

MONTANA STATE DEPARTMENT OF FISH AND GAME
FEDERAL AID IN FISH RESTORATION SECTION
HELENA, MONTANA

JOB COMPLETION REPORT
INVESTIGATIONS PROJECTS

State of Montana

Project No. F-7-R-5

Job No. IV

Title of Job: Establishing Measures of Abundance of Cutthroat Trout in Ashley Lake

Abstract:

A total of 251 trout entered the traps during the spawning in 1955. The number of eggs taken from 130 females was 445,004. The number of cutthroat trout planted in the lake was 293,102. Sixteen percent of the fish tagged in 1953, and 35 percent of the fish tagged in 1954 were recovered in the traps. Creel census indicated a catch of 0.1 trout per hour. A slight increase in the number of females entering the traps as well as an increase in the number of eggs taken was noted above that of the previous year.

Objectives:

At one time the cutthroat trout were abundant in Ashley Lake and little effort was required to catch a limit. Due to faulty management, the numbers have dwindled to a dangerous low. This lake is used for spawn taking, and traps are operated on four tributaries. In the last four years, the number of cutthroat trout fry planted varied from 50 to 100 per surface acre of the lake. Due to the time needed for these trout to mature, it is necessary to continue the project for at least one more year. Relatively few trout have been recaptured that have been tagged in the traps since the project started. The purpose of this project is to determine the relative abundance of trout in this lake that the effects of corrective management may be noted.

Techniques Used:

The cutthroat trout females were counted as they were spawned and placed upstream from the traps in Rand Creek and Green Mountain Creek. Fish from Cottonwood Creek and Fish Creek were hauled to the above creeks and spawned. The males and females were again counted before the traps were removed from the tributary streams, at which time all fish were weighed, measured and tag numbers recorded of the tagged fish. Eggs were taken four times during the season by personnel of the Somers Fisheries Station. Creel census was taken on opening day and at various times during the fishing season.

Findings:

A description of the lake has been made in Job Completion Reports F-7-R-1, F-7-R-2, Work Plan IV-A.

Traps were placed in all four tributary streams on May 2. The trout were later than usual in entering the traps and it was not until May 29 that fish in any numbers had entered the traps. The traps were operated until June 18, when all the fish were

liberated. According to records kept at the Somers Fisheries Station, there were 41 females spawned on May 29, 21 on June 2, 37 on June 7, 27 on June 12 and 8 on June 18, for a total of 134 females spawned (Table I). No records were kept on the number of fish spawned at individual traps. After the spawning operations were over the project leader and helper counted all fish remaining in the traps. In Rand Creek, 79 males and 72 females were recorded and in Green Mountain Creek, 42 males and 30 females. A total of 445,004 eggs were taken from 134 females.

TABLE I
Number of Female Cutthroat Trout Spawned at Ashley Lake
and Eggs Taken for the Years 1951 through 1955.

Year	Females	No. of Eggs	Days of Trap Operation	No. of Eggs per day	No. of Female Trout per Day
1951	283	652,552	49	13,317	6
1952	125	323,306	41	7,886	3
1953	155	395,512	63	6,278	3
1954	130	335,224	45	7,449	3
1955	134	445,004	47	9,468	3

A total of 293,102 cutthroat fry were planted in the lake in July. These were scattered over the lake by means of a planting boat.

On June 11, 12 and 18, 223 trout were weighed and measured in the traps on Rand Creek and Green Mountain Creeks. Of these, 84 were tagged in previous years. No fish were tagged this year. Nine tagged trout died in the traps and no measurements were obtained on these fish. Of the 84 tagged fish returning to the traps, 1 was tagged in 1952, 33 in 1953, and 50 in 1954 (Table II). The fish tagged in 1952 returned to the traps each year. Of the 33 trout tagged in 1953, 6 did not return to the traps in 1954.

The trout that was tagged in 1952 gained 2 inches in length and 1.86 pounds in weight in three years. The fish that were tagged in 1953 gained an average of 1.8 inches in length and 1.16 pounds in weight in two years. Of these fish, five had decreased in length and three had lost weight. The fish that were tagged in 1954 gained an average of 0.9 inches in length and 0.52 pounds in weight in one year. Of these fish, two had decreased in length and eleven had lost weight. The loss in length is not easily explained. Some it may be due to measuring and recording errors and sometimes it appears that the fish may have actually decreased in length. Some males captured in the traps are in a very emaciated condition and appear to have shrunk.

Two fish were caught by anglers during the summer, one that was tagged in 1953 and the other in 1954.

From the figure in Table II it can almost be predicted how many tagged fish will return to the traps in 1956. None of the fish tagged in 1951 and 1952 should enter the traps this coming year. About three percent of those fish tagged in 1953 and recovered in 1955, or roughly one fish, should enter the trap in 1956. Approximately 14 percent or 7 of the fish tagged in 1954 and recovered in 1955 should enter the traps in 1956. From the data as presented, 8 tagged fish should enter the traps this coming year. This tagging program demonstrates well that the mortality of fish runs

TABLE II

Number of Cutthroat Trout Tagged, Recovered and Percentage Recovered
of Fish Tagged in the Various Traps of Ashley Lake
from 1951 through 1955

	1951	1952	1953	1954	1955
Number of fish tagged	12	40	218	143	0
Fish available for recapture					
Tagged in 1951		10	10	9	9
Tagged in 1952			39	37	36
Tagged in 1953				208	192
Tagged in 1954					143
Tagged fish recovered from trout					
Tagged in 1951		2	1	1	0
Tagged in 1952			14	4	1
Tagged in 1953				75	31
Tagged in 1954					50
Percentage recovered from trout					
Tagged in 1951		20	10	11	
Tagged in 1952			36	13	3
Tagged in 1953				36	16
Tagged in 1954					35

about 64 percent. It is recognized that some fish lose their tags, as several have been recovered in the traps with a severed jawbone where apparently a tag had worn through.

A partial creel census was conducted on Ashley Lake. During the year 56 anglers were contacted that caught 68 fish in 182.5 hours of fishing (Table III). Nineteen of the fish caught were cutthroat trout and the remaining 49 were kokanee. The catch per hour was 0.4 fish. The catch per hour has improved since 1951, but only due to the catching of kokanee. However, the catch of cutthroat trout is extremely low and far below the average for the state and this area.

No scale samples were obtained from fish in the traps. It was impossible to get any scales as they were so deeply imbedded.

Recommendations:

From the data as presented, there has been no appreciable increase or decrease of female trout or much in the number of eggs taken. According to the growth rate as presented in the completion report for 1952, the trout do not attain maturity until their fifth year, although some mature males enter the traps in their fourth year. No large number of precocious males entered the traps last year as would be anticipated from the large plant that was made in 1951. The spawning run of 1956 should show some indication of the effects of the planting done in 1951.

TABLE III

Summary of Creel Census on Ashley Lake
for the Years 1951 through 1955

Year	No. of Trout	No. of Kokanee	No. of Anglers	Hours Fished	Catch per Hour
1951					.13
1952	25		38	152	.16
1953	28	108	69	375	.36 (.07)*
1954	6	106	55	250.5	.4 (.02)
1955	19	46	56	182.5	.4 (.10)

* Numbers in parenthesis are catch per hour of cutthroat trout.

It is recommended that this study be continued. It is further recommended that the Superintendent of Fisheries and his Field Supervisors should stress the need for accurate records of not only the fish spawned but all fish coming into the traps, mortalities, etc., by the personnel taking care of the various spawning stations.

Summary:

A total of 130 females were spawned at all of the traps and 445,004 eggs were taken. A total of 251 fish were known to have entered the traps. The number of cutthroat trout planted back into the lake totalled 293,102 fish. Creel census indicated a .1 trout catch per hour. A slight increase in the number of females entering the trap as well as an increase in the number of eggs taken was noted above that of the previous year.

Data and Reports:

The original data and related reports are with the project leader at Kalispell and with the Fish and Game Department in Helena, Montana.

Prepared by Frank A. Stefanich Approved by Charles K. Phenicie

Date April 18, 1956