

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

STATE: Montana PROJECT NO. 3491
PROJECT TITLE: Statewide Fisheries Investigations
STUDY TITLE: Survey and Inventory of Warmwater Lakes
JOB TITLE: Creel Census - Lake Frances & Tiber Reservoir

PERIOD COVERED: July 1, 1994, through June 30, 1995

ABSTRACT

Approximately 300 interviews on Lake Frances and over 460 interviews on Tiber Reservoir were conducted during weekend creel census throughout the summer. Boat fishermen averaged approximately five hours per completed trip at Tiber Reservoir and 4.6 hours at Lake Frances. Most anglers originate from within a 75 mile radius of the lakes. Walleye were the main target species with catch rates of 0.13 and 0.72 fish per hour, at Lake Frances and Tiber Reservoir, respectively. Anglers at Lake Frances kept 86 percent of the walleye and 38 percent of the northern pike they caught. At Tiber Reservoir, anglers kept 33 percent of walleye and 38 percent of northern pike caught. The best catch rates for both walleye and northern pike occurred from mid-July to mid-August in both waters. The majority of the walleye harvested were four years old. The results of this census are compared to studies conducted on Lake Frances in 1989 and 1993 and on Tiber Reservoir in 1991 and 1993.

OBJECTIVES AND DEGREE OF ATTAINMENT

This project will monitor angler use, satisfaction, and success on Tiber Reservoir and Lake Frances by directly interviewing anglers on summer weekends. It will also provide data to monitor changes in species, size, and age composition and exploitation rate of fish harvested by anglers. Data will be compared to results from detailed creel surveys conducted in 1989 and 1991 on the two reservoirs and statewide mail survey results to monitor changes. The project will provide current, accurate information on angler satisfaction and success.

Progress was made on the objectives listed above and data are included in this report.

PROCEDURES

Working eight-hour days, ground-based creel clerks interviewed as

many parties of anglers as possible on weekends between Memorial Day and Labor Day. Information on species composition, catch rates, angler and trip characteristics, angler satisfaction, and opinions on fisheries management were obtained from each party interviewed. Clerks recorded number and species of fish caught. Fish were measured to the nearest tenth of an inch and weighed to the nearest hundredth of a pound. All fish caught by an individual party were measured to eliminate bias of measuring one large fish. Dorsal spines or pelvic fin rays of walleye were collected for determination of age classes harvested.

FINDINGS

The 1994 data from both waters will be compared to earlier creel surveys conducted in 1989 and 1993 (Lake Frances) and 1991 and 1993 (Tiber Reservoir). The comparisons are also presented in table form in the Appendix.

Angler and Trip Characteristics

Angler and trip characteristics are presented in Table A1. During 1994, creel clerks interviewed 463 parties at Tiber Reservoir and 301 parties at Lake Frances. Approximately 45 percent, and 70 percent, respectively, of these were completed trip interviews. The average hours per completed trip for boat anglers was 5.0 at Tiber and 4.6 at Frances. These figures are slightly less than the earlier studies. Shore fishermen spent less time fishing and used slightly more attended lines than did boat fishermen.

As in previous creel censuses, the majority of anglers fishing both waters are considered local (within a 75 mile radius). Walleye continue to be the main species targeted but "any fish" also ranked high. Lures and bait combinations was the most popular angling method at Tiber while bait predominated at Frances.

During interviews, creel clerks asked anglers about their satisfaction with the number and size of fish caught. Approximately 62 percent of the fishermen at Tiber during 1994 were satisfied with the number of fish caught while only 23 percent of those fishing Lake Frances were satisfied. Similar satisfaction with the size of fish was expressed: 55 percent at Tiber and 24 percent at Frances.

Catch Statistics and Angler Success

Catch statistics and angler success are presented in Table A2. Catch rates for northern pike and yellow perch at Tiber during 1994 are comparable to 1991 and 1993. Walleye catch rates increased dramatically to 0.72 fish per hour. At Frances, although fishermen targeted walleye, northern pike were more readily caught at 0.35 fish per hour. Walleye catch rates decreased again in 1994 to 0.13

fish per hour. July and August produced large catch rates for walleye at Tiber Reservoir and northern pike at Lake Frances.

Harvest rates are fairly comparable to the earlier surveys. Walleye at Tiber during 1994 were harvested at slightly higher rates. At Frances during 1994, walleye were harvested at lower rates and northern pike at higher rates than previous years.

During 1994, fishermen kept approximately 33 percent of the walleye and 38 percent of the northern pike caught in Tiber. At Lake Frances, fishermen also kept 38 percent of the northern pike caught but a much larger proportion of walleye, at 86 percent. Walleye average length continues to decrease in Tiber (15.9 inches in 1991; and 14.4 inches in 1994), while increases are noted for Lake Frances (14.4 inches in 1989 to 15.8 inches in 1994). Harvested northern pike were once again larger in Tiber than in Frances in 1994.

MANAGEMENT CONCERNS

During interviews, anglers were asked whether or not there were any management problems. Approximately 85 percent of those interviewed at both waters said there were no problems. A listing of comments on management concerns appears in Table A3. At Tiber, improved facilities were highest on the list, followed by those wanting more fish and more forage fish. Changing the filet law was most important at Lake Frances. followed by stocking of walleye and improving facilities.

AGE AND GROWTH

The age structure of harvested walleye is presented in Tables A4 and A5. Cross sections of 285 walleye spines from Lake Frances were examined, representing length groups from 9 through 25 inches, and age groups two through thirteen years. Four year old fish accounted for nearly 43 percent of the harvest. Approximately 87 percent of the harvested walleye were four years old or older.

A total of 426 walleye spines from Tiber Reservoir were analyzed. Harvested fish ranged in age from two to eleven years and were represented in length groups from 10 through 22 inches. The harvest of walleye at Tiber is similar to that found at Lake Frances in that over 40 percent were four year old fish and 78 percent of the harvested fish were four years or older.

In both waters, considerable overlap in ages is evident at any one length group. Or conversely, a particular age group may cover several length groups. For example, at Lake Frances, walleye in the 14 inch length group can range in age from three to eight years. On the other hand, five year old walleye from Tiber can occur in length groups 11 through 19 inches.

Both waters are considered to have slow growth rates. The average length of harvested walleye as reported earlier is not attained until four years of age in Tiber and five years in Frances. Tiber growth is somewhat better than Frances through age six. From age seven on, Frances walleye exhibit better growth.

DISCUSSION AND RECOMMENDATIONS

The weekend creel survey results from Lake Frances and Tiber Reservoir are considered to be very valuable in monitoring these fisheries. Walleye continue to be the target species in both waters with catch rates considered very good in Tiber. Catches at Frances are approximately half of that found in 1989 but are expected to improve in the future with strong year classes of walleye about to enter the fishery. It is recommended to continue the weekend surveys on both waters as funding permits.

ACKNOWLEDGEMENTS

Brandy Widhalm conducted the creel census on Lake Frances while Alvin Smith did the Tiber Reservoir survey. Others assisting in the surveys, mounting spines, and analyzing data or spines include Steve Leathe, George Liknes, Paul Hamlin and Kelly Smith.

LITERATURE CITED

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- Leathe, S. A., and W. J. Hill. 1993. Lake Frances creel census, May 1989-May 1990. Montana Department of Fish, Wildlife and Parks. Federal Aid in Fish Restoration, F-46-R-3, Job No. IV-b. Helena, MT.
- Leathe, S. A. 1992. Tiber Reservoir creel census, April 1991-March 1992. Montana Department of Fish, Wildlife and Parks. Federal Aid in Fish Restoration, F-46-R-5, Job No. IV-f. Helena, MT.

PREPARED BY: William J. Hill

DATE: September 1995

PRINCIPAL FISH SPECIES INVOLVED: Walleye, northern pike.

CODE NUMBERS OF WATERS REFERRED TO IN REPORT:

14-7440 Lake Frances
14-9240 Tiber Reservoir

Table A1. Angler and trip characteristics, Tiber Reservoir and Lake Frances.

	<u>Tiber Reservoir</u>			<u>Lake Frances</u>		
	1991	1993	1994	1989	1993	1994
No. of interviews	528	409	463	962	402	301
completed trip interviews	147	120	203	433	209	215
Avg. hours/completed trip-boat	5.8	5.1	5.0	5.3	4.8	4.6
-shore	5.3	4.2	4.1	3.9	2.8	2.8
Avg. no. attended lines-boat	1.2	1.1	1.0	1.1	1.1	1.2
shore	1.5	1.4	1.6	1.2	1.0	1.2
Angler origin(%): Local (75 mi. rad.)	78	74	75	70	71	83
Western MT	6	7	6	17	13	9
Other MT	14	17	19	10	13	7
Non-resident	2	2	0	3	3	1
Angling method(%): Lures	7	19	19	13	13	4
Bait	38	37	32	35	54	60
Lures & Bait	55	44	49	52	33	36
Target species*: WE	900	419	547	1242	495	370
(by no. of anglers) NP	3	0	9	188	77	22
YP	0	2	0	14	8	9
WE/NP	70	18	8	291	62	71
WE/NP/YP	132	7	0	61	27	83
Any fish	140	550	401	306	270	135

* Species abbreviations: WE = walleye; NP = northern pike; YP = yellow perch; Rb = rainbow trout

Table A2. Catch statistics and angler success, Tiber Reservoir and Lake Frances.

		Tiber Reservoir			Lake Frances								
		1991	1993	1994	1989	1993	1994						
Catch rate (fish/hr.)	WE	0.35	0.38	0.72	0.35	0.17	0.13						
	NP	0.07	0.03	0.03	0.11	0.28	0.35						
	YP	0.04	0.01	0.04	0.29	0.13	0.22						
	Burbot	0.002	-	-	0.001	-	-						
	Rb	0.02	0.02	0.02	-	-	-						
Harvest rate (fish/hr.)	WE	0.18	0.21	0.24	0.17	0.12	0.11						
	NP	0.03	0.03	0.01	0.07	0.11	0.13						
	YP	0.03	0.01	0.01	0.12	0.08	0.18						
	Burbot	0.002	-	-	0.001	-	-						
	Rb	0.01	0.02	0.01	-	-	-						
Fish kept (%)	WE	51	54	33	50	73	86						
	NP	48	83	38	64	40	38						
	YP	82	76	29	46	63	83						
	Burbot	100	-	-	100	-	-						
	Rb	73	87	81	-	-	-						
Average length	WE	15.9	15.3	14.4	14.4	15.4	15.8						
	NP	22.1	22.6	21.5	21.2	19.5	20.2						
	YP	-	8.5	8.9	9.4	9.9	9.6						
Catch rates by month (fish/hr.)		WE	NP	WE	NP	WE	NP	WE	NP	WE	NP		
June		0.54	0.05	0.16	0.02	0.52	0.05	0.31	0.10	0.11	0.28	0.14	0.21
July		0.51	0.12	0.44	0.04	0.99	0.04	0.15	0.10	0.07	0.39	0.18	0.42
August		0.36	0.04	0.68	0.03	0.87	0.03	0.82	0.13	0.32	0.23	0.08	0.43

Table A3. Comments on management of Tiber Reservoir and Lake Frances (through party interviews).

Comment	Number Responding					
	Tiber Reservoir			Lake Frances		
	1991	1993	1994	1989	1993	1994
Doing a good job	61	-	1	54	-	-
Maintain water levels	61	9	6	21	10	4
Improve/add facilities	19	34	18	16	21	8
Limits on small fish	-	-	1	12	3	4
Better access	1	10	6	7	-	1
Rather have trout	-	-	2	7	-	-
More fish	5	15	10	4	13	5
Plant bluegills, cisco	-	3	7	3	-	-
Close season	-	-	-	3	1	-
Stock walleye	-	2	3	2	10	9
More forage	10	3	10	2	1	1
Outlaw jug fishing	-	-	-	2	-	-
Live bait should be allowed	-	-	-	2	-	1
New fish cleaning facilities	1	-	-	1	-	-
Lake overfished	-	-	-	1	9	0
Increase pike limit	-	1	-	1	8	1
Bigger fish	1	1	4	1	-	-
Increase possession limit	1	-	-	1	-	-
Fish numbers are down	-	-	-	1	2	-
Need more enforcement	1	2	4	1	3	2
More regulations (slot limits)	-	-	2	-	6	2
No tournaments	-	-	-	-	3	-
Change filet law	2	-	5	-	-	11
Reduce pike limit	-	-	-	-	1	-

Table A4. Age composition of walleye harvested in Lake Frances, 1994.

Length	No. per inch group	No. fish per age group											
		2	3	4	5	6	7	8	9	10	11	12	13+
9	1		1										
10	0												
11	3	1	1	1									
12	16		9	5	2								
13	16		3	12	1								
14	42		1	32	8	1							
15	42			9	26	5	2						
16	42				24	12	3	3					
17	34				4	14	3	10	2	1			
18	17					1	3	8	3	1			1
19	12						1	3	4	1		3	
20	4								2	1	1		
21	3								2			1	
22	2								1				
23	3									1		2	
24	0												
25	1												1
26	1												1
Totals	239	1	14	59	66	33	12	24	14	6	1	6	3
Avg. length		11.0	12.6	13.9	15.4	16.6	17.2	17.8	19.4	20.2	20.0	20.9	23.3
Length range		11.0	11.5- 14.0	11.0- 15.5	9.0- 17.5	14.0- 18.0	15.5- 19.2	16.0- 19.6	17.1- 22.5	17.5- 23.5		19.0- 23.6	18.5- 26.5

Table A5. Age composition of walleye harvested in Tiber Reservoir, 1994.

Length	No. per inch group	No. fish per age group									
		2	3	4	5	6	7	8	9	10	11+
9	3	3									
10	3	2	1								
11	23	2	16	5							
12	46		9	33	4						
13	37		7	20	10						
14	28		2	15	10		1				
15	20			10	7	2	1				
16	28				5	11	5	5	2		
17	10				2	1	4		3		
18	14				3	2	2	5	2		
19	7					1	2	2	2		
20	3								2	1	
26	1										1
27	1										1
Totals	224	7	35	83	41	17	15	12	11	1	2
Avg. length		10.0	12.1	13.3	14.8	16.6	17.2	17.7	18.5	20.4	27.1
Length range		9.1- 11.8	10.8- 14.2	11.6- 15.7	12.3- 18.6	15.4- 19.0	14.6- 19.5	16.1- 19.2	16.7- 20.5		26.8- 27.4

Reviewed
Mike Alderkhol
R4 Supervisor
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