

## MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

## FISHERIES DIVISION

## JOB PROGRESS REPORT

STATE: Montana PROJECT TITLE: Statewide Fisheries  
Investigations

PROJECT: F-78-R-3 STUDY TITLE: Survey and Inventory of  
Warmwater Streams

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

PROJECT PERIOD: July 1, 1996 through June 30, 1997

## ABSTRACT

The Tongue River Reservoir crappie population continues to have large numbers of the 1991 year class. These fish were five years old in 1996. Crappie size goals were again met in 1996. Crappie spawning in 1996 was again successful and this year class is of moderate strength. Gill net catch rate for walleye was 5.0 fish per overnight gill net set, easily meeting the goal of 2.0 fish per overnight gill net set.

## INTRODUCTION

A size goal for crappie and an abundance index goal for walleye have been in place for a number of years. These goals, in mid-summer gill net catches, are for 20% of crappie to exceed a total length of 250mm and for walleye catch rates to exceed an average of 2.0 fish per gill net set.

A major construction project began at Tongue Reservoir in 1996 and will continue through 1998. This project consists of reconstructing the dam, spillway and low-level outlet works to meet safety standards. It will result in a very low reservoir level of about 700 surface acres (approximately 3,200 acres at spillway level) for most of the period from fall 1997 through spring 1999. This long draw-down will decrease fish abundance. In 1996 fishing regulations were changed to decrease crappie harvest so that good numbers of adult crappie would be present to repopulate the reservoir following the construction low water period.

## 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 1996 with previous years.

Gill net catches of fish, in general, were higher in 1996 than in 1995 by about 40%. Average size of crappie was lower in 1996 than in 1995, but only because most younger year classes of crappie were present in the reservoir in 1996.

Goals for crappie have been met in both 1996 and 1995 (Table 2). These goals have been met because of the longevity of the 1991 year class which in both years made up almost all crappie exceeding 250mm total length. Previous large year classes of crappie in 1988 and 1990 failed to survive in numbers large enough to meet the crappie goal in the years 1992 through 1994. Previous to 1996 there was no daily or possession limit for crappie. Since 1996 the limit has been 15 (daily) and 30 (possession). The crappie limits are at least partially responsible for the larger numbers of large crappie in 1995 and 1996. The limit has not only reduced the average crappie take per angler, but has probably reduced the fishing pressure for crappie at Tongue River Reservoir. Pressure estimates for the 1997 fishing season will not be available for some time, but it is believed that a significant fraction of Tongue Reservoir crappie anglers have not been willing to fish for crappie with the new limits in place.

The goal for walleye was also met in 1996 (Table 2), and with a larger average size than has been found since 1985, before stocking affected walleye numbers.

Numbers of young fish in seine hauls were lower in 1996 than in 1995, but most of this difference is accounted for by crappie (Tables 3 and 4). 1995 was the largest catch of young crappie ever measured. Young crappie were relatively abundant in 1996, but much less so than in 1995. Both these years classes should have the potential to produce large year classes of crappie after the dam-spillway project when the reservoir level returns to normal.

Spottail shiners were again sampled in only low numbers in seine hauls (Table 4). This species was introduced in 1990, but has yet to 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 11 overnight experimental gill net sets at Tongue River Reservoir, August 1996.

Species	Number Caught	Mean No. /		Mean Length (mm)	Mean Weight (gm)	Length Range (mm)	Weight Range (gm)	% of Catch
		Net Set						
Blk. Bullhead	3	0.3		231	227	136-290	40-320	0.6
Blk. Crappie	41	3.7		202	160	107-284	10-350	7.9
Carp	21	1.9		479	1257	420-526	920-1780	4.0
Channel Catfish	12	1.1		363	470	212-482	80-1010	2.3
Longnose Sucker	1	0.1		314	280	-----	-----	0.2
Rock Bass	2	0.2		142	60	-----	-----	0.4
Shorthead Redhorse	169	15.4		310	378	158-505	30-1380	32.6
Smallmouth Bass	36	3.3		243	247	150-486	30-1650	6.9
Walleye	55	5.0		395	608	281-579	170-280	10.6
White Crappie	49	4.5		177	83	121-277	20-300	9.4
White Sucker	27	2.5		353	551	210-468	100-1190	5.2
Yellow Bullhead	37	3.4		226	150	148-298	30-320	7.1
Yellow Perch	66	6.0		184	77	140-216	30-170	12.7
<b>TOTALS</b>	<b>519</b>	<b>47.2</b>						<b>99.9</b>

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

Year	Walleye Catch Rate <sup>8</sup>	Walleye Mean Total Length (mm)	Percentage of Crappie >250mm Total Length
1996	5.0	395	20.0
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

<sup>8</sup> 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
1996	159	Crappie	Yellow Perch
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 11 seine hauls at Tongue River Reservoir, August 1996.

Species	Number Caught	Mean No./Haul	Mean Length (mm)	Mean Weight (gm)	Length Range (mm)	Weight Range (gm)
Black Crappie	1	0.1	175	--	--	--
Bullhead (YOY)	17	1.5	42	--	32-51	--
Carp	18	1.6	69	--	53-89	--
Carp (YOY)	2	---	--	--	--	--
Channel Catfish (YOY)	4	0.4	38	--	30-47	--
Crappie (YOY)	1340	121.8	49	--	36-70	--
Largemouth Bass	2	0.2	169	--	158-180	--
Largemouth Bass (YOY)	5	0.5	72	--	68-77	--
Pumpkinseed	67	6.1	97	25	69-141	20-50
Rock Bass	1	0.1	110	30	--	--
Shorthead Redhorse	40	3.6	161	91	74-455	20-900
Smallmouth Bass	31	2.8	142	36	113-170	20-60
Smallmouth Bass (YOY)	144	13.1	62	--	46-97	--
Spottail Shiner	18	1.6	50	--	45-53	--
Sucker (YOY)	5	0.5	49	--	33-55	--
Sunfish (YOY)	2	0.2	29	--	23-35	--
Walleye	1	0.1	383	580	--	--
Walleye (YOY)	37	3.4	141	--	128-157	--
White Crappie	11	1.0	186	131	139-280	30-290
White Sucker	1	0.1	150	30	--	--
Yellow Perch (YOY)	190	17.3	69	--	63-83	--