

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

STATE: MONTANA PROJECT TITLE: Statewide Fisheries Investigations  
PROJECT: F-46-R-5 STUDY TITLE: Survey and Inventory of Warmwater Lakes  
JOB NO. IV-E JOB TITLE: Tongue River Reservoir Investigations

SEGMENT (Fiscal) PERIOD: July 1, 1991 - June 30, 1992  
REPORT PERIOD: April 1, 1991 - March 30, 1992

ABSTRACT

Crappie average size is presently quite high. About 20% of crappie in experimental gill net catches exceed 250 mm total length. Walleye average size has increased each year since 1986. Northern pike numbers are very low, probably because of poor survival of planted northern pike. Spottail shiners planted in 1990 spawned in 1991 and produced a significant year class.

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<sup>mm</sup> total length. This objective was met. Almost 20% of crappie in 1991 gill net catches measured at least 250 mm total length.
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 1991 averaged 3.9 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 failed to collect any northern pike.

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 1/4 inch mesh was set from a boat and hauled to shore. Traps had 4 x 6 feet frames and 50 foot leads.

RESULTS AND DISCUSSION

Results of gill netting are shown in Table 1. Table 2 compares walleye and crappie statistics with previous years. Crappie numbers and average size are relatively high. Gill nets sampled an

average of 18.6 crappie (black and white) per overnight set. The percentage of crappie longer than 250 mm in gill net samples was 19.9% in 1991. Only once in the past 12 years has this percentage been exceeded (Table 2). Spring trap nets sampled crappie as long as 365 mm and weighing 750 grams.

Walleye gill net catch rates in 1991 were not as high as in 1988 and 1989 (Table 2) but still easily met the abundance index objective. Average size of walleye in gill nets has increased every year since 1986. Relatively high numbers are being maintained by annual planting of walleye fry and fingerlings.

Northern pike numbers in Tongue River Reservoir are not meeting project objectives despite annual planting of swim-up fry or fingerlings or both. The objective may not be reasonable. No northern pike were collected in 1991 gill nets and only two, age 0+ size, were found by seining. Larger numbers of adult northern pike were collected in early spring trap net samples (Table 3). These fish average nearly three kilograms in weight. Survival of planted northern pike is apparently quite low, possibly because of the almost complete lack of aquatic vegetation.

Results of shoreline seining in August, 1991 at Tongue River Reservoir are shown in Tables 4 and 5. Numbers of young of the year fish were relatively light. Crappie made up approximately 90% of young-of-the year fish in seine hauls and young yellow perch were absent

Planting of spottail shiners in 1990 seems to have been successful. No additional spottails were planted in 1991. An average of 9.4 spottails were found per seine haul. On the basis of size all of these spottails were age 0+ fish. None of the larger spottails planted in 1990 were sampled.

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

Key Words - Crappie, Walleye, Northern Pike, Spottail Shiner

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Table 1. Results of 10 overnight experimental gill net sets at Tongue River Reservoir, August 1991.

Species	No. Caught	Mean No. Per Net set	Mean Length (mm)	Mean Weight (gm)	Length Range (mm)	Weight Range (gm)	% of Catch
Carp	17	1.7	485	1200	415-535	700-1660	3.5
Shorthead redhorse	67	6.7	323	372	170-450	30- 890	13.7
White sucker	23	2.3	367	583	275-466	250-1100	4.7
Longnose sucker	1	0.1	230	150	----	----	0.2
Yellow bullhead	55	5.5	220	135	135-305	20- 460	11.2
Black bullhead	6	0.6	211	144	150-270	30- 290	1.2
Channel catfish	15	1.5	380	622	282-612	200-2200	3.1
Smallmouth bass	15	1.5	234	214	153-345	30- 610	3.1
White crappie	122	12.2	235	180	130-339	20- 500	25.0
Black crappie	64	6.4	228	197	138-270	30- 320	13.1
Yellow perch	65	6.5	189	85	136-235	20- 170	13.2
Walleye	39	3.9	383	607	175-637	30-2580	8.0
Totals	489	48.9					100.0

Table 2. Tongue River Reservoir walleye gill net catch rates<sup>a</sup> and percentage of crappie >250 mm total length in experimental gill nets, 1980-1991.

Year	Walleye Catch Rate <sup>a</sup>	Walleye Mean Total Length (mm)	Percentage of Crappie >250 mm Total Length
1991	3.9	383	19.9
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

<sup>a</sup> Average number of walleye per overnight experimental gill net set.

Table 3. Game and sport fish species sampled in frame trap nets April 5, 6 and 7, 1991 (28 trap net nights) at Tongue River Reservoir.

Species	No. Caught	Mean Lgn (mm)	Mean Wt (gmm)	Length Range (mm)	Weight Range (gmm)
White crappie	103	229	150	202- 314	75- 500
Black crappie	130	222	181	126- 365	70- 750
Northern pike	26	750	2925	625-1016	1400-8172
Sauger	3	475	1000	367- 547	360-1420
Smallmouth bass	4	405	1012	385- 440	850-1300
Largemouth bass	3	340	693	314- 380	550- 900
<b>Walleye</b>					
Males	46	437	811	315- 604	280-1950
Females	13	582	2026	483- 787	1050-3800

Table 4. Results of 10 seine hauls at Tongue River Reservoir, August 1991.

Species	Number Caught	Mean No. Per Haul	Mean Length (mm)	Mean Weight (gm)	Length Range (mm)	Weight Range (gm)
Spottail shiner	94	9.4	54	-	48 - 66	-
Carp	4	0.4	-	-	-	-
Carp YOY	164	16.4	72	-	55- 107	-
Northern pike	2	0.2	305	185	284- 327	140- 230
Shorthead redhorse	1	0.2	148	30	-	-
Sucker YOY	1	0.1	39	-	-	-
Channel Catfish	1	0.1	265	180	-	-
Pumpkinseed	9	0.9	97	22	84- 117	10- 40
Smallmouth bass	5	0.5	193	120	143- 256	40-250
Smallmouth bass YOY	125	12.5	57	-	42- 90	-
Largemouth bass YOY	56	5.6	68	-	51- 98	-
White crappie	8	0.8	204	129	142- 245	50-200
Black crappie	4	0.4	265	315	257- 276	300-340
Crappie YOY	4187	418.7	46	-	35- 68	-
Yellow perch	3	0.3	133	27	131- 135	20- 30
Walleye YOY	11	1.1	158	37	130- 173	20- 50

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

<u>Year</u>	<u>Man Number</u>	<u>Most Abundant Species</u>	<u>2nd Most Abundant</u>
1991	464	Crappie	Carp
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