery Study

Job No. II

Title: Productive Capacity of Smith Lake  
Rearing Pond

Period Covered: May 1, 1961 - June 30, 1962

**Abstract:** On August 8, 1960, 25,600 cutthroat trout fry (Lauri Lake stock) were spot planted in Smith Lake Rearing Pond. A total of 946 cutthroat trout were recovered in June-July, 1962. This was 3.7 percent of the number planted. The average length of trout was 7.9 inches and average weight 0.21 pounds with a range in size from 3.8 to 10.5 inches. The pond produced 8.7 pounds of fish per surface acre during the ten month period.

**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 will be to test the comparative success of using West Slope cutthroat trout in this lake. A secondary objective will be to summarize and analyze accumulated data.

**Procedure:** In May, 1961, 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 20, 1961, planks were removed to gradually lower the level of the pond and allow the fish to be captured. Fifty fish from one day's catch were weighed and measured to obtain the average length and weight of fish in the pond. The pond was completely drained by July 5. High temperatures (90-98°F.) killed the stranded fish in the remaining shallow pools. All live fish that were captured were transferred to the Somers Fish Hatchery.

**Findings:** In 1960, 25,600 cutthroat trout fry were spot planted in the lake. A total of 946 trout were recovered from the lake in 1961. The survival rate for these fish (Lauri Lake stock) was 3.7 percent with a total increase in weight of 147.7 pounds (8.7 pounds per surface acre).

The average total length of the 10-month old cutthroat trout was 7.9 inches and the average weight was 0.21 pounds. The length range was 3.8 to 10.5 inches.

The behavior pattern of the fish (Lauri Lake stock) while draining the lake was considerably different from former years. Formerly fish readily entered the retaining pool at the outlet of the lake while it was being drained. The Lauri Lake stock fish (schools 50 - 70 fish) approached the outlet area but seldom entered the structure. Concentrations of 200 to 400 fish were not uncommon in previous years. The

number of fish taken alive from the retaining pool in recent years has ranged from 2,000 to 9,000, while this year only 205 fish were collected. The tendency for these fish to avoid the outlet structure should be considered in the interpretation of Table 1 on 1961 yearly production.

Table 1. Number of Cutthroat Trout Planted and Recaptured in Smith Lake Rearing Pond for the Years 1951 through 1961.

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
**1961	25,600	One spot	946	3.7	147.7	8.7	3.8-10.5	7.9

\*South Fork Flathead River stock of cutthroat trout, Hamilton station;  
 \*\*South Fork Flathead River stock of cutthroat trout, Lauri Lake stock;  
 all others were Yellowstone cutthroat from the Federal Fish Hatchery at Creston, Montana.

The annual production figures were calculated from measurements (length and weight) of the live fish collected in the retaining pool and a count of dead fish stranded in the remaining pools after the lake was completely drained. Very few small fish (3-5 inches) were found during the count of dead fish. During this count all fish were measured to the nearest one-tenth of an inch, unless decomposed. If decomposed, they were only counted.

A history of this lake's production (1951-1961) is present in Table 1. It was anticipated and recorded in 1960, (Comp. report F-7-R-10) that a domestic stock would produce more fish (pounds and numbers) than a non-domestic stock. This theory was well exemplified in the last years production, as well as the differences in fish behavior observed.

Recommendations: It is recommended that this study be discontinued. Valuable data on fish production has been obtained from this experimental pond. Continuation of the project would result in only limited additional information due to the difficulties in measuring the annual projection and other variables that cannot be controlled.

Prepared by D. A. Hanzel

Approved by *George D. Holton*

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