MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

FISHERIES DIVISION JOB PROGRESS REPORT

STATE:	MONTANA	PROJECT TITLE:	STATEWIDE FISHERIES INVESTIGATIONS
PROJECT NO.: F	-113-R-3	STUDY TITLE:	SURVEY AND INVENTORY OF COLDWATER AND WARMWATER ECOSYSTEMS
JOB NO.:	V-e	JOB TITLE:	NORTHEAST MONTANA WARMWATER ECOSYSTEMS INVESTIGATIONS
JOB PERIOD:		JULY 1, 2002 THROUG	GH JUNE 30, 2003

ABSTRACT

Paddlefish harvest and tagging records were maintained for the Fort Peck Reservoir/Missouri River Paddlefish population. Fishing pressure and harvest were some of the highest on record though overall harvest on this population remains low. Gill netting and beach seining were conducted at Fresno and Nelson Reservoirs. Gill netting and beach seining was conducted at Beaver Creek Reservoir. The fishery in Bailey reservoir is improving. Walleye and tiger muskies are doing well in Little Warm Reservoir. Gill netting was conducted in the Fort Peck tailwater and dredge cut areas of the Missouri River.

OBJECTIVES AND DEGREE OF ATTAINMENT

<u>Survey and Inventory</u> - Objective is to survey and monitor the characteristics and trends of fish populations, angler harvest and preference, and to assess habitat conditions in selected waters. Objective accomplished, data presented.

<u>Fish Population Management</u> - Objective is to implement fish stocking and/or fish eradication actions to maintain fish populations at levels consistent with habitat conditions and other limiting factors. Objective accomplished, data presented.

<u>Technical Guidance</u> - To review projects by federal, state and local government agencies and private parties that have the potential to affect fisheries resources, and to provide technical advice or decisions to mitigate impacts on these resources. To provide landowners and other private parties with technical advice and information to sustain and enhance fisheries resources. Objective accomplished: Twenty 310 projects were reviewed and nine 124 projects were reviewed with state and local agencies; advised Rocky Boy Indian Tribe on Beaver Creek Management Plan; supplied input to Compact Commission relative to water needs assessment on Rocky Boy Indian Reservation and Fort Belknap Reservation; advised Rocky Boy Reservation on stream enhancement projects; supplied comments to Bureau of Land Management (BLM) relative to development of new fishing reservoirs; Eleven meetings were attended with schools related to the "Hooked on Fishing" program; other information is presented in data.

PROCEDURES

Floating and sinking standard experimental gill nets 125 feet in length and 6 feet deep consisting of 25-foot panels of 3/4-, 1-, 1 1/4-, 1 1/2-, and 2-inch mesh were fished to acquire information on adult fish populations. Beach seining to determine abundance and reproductive success of sport and forage fishes was conducted in late summer utilizing a 100- X 10-foot seine of 1/4-inch square mesh. Whenever possible, fish were measured for total length (TL) and weighed to the nearest .01 pound. Scales and/or spines were taken from walleye and lower dentaries from paddlefish for aging purposes. Six and 8-feet deep by 100-feet long gill nets of 4-inch bar mesh were drifted to capture paddlefish in the Missouri River.

RESULTS AND DISCUSSION

Paddlefish

Fort Peck Reservoir and Missouri River Upstream

Tagging and harvest records for previously tagged fish were maintained. During the period 1973-92, a total of 527 paddlefish were tagged in the Missouri River above Ft.Peck Reservoir. In 1993, a project was initiated to tag up to 500 paddlefish each year. Since 1993, 2,773 paddlefish have been tagged, 221 of them in 2002. One spawned out female was captured on May 29 one mile above Fred Robinson Bridge. The tagging period encompassed the period from May 21 to June 24. Flows were very low in May but rose suddenly in late June.

Berg (1981) noted that significant upstream movement of paddlefish did not occur until flows reached 14,000 cubic feet per second (CFS) at the Virgelle gauging station. The 14,000 cfs flow is considered to be a "trigger" flow for spawning fish. Trigger flows did not occur until June 12 and lasted only 16 days (Figure A).

Figure A. Missouri River hydrograph at Virgelle during the paddlefish spawning season (May 15-July 15) 2002.

Sixty-eight tagged paddlefish were reported harvested by snaggers in 2002. Three of the tags were from fish tagged in 2002. Tag return data reveals a low rate of harvest for this paddlefish population as summarized in Table 1. The average annual rate of harvest for tagged cohorts has varied from 0.0% to 2.7% over the period 1977-02.

Table 1.A summary of paddlefish tagging and harvest data from the
Missouri River and Fort Peck Reservoir, 1977-02. Percent of
harvest was derived by adjusting for previous harvest of
tagged fish.

		No Tage	Total		Δva
	No	NO. 1895	No Tora	0,	
	NO.	Recurned	NO. 1495	6	AIIIIUAL 6
Year	Tagged	In 2002	Returned	Harvest	Harvest
1977	60	0	8	13.3	0.5
1978	224	1	41	18.3	0.7
1979	10	0	4	40.0	1.7
1980	33	0	13	39.4	1.7
1983	2	0	1	50.0	2.5
1986	13	0	5	38.5	2.3
1992	29	0	5	17.2	1.6
1993	434	8	65	15.0	1.5
1994	499	12	72	14.4	1.6
1995	456	1	28	6.1	0.8
1996	281	9	37	13.2	1.9
1997	483	8	35	7.3	1.2
1998	368	11	28	7.6	1.5
1999	380	13	23	6.1	1.5
2000	88	2	7	8.0	2.7
2001	13	0	0	0.0	0.0
2002	221	3	3	1.4	1.4

As previously mentioned, harvest rates are not believed to be excessive at present. However, the low number of successful spawning runs (based on observed trigger flow duration) in recent years warrants additional scrutiny on the ability of this sport fishery to recruit sufficient numbers of adults in future years to maintain existing harvest rates.

Mean weight of female paddlefish has been monitored for many years and was thought to be an indicator of over-harvest. An assumption was made that paddlefish weight was directly related to age. It was believed that if the average size of females decreased significantly, it would indicate an over-harvest of mature, egg bearing fish on which the future of the stock depended. Information gathered from tagged fish, at large as long as 25 years, does not support this assumption however. Aging of harvested fish was not routinely conducted and no age/weight relationships over time have been investigated until recently. It is now generally agreed that the majority of paddlefish growth occurs in juvenile or early adult stages. After reaching maturity, the paddlefish growth is often insignificant. Mean annual weight gain was examined in adult fish to determine if growth after reaching sexual maturity was significant. Mean annual growth was determined from fish tagged and recovered from the Fort Peck/Missouri River stock (Table 2). Eleven males, at large since initial tagging an average of 16.5 years (range 11-24), provided a basis for analysis. Mean annual weight change for male paddlefish was +0.2 pounds/year (range -0.9 to +1.7).

Eight females, at large since initial tagging an average of 15.9 years (range 10-25), had a mean annual weight change of +0.2 pounds/year (range -0.1 to +1.1). Unless there is significant tagging related growth suppression, it would appear that the maximum size achieved by any particular paddlefish is likely due to food availability and habitat conditions present in Fort Peck Reservoir during the fish's early growth period. This period would encompass about the first 10 years for males and the first 15 years for females.

							Mean
	Date	Date	No. Yrs.	Initial	Capture	Difference	Annual
Tag No.	Tagged	Caught	Growth	Weight	Weight	(lbs.)	Change
MALES							
694	4/78	6/02	24	23.0	25.5	+ 2.5	+0.1
646	5/78	5/01	23	25.0	22.0	- 3.0	-0.1
777	5/78	5/98	20	26.0	30.0	+ 4.0	+0.2
016	5/73	5/93	20	30.5	32.0	+ 1.5	+0.1
661	4/78	5/95	17	21.0	38.0	+17.0	+1.0
711	4/78	4/93	15	27.0	24.5	- 2.5	-0.2
695	4/78	5/92	14	20.0	35.0	+15.0	+1.1
779	5/78	5/91	13	27.0	32.0	+ 5.0	+0.4
789	5/78	5/90	12	17.0	37.0	+20.0	+1.7
033	4/74	4/86	12	13.0	22.0	+ 9.0	+0.8
947	4/80	5/91	11	55.0	45.0	-10.0	-0.9
FEMALES							
508	5/73	6/98	25	50.0	66.0	+16.0	+0.6
461	4/74	4/94	21	88.0	89.0	+ 1.0	+0.1
756	5/78	5/94	17	52.0	57.0	+ 5.0	+0.3
242	4/78	4/93	15	85.0	79.0	- 6.0	-0.4
181	5/77	5/91	14	50.5	68.5	+18.0	+1.3

639

048

793

4/78

4/74

6/78

5/91

5/86

5/88

13

12

10

Table 2. Weight differential over time for male and female paddlefishfrom the Fort Peck/Missouri River stock based on recaptures oftagged fish.

Annual spawning migrations were rated as to their probable success based solely on the fish's ability to ascend the river and reach spawning sites above Fred Robinson Bridge (FRB) (Table 3). As mentioned, trigger flows of 14,000 cfs appear to be necessary to initiate spawning migrations upriver. Ratings of good, marginal or poor were assigned to each of the last 25 spawning seasons. Good years were determined to be those in which trigger flows occurred, and the duration of those flows exceeded 30 days during the mid-May to mid-July spawning period. A Marginal rating was assigned to those years in which trigger flows occurred, but the duration during the spawning seasoning was less than 30 days. A **Poor** rating was assigned to those years in which trigger flows were not reached and successful spawning was unlikely or severely limited. From 1974 to 1983, 7 good years, 2 marginal years, and 1 poor year were experienced. In contrast, 7 of the next 10 years were rated marginal or poor. Low recruitment is anticipated from those years. It is possible that no year-classes were developed within the 6-year span from 1985 to 1990. The potential loss

84.0

64.0

79.0

80.0

62.0

80.0

- 4.0

- 2.0

+ 1.0

-0.3

-0.2

+0.1

of recruitment will not be evident in the snagging fishery until 1995 and could persist until the year 2005. Aging of harvested fish from year-classes of that time period may validate the spawning success assumption based on trigger flows. Another five consecutive years of poor recruitment have occurred since 1998. Age calculations from dentaries were not complete at the time of this report.

Year	Good	Marginal (#days> TF)	Poor
1974	Х		-
1975	Х		-
1976	Х		-
1977	-		Х
1978	Х		-
1979	-	X(20)	-
1980	Х		-
1981	Х		-
1982	Х		-
1983	-	X(29)	-
1984	Х		-
1985	-		Х
1986	-	X(19)	-
1987	-		Х
1988	-		Х
1989	-	X(05)	-
1990	-	X(03)	-
1991	Х		-
1992	-		Х
1993	Х		-
1994	-	X(06)	-
1995	Х		-
1996	Х		-
1997	Х		-
1998	-	X(25)	-
1999	-	X(13)	-
2000	-	-	Х
2001	-	-	Х
2002	-	X(16)	_

Table 3. Paddlefish spawning success ratings for the years 1974-02 using trigger flow¹ (TF) incidence and duration as the sole criteria.

¹Flows measured at the Virgelle Measuring Station

A system for angler tagging of harvested paddlefish was first implemented on the Missouri River in 1992. This system had been used successfully for a number of years on the Yellowstone River. A 2-fish per year limit was imposed statewide in 1992. In 1994, fisherman were allowed to harvest only one paddlefish from the Yellowstone and Lower Missouri River, while two per year could still be taken from the upper Missouri fishery. The only other significant regulation difference between the Yellowstone and Missouri River fisheries is that snaggers may immediately release a snagged fish if they so desire at the middle Missouri River fishery, but any fish snagged on the Yellowstone or lower Missouri River must be immediately tagged. Some limited catch and

release has been allowed at the Intake fishery since 1996. No postrelease snagging mortality has been observed on the Missouri river. All the mortality previously observed was connected with high grading of fish held for long periods or from injuries sustained after propeller strikes. Snaggers, in the past, would often tie up fish and then release them later if a larger fish was caught. The new tagging regulation eliminates this type of mortality. The "must keep" regulation on the Yellowstone River fishery is primarily designed to help reduce sociological conflicts associated with severe crowding. This situation does not occur on the Missouri River as the fishery is spread over many miles. Long-term observations and discussions with veteran snaggers indicate there is a significant voluntary effort to return large females to the river which would otherwise be harvested under a no release restriction. There was some concern that restricting the harvest to one fish on the Yellowstone River might cause a mass relocation of fishermen to the Missouri River. Angler interviews since 1994 indicate this has not occurred.

Egg Sampling

A small benthic trawl was designed to sample eggs from the river gravels. A sampling site was chosen after observing a large concentration of paddlefish in the area the previous day. The trawl was deployed for a single 25 yard haul on June 24, 2002 about 500 yds above the upper CMR Refuge boundary at approximately river mile 1931. River depth at the site was seven feet and flows were approximately 14,000 cfs. The bottom was comprised of gravel/cobble 2 inches to 8 inches in diameter. Flows had reached as high as 18,000 cfs the week before. The tow collected two eggs believed to be paddlefish eggs. The eggs were dark and appeared to be alive. The eggs were sent away for positive identification as sturgeon eggs are quite similar in size and appearance.

On-site creel census

The creel census area consisted of approximately 20 miles of river downstream from Fred Robinson Bridge, upstream from Fort Peck The last complete census was conducted in 2000. Reservoir. Harvest occurs by snagging in the spring as paddlefish migrate upstream from Some fish apparently reside in the river over the the reservoir. winter as indicated by the high catch rates experienced in the few days following ice-out in some years. For example, on March 26 of 1993, between 50 and 100 paddlefish were caught, and most released, in an area known as the Big Swirl Hole. A large ice jam was present above the hole and the ice-free area below was accessible to boat snaggers. The ice did not go out upstream at Fred Robinson Bridge until the following day. Fish were apparently very concentrated as snaggers reported hooking fish on almost every cast, some snagging vertically below their boats. Both males and large females were taken. On March 27 the ice jam blew out and snaggers reported no further success at that location.

Occasionally, paddlefish are also caught in late summer and fall, but due to the low number taken at these seasons, only spring harvest has been monitored. Almost all fish are taken within the boundaries of the Charles M. Russell Wildlife Refuge (CMR) and at the Bureau of Land Management controlled Kipp Recreation Area. A system of sampling the entire day was utilized and no records on the length of trip (hours) were maintained. The absolute number of fishermen and fish taken could be determined on most days. Previous attempts to gather information on hours fished provided unreliable results. Fishermen were observed for a day and then asked how many hours they actively snagged. Almost all observed snaggers grossly overestimated their time fishing. Due to the length of fishing trip and erratic fishing activity, information on hours fished, provided by fishermen, was judged to be inaccurate. Estimates of fishermen and fish taken for non-creel days (usually weekdays with light fishing pressure) were made on the basis of known pressure preceding and following noncreel census days and from interviews with snaggers, wardens or refuge personnel present throughout the non-census days.

The creel census commenced April 6, 2002, which was the day after iceout on the river. The creel census extended through June 30 at which time fishing effort and success was negligible. This particular creel census extended three weeks longer than the traditional survey due to its connection with a broader creel census taking place at the same location. An interview card system, which provided completed trip data on anglers leaving the area when the creel clerk was "off duty", assisted in gathering completed trip information.

Total fishing pressure was 4,702 angler-days in 2002 (Figure B). If adjustments are made to account for the additional three weeks of census not traditionally surveyed, angler-days would be reduced by 612 and the harvest by 95 fish. Fishing pressure was high despite extremely low flows throughout the normal snagging season and minimal movement of fish into the area. High flows were experienced later in the spawning season and fishing was good later than in most years. Spring weather conditions and river flows often dictate the amount of use this area receives. The total paddlefish harvest in 2002 was 536 (441 adjusted) fish. Catch-rates were not high however (Table 4). Snagger interviews indicated fish were released at a rate of 20-30%. Historical data indicates snaggers are more inclined to release fish as catch rates increase.

Paddlefish dentaries were collected from harvested fish to assist in determining the age structure of the Fort Peck Reservoir stock. Jaw sections were collected and sent to the University of Idaho for sectioning and ageing. Results of the aging will be presented in a later report.

Figure B. Snagging pressure and total harvest as determined by creel census on the Missouri River above Ft. Peck Reservoir, 1973-02.

Length and weight data was obtained from 383 paddlefish harvested: 224 males and 159 females (Table 5). Total-length measurements are no longer used due to an unacceptable level of accuracy due to morphological variation caused by tail and paddle erosion or damage. Body-length or eye-fork length is the accepted standard measurement currently used. Body length is defined as the distance between the anterior portion of the eye and the caudal fin fork. Paddlefish were selected at random and by availability for measuring. Paddlefish examined during the creel census period indicated a sex ratio of 59% males and 41% females. New fish captured by drift-gill nets (n=221) in 2002 produced a sex ratio of 76% males and 24% females. The large size of females makes them more susceptible to snagging. However, if random gill netting is a true indicator of the sex ratio present in the run, then some hygrading is probably occurring.

	Tot	al Fishermen M	lan-days	Pado	llefish Harve	sted	Harv	herman/Day	
Year	Bank	Boat	Total	Bank	Boat	Total	Bank	Boat	Total
1973	984	532	1,516	290	177	467	0.29	0.33	0.31
1974	1,422	831	2,253	396	241	637	0.28	0.29	0.28
1975	916	566	1,482	180	205	385	0.20	0.36	0.26
1977	1,429	1,096	2.526	322	344	666	0.23	0.31	0.26
1978	699	1,413	2,112	135	207	342	0.19	0.15	0.16
1986	1,664	1,194	2,858	315	264	579	0.19	0.22	0.20
1991	1,645	1,293	2,938	260	228	488	0.16	0.18	0.17
1992	796	796	1,592	102	152	254	0.13	0.19	0.16
1993	1,254	999	2,253	232	190	422	0.19	0.19	0.19
1994	1,780	1,806	3,586	313	248	561	0.18	0.14	0.16
1995	1,827	1,820	3,647	317	395	712	0.18	0.22	0.20
1996	1,899	1,756	3,655	232	282	514	0.12	0.16	0.14
1998	841	485	1,326	136	100	236	0.16	0.21	0.18
2000	1,885	1,721	3,606	172	127	299	0.07	0.07	0.07
2002*	2,214	2,488	4,702	320	216	536	0.14	0.09	0.11
*creel	census was	3 weeks lon	ger than prev	ious creels					

 Table 4. A summary of fishing pressure, paddlefish harvest, and catch rates during the spring, 1973-2002.

	F	emales	Males				
Year	No.	Avg. Weight	No.	Avg. Weight			
1965	13	82	21	36			
1966	36	74	30	32			
1970	7	77	2	44			
1971	10	86	1	44			
1973	46	76	50	35			
1974	58	75	67	33			
1975	63	75	56	35			
1977	96	78	135	39			
1978	58	88	76	38			
1986	101	76	167	34			
1991	168	60	192	32			
1992	124	71	86	35			
1993	137	73	199	33			
1994	241	69	140	28			
1995	204	66	348	31			
1996	278	68	161	31			
1998	122	68	86	33			
2000	124	65	144	33			
2002	159	67	224	31			

Table 5.A summary of paddlefish size data from harvested fish on
the Missouri River above Fort Peck Reservoir, 1965-02.

The average weight of male paddlefish harvested, from past creel census years in which 25 or more fish were weighed, was 33 pounds. Harvested male paddlefish averaged 31 pounds in 2002. The average weight of harvested female paddlefish, from past creel years in which 25 or more fish were weighed is 72 pounds. The average weight of males taken by gill nets in 2002 was 28 pounds and average female weight was 66 pounds. Only one of the females harvested in 2002 weighed 100 pounds or greater, however, several fish exceeding 100 pounds were reportedly caught and released.

Angler residence was obtained from 4,702 fishermen. Five-percent of the fishermen were nonresidents. Anglers from 42 of Montana's 56 counties utilized the fishery as well as fishermen from 15 other states and representatives from British Columbia and Korea. Angler use by residence is summarized as follows:

	Montana	Fishermen	(angler-days)	by	county	seat
--	---------	-----------	---------------	----	--------	------

1.	Butte	28	20.	Glasgow	45	39.	Baker	0
2.	Great Falls	488	21.	Shelby	0	40.	Big Timber	43
3.	Billings	961	22.	Hardin	27	41.	Circle	0
4.	Missoula	196	23.	Roundup	121	42.	Ekalaka	0
5.	Helena	44	24.	Chinook	281	43.	Townsend	3
б.	Bozeman	551	25.	Virginia Cit	cy 0	44.	Harlowton	60
7.	Kalispell	288	26.	Conrad	0	45.	Terry	0
8.	Lewistown	492	27.	Sidney	4	46.	Phillipsburg	3
9.	Broadus	0	28.	Deer Lodge	20	47.	White Sulphur	6
10.	.Red Lodge	152	29.	Forsyth	44	48.	Chester	5
11.	Malta	204	30.	Anaconda	2	49.	Livingston	52
12.	Havre	168	31.	Choteau	27	50.	Jordan	5
13.	Hamilton	21	32.	Columbus	131	51.	Boulder	83
14.	Miles City	20	33.	Hysham	0	52.	Wibaux	0
15.	Polson	45	34.	Plentywood	0	53.	Ryegate	8
16.	Glendive	15	35.	Thompson Fal	ls O	54.	Superior 3	
17.	.Wolf Point	0	36.	Stanford	20	55.	Winnett 5	
18.	.Dillon	2	37.	Scobey	0	56.	Libby 142	
19.	.FT. Benton	23	38.	Cut Bank	1			

Non-Resident Fishermen (angler-days)

Wyoming	110	Colorado	10
Idaho	12	Nevada	20
Michigan	4	Oklahoma	2
Iowa	3	Texas	7
Washington	19	Minnesota	10
Wisconsin	11	North Dakota	11
South Dakota	25	Virginia	3
California	8	British Columbia	4
		South Korea	1

Fresno Reservoir

Fresno Reservoir is a highly fluctuating reservoir of 5,757 surface acres located on the Milk River 12 miles northwest of Havre. In most years the demand for irrigation water results in water level fluctuations of 10-25 feet, though maximum depth is only 48 feet. Severe drought reduced the storage volume to 8% of capacity in 2001 and only 4% of capacity entering the winter of 2002-2003. Systematic gill netting, at predetermined stations, was conducted in the 1960's and 1970's, but was discontinued in 1974. Sampling of traditional gill-net stations resumed in 1987 to determine changes in sport fish abundance and species composition. Samples were collected utilizing six experimental gill nets fished overnight on two consecutive days (12 net-days).

Crayfish are normally very abundant, however only a single crayfish was taken during the gill net sampling. The extensive dewatering of the shorelines over the last several years is probably responsible for the decline. Burrowing mayflies are also usually found in great abundance but have not been observed for several years.

Lake Superior whitefish continue to comprise a significant portion of the gill-net catch, but are rarely caught by fisherman (Figure C). Whitefish exhibit high growth rates in the reservoir, and thereby escape predation from all but the largest walleye and pike. Lake whitefish appear to reproduce successfully in years of good over-winter storage. The role of whitefish in this reservoir, either as a forage fish or competitor, is not understood at this time. Lake whitefish have not been found in stomachs of walleye or northern pike.

Figure C. Gill net catches of lake whitefish in Fresno Reservoir, 1965-2002. No netting was conducted from 1975-1986.

The paucity of adult yellow perch in the gill-net catch, since their introduction in 1968, can only be explained as the result of consistent heavy predation. Reproduction appears to be significant in most years, but few adult perch are ever captured by gill nets (Figure D). The low catch-per-unit-effort (CPUE) is of concern, as it is far below that of all other north central walleye/perch fisheries. The adult perch catch-rate increased almost 10 fold in 2001 due to a transplant of 37,500 adult perch from local waters and Lake Mary Ronan in April. Another 18,500 adult pre-spawn perch were added in 2002 following another year of drought. Reservoir elevation did not rise early enough to provide any reproduction in either year despite the massive amount of spawning vegetation developed on dewatered shorelines over the last two drought years. The reservoir was at 50% of capacity going into the winter of 2002-03. Plans are to transplant additional adult perch to the reservoir until a gill-net catch-rate of 3 perch/net is achieved.

Figure D. Catches of yellow perch from gill nets in Fresno Reservoir, 1965-2002. No netting was conducted from 1975-1986.

The northern pike population has declined steadily since 1995 (Figure E); however, ice fishermen consistently take several fish over 20 pounds each winter. If water levels rise early enough in the spring of 2003 it is likely that a bumper crop of pike will be produced.

Figure E. Gill net catches of northern pike in Fresno Reservoir, 1971-2002. No netting was conducted between 1975 and 1986.

The walleye gill-net catch decreased as expected due to the drafting of the reservoir (Figure F). The gill net catch in 2002 was the lowest number of walleye encountered since their initial introduction. One half of the fish captured were four-year-olds from the 1998 year-class. It is apparent that little recruitment has occurred in the last three years neither are many older fish present. Relative weight of walleye has declined steadily since 1997 but increased somewhat in 2002. The increase in condition is attributable to the lack of competition among reservoir predators. The declining condition of walleye coincided with supplemental stocking of walleye fingerlings in 1997 (Figure F). It is believed that the stocking of walleye, at a time when walleye populations were at an all time high and forage abundance was low, probably contributed to or precipitated the decline in condition of walleye. Severe drought experienced in both 2000 and 2001 reduced habitat, increased water temperatures and turbidity and hampered forage fish production. The drought factors exacerbated the problem but did not initiate it.

Figure F. Gill net catches of walleye and relative weight for the years 1965-2002. No sampling occurred from 1975-1984.

Trout have not been planted in Fresno Reservoir since the 1970's. A combination of the low numbers of walleye and pike currently present in the reservoir and the large number of unallocated trout available from hatcheries due to the statewide drought, provided a window of opportunity to perhaps develop an interim trout fishery while the walleye and pike population develops over the next 3-4 years. A total of 185,000 rainbow trout and 93,000 kokanee salmon were planted in the reservoir in 2002. Fall netting captured three trout 11-12 inches long and a 6.7-inch kokanee. Additional trout plants are planned for the spring of 2003.

Beach seining was conducted at 12 standard sampling sites around the reservoir in a continuing effort to evaluate reproductive success of sport fishes and assess forage fish abundance. More YOY Stizostedion sp. were captured than expected (Table 6). Almost all of the YOY fish were determined to be sauger. Walleye therefore did not reproduce well, but sauger, hatched in the river above, apparently found the run-of-the river conditions in Fresno very adequate for rearing. Yellow perch production was almost non-existent despite the addition of another 18,500 pre-spawn adult perch. No suitable spawning substrate was inundated during the spawning season. Spottail and emerald shiner production was higher than in the previous two years. Two YOY northern pike were captured. Though a minor increase, this is the first recruitment observed since 1999. YOY crappie were relatively numerous. The combination of rising water levels in June and low predator numbers took some pressure off this species. Rising waters allowed nests to remain under water and shoreline vegetation was flooded late, providing areas of refuge not usually found.

Table 6. A summary of forage fish and YOY game and sport fish taken with a 100- x 9-foot x $\frac{1}{4}$ -inch square mesh beach seine in Fresno Reservoir, 1965-02.

		Seine		No.	Yellow	Emerald	Crappie	Spottail	Sucker	Minnow	
Date		Hauls	Stizostedior	ı Pike	Perch	Shiner	Sp.	Shiner	$sp.\frac{1}{2}$	sp. ²	<u>Other³</u>
August	1966	6	0	2	0	0	14	0	0	11	0
August	1967	10	24	5	0	15	19	0	0	276	0
August	1968	12	16	6	2,909	147	552	0	0	161	0
August	1969	12	4	6	1,140	385	67	0	2	380	0
August	1970	12	27	45	10,151	521	883	0	1	122	0
August	1972	12	102	22	1,005	205	379	0	0	72	0
August	1974	12	13	59	1,583	29	1,355	0	0	25	0
August	1975	11	10	32	4,154	155	59	0	0	0	0
August	1978	12	22	42	10,684	12	3	0	0	0	0
August	1979	12	29	45	8,516	340	127	0	1	0	1
August	1982	12	102	70	8,993	121	166	0	0	0	3
August	1983	12	23	0	2,254	448	9	0	1	7	0
August	1984	12	247	0	197	375	0	2	40	55	0
August	1985	12	64	0	379	684	3	2	0	9	0
August	1986	12	0	23	6,077	142	2	20	1	5	1
August	1987	12	80	113	6,233	1,979	7	3	0	3	0
August	1988	12	53	4	3,122	182	0	20	0	1	0
August	1989	12	56	32	24,706	22	0	16	2	0	0
August	1990	12	8	57	2,033	7	465	44	1	2	0
August	1991	12	8	36	3,425	0	42	53	0	0	0
August	1992	12	45	2	6,550	28	0	48	0	1	0
August	1993	12	24	9	5,595	12	2	162	0	0	0
August	1994	12	19	19	2,960	3	287	1,421	1	0	0
August	1995	12	5	2	1,080	0	2	129	0	1	0
August	1996	12	52	21	3,576	0	1	1,484	42	0	0
August	1997	12	46	15	3,006	2	1	887	2	0	0
August	1998	12	44	1	1,413	9	0	1,041	1	3	0
August	1999	12	50	7	4,271	176	12	182	13	0	0
August	2000	6	29	0	1,396	2	2	30	2	0	1
August	2001	6	86*	0	39	3	0	3	3	1	0
August	2002	12	28*	2	86	128	400	154	4	29	0

¹Consists of white and longnose sucker

²Consists of silvery minnows, lake chubs, flathead chubs, and fathead minnows

³Consists of burbot, smallmouth bass, and brook sticklebacks

* almost entirely sauger

Nelson Reservoir

This reservoir is utilized by the Bureau of Reclamation for off-stream storage of irrigation water. At full storage capacity, it covers approximately 4,500 surface acres. Water levels in the reservoir have been good to very good over the last decade, which has provided almost optimum growing conditions for sport and forage fish. However, drought in 2000,2001 and 2002 severely reduced storage in the reservoir. Spottail shiners were initially introduced to the reservoir in 1984, to supplement the existing walleye forage base. Three artificial walleye spawning shoals were constructed in 1993, and were immediately utilized by spawning walleye, as well as spawning white suckers. Beach seining is conducted annually to determine reproductive success of sport and forage fishes. Beach seining was conducted in late July at a number of sites around the reservoir, encompassing 415 feet of shoreline. The sport fish YOY catch consisted of 2 walleye, 4 northern pike, and 19 yellow perch (Table 7). Production of walleye, northern pike and perch was very low. Black crappie did well however and may provide the main source of forage in the next year.

Table 7.	А	summary	of	walleye,	yellow	perch,	and	northern	pike	YOY
	са	ptured by	[,] be	ach seinir	ng in Ne	lson Res	servo	ir, 1974-0	2.	

		Wa	lleye	Yell	ow Perch	No. Pike	
	Shoreline		No./		No./		No./
	Seined		1,000		1,000		1,000
Year	(ft.)	No.	(ft.)	No.	(ft.)	No.	(ft.)
1974	1.590	36	22.6	1.365	860	0	0.0
1975	1,845	112	60.5	3,008	1,630	0	0.0
1976	1,590	119	74.8	74	50	1	0.6
1977	1,740	1	0.7	2,939	1,690	0	0.0
1978	870	428	492.0	6,568	7,550	0	0.0
1979	1,530	23	15.0	1,832	1,200	2	1.3
1980			No Se	eining Cor	ducted		
1981	651	31	50.6	8859	14,300	1	1.6
1982	660	0	0.0	4,553	6,898	3	5.0
1983	1,420	4	2.8	138	100	18	12.7
1984	1,530	0	0.0	133	87	0	0.0
1985	510	3	6.0	2,272	4,445	16	31.4
1986*	700	0	0.0	3	4	7	10.0
1987*	495	5	10.1	1,987	4,014	0	0.0
1988*	520	0	0.0	783	1,506	0	0.0
1989*	910	10	11.0	736	809	4	4.4
1990	1,320	7	5.3	2,631	1,993	1	0.8
1991*	660	8	12.1	77	117	1	1.5
1992	635	21	33.0	140	220	б	9.0
1993*	520	3	5.8	8,287	15,937	1	1.9
1994*	830	6	7.2	1,802	2,171	10	12.0
1995*	760	36	47.4	232	305	0	0.0

		Wa	alleye	Ye	llow Perch	_	No. Pike
	Shoreline		No./		No./		No./
	Seined		1,000		1,000		1,000
Year	(ft.)	No.	(ft.)	No.	(ft.)	No.	(ft.)
1996*	870	25	28 7	4 521	5 197	13	14 9
1997*	890	53	59.5	2,205	2,478	0	0.0
1998*	340	0	0.0	126	371	0	0.0
1999	750	11	14.7	1,489	1,895	2	2.7
2000*	440	4	9.0	449	1,020	2	4.5
2001	430	2	4.7	72	167	1	2.3
2002*	415	2	4.8	19	46	4	9.6
*Years	in which	walleye	fry or fing	erlings	were stocked		

Table 7 (Con't)

Sporadic gill netting has been attempted at Nelson Reservoir in the past, but sampling was neither uniform, nor consistent enough, to develop useful trend data on game fish population size, or composition. In the fall of 1991, five experimental gill-net stations were established and sampled for the first time. In 1993, five additional stations were added to increase sample size and reservoir coverage. Since 1993, all 10 stations have been utilized.

The CPUE of walleye increased to an all time high in 1996, steadily declined until 2001, when numbers peaked. The population decreased by 50% in 2002. (Table 8). The walleye population is comprised of good numbers of 3,4 and 5 year-old fish but recruitment of 0,1 and 2 year-olds is expected to be low.

Yellow perch CPUE was on the rise until the droughts experienced in 2000,2001 and 2002. The northern pike catch remained quite stable through 2001, but plummeted in 2002. The white sucker population also has significantly declined. Population trends of key sport fish are exhibited in Figure G.

Table 8. Relative catches of fishes from Nelson Reservoir with experimental sinking gill nets, fall 1991-02.

				Y	ellow	Ν	orther	n	Lake		White		
	No.	Wa	lleye	P	erch		Pike	Wh	itefish	. S	ucker	Go	ldeye
Year	Nets	n	CPUE	n	CPUE	n	CPUE	n	CPUE	n	CPUE	n	CPUE
1991	5	49	9.8	51	10.0	15	3.0	25	5.0	18	3.6	24	4.8
1992	5	36	7.2	37	7.4	19	3.8	29	5.8	26	5.2	2	0.4
1993	10	76	7.6	38	3.8	21	2.1	22	2.2	182	18.2	11	1.1
1994	10	115	11.5	32	3.2	24	2.4	60	6.0	82	8.2	3	0.3
1995	10	120	12.0	23	2.3	10	1.0	37	3.7	113	11.3	16	1.6
1996	10	183	18.3	68	6.8	18	1.8	32	3.2	135	13.5	22	2.2
1997	10	175	17.5	73	7.3	26	2.6	21	2.1	91	9.1	16	1.6
1998	10	158	15.8	83	8.3	30	3.0	12	1.2	86	8.6	38	3.8
1999	10	115	11.5	113	11.3	26	2.6	14	1.4	95	9.5	11	1.1
2000	10	112	11.2	25	2.5	25	2.5	33	3.3	116	11.6	51	5.1
2001	10	186	18.6	21	2.1	28	2.8	45	4.5	175	17.5	52	5.2
2002	10	92	9.2	19	1.9	8	.8	32	3.2	65	6.5	41	4.1

Figure G. Population trends of three key sport fishes in Nelson Reservoir using CPUE of fall gill nets.

Beaver Creek Reservoir

This 200-acre reservoir has a maximum depth of 90 feet and has provided a rainbow trout fishery of varying success since its initial filling in 1975. Its proximity to the city of Havre makes this reservoir a valuable local resource and it has been managed intensively in recent years with a variety of species. The statewide fishing pressure survey for 2001 indicated it was the second most fished reservoir in Region Six behind Ft.Peck Reservoir. In the early 1980's, largemouth bass were introduced to help curb excessive sucker numbers and provide an additional sport fish. Although bass reproduction was documented, no recruitment occurred and largemouth bass are no longer found in the reservoir. Soon after bass introductions were made, northern pike were found in the reservoir from an illegal introduction. The northern pike population increased steadily and peaked in the early 1990's. Reproductive success of pike has been spotty allowing for years of trout production when pike numbers are down. Some of the initially introduced fish have exceeded 35 pounds in weight. Northern pike often severely reduce rainbow trout numbers despite increased trout stocking rates.

Yellow perch were first found in the reservoir in 1986. Beach seining indicated good initial reproduction in 1987 (Table 9). Like the northern pike, perch numbers peaked in the early 1990's and appear to be maintaining a population at rather high levels. Yellow perch, spottail shiners and suckers provide most of the forage base. Seining in 2002 captured no white sucker YOY or minnows, other than spottail shiners. Spottail shiners were introduced in 1988 to supplement the forage base. They have become well established, as evidenced by the large numbers captured in the last few years. They are utilized as forage by pike, walleye, perch, trout and smallmouth bass.

	Species ¹										
	No.	WSU/		LK	FTHD	S/P		ΕM	SP		
Date	Haul	s LSU	YP	CH	MIN	MIN	ID	SH	SH	NP	WE
9-04-85	5	2,535	0	7	0	0	11	0	0	0	-
6-16-86	4	3,110	0	1	0	0	2	0	0	9	-
8-19-87	б	969	2,281	1	0	0	72	0	0	10	-
8-23-89	6	54	4,401	0	0	0	4	0	1	0	-
8-21-90	6	1	42	0	0	0	2	1	93	2	0
8-13-91	6	348	8,615	0	0	2	0	2	835	12	0
8-10-92	6	492	1,938	0	0	0	4	0	156	0	0
8-18-93	б	0	0	0	0	0	11	0	455	27	0
8-08-94	б	49	707	0	0	0	0	0	181	11	0
8-19-95	6	6	7,210	0	0	0	0	0 1	,438	13	0
8-12-96	6	261	5	0	0	0	7	0	247	5	7
8-15-97	б	31	17	0	0	0	6	0	193	13	1
8-14-98	6	0	870	0	0	0	0	0	141	6	1
8-16-99	6	0	592	0	0	0	0	0	86	7	2
8-14-00	6	1	402	0	1	0	0	0	190	3	23
8-16-01	6	10	357	0	0	0	0	0	216	0	3
8-19-02	б	0	331	0	0	0	0	0	592	0	95
¹ WSU/LSU	– w	hite/lon	gnose si	ucker		S/1	P MIN	- si	lvery	/plai:	ns minno

Table 9. A summary of sport fish YOY and forage fish taken by beachseining from Beaver Creek Reservoir, 1985-02.

¹ WSU/LSU	 white/longnose sucker 	S/P MIN	-	silvery/plains minnow
YP	- yellow perch	ID	-	Iowa darter
LK CH	- lake chub	EM SH	-	emerald shiner
FTHD MIN	- fathead minnow	SP SH	-	spottail shiner
WE	- walleye	NP	-	northern pike

Walleye were stocked in 1987 due to local demand. The walleye management plan included 3 consecutive years of stocking, followed by 2 non-stocking years to evaluate natural reproduction. Fry plants appeared to be quite successful in establishing a fishable population. However in later years fry planting has not provided sufficient recruitment. A single YOY walleye was seined in 1997. This fish was a result of natural reproduction, as no fry or fingerling were stocked prior to seining. This is the first confirmed natural reproduction in this reservoir since the introduction of walleye in 1987. The reservoir is currently stocked annually with fingerling walleye. Excellent survival occurred in 2002 as 95 YOY were captured. Some of the year-class might be from natural production. Forty-six walleye were captured in the fall gill netting. The walleye averaged 14.8 inches (range 8.1-29.2 in) and 1.76 pounds (range 0.11-11.00 lbs).

Walleye stomach analysis indicates yellow perch and spottail shiners are heavily utilized. Predation on trout by larger walleye has been documented, but it is not felt to be a major source of trout mortality at this time. Growth and condition of walleye exceeds that of other local populations.

Bailey Reservoir

This reservoir floods approximately 70 surface acres at full pool and has a maximum depth of 28 feet. It was constructed in the mid-1970's primarily for use as a fishing reservoir. Though privately owned, it has been under management of MFWP. Initial introductions of rainbow trout provided an excellent fishery. Northern pike were illegally introduced about 1980. No other fish were present in the reservoir and predation on trout soon became excessive. During a severe drought in 1984, the remaining trout winter-killed, but the northern pike survived. Larger trout were planted to reduce the level of predation, but without success. Chemical rehabilitation was considered, but at the request of the landowner the MFWP began to cool/warm water fishery. Trout stocking was discontinued. Yellow perch and black crappie were introduced in 1987, followed by largemouth bass in 1988. Reproductive success of all department introduced fish has been good in most years.

Monitoring of adult sport fish by gill netting was initiated in 1990. Two overnight experimental sinking gill-net sets were utilized in the sampling (Table 10). Yellow perch, black crappie and northern pike have grown exceptionally fast in this productive reservoir. Large catches of perch exceeding 0.50 pounds were commonly taken throughout the summer of 1991, and the following winter. A party of three fishermen remarked that they had taken home 93 pounds of perch fillets in a single weekend of ice fishing. Fishermen report that the average perch size is increasing though numbers remain below target levels.

	Northern Pike			Ye	llow P	erch	Black Crappie			
Date	No.	 X L (in.)	_ X WT (lbs.)	No.	_ X L (in.)	X WT	No.	 (in.)	_ X WT (lbs.)	
8-08-90	24	18.1	1.23	34	7.7	0.26	21	5.7	0.10	
9-27-91	7	24.7	3.21	58	10.1	0.56	4	8.5	0.35	
9-11-92	6	26.8	4.29	34	8.1	.29	16	4.7	0.08	
9-10-93	2	31.8	7.55	21	6.6	0.15	127	6.7	0.12	
9-19-94	7	20.1	2.59	38	6.0	0.10	43	6.3	0.14	
9-12-96	14	23.8	3.54	86	7.2	0.19	15	6.8	0.21	
1997				No	netti	ng				
9-17-98	3	22.2	2.43	132	8.0	0.26	32	9.0	0.44	
1999				No	netti	ng				
2000				No	netti	ng				
2001				No	netti	ng				
6-21-02	0	0.0	0.0	32	9.9	0.49	31	11.2	0.82	

Table 10.	Total	catch	from	two	experimental	gill	net	sets	at	Bailey
	Reserv	voir, 1	L990-()2.						

A 5.5 pound largemouth bass was captured by electrofishing in 2000 and fishermen report regular catches of yearling bass and occasional fish up to three pounds. Black crappie are being taken in good numbers and the population appears to be quite healthy. Fishing pressure on northern pike is occasionally heavy. During the winter of 1989-90, as many as 32 spearing houses were on the reservoir on any given day. Dozens of large pike (>10 pounds) were reportedly harvested that same winter. The catch of adult pike since that winter has declined noticeably. The gill-net catch and poor fishermen success are suggestive of a low pike population at present. Good northern pike reproduction was last observed in 1990. A plant of 5,000 northern pike fingerlings was made in 1993 to supplement expected natural reproduction. Though high water levels in 1993 were conducive to spawning, no sign of naturally produced fish or hatchery fish were found by late summer. A transplant of 710 18-inch pike was made in August of 1994. These were fish that were "hook and-lined" from nearby Fresno Reservoir. An additional 140 22-inch pike were transplanted from Fresno Reservoir in October of 1995. Some YOY pike were observed in 1996, indicating at least some natural production occurred. Though no netting was conducted in 1995, fishermen reported good catches of pike throughout the winter of 1995-96. Several walleye in excess of 8 pounds have recently been caught by fishermen and two walleye of 4 and 9 pounds were gill netted in 2002. These fish were apparently survivors from a single plant made in 1989. Alternate year stocking of walleye was initiated in 1999 in order to provide an additional sport fish and utilize the abundant yellow perch population. No recruitment of these fish has been verified to date. The continuing drought has lake levels down about 7 feet going into the winter.

Little Warm Reservoir

Little Warm Reservoir provided good fishing for northern pike and yellow perch until the dam washed out by flooding in 1986. The reservoir was subsequently drained for repair and refilled in 1988. The reservoir is privately owned and utilized for stock water and irrigation. The MFWP manages the fishery, which is open to the public. The reservoir was stocked with 100,000 walleye fry in 1989, 1990, 1992, and 1994. Walleye fry plants were increased to 200,000 in 1996. Sixty-eight ripe adult crappie were introduced in 1989. Two experimental sinking gill nets were fished overnight in April 1998 to assess survival and growth of stocked fish. A total of five walleye were sampled representing three yearclasses. The walleye ranged from 8.9 to 17.7 inches.

No adult crappie were captured. Other species found in the reservoir are brook stickleback, Iowa darter, white sucker, golden shiner, yellow perch, black bullhead and fathead minnow. Most of these fish are common to the drainage and probably were introduced from upstream sanctuaries. Twenty-two white suckers were netted in 1998. Yellow perch are increasing in number and size.

Because of the large increase in white suckers, an additional piscivore was considered for introduction. The tiger musky was chosen and 429 7-inch fingerlings were introduced in the fall of 1993. Another 2,500 2-inch fingerlings were planted in 1997. Two tiger muskies were netted in 1997, weighing 4.80 and 4.58 pounds. Reports of larger muskies are

common. Two tiger muskies from the 1997 plant were netted in 1998. They measured 12.3 and 14.2 inches.

Five frame traps fished in mid-April, 2001 captured 11 walleye ranging from 2.55 pounds to 5.55 pounds. A 27.5 tiger musky was captured as well as thousands of yearling yellow perch. Five black crappie ranging in size from 7.5 to 11.3 inches were also captured.

Water levels were extremely low throughout the year and remain low. A metal boat ramp was installed while water levels were low. Management plans include alternative-year stocking of walleye fry and tiger musky fingerlings, to maintain fishable populations. No netting was done in 2000 due to temporary closure by landowner. No netting was conducted in 2002 due to time and manpower constraints.

Fort Peck Dredge Cuts and Tailwater

Fort Peck Dredge Cuts and tailwater complex fish population sampling continued in June and September, 2002. For both months, ten 125- x 6-foot multifilament experimental gill nets and four 100- x 8-foot 1/2-inch bar mesh monofilament gill nets, were set overnight. Nets were set for an average of 19.7 hours each. This sampling effort, initiated in 1979, was to obtain information on the overall fish population due to potential impacts associated with proposed construction of re-regulation dam below Fort Peck Dam. Another objective is to evaluate the abundance of game fish in relation to cisco and rainbow smelt.

The walleye/sauger combined catch was the highest in the area in 1980 (94 were netted). This is believed to have been associated with the migration of large numbers of rainbow smelt from lake Sakakawea, ND. However, the combined walleye/sauger catch in 1998 was also 94, and was not accompanied by a large number of rainbow smelt being present (only 7 captured). In 2002, only 52 walleye/sauger were netted (Tables 11 and 12), with only 1 rainbow smelt taken (Table 11).

The combined cisco net catch in 2002 was 54 (Table 11; Table 12). Cisco first appeared in this sampling in 1985, one year after they were introduced into Fort Peck Reservoir. Since then, they have become a significant forage fish in the area immediately below Fort Peck Dam.

A combined total of 80 shovelnose sturgeon were captured in standard experimental gill nets in 2002 (Table 11), up from 72 in 2001. Standard fork length and standard length measurements were taken and numbered spaghetti tags were inserted through the base of the dorsal fin on all shovelnose. This was done to augment on going shovelnose and pallid sturgeon research in the lower Missouri and Yellowstone Rivers.

	Average	Average			
	Length	Weight		CPUE	CPUE
$Species^{1}$	(mm)	(g)	Number	Per Hr.	Per Net
SNS	622.4 ²	979.3	80	0.21	4.0
GE	300.4	238.9	160	0.42	8.0
LW	479.6	1075.0	5	0.01	0.3
CI	251.7	170.9	52	0.14	2.6
RBS	157.0	54.0	1	<0.01	0.1
NP	720.9	2637.5	24	0.06	1.2
CP	503.0	1725.0	1	<0.01	0.1
RC	413.4	1031.5	23	0.06	1.2
BS	614.0	1800.0	1	<0.01	0.1
SMB	525.2	2220.0	5	0.01	0.3
SHR	361.2	583.3	23	0.06	1.2
WS	351.5	589.0	32	0.08	1.6
CC	416.5	620.9	47	0.12	2.4
YP	148.6	66.4	5	0.01	0.3
SG	381.7	481.0	18	0.05	0.9
LNS	*	*	1	<0.01	0.1
WE	451.9	944.9	33	0.09	1.7
TOTAL			511	1.33	25.6

Table 11. Summary of 2002 June and September combined standard experimental gill netting with 384.5 hrs. and 20 nets in the Fort Peck Dredge pools.

511 1.33 25.6

¹SNS-Shovelnose Sturgeon GE-Goldeye LW-Lake Whitefish CI-Cisco RBS-Rainbow Smelt NP-Northern Pike ²Fork Length

CP-Carp RC-River Carpsucker SMB-Smallmouth Buffalo SHR-Shorthead Redhorse LNS-Longnose Sucker WS-White Sucker

CC-Channel catfish YP-Yellow Perch SG-Sauger WE-Walleye HYB-Hybognathus spp

Table 12. Summary of 2002 June and September combined standard Smelt netting with 168 hrs and 8 nets in the Fort Peck dredge pools.

Species ¹	Average Length (mm)	Average Weight (g)	Number	CPUE per hour	CPUE per net
CE.	204 2	205 2	F	0.03	0 6
GE	294.2	205.2	5	0.03	0.0
CC	400.5	470.0	2	0.01	0.3
CI	139.5	*	2	0.01	0.3
НҮВ	104.0	*	3	0.02	0.4
LNS	115.0	16.0	1	<0.01	0.1
NP	540.0	950.0	1	<0.01	0.1
YP	101.0	10.7	б	0.04	0.8
SG	305.0	225.0	1	<0.01	0.1
Total			21	0.12	2.6

RECOMMENDATIONS

The 2-paddlefish annual limit, utilizing fishermen tags, should be continued on the Missouri River. The ability to immediately release a paddlefish should be retained. Annual collections of paddlefish jaws should be made to assist in determining the age structure of the Fort Peck Reservoir paddlefish stock. A mail/phone survey should be conducted periodically, using database of anglers who purchased tags. Attempts should be made to tag 300+ paddlefish each year. On-site creel census should be conducted at least every other year. This information is invaluable in determining harvest rates and total harvest and pressure. Enforcement activities should be logged so a record of monitoring can be established.

Standardized late-summer seining to assess sport fish reproduction and forage fish abundance should be continued at Fresno Reservoir. Sampling of adult sport fishes should be continued utilizing fall gill netting to gather recruitment information relating to walleye year-class strength and winter reservoir water levels. Efforts should be made to increase perch production through habitat improvement and an additional forage fish should be considered for introduction. Transplanting of adult perch to the reservoir should continue until a catch rate of 3.0 perch/net is attained.

Walleye reproduction is still considered to be below optimum at Nelson reservoir, but appears to be improving. Alternate years of walleye fingerling stocking should be continued. Monitoring of reproductive success of sport and forage fish should continue.

Beach seining and gill netting should be continued at Beaver Creek Reservoir to monitor growth and survival of stocked walleye. Spring and fall fingerling walleye plants should be made.

Sampling of adult sport fish at Bailey Reservoir should continue to establish trend data and monitor growth and recruitment. Occasional supplemental stocking of northern pike should continue until the population is strengthened.

Continue alternate year stocking of walleye and tiger musky in Little Warm Reservoir. Evaluate annually by gill netting.

Netting surveys in the Fort Peck Dredge Cuts should continue to maintain data on the overall fish populations.

LITERATURE CITED

Berg, R. K. 1981. Fish populations of the wild and scenic Missouri River, Montana. Montana Department of Fish, Wildlife and Parks, Federal Aid to Fish and Wildlife, Restoration Project FW-3-R, Job No. 1-A, Helena.

- Brunsing, M. H. 1994. Survey and Inventory of Warmwater Lakes. Job. Proj. Rept. for Dingell-Johnson Project F-46-R-6, Job. No. IV-c, Fort Peck Reservoir Study. pp. (mimeo).
- Gilge, Kent W. 1992. Survey and Inventory of Coldwater and Warmwater Ecosystems Job Progress Rept. for Dingell-Johnson Project F-46-R-5, Job V-d (mimeo).
- Needham, Robert G. 1985. Paddlefish Investigations. Job Prog. Rept. for Dingell-Johnson Project F-11-R-33, Job No. II-a. 6p. (mimeo).
- Needham, Robert G. and K. W. Gilge. 1990. Survey and Inventory of Coldwater and Warmwater Ecosystems. Job Prog. Rept. for Dingell-Johnson Project F-46-R-3, Job No. V-e. 24p (mimeo).

Waters referred to:

16-5140 Fort Peck Reservoir 16-2500 Missouri River Sec. 05 16-2520 Missouri River Sec. 06 15-5240 Fresno Reservoir 15-6480 Nelson Reservoir 15-4570 Beaver Creek Reservoir 15-4535 Bailey Reservoir 15-6105 Little Warm Reservoir

Key words or fish species:

Paddlefish, harvest, walleye, water levels, creel census, population estimates, recruitment, tiger musky, stocking, cisco, smelt

Prepared by:Kent Gilge and Kevin KapuscinskiDate:June 30, 2003