

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-4

Job No. V-A

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

Abstract:

An estimated total of 260 trout entered the traps during the spawning season of 1954. Of the nine trout that were tagged in 1951 and available for recapture, one returned to the traps in 1954. Four of the 38 trout tagged in 1952 and available for recapture returned to the traps. Seventy-nine of the 209 trout tagged in 1953 and available for recapture returned to the traps in 1954. The number of eggs taken from 130 females spawned totaled 335,224. The number of cutthroat trout planted into the lake was 38,563 3-inch fish and 222,258 fry for a total of 260,821. Creel census indicated a catch of .02 cutthroat trout per hour for the opening day of the fishing season. As near as can be estimated, there was a decrease in the number of trout entering the traps. There was also a decrease in the number of eggs taken.

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 of the tributaries. In the last three years, the number of cutthroat trout fry planted varied from 50 to 100 per surface acre of the lake. 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 spawning trout were counted as they came into the trap in Green Mountain Creek in May and June. Complete counts were not made at Cottonwood Creek, Rand Creek or Fish Creek. Eggs were taken three times during the season by personnel of the Somers Fisheries Station and all females spawned were counted. All of the trout that remained in the traps after the spawning activities were over, were weighed and measured. The trout that did not have a tag from previous tagging were jaw-tagged. 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 April 26, 1954. Cutthroat trout started entering the trap in Rand Creek on May 7, and several days later trout were in all traps. Trout captured in Cottonwood Creek were hauled to Green Mountain Creek by caretakers that were stationed at Green Mountain Creek and Rand Creek. The traps were operated until June 10, when all fish were released after being weighed, measured and jaw-tagged if they did not already have a tag.

Complete records were kept at only one of the spawning traps, Green Mountain Creek. A total of 73 trout entered this trap. A few trout came into the trap at Cottonwood Creek and were hauled to Green Mountain Creek. No caretaker was at this trap. The caretaker at Rand Creek who also took care of the Fish Creek Trap made a good start on counting all fish coming into the traps, but for reasons unknown to the writer, counts were discontinued after about May 27. A disproportionate number of tagged fish were reported as casualties, 10 from Rand Creek and 2 from Fish Creek. No reports were made on casualties of trout that were not tagged. The caretaker reported 29 trout in Fish Creek and 140 in Rand Creek on May 21. For the spawning season there were 22 females spawned in Fish Creek and 76 in Rand Creek, however after the completion of spawning operations, 37 trout of both sexes were weighed and measured in the Fish Creek Trap and 109 in the Rand Creek Trap. It appeared that the caretaker at Rand Creek handled the trout too often and too roughly thereby causing many casualties, and that in order to cover up the large number of casualties, counting of trout coming into the traps was discontinued after May 27. Therefore, the records of fish coming into Fish Creek and Rand Creek are incomplete. The traps were kept in operation until the middle of July to catch suckers and approximately seven thousand were captured. A total of 335,224 eggs were taken from 130 females captured in the traps, for 45 days of the trap operation.

A total of 38,563 3-inch cutthroat trout and 222,258 fry were planted in the lake during the summer of 1954.

On June 9 and 10, 215 trout were weighed and measured in the traps of Rand Creek, Fish Creek and Green Mountain Creek. Of these, one was not tagged, 143 were jaw-tagged, and 71 had been tagged in previous years. In addition, 13 tagged trout were reported by the trap watchers as casualties during the spawning run and no weights or measurements were obtained on these fish. The number of fish weighed and measured plus the number reported as casualties makes a total of 228. Of the 84 tagged trout entering the traps, 79 were tagged in 1953, 4 in 1952 and 1 in 1951 (Table 1.). The trout that was tagged in 1951 at that time was 15.6 inches in length and weighed 1.25 pounds; when recovered it was 24.5 inches in length and weighed 7.00 pounds. The original tag was deeply imbedded in the jaw and had to be removed and replaced with a larger tag. This fish had not returned to the traps in the two intervening years. Forty fish were tagged in 1952 and four of these entered the traps this past year. One died in the traps and was not weighed or measured. One was 20.9 inches in length and weighed 3.70 pounds when tagged in 1952 and was 23.1 inches long and weighed 6.00 pounds when recovered in the traps in 1954. The other was 20.6 inches in length and weighed 3.62 pounds when tagged and when recovered in 1954 was 21.4 inches in length and weighed 4.32 pounds. These two did not enter the traps in 1953. Two trout that were tagged in 1952 returned to the traps in both 1953 and 1954, but only was weighed and measured in 1953. This trout when tagged was 20.5 inches in length in 1952, 21.9 in 1953, and 22.4 in 1954. In 1952 this same fish weighed 3.44 pounds, 4.14 in 1953, and 5.22 pounds in 1954.

In 1954, weights and lengths were obtained on 68 of the tagged trout that

were tagged or recovered in 1953 and of these there were 29 males and 39 females. Twenty-three of the males gained an average of 1.4 inches in length, while five lost an average of 0.5 inches in length and there was no change in the length of one. This decrease in length is primarily due to erosion of the caudal fin due to the steel racks of the traps. Twenty-four of the males gained in weight while five decreased in weight. There was an average gain of 0.82 pounds for the males that gained in weight and an average loss of 0.63 pounds for the five that lost in weight. One of the males increased in length and decreased in weight, four decreased in length and gained in weight, and one decreased in weight while his length remained unchanged. Thirty of the females increased in length, seven decreased and two remained the same as that of the previous year. The females increased for an average of 0.7 inches in length while seven decreased for an average of 0.4 inches. Twenty-seven of the females increased in weight while 12 decreased in weight. There was an average gain of 0.53 pounds for the females gaining and an average loss of 0.24 pounds for the 12 fish that lost weight. Four females increased in length and decreased in weight, one decreased in length and gained in weight, two remained the same in length but one decreased in weight and the other increased in weight. All of the fish were measured and weighed after they had been spawned. The range in length of all fish measured and weighed was from 14.1 to 26.9 inches and ranged in weight from 0.88 to 11.5 pounds.

Of the 12 trout tagged in 1951, two were caught by anglers the same year, two returned to the traps in 1952, one returned to the trap in 1953 (this trout was caught by angler the same year) and one returned to the traps in 1954. None of these fish had returned to the traps more than once.

Of the 40 trout tagged in 1952, one was caught by an angler the same year, and another one by an angler in 1953. Thirteen returned to the traps in 1953 and four in 1954. Two of the latter had returned to the traps in 1953, and two had not.

In 1953, 218 trout were tagged and nine of these were caught by anglers the same season and four during the season of 1954. Of the four caught in 1954, two had not entered the traps during the spawning season. Seventy-nine returned to the traps in 1954.

Only two trout of the 143 tagged in 1954 were captured by anglers. It is known that the reports of tagged fish caught by anglers are not complete as many fishermen either lose the tag or are not interested in returning the tags.

Other than the opening day, there was little fishing observed on Ashley Lake. Creel census was taken on the opening day and fifty-five anglers were contacted that fished 250.5 hours and caught 6 cutthroat and 106 kokanee, this making the catch of 0.4 fish per hour. However the catch of cutthroat trout was one fish for about 42 hours of fishing.

The largest trout observed thus far in this study was a 11.5 pound male that was 26.9 inches in length and was tagged in the Rand Creek Trap this past season.

Table 1.
Number of Cutthroat Trout Tagged and Recovered in the Traps and
From Anglers in Ashley Lake for the Years 1951 Through 1954

		Number Recovered							
: Number :		: 1951 :		: 1952 :		: 1953 :		: 1954 :	
Year :	Tagged :	Trap :	Angler :	Trap :	Angler :	Trap :	Angler :	Trap :	Angler :
1951 :	12 :	:	2 :	2 :	2 :	1 :	(1)* :	1 :	:
1952 :	40 :	:	:	:	1 :	14 :	1 :	4 :	:
1953 :	218 :	:	:	:	:	:	9** :	79 :	4 (3)* :
1954 :	143 :	:	:	:	:	:	:	:	2 :
Totals :		:	2 :	2 :	3 :	15 :	11 :	84 :	:

* Number in parenthesis are trout that entered trap and caught by angler the same year

** One trout found dead along shore by angler

Recommendations:

The number of eggs taken from the cutthroat trout in 1954 was less than in 1953. A total of 395,512 eggs were taken in 1953 while 335,224 were taken in 1954. It is not known just how many trout entered the traps, as records are incomplete. From what records are available, there was a minimum of 228 trout entering all traps. This is 74 less than the number caught in all traps in 1953. The number of female trout that were spawned was 130. Tagging and recovery records after all fish were spawned revealed 115 females entering the traps. In the past three years, the sex ratio was about equal. If the total of trapped fish were assumed to be twice the number of females or 260 fish, this would still be less than the number entering the traps in 1953. Because of these observations and because the number of eggs taken in 1954 was less than in 1953, it is evident that less trout entered the traps in 1954 than in 1953.

It was hoped that a number of precocious males might have entered the traps from the large plant that was made in 1951, however this did not occur.

Information on return of tagged trout indicated that the fish in general gained weight, however a few decreased in weight.

Since all fish were not tagged in 1951 and 1952, not much information has been obtained on frequency of return of these fish to the traps. However, 39 percent of the fish that were tagged in 1953 (when all trout were tagged), returned to the traps in 1954. Whether these fish spawn each year has long been a subject of conjecture, but the evidence presented indicates that over one-third return to the traps.

According to the creel census data and records of fish entering the traps, there does not appear to be a material change in the trout population of this lake since the study started in 1951.

It is recommended that this study be continued.

Summary:

An estimated total of 260 trout entered the traps during the spawning season.

The number of eggs taken from 130 female trout totaled 335,224. The number of cutthroat trout planted into the lake was 38,563 3-inch fish and 222,258 fry for a total of 260,821. Creel census indicated a catch of 1.02 cutthroat trout per hour for the opening day of fishing season. As near as can be estimated there was a decrease in the number of trout entering the traps, as well as the number of eggs taken being less than were taken last 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 _____

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