MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS
FISHERIES DIVISION
JOB PROGRESS REPORT

STATE: Montana PROJECT TITLE: Statewide Fisheries Investigations

PROJECT: F-46-R-4 STUDY TITLE: Survey and Inventory of Warmwater Lakes

JOB NO. IV- e JOB TITLE: Tongue River Reservoir Investigations

SEGMENT (Fiscal) PERIOD: July 1, 1990 - June 30, 1991

REPORT PERIOD: April 1, 1990 - March 31, 1991

ABSTRACT

Catch of adult walleye in gill nets was much lower in 1990 than the past two years. Northern pike fry planting (1989) and fingerling planting (1990) failed to form a significant population. Numbers of young of the year fish in seine hauls increased greatly from the previous year. Spottail shiners planted in May were not found in samples the following August.

OBJECTIVES AND DEGREE OF ATTAINMENT

1. To increase the average size of crappie so that 10 percent of crappie in mid-summer gill net catches are at least 250 mm total length. This objective was not met. Only 2.9% of crappie in 1990 gill net catches measured at least 250 mm total length. However crappie in spring trap net catches more than exceeded the objective.

2. To increase mid-summer gill net catches of walleye to an average of at least 2.0 walleye per overnight experimental gill net set. This objective was met. Catch rates in 1990 averaged 4.1 walleye per net.

3. To increase mid-summer gill net catches of northern pike to an average of at least 2.0 northern pike per experimental gill net set. Despite northern pike planting this objective was not met. Gill nets averaged only 0.3 northern pike per net. (State funded)

METHODS

Fish populations were sampled with gill nets, seines and frame trap nets. Gill nets were of the sinking experimental type, 125 feet long. A bag seine of 100 feet length and with 1/4 inch mesh was set from a boat and hauled to shore. Traps had 4 x 6 feet frames and 50 foot leads.

RESULSTS AND DISCUSSION

Results of gill netting are shown in Table 1. Table 2 compares walleye and crappie statistics with past years. The decrease in walleye catch rate from 1989 to 1990 may not be representative. The reservoir level in 1990 was exceptionally high. Walleye in August are caught in gill nets at higher rates in the upper reservoir. Due to the higher reservoir the standard gill net stations used each year were relatively farther toward the lower end of the reservoir. Catches of small walleye remained high, indicating good survival of plants made in 1988 and 1989.

Northern pike plants of 20,000 swim-up fry (1989) and 8,000 fingerlings (1990) seem to have survived poorly. Northern pike gill net catches averaged only 0.3 fish per net.

Yellow perch numbers in gill nets remain high (Table 1). Perch numbers in gill nets exceeded white crappie for the first time in 1989. This situation persisted in 1990.

Crappie in gill nets in 1990 failed to meet the goal of 10% exceeding 250 mm total length (Table 2). However, over 20% of crappie in spring trap nets exceeded 250 mm total length (Table 3).

Seine hauls captured relatively large numbers of young of the year fish in 1990 (Tables 4 and 5). After a complete absence of age 0+ crappie in seine samples in 1989, seine samples averaged 389 crappie age 0+ in 1990. The mean number of age 0+ fish of all species in seine hauls was 569. This figure was exceeded only in 1984 (Table 5).

A total of 12,500 spottail shiners were planted in Tongue River Reservoir over the period April 27 through May 21, 1990. These fish were transplanted from Fort Peck Reservoir. No spottail shiners were sampled in seine hauls in August 1990. This species will be planted again in spring 1991.

Waters Referred to: Tongue River Reservoir 7-21-9000

Key Words: Crappie, Walleye, Northern Pike, Yellow Perch, Spottail Shiner

Prepared by: Results A. Stewart

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Table 1. Results of 10 overnight experimental gill net sets at Tongue River Reservoir, August 1990.

Species	No. Caught	Mean No. Per Net Set	Mean Length (mm)	Mean Weight (gm)	Length Range (mm)	Weight Range (gm)	Percent of Catch
Northern Pike	3	0.3	684	1953	680-686	1700-2150	0.4
Carp	9	0.9	447	1139	337-540	510-1760	1.1
Shorthead redhorse	73	7.3	342	450	230-475	110-1000	9.0
White sucker	47	4.7	380	659	172-470	50-1120	5.8
Yellow bullhead	84	8.4	217	132	180-295	60- 350	10.3
Black bullhead	17	1.7	227	170	208-245	130- 230	2.1
Channel catfish	4	0.4	255	145	215-294	80- 220	0.5
Smallmouth bass	16	1.6	232	190	197-283	100- 360	2.0
White crappie	227	22.7	212	125	180-292	70- 330	27.9
Black crappie	48	4.8	212	148	177-275	90- 280	5.9
Yellow perch	246	24.6	198	89	153-240	35- 160	30.2
Walleye	41	4.1	349	500	198-620	120-2360	5.0
Totals	815	81.5					100.2

Table 2. Tongue River Reservoir walleye gill net catch rates [a] and percentage of crappie > 250 mm total length in experimental gill nets, 1980-1990.

Year	Walleye Catch Rate [a]	Walleye Mean Total Length (mm)	Percentage of Crappie >250 mm Total Length
1990	4.1	349	2.9
1989	15.7	343	12.8
1988	19.4	332	18.9
1987	5.6	279	4.2
1986	1.6	273	0.0
1985	0.6	463	2.7
1984	0.4	417	1.2
1983	0.2	427	3.4
1982	2.0	397	1.7
1981	5.6	377	27.8
1980	4.3	319	11.4

[a] Average number of walleye per overnight experimental gill net set.

Table 3. Size of black and white crappie taken in frame trap nets at Tongue River Reservoir, May 22 1990.

Species	Sample Size [a]	Mean Length (mm)	Mean Weight (gm)	Length Range (mm)	Weight Range (gm)	Percentage >250 mm Total Length
Black crappie	50	226	236	165-269	100-381	20%
White crappie	50	241	277	155-287	127-387	24%

[a] Sample from a much larger catch

Table 4. Results of 10 seine hauls at Tongue River Reservoir, August, 1990.

Species	Number Caught	Mean No./ Haul	Mean Length (mm)	Mean Weight (gm)	Length Range (mm)	Weight Range (gm)
Carp	8	0.8				
Carp YOY	70	7.0	58		33- 73	
Shorthead redhorse	2	0.2	299	275	250-348	150-400
Bullhead YOY	1004	100.4	47		45- 50	
Pumpkinseed	1	0.1	120			
Smallmouth bass	21	2.1	198	114	90- 245	25-200
Smallmouth bass YOY	30	3.0	61		57- 64	
White crappie	5	0.5	214	123	202- 720	100-140
Black crappie	5	0.5	195	113	175- 233	80-190
Crappie YOY	3890	389.0	45		30- 75	
Yellow perch	3	0.3	184	78	165- 195	45-100
Yellow perch YOY	698	69.8	60		52- 67	
Walleye	2	0.2	248	155	240-257	150-160
Walleye YOY	1	0.1	155			

Table 5. Mean number of young-of-the-year fish in Tongue River Reservoir seine hauls.

Year	Mean Number	Most Abundant Species	2nd Most Abundant
1990	569	Crappie	Bullhead
1989	5	Yellow perch	Smallmouth Bass
1988	271	Crappie	Yellow perch
1987	68	Yellow perch	Smallmouth bass
1986	127	Crappie	Carp
1985	46	Crappie	Yellow perch
1984	585	Carp	Bullhead
1983	288	Crappie	Walleye