MONTANA DEPARTMENT OF FISH, WILDLIFE & PARKS
FISHERIES DIVISION

JOB PROGRESS REPORT

STATE: Montana PROJECT TITLE: Statewide Fisheries Investigations

PROJECT: F-78-R-2 STUDY TITLE: Survey and Inventory of Warmwater Lakes

JOB NO: IV-E JOB TITLE: Tongue River Reservoir Investigations

PROJECT PERIOD: July 1, 1995 through June 30, 1996

ABSTRACT

The Tongue River Reservoir crappie population continues to be dominated by the very strong 1991 year class, although a 1994 year class first appeared in gill net samples in 1995, and the 1995 year class is the strongest ever measured in shoreline seining samples. Size goals for crappie were met in 1995 for the first time since 1991. Gill net catches of adult walleye were down somewhat from 1994.

D. Thompson 9.9.96

OBJECTIVES AND DEGREE OF ATTAINMENT

1. Maintain 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 met but only because of missing younger year classes.

2. Maintain 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 1995 averaged 2.4 fish per net.

3. Incorporate needed water levels into the operating plan for the reservoir. Work was done toward this end. An operating plan for the reservoir has not been completed.

4. Participate in planning for dam repair to maintain highest possible water levels during dam repair construction. This objective was met. Current construction plans call for a minimum reservoir pool of 700 acres.

METHODS

Fish populations were sampled with gill nets and seines. 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.

RESULTS AND DISCUSSION

Results of gill netting are shown in Table 1. Table 2 compares walleye and crappie statistics for 1995 with previous years.

Gill net catches in 1995 were dominated by two year classes: a 1991 year class with an average near 240 mm and a 1994 year class averaging near 150 mm. Any indications of 1992 and 1993 crappie year classes in gill nets were lacking. This confirmed results of seining in 1992 and 1993 which showed very weak age 0+ crappie year classes. Crappie average size in gill nets declined from 1994 because of the presence of age 1+ crappie. Significant numbers of the 1991 year class (age 4+) exceeded 250 mm total length in 1995.

Walleye gill net catch rates in 1995 were only about half of catch rates in 1994, but the catch rate objective was still met in 1995. Walleye average size in gill nets declined slightly from 1994 to 1995. No northern pike were observed in gill nets or seine hauls.

Numbers of young fish in seine hauls was the highest ever observed in 1995 (Table 3). Most of the high figure for 1995 in Table 3 was made up of crappie young-of-the-year. This year class is expected to be strong for several years.

Spottail shiner numbers in seine hauls were very low in 1995. This species was introduced in 1990, but has not become abundant.

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

Key Words: Crappie, crappie reproduction, walleye

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Table 1. Results of 10 overnight experimental gill net sets at Tongue River Reservoir, August 1995.

Species	Number Caught	Mean No. 1 Net Set	Mean Length	Mean Weight	Length Range (mm)	Weight Range (gm)	Percent of Catch
Carp	13	1.3	482	1292	432-512	990-1500	3.8
Shorthead redhorse	115	11.5	309	363	185-480	40-1150	33.9
White sucker	19	1.9	335	526	201-408	100-810	5.6
Longnose sucker	7	0.7	246	154	192-287	50-220	2.1
Yellow bullhead	39	3.9	228	175	195-290	80-130	11.5
Black bullhead	5	0.5	272	240	265-280	210-260	1.5
Channel catfish	12	1.1	410	871	285-630	170-2700	3.5
Smallmouth bass	17	1.7	250	241	165-415	70-1120	5.0
White crappie	30	3.0	228	159	130-261	40-250	8.8
Black crappie	22	2.2	204	157	105-246	10-250	6.5
Yellow perch	34	3.4	193	85	136-246	30-170	10.0
Walleye	24	2.4	335	468	227-655	90-2730	7.1
Pumpkinseed	1	0.1	147	120	-	-	0.3
Green sunfish	1	0.1	92	-	-	-	0.3
Totals	339	33.9					99.9

Table 2. Tongue River Reservoir walleye gill net catch rates[8] and percentage of crappie >250mm total length in experimental gill nets, 1980-1994.

Year	Walleye Catch Rate[8]	Walleye Mean Total Length (mm)	Percentage of Crappie >250mm Total Length
1995	2.4	335	21.2
1994	5.3	349	2.2
1993	1.1	308	0.7
1992	8.4	325	0.8
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

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

Table 3. Mean number of young-of-the-year fish in Tongue River Reservoir seine hauls.

Year	Mean Number	Most Abundant Species	Second Most Abundant Species
1995	682	Crappie	Smallmouth bass
1994	54	Yellow perch	Crappie
1993	3	Crappie	Spottail shiner
1992	17	Crappie	Sunfish
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

Table 4. Results of 9 seine hauls at Tongue River Reservoir, August 1995.

Species	Number Caught	Mean No. 1 Haul	Mean Length	Length Range
Spottail shiner	7	0.8	45	42-50
Carp YOY	4	0.4	62	45-70
Shorthead redhorse	3	0.3	171	148-185
Smallmouth bass	4	0.4	156	147-163
Smallmouth bass YOY	43	4.8	45	36-55
Largemouth bass YOY	34	3.8	46	41-51
Crappie YOY	6034	670.4	38	26-52
Black crappie adult	7	0.8	227	222-236
Pumpkinseed	4	0.4	105	87-145
Yellow perch subadult	2	0.2	137	128-147
Walleye	2	0.2	226	225-228