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-6 Name Northwestern Montana Fishery Study

Job No. IV Title Establishing Measures of Abundance of Cutthroat Trout in Ashley Lake

Period Covered May 1, 1956-November 30, 1956

Abstract:

A total of 210 trout entered the traps during the spawning operation in 1956. The number of eggs taken from 139 females was 483,480. The number of cutthroat trout planted in the lake in 1956 was 373,856. Three percent of the fish tagged in 1953 and 15 percent of the trout tagged in 1954 returned to the traps. There was a slight increase in the number of females entering the traps as well as an increase in number of eggs taken over that of the previous two years. Yellow perch were found in the lake and according to the age-growth study, it is estimated that they have been in the lake about six years. Due to the introduction of yellow perch, it was decided that this study be discontinued.

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 past several 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 was necessary to continue this project 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 was 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 were hauled from Fish Creek to Green Mountain Creek. The trap was not operated in Cottonwood Creek. The males and females were again counted before the traps were removed from the streams, at which time all fish were weighed, measured and tag number recorded of the tagged fish. Eggs were taken seven times during the season by personnel of the Somers Fisheries Station. Creel census was taken periodically during the year.

Findings:

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

Traps were placed in the three tributary streams on April 19. The trapping operation was discontinued on June 9, when all fish were weighed and measured and tag numbers recorded. The numbers and fish spawned are presented in Table I.

TABLE I

Number of Cutthroat Spawned & Released Above the Traps in the Tributary Streams of Ashley Lake

Stream	Date	Females	Males
Rand Creek	5-4-56	4	0
"	5-8-56	8	1
"	5-14-56	16	2
"	5-18-56	27	8
"	5-23-56	34	10
"	5-29-56	20	26
"	6-2-56	7	12
Total		116	59
Green Mt. Creek	5-8-56	6	0
"	5-14-56	4	1
"	5-18-56	1	0
"	5-23-56	7	3
"	5-29-56	4	8
"	6-2-56	1	0
Total		23	12
Grand Total		139	71

A total of 483,480 eggs were taken from 139 female cutthroat trout spawned.

TABLE II

Number of Female Cutthroat Trout Spawned at Ashley Lake and Eggs Taken for the Years 1951 through 1956

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
1956	139	483,480	51	9,480	3

A total of 320,868 cutthroat trout fry were planted in the lake in June and July. There were 52,988 trout planted in May and August that varied in length from 1 to 3 inches. In 1956 a total of 373,856 cutthroat trout were planted. These were scattered along the littoral zone of the lake with the aid of a planting boat.

On June 9, 10 and 13, 219 cutthroat trout were weighed and measured and released into the lake from the traps. This number included 107 females and 112 males, and of these 23 were still carrying tags. In addition, two tagged fish died after spawning and three fish showed evidence of losing their tag, for a total of 28 tagged fish returning to the traps in 1956. No fish were tagged in 1956. Three tagged fish died in the traps and no measurements were obtained from these fish. Of the 25 tagged fish returning to the traps, 5 were tagged in 1953 and 20 in 1954. Of the five fish that were tagged in 1953, 4 returned to the traps in 1954 and 3 in 1955. Of the 20 trout that were tagged in 1954, 16 returned to the traps in 1955.

The trout that were tagged in 1953 gained an average of 3.6 inches in length (range 1.2 to 7.8) and 1.73 pounds in weight (range .08 to 3.82) in three years. The fish that were tagged in 1954 gained an average of 1.7 inches in length (range -.02 to 5.2) and 0.96 pounds in weight (range -1.04 to 9.00). Included in the fish tagged in 1954 was one that decreased in length and 5 that decreased in weight and one remained the same weight as when tagged. The fish that decreased in weight were all females. One of the fish tagged in 1954 which returned in 1956 was caught by an angler during 1956.

TABLE III

Number of Cutthroat Trout Tagged, Recovered and Percentage Recovered of Fish Tagged in the Various Traps of Ashley Lake from 1951 Through 1956

	1951	1952	1953	1954	1955	1956
Number of fish tagged	12	40	218	143	0	0
Fish available for recapture						
tagged in 1951		10	10	9	9	9
tagged in 1952			39	37	36	36
tagged in 1953				208	192	186
tagged in 1954					141	136
Tagged fish recovered from traps						
tagged in 1951		2	1	1	0	0
tagged in 1952			14	4	1	0
tagged in 1953				75	31	5
tagged in 1954					50	20
Percentage recovery from traps						
tagged in 1951		20	10	11	0	0
tagged in 1952			36	11	3	0
tagged in 1953				36	16	3
tagged in 1954					35	15

The recovery of tagged fish in the traps followed about the same trends as that demonstrated in 1955 (Table III). The project leader predicted in the Job No. IV of 1956 that no fish tagged in 1951 and 1952 should return to the traps in

1956 and none came into the traps. It was also predicted that 3 percent of the fish tagged in 1953 and available for recovery would show up in the traps in 1956 and this held true. However, the writer was off in the prediction of the number that would return in that 5 came into the traps instead of the predicted one. The writer also noted that 14 percent of the fish tagged in 1954 would return in 1956 and 15 percent returned. Again the writer was off in numbers, in that 20 fish returned instead of the predicted seven. These data strenghtens the theories that there is about a 60 percent mortality each year. It is recognized that we are dealing with sexually mature fish and not many small fish enter the traps.

In a few instances the jaw tag had worn through the jaw bone of the trout, but the information collected on the other fish was well worth the sacrifice.

A partial creel census was conducted but the data has not yet been compiled.

Around the first of August rumors were received that yellow perch were being caught in Ashley Lake. On August 17, the foreman of the Somers Fisheries Station obtained a yellow perch from a summer home owner on the lake. On that same day three 125-ft. experimental gill nets were set on the west side of Ashley Lake. After an overnight set, 59 yellow perch and 64 fine scale suckers were captured. Scale samples from the yellow perch were examined for age-growth information and it is believed that these fish have been only recently introduced into the lake, i.e., about six years ago (Table IV). This introduction was certainly done against all state laws.

TABLE IV

Summary of the Calculated Lengths and Annual Increments of Total Length in Inches for Yellow Perch Captured in Ashley Lake, 1956

Age Class	No. of Fish	Average Length at Capture	Calculated lengths at end of year of life				
			1	2	3	4	5
I	0	0					
II	34	6.5	1.8	4.3			
III	1	8.8	2.0	4.1	6.6		
IV	7	10.5	1.9	3.8	6.2	8.8	
V	1	11.2	1.8	4.3	6.1	8.2	10.3
Grand Averages							
Calculated length			1.8	4.2	6.2	8.7	10.3
Increment			1.8	2.4	2.0	2.5	1.6
Number of fish	43		43	43	9	8	1

Recommendations:

There has been a slight increase in number of fish over that of the previous year. However, the number of eggs taken increased by about 40,000 which may be due to the larger average size of females. The results of the large plants made in 1951 did not show up in the traps as was predicted. With yellow perch in the lake now, it is very doubtful if fry plants will be at all successful. If the spawning stations are to be operated in the future, a larger sized fish will have to be planted. At present, rehabilitation of this lake is out of the question, due to its large size. Partial rehabilitation is also not recommended as the feasibility of this technique is still being evaluated in Lower Thompson Lake.

It is recommended that this study be discontinued, due primarily to the introduction of yellow perch in this lake, and that this lake be totally rehabilitated as soon as finances are available.

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

Date April 5, 1957

Approved by George D. Holton
George D. Holton