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. V Title The Relationships of Cutthroat Trout and Yellow Perch in Lower Thompson Lake

Period Covered May 1, 1956 - April 30, 1957

Abstract:

The entire shoreline of Lower Thompson Lake was treated with a fish toxicant while the yellow perch fry were in schools. Several weeks after treatment, cutthroat trout fry were planted in Lower Thompson Lake and in Middle Thompson Lake which is used as a control. Unfortunately, due to high water this year the two lakes were connected by a 200 ft. wide band of water. Eighteen overnight gill net sets were made in each lake at four different periods during the year. Information obtained from netting indicated a reduction of adult yellow perch in Lower Thompson Lake. Anglers used Lower Thompson Lake all summer, which was not observed in previous years. Limited creel census indicated the catch per hour on Lower Thompson Lake was 0.8 fish of which the cutthroat trout were 97 percent of the creel. The catch per hour on Middle Thompson Lake was 0.6 fish and cutthroat trout were 42 percent of the creel.

Objectives:

The relationships of yellow perch and cutthroat trout have been studied in 1952, 1953 in Middle Thompson and Lower Thompson Lakes in order to determine any weak link in the life cycle of the perch. The cost of complete removal of yellow perch in these lakes would be prohibitive at the present time. During the study, it was found that perch fry could be effectively killed with rotenone while in schools along the shore. The entire shoreline of Lower Thompson Lake was treated with "Fish-Tox" in 1954 when the perch fry were congregated in large schools. Later, both Middle Thompson and Lower Thompson Lake were planted with fry at about 300 per surface acre. According to observations and gill net sets made since the partial poisoning took place, there are definitely less yellow perch in Lower Thompson Lake than in Middle Thompson. One of the objectives of this job is to determine the effects of partial poisoning and subsequent planting of fish in one lake as compared with planting and no poisoning in another lake. The over-all objective is to determine the most economical method to develop a fishery in a lake that has a stunted yellow perch population.

Techniques Used:

Observations were not made until July 12 for yellow perch fry in both of the Thompson Lakes, and many were found at this time in both lakes. The shoreline was sprayed with "Fish-Tox" on July 14 and 15. On July 18, observations were made on Lower Thompson Lake and several schools of perch fry were observed. These were sprayed with "Fish-Tox". Cutthroat trout fry were planted in both lakes and were scattered along the littoral zone with the aid of a planting boat.

In May, August and November of 1956 and in February 1957, both lakes were sampled by gill nets. The experimental nets were 125 feet long with 5 mesh sizes of 25 feet each (3/4, 1, 1¼, 1½, and 2 inch bar measure). Eighteen overnight sets were made in each lake during each sampling period.

Creel census was taken periodically on both of the lakes. On Middle Thompson Lake, 30 anglers were contacted who fished 54 hours and caught 13 cutthroat trout, 9 kokanee, 5 pumpkinseed sunfish, and 4 yellow perch. The catch per hour was 0.6 fish. On Lower Thompson Lake, 33 anglers were contacted who fished 106.5 hours and caught 85 cutthroat trout and 3 yellow perch. The catch per hour was 0.8 fish.

Findings:

A description of the area and studies of the fish are reported in previous reports. Due to the work schedule, there was not enough time to observe the lakes until it was considered time for applying the toxicant to the shore line of Lower Thompson Lake.

There was extremely high water in the area in May and June and the thoroughfare between the lakes was so wide that the two lakes could have been considered as one. The thoroughfare normally is not over 25 feet wide and this past spring during high water it was approximately 200 feet wide.

Due to the high water, a large number of yellow perch must have moved into Lower Thompson Lake. There was no difficulty in locating yellow perch fry as there were found all around the lake. On July 14 and 15, the entire shore line was sprayed with "Fish-Tox" Two bays were treated by dragging sacks of "Fish-Tox" behind a boat. Lower Thompson Lake was observed on July 18 and several yellow perch fry schools were observed, which were treated with "Fish-Tox". In all, 1,120 pounds of toxicant were used.

On July 25th, 181,441 cutthroat trout fry were planted in Middle Thompson Lake and 120,960 in Lower Thompson Lake.

From May 11 to 14, 18 overnight gill net sets were made in each lake (Table I & II). The nets were set in roughly the same areas as in previous years. A number of yellow perch were caught in Lower Thompson Lake. These no doubt moved in from the middle lake during the high water. However, more perch were caught in the middle lake. Generally, more fish of each species were caught in the middle lake than in the lower lake.

The lakes were sampled again from August 13th to 16th. More yellow perch were captured in Lower Thompson Lake at this time than were caught during any like sampling period in the last two years.

During the sampling periods in November 1956, and February 1957, no perch were caught in the lower lake, while a goodly number were captured in the middle lake. Why so many perch were caught in August, one month after treatment of the shore line with a fish toxicant, and none during the following two sampling periods is not understood. It appears that other fish than yellow perch were killed by the partial rehabilitation, as there were less fish caught in the lower than in the middle lake with equal effort expended in each lake.

Gill netting did not demonstrate any differences between the two lakes as to the effect of planting trout. However, a difference did show up in the use of the two lakes by anglers. In former years Middle Thompson Lake was fished a great deal, while no fishing was ever observed in the lower lake. But last Summer the reverse was true, as there were seven boats on the lake while the partial rehabilitation was being accomplished and this did not occur in previous years. No special effort was made by the project leader to obtain creel census.

During the netting operation in February 1956, Daphnia in great numbers were observed in Lower Thompson Lake, while none were found in Middle Thompson Lake.

In comparing the catch of yellow perch from each lake taken in August, they averaged slightly larger in the lower lake, however, not enough to create a fishery there (Figure I).

Recommendations:

The data are interpreted as showing that yellow perch fry as well as adult can be reduced in numbers by partial rehabilitation. It is feared that with the type of toxicant used that inroads have been made on other species of fish in the lake. From information gathered from local anglers, fishing has been good in Lower Thompson Lake this past summer. Gill netting did not demonstrate any difference in the cutthroat trout populations of either lake.

It is recommended that this study be continued and that another fish toxicant such as "Pro-Nox-Fish" be used. It is further recommended that more creel checks be made.

Data and Reports:

The original data and reports are with the project leader in Kalispell.

Prepared by Frank A. Stefanich

Date April 18, 1957

Approved by George D. Holton
George D. Holton

TABLE I

The Number and Weights of the Various Fish Captured in Lower Thompson Lake During the Three Sampling Periods

Species	May 1956 No.	May 1956 Wt.	Aug. 1956 No.	Aug. 1956 Wt.	Nov. 1956 No.	Nov. 1956 Wt.	Feb. 1957 No.	Feb. 1957 Wt.	Totals No.	Totals Wt.	% of Catch
Yellow Perch	167	19.02	643	94.41					810	113.43	60.8
Cutthroat	6	2.71	3	3.78	3	.65			12	7.14	.9
Mountain Whitefish	42	10.83	51	20.75	18	10.76	1	.57	112	42.91	8.4
Longnose Sucker	78	81.58	26	12.75	4	3.83			108	98.16	8.1
Large-scale Sucker	46	74.70	5	8.05	1	1.65	2	1.97	54	86.37	4.0
Squawfish	52	41.74	2	3.42	1	.12			55	45.28	4.1
Sunfish	56	8.66	19	2.37			1	.08	76	11.11	5.7
Bass					1	1.16			1	1.16	.1
Kokanee	23	2.98			23	22.89	1	.45	47	26.32	3.5
Eastern Brook	32	14.79	15	9.82	7	1.51	4	2.29	58	28.41	4.4
Totals	502	257.01	764	155.35	58	42.57	9	5.36	1333	460.29	

TABLE II

The Number and Weights of the Various Fish Captured in Middle Thompson Lake During the Three Sampling Periods

Species	May 1956 No.	May 1956 Wt.	Aug. 1956 No.	Aug. 1956 Wt.	Nov. 1956 No.	Nov. 1956 Wt.	Feb. 1957 No.	Feb. 1957 Wt.	Totals No.	Totals Wt.	% of Catch
Yellow Perch	608	67.23	1211	147.95	274	34.35	220	27.32	2313	276.85	66.5
Cutthroat	9	5.81	1	.40	20	16.32			30	22.53	.9
Mountain Whitefish	29	13.30	110	49.95	143	72.11	3	1.13	285	136.49	8.2
Longnose Sucker	18	25.15	12	13.33	10	20.54	1	1.68	41	60.70	1.2
Large-scale Sucker	60	104.29	21	31.53	15	28.23	2	4.47	98	168.52	2.8
Squawfish	152	101.96	44	45.90	40	19.40	5	3.99	241	171.25	6.9
Sunfish	80	8.14	134	16.59	5	1.02	34	4.68	253	30.43	7.3
Bass			9	9.37					9	9.37	.3
Kokanee			85	26.78	116	112.04	1	.19	202	139.01	5.8
Eastern Brook	1	.67	1	.61	1	.24	2	.66	5	2.18	.1
Totals	957	326.55	1628	342.41	642	304.25	268	44.12	3478	1017.33	