MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS
FISHERIES DIVISION

JOB PROGRESS REPORT

STATE:	Montana	PROJECT TITLE:	Statewide Fisheries Investigations
PROJECT:	F-46-R-7	STUDY TITLE:	Survey and Inventory of Warmwater Lakes
JOB NO.:	IV-E	JOB TITLE:	Tongue River Reservoir Investigations

SEGMENT (FISCAL) PERIOD: July 1, 1993 - June 30, 1994
REPORT PERIOD: April 1, 1993 - March 30, 1994

ABSTRACT

The Tongue River Reservoir crappie population is presently dominated by the 1991 year class. Few older fish are present. Crappie reproduction has essentially failed in both 1992 and 1993. Some signs of overfishing are present. The 1993 gill net catch of walleye numbered only 13% of the 1992 catch. Northern pike numbers remain low.

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 250mm total length. This objective was not met. In 1993 less than 1 percent of crappie in gill net catches measured at least 250mm 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 not met. Catch rates in 1993 averaged 1.1 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 a northern pike fry plant of 100,000 fish in April 1993, this objective was not met. Catch rate of northern pike was 0.2 fish per gill net set.

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 with previous years. Numbers of crappie sampled were similar to 1992, but mean length for white crappie increased from 165mm (Stewart 1993) to 201mm in 1993. As in 1992, the 1991 year class made up most of the gill net catch. The increase in size from 1992 to 1993 resulted from the increase in age by one year of the 1991 year class. Gill nets did not collect any crappie of the 1992 year class. This year class is thought to be very weak.

As in 1992 less than 1 percent of the crappie in gill net catches exceeded the target of 250mm total length. This has resulted from a crappie population heavily dominated by the 1991 year class, with very few fish of older year classes present. This lack of fish older than the 1991 year class may indicate an excessively heavy harvest.

Walleye catch rate in 1993 was only 13 percent of the catch rate in 1992 (Table 2). This decrease is unexplained but may be simply a result of the vagaries of sampling. Similar numbers of walleye fry and fingerlings are planted each year. Despite annual planting of northern pike, numbers remain low (Table 1).

Numbers of fish collected in seine hauls were extremely low (Table 3). Young-of-the-year fish in seine hauls were the lowest ever measured (Table 4). The summer of 1993 was exceptionally cool. Most crappie failed to spawn. Many adult females collected in gill nets in August still had mature, but deteriorating eggs. The few crappie YOY sampled in August 1993 were unusually small for date. Additional shoreline seine hauls in late September 1993 collected no crappie YOY.

Both 1992 and 1993 crappie year classes are very weak. Most crappie in the reservoir are of the 1991 year class and very few older crappie are present. A strong year class in 1994 is needed. Fishing for crappie will likely be poor when the 1991 year class is old enough to be less abundant and younger fish are not large enough to enter the angler catch.

LITERATURE CITED

Stewart, P.A. 1993 Tongue River Reservoir Investigations. Montana Dept. Fish, Wildlife and Parks. Job Progress Report, Project No. F-46-R-6, Job No. IV-E. 4pp.

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

Key Words: Crappie, Walleye

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Table 1. Results of 10 overnight experimental gill net sets at Tongue River Reservoir, August 1993.

Species	Number Caught	Mean No/Net Set	Mean Length (mm)	Mean Weight (gm)	Length Range (mm)	Weight Range (gm)	% of Catch
Carp	6	0.6	455	1150	342-530	510-1680	1.4
Shorthead Redhorse	58	5.8	347	526	210-485	110-1250	13.3
White Sucker	21	2.1	377	656	246-457	160-1040	4.8
Longnose Sucker	1	0.1	245	140	---	----	0.2
Northern Pike	2	0.2	869	4330	826-910	3550-5110	0.4
Yellow Bullhead	40	4.0	215	141	175-303	50- 350	9.2
Black Bullhead	7	0.7	218	149	181-255	70- 250	1.6
Channel Catfish	6	0.6	368	608	250-530	120-1590	1.4
Rock Bass	1	0.1	162	100	---	----	0.2
Smallmouth Bass	5	0.5	167	58	142-185	40- 90	1.2
White Crappie	239	23.9	201	104	163-302	50- 310	54.8
Black Crappie	28	2.8	184	91	167-205	50- 130	6.4
Yellow Perch	11	1.1	196	90	173-222	60- 130	2.5
Walleye	11	1.1	308	286	201-535	60-1480	2.5
Totals	436	43.6					99.9

Table 2. Tongue River Reservoir walleye gill net catch rates[a] and percentage of crappie >250mm total length in experimental gill nets, 1980-1993.

Year	Walleye Catch Rate[a]	Walleye Mean Total Length(mm)	Percentage of Crappie >250mm Total Length
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

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

Table 3. Results of 15 seine hauls at Tongue River Reservoir, August 1993.

Species	Number Caught	Mean No./ Haul	Mean Length (mm)	Mean Weight (gm)	Length Range (mm)	Weight Range (gm)
Spottail Shiner	17	1.1	41	--	33- 45	--
Carp (adult)	7	0.5	--	--	--	--
Shorthead Redhorse	5	0.3	249	--	207-302	--
White Sucker (adult)	1	0.1	342	--	--	--
Smallmouth Bass	19	1.3	166	63	138-208	35-110
Bass YOY	1	0.1	22	--	--	--
White Crappie (adult)	1	0.1	189	--	--	--
Crappie YOY	25	1.7	31	--	25- 38	--
Yellow Perch YOY	1	0.1	57	--	--	--

Table 4. Mean number of young-of-the-year fish in Tongue River Reservoir seine hauls.

Year	Mean Number	Most Abundant Species	Second Most Abundant Species
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