MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

FISHERIES DIVISION
JOB PROGRESS REPORT

STATE: MONTANA PROJECT TITLE: STATEWIDE FISHERIES INVESTIGATIONS

PROJECT NO.: F-46-R-2 STUDY TITLE: SURVEY AND INVENTORY OF WARMWATER LAKES

JOB NO.: IV-C JOB TITLE: FORT PECK RESERVOIR STUDY

PROJECT PERIOD: JULY 1, 1988 THROUGH JUNE 30, 1989

ABSTRACT

Spring trapping in the upper Big Dry Arm captured 1,610 walleye (7.5 fish per trap-day). This was the largest total catch since 1978, but the catch rate was below the ten-year average of 9.0 fish per trap-day. The average weight of adult female walleye was 3.68 pounds and males averaged 1.69 pounds. A comparison of walleye taken by spring trapping indicates a notable change in the size structure of the population, with larger fish comprising a much greater percentage of the population. The catch rate for northern pike increased slightly over 1987, from 0.3 to 0.8. Spring trapping in the lower reservoir resulted in a slightly lower catch rate for walleye than in 1987, but walleye numbers remain higher than prior samples. Northern pike and yellow perch catches, however, continue to decline. Consistent with previous summer gill netting, 75 net sets throughout the reservoir, indicated that walleye continue to be most abundant in the Big Dry Arm. Comparison of various length groups of gill-netted walleye shows that condition factors and average weights have increased since 1985. Although the catch rate for cisco declined from 1987, they remained the fifth most abundant fish species taken by gill net. Beach seining involved 174 hauls reservoir-wide, with smallmouth bass being the most abundant YOY game fish sampled. Seining indicated that survival of 25.3 million stocked walleye fry was very poor in most areas of the reservoir, with the exception of the upper Missouri Arm. Spottail shiners were the most abundant forage fish sampled by beach seining, as they have been since 1986. Vertical, small mesh, monofilament gill nets captured 107 YOY cisco per set, compared to only 11.4 per set in 1987. The growth rate of YOY cisco appeared to be less than in previous years. Fall gill netting to sample adult cisco indicated that condition of cisco has declined dramatically since sampling began in 1985. Spring lake trout creel census showed a drop in catch rates, while the fall census showed a slight increase from 1987. Average weights and condition factors of lake trout have increased steadily since 1985.

OBJECTIVES AND DEGREE OF ATTAINMENT

Job Objectives:

1) To acquire a greater and consistent walleye egg supply for artificial propagation of fry and fingerlings. Accomplished entirely by state funding.

2) To determine success of walleye fry versus fingerling plants to develop future stocking guidelines. This objective was met and results are presented under Findings.

3) To determine abundance of walleye in spring spawning runs in the Missouri River upstream from Fort Peck Reservoir and assess impacts of river spawning attributable to Yellowstone River walleye stocking. This objective was partially met and is presented under Findings. Electrofishing on an experimental basis was conducted in the Missouri River. At present, data is too limited to provide any meaningful conclusions.

4) To encourage reservoir management practices to benefit the fishery as outlined in the water level management plan by coordinating needs with the Corps of Engineers and other states on the Natural Resources Committee. Accomplished entirely by state funding.

5) To improve aquatic habitat and spawning substrate by utilizing artificial structures. No projects were submitted by sportsman's groups during this report period.

6) To determine effects of reservoir water levels on abundance, distribution, and reproduction of key sport and forage fish. This objective was met and results are presented under Findings.

7) To determine abundance and trends of spring spawning populations of walleye and northern pike. This objective was met and results are presented under Findings.

8) To determine the rate of harvest for key species and angler preference for various species management. This objective was partially met. A lake trout creel census was conducted as described under Findings. Work on other species could not be implemented due to insufficient funding.

9) To determine status of cisco and spottail shiners as to abundance, distribution, spawning success, and utilization by predators. This objective was met. Results are presented under Findings.

10) To determine which designated access sites will provide the most benefit to fishermen. This objective was met. Work was performed in cooperation with the Parks Division to identify access needs and site development for additional fishing

access and boating facilities. Existing use data from various reservoir areas was summarized from Montana Department of Fish, Wildlife and Parks information and Corps of Engineers recreational use data.

11) To obtain greater public involvement by attending ten public/sportsmen club meetings and providing five news releases per year. Accomplished entirely by state funding.

12) To collect and tabulate commercial fish harvest, prepare commercial regulations, and conduct field inspections to determine compliance and catch of non-target species. Accomplished entirely with state funding.

PROCEDURES

Spring trap-net sampling was conducted in the Big Dry Arm and lower Missouri Arm with 4- x 6-foot frame traps of 1-inch square mesh rigged with 50-foot leads. Sinking 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 square mesh were fished throughout the reservoir to acquire information on overall fish populations. Beach seining to determine abundance, reproductive rates and walleye stocking success was conducted in late summer and early fall utilizing a 100- x 9-foot beach seine of 1/4-inch square mesh. Monofilament gill nets 100- x 6-foot with 1/2-inch square mesh were fished vertically from the surface to sample young-of-year (YOY) cisco. Lake trout creel census information and size data was collected at the Fort Peck Marina during spring and fall peak fishing periods. Electrofishing for walleye spawners in the Missouri River above Fort Peck Reservoir was conducted with a 20-foot jet boat rigged with positive booms and a Coffelt WP-10 voltage regulating unit.

FINDINGS

Trapping

Frame traps were used to sample spawning fish populations in the upper Big Dry from April 6-22, 1988. Trapping to evaluate the status of walleye, northern pike and forage fish populations has been conducted annually since 1974.

The total number of walleye trapped in 1988 was 1,610 (7.5 per trap-day), shown in Table 1. This was slightly above last year's catch rate of 6.9, but below the ten-year average of 9.0 per trap-day. Catch rates for trapped walleye appear to fluctuate annually, which is probably due more to changing environmental conditions during trapping than actual changes in population numbers.

The sex ratio for walleye taken by trapping in the upper Big Dry Arm was 2:1, male:female. This was very similar to the sex ratio observed in 1987. The average weight in 1988 for female spawners was 3.68 pounds and 1.69 pounds for males. These are the largest average weights for both male and female walleye recorded during spring trapping since 1981 (Table 2).

Table 1. Summary of the walleye and northern pike caught by spring trap-netting in the upper Big Dry Arm of Fort Peck Reservoir, 1974-88.

Date	Trap-days	No. Walleye	Walleye/ Trap-day	No. N. Pike	N. Pike/ Trap-day
1974 (4/22-5/03)	71	1,243	17.4	125	1.8
1975 (4/25-5/12)	97	1,114	11.5	102	1.1
1976 (4/07-5/13)	100	2,108	21.1	95	1.0
1977 (4/12-5/24)	323	1,727	5.3	431	1.3
1978 (4/17-5/05)	81	1,896	23.4	399	4.9
1979 (4/28-5/17)	63	326	5.2	268	4.3
1980 (4/14-5/06)	97	535	5.5	301	3.1
1981 (3/31-4/28)	140	371	2.7	93	0.7
1982 (4/21-5/07)	89	655	7.4	221	2.5
1983 (4/06-5/09)	106	725	6.8	87	0.8
1984 (4/10-5/04)	96	579	6.0	21	0.2
1985 (4/08-4/26)	97	1,202	12.4	69	0.7
1986 (4/07-4/24)	102	1,448	14.2	174	1.7
1987 (4/07-4/24)	220	1,512	6.9	78	0.3
1988 (4/06-4/22)	214	1,610	7.5	163	0.8

Table 2. Summary of average weights and sex ratios for walleye trap-netted in the upper Big Dry, 1979-88.

Year	Average Weight Males	Sample Size	Average Weight Females	Sample Size	Sex Ratio Male:Female
1988	1.69	283	3.68	239	2:1
1987	1.22	152	2.94	94	2:1
1986	1.31	851	2.43	216	3:1
1985	1.31	606	2.54	111	5:1
1984	.88	454	2.14	34	13:1
1983	.80	644	3.24	37	18:1
1982	1.07	565	2.95	58	10:1
1981	2.27	209	3.70	96	2:1
1980	1.77	247	3.43	122	2:1
1979	1.50	204	3.40	61	3:1

The overall weight composition of the trap-netted walleye is shown in Table 3 and Figure 1. The proportion of the sample population weighing greater than 1.0 pound increased dramatically in 1988, as did the percentage of walleye in the 2.0 through 5.0 pound weight categories.

Condition factors were another method used to evaluate the health of walleyes. The most valid method to compare condition factors and average weights is to contrast fish from similar length groups. Table 4 shows condition factors and average weights for most length groups (14.0 inches and greater) have improved from 1986 to 1988.

The catch rate for northern pike trapped in the upper Big Dry increased from 0.3 fish per trap-day in 1987, to 0.8 fish in 1988 (Table 1). In spite of this increase, the catch rate for northerns remains very low, averaging only 1.9 fish per trap-day over the last 10 years.

Trap netting in the lower portion of the reservoir, to monitor sport and forage fish, continued in 1988 (Table 5). Catch rates for walleye, northern pike and yellow perch were less than in 1987, which may have resulted from a greater trapping effort in 1988. In spite of the lower catch rate for walleye, they appear to be maintaining a larger population in the lower reservoir than in years prior to 1987. The overall trend for northern pike and yellow perch populations, however, appears to be downward.

Gill Netting

Experimental gill nets were fished at 26 locations throughout the reservoir from July 26-August 18, 1988. A total of 75 net sets provided information on the distribution, composition and relative abundance of sport and forage fish populations (Table 6).

The largest concentration of walleye was located in the upper Big Dry Arm, which is consistent with previous annual sampling (Table 7). The overall catch rate for walleye reservoir-wide decreased from 3.4 fish per net day in 1987, to 2.8 per net day in 1988. The catch rates for walleye in various sampling areas: increased over the 1987 sample in the Big Dry Arm; remained the same in the lower Missouri Arm; and decreased in both the middle and upper Missouri Arms (Table 7).

Catch rates for other sport fish, such as northern pike and yellow perch, remained low as in previous years; 0.6 and 1.3, respectively. Reduced numbers of northerns and perch relates to lack of suitable spawning habitat, which is believed to result from poor water level management. The 1988 sauger catch rate was only 1.7 reservoir-wide, compared to 3.0 in 1987. The reason for the apparent decrease in sauger numbers is unknown.

The catch rate for cisco taken by experimental gill nets also declined in 1988, from 3.2 fish per net in 1987, to 1.6 fish per net. Fewer cisco may have been sampled as a result of a poor year-class being produced in 1987. Despite the reduced catch rate for cisco, gill netting indicates that they remain well distributed throughout the entire reservoir.

Table 3. A summary of size composition for walleye taken during spring trap netting in the upper Big Dry Arm of Fort Peck Reservoir, 1974-88. Percent of the population sampled is in parenthesis.

Sexes Combined	1974	1976	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
No. >1 lbs.	221	115	243	225	285	296	172	205	594	900	273	482
Percent	(98)	(100)	(95)	(77)	(75)	(45)	(24)	(35)	(81)	(79)	(74)	(91)
No. >2 lbs.	169	100	86	112	145	92	45	23	108	172	129	304
Percent	(75)	(87)	(33)	(38)	(38)	(14)	(6)	(4)	(15)	(15)	(35)	(57)
No. >3 lbs.	70	47	38	37	65	25	20	6	33	50	55	169
Percent	(31)	(41)	(15)	(14)	(17)	(4)	(3)	(1)	(4)	(4)	(15)	(32)
No. >4 lbs.	21	17	21	20	33	11	13	3	15	14	14	80
Percent	(9)	(15)	(8)	(7)	(9)	(2)	(2)	(<1)	(2)	(1)	(4)	(15)
No. >5 lbs.	5	6	5	9	20	3	6	1	8	5	5	28
Percent	(2)	(5)	(2)	(3)	(5)	(<1)	(<1)	(<1)	(1)	(<1)	(1)	(5)

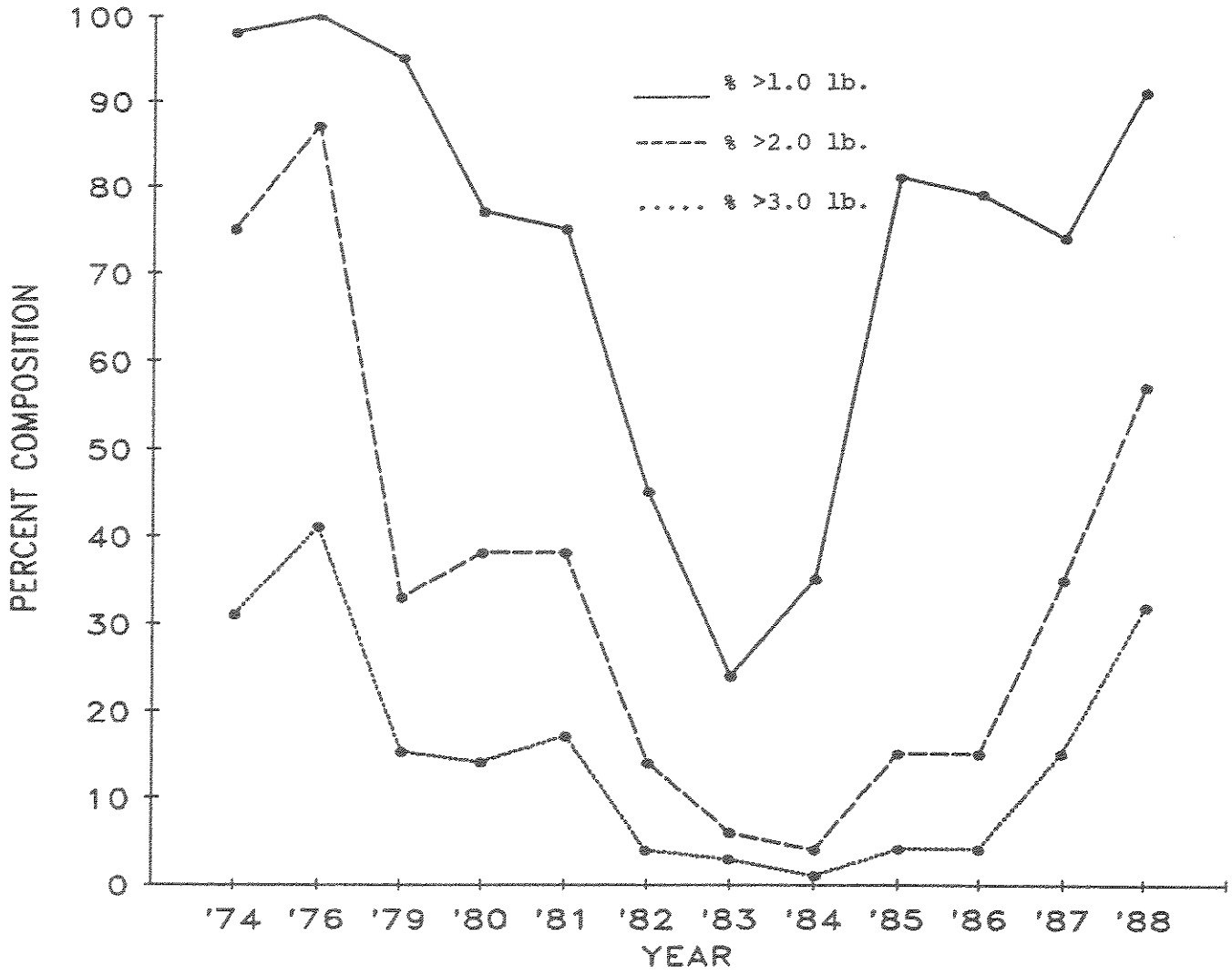

Figure 1. An illustration of changes in the size of walleye taken by spring trap netting in the upper Big Dry Arm of Fort Peck Reservoir, 1974-88.

Table 4. Average condition factors and weights for various length groups of walleye captured in frame traps, Fort Peck Reservoir, 1986 and 1988.

Length Inches	1986 Condition Factor	1986 Average Weight	1986 Number Sampled	1988 Condition Factor	1988 Average Weight	1988 Number Sampled
14	30.1	.92	(155)	30.7	.94	(27)
15	30.6	1.14	(213)	30.6	1.13	(53)
16	30.9	1.37	(258)	31.5	1.42	(53)
17	31.3	1.67	(198)	32.1	1.71	(56)
18	32.5	2.05	(96)	33.3	2.07	(56)
19	31.6	2.29	(35)	32.8	2.41	(60)
20	32.1	2.73	(30)	33.3	2.89	(46)
21	35.0	3.44	(19)	34.3	3.36	(57)
22	32.8	3.68	(12)	34.9	3.92	(45)
23	30.6	3.89	(5)	34.8	4.47	(34)
24	29.2	4.10	(3)	35.4	5.10	(13)
25	27.2	4.53	(2)	35.0	5.73	(10)

The improved health of gill-netted walleye throughout the reservoir is evident by comparing condition factors and average weights of walleye from various length groups from 1985 and 1988 (Table 8). The improved body condition of these fish is attributed to the abundance of cisco and spottail shiners.

Beach Seining

A total of 174 seine hauls were made throughout the reservoir during August, 1988 to determine reproductive success of sport and forage fish (Tables 9 and 10). Seining was also utilized to evaluate success of recent walleye stocking (Table 11).

Smallmouth bass were the most abundant YOY game fish sampled, with a catch rate of 0.8 fish per haul. YOY smallmouth production has remained unchanged since 1986 (Table 10). If natural reproduction continues at or above present levels, smallmouth bass may become one of the primary game fish in the reservoir.

Reservoir-wide catch rates for YOY walleye, northern pike and sauger averaged at or below 0.4 fish per haul. The catch rate for northern pike YOY improved slightly from 1987, increasing from less than 0.1 fish per haul to 0.4. This slight increase may be due to a greater abundance of submerged aquatic vegetation resulting from warmer water due to lower lake elevations. The catch rate for sauger (<0.1 fish per haul) remained unchanged from 1987. The reason for poor sauger reproduction is unknown.

Table 5. A summary of the walleye, northern pike, and yellow perch caught by spring trap-netting in the lower portion of Fort Peck Reservoir, 1969-88.

Date		Trap Mesh	Trap-Days	Walleye No.	Walleye Per T.D.	No. Pike No.	No. Pike Per T.D.	Yellow Perch No.	Yellow Perch Per T.D.
1969	(4/21-6/09)	1"	333	0	---	425	1.3	2,002	6.0
1971	(5/04-6/04)	1"	37	1	T*	68	1.8	45	1.2
1972	(4/21-6/29)	1"	82	0	---	104	1.3	299	3.6
	(5/02-5/16)	1/2"	28	0	---	20	0.7	4,816	172.0
1973	(4/05-5/18)	1"	94	0	---	111	1.2	476	5.1
	(4/05-5/18)	1/2"	121	0	---	125	1.0	4,664	38.6
1974			0						
1975		1/2"	71	0	---	6	0.9	4	0.1
1976		1"	89	0	---	146	1.6	3	T
1977			0						
1978			0						
1979			0						
1980			0						
1981	(5/04-5/21)	1"	18	0	---	95	5.3	0	---
1982	(5/11-5/27)	1"	75	25	0.3	259	3.5	1	T
1983	(4/27-5/25)	1"	126	44	0.3	142	1.1	0	---
1984	(5/03-5/18)	1"	72	15	0.2	67	0.9	4	0.1
1985	(5/06-5/22)	1"	52	43	0.8	36	0.7	7	0.1
1986	(4/30-5/15)	1"	58	23	0.4	53	0.9	4	0.1
1987	(4/28-5/13)	1"	52	60	1.3	34	0.7	8	0.2
1988	(4/22-5/11)	1"	152	136	0.9	76	0.5	15	0.1

*T represents less than 0.1.

Table 6. Fish captured by 125-foot experimental gill nets in Fort Peck Reservoir, 1988.

Species[1]	UBD[2] No. Fish	UBD[2] No./ Net Day	LBD[3] No. Fish	LBD[3] No./ Net Day	LMA[4] No. Fish	LMA[4] No./ Net Day	MMA[5] No. Fish	MMA[5] No./ Net Day	UMA[6] No. Fish	UMA[6] No./ Net Day	Total No. Fish	Total No./ Net Day
WE	55	4.6	31	2.6	57	3.2	49	2.3	15	1.3	207	2.8
NP	15	1.3	8	.7	11	.6	9	.4	----	----	43	.6
SG	----	----	14	1.2	14	.8	39	1.9	64	5.3	131	1.7
YP	8	.7	7	.6	10	.6	49	2.3	23	1.9	97	1.3
GE	252	21.0	106	8.8	26	1.4	237	11.3	248	20.7	869	11.6
WS	6	.5	19	1.6	41	2.3	34	1.6	----	----	100	1.3
RC	24	2.0	7	.6	----	----	3	.1	25	2.1	59	.8
SB	12	1.0	10	.8	----	----	9	.4	5	.4	36	.5
C	9	.8	6	.5	15	.8	4	.2	25	2.1	59	.8
SR	2	.2	8	.7	9	.5	67	3.2	41	3.4	127	1.7
CC	14	1.2	12	1.0	1	.1	18	.9	24	2.0	69	.9
FD	1	.1	1	.1	1	.1	1	<.1	27	2.3	31	.4
SS	----	----	1	.1	----	----	1	<.1	2	.2	4	.1
LS	----	----	----	----	----	----	----	----	1	.1	1	<.1
CR	----	----	1	.1	----	----	2	.1	7	.6	10	.1
CI	8	.7	11	.9	51	2.8	9	.4	44	3.7	123	1.6
SM	----	----	----	----	----	----	1	<.1	1	.1	2	<.1
PF	----	----	----	----	----	----	----	----	1	.1	1	<.1
CH	----	----	----	----	----	----	----	----	1	.1	1	<.1
SMB	----	----	----	----	1	.1	1	<.1	1	.1	3	<.1
FC	2	.2	----	----	----	----	----	----	----	----	2	<.1
Totals	408	34.0	242	20.2	237	13.2	533	25.4	555	46.3	1,975	26.3
No. Net Days	12		12		18		21		12		75	

[1]WE - walleye
NP - northern pike
SG - sauger
YP - yellow perch
GE - goldeye
WS - white sucker
RC - river carpsucker
SB - smallmouth buffalo
C - carp
SR - shorthead redhorse sucker
CC - channel catfish
FD - freshwater drum
SS - shovelnose sturgeon
LS - longnose sucker
CR - black crappie
CI - cisco
SM - silvery/plains minnow
PF - paddlefish
CH - chinook salmon
SMB - smallmouth bass
FC - flathead chub

[2]Upper Big Dry: Big Dry Cr., Nelson Cr., Short Cr., Lonetree Cr., McGuire Cr.
[3]Lower Big Dry: Box Cr., Lost Cr., N. Fork Rock Cr., S. Fork Rock Cr.
[4]Mid Missouri Arm: Spillway, Bear Cr., Duck Cr.
[5]Mid Missouri Arm: Pines, Crooked Cr., Cattle Cr., Gilbert Cr., Hell Cr., Snow Cr., Sutherland Cr.
[6]Upper Missouri Arm: Soda Cr., Crooked Cr., Musselshell River (mouth).

Table 7. A summary of walleye size and catch rates in 125-foot experimental gill nets for areas of Fort Peck Reservoir.

Area	Year	No. Sampled	Length (in.)		Weight (lbs.)			Net Sets	
			Ave.	Range	Ave.	Range	% >1.0#	Total Sets	No./ Set
Big Dry Arm	1988	86	13.3	6.6-23.4	0.88	0.06-4.26	19.8	24	3.6
Big Dry Arm	1987	106	14.1	6.5-21.4	1.04	0.12-3.33	34.7	33	3.2
Big Dry Arm	1986	109	13.4	7.3-24.6	0.86	0.07-5.40	27.8	24	4.5
Big Dry Arm	1985	219	13.7	7.7-26.5	0.91	0.14-4.56	29.7	30	7.3
Big Dry Arm	1984	147	13.7	7.2-22.4	0.83	0.11-3.84	22.4	33	4.5
Big Dry Arm	1983	111	12.9	7.7-22.4	0.63	0.13-3.06	9.0	33	3.4
Big Dry Arm	1982	69	12.2	7.8-20.4	0.55	0.11-2.33	4.3	12	5.7
Big Dry Arm	1981	96	12.0	7.6-21.4	0.52	0.12-2.51	9.4	18	5.3
Lower Reservoir	1988	57	15.1	8.1-23.9	1.46	0.14-5.30	59.6	18	3.2
Lower Reservoir	1987	48	16.3	10.8-21.5	1.61	0.32-4.08	66.7	15	3.2
Lower Reservoir	1986	---	---	---	---	---	---	---	---
Lower Reservoir	1985	65	13.5	9.9-19.3	0.71	0.24-2.94	12.3	18	3.6
Lower Reservoir	1984	18	13.2	8.8-16.2	0.66	0.18-1.19	11.1	15	1.2
Bear-S.F. Duck Cr.	1983	33	13.0	7.7-22.3	0.68	0.10-2.95	15.2	12	2.7
Bear-S.F. Duck Cr.	1982	42	13.9	7.2-20.3	0.77	0.09-2.45	11.9	12	3.5
Mid Reservoir	1988	49	15.8	8.2-22.8	1.67	0.15-4.70	57.1	21	2.3
Mid Reservoir	1987	88	14.0	8.0-22.0	0.98	0.14-4.35	30.7	21	4.2
Mid Reservoir	1986	56	13.4	8.4-22.3	0.85	0.20-3.00	30.0	21	2.7
Mid Reservoir	1985	102	14.7	7.9-22.1	1.01	0.11-3.60	35.3	21	4.9
Mid Reservoir	1984	60	14.5	8.6-20.6	0.94	0.15-2.33	36.7	21	2.9
Pines-Snow Cr.	1983	54	16.0	7.5-24.8	1.38	0.08-4.52	57.4	21	2.6
Upper Reservoir	1988	15	11.8	7.6-19.3	0.57	0.19-2.57	13.3	12	1.3
Upper Reservoir	1987	32	12.7	8.8-20.4	0.72	0.14-2.96	18.8	12	2.7
Upper Reservoir	1986	3	11.5	9.2-14.4	0.50	0.20-0.97	0.0	6	0.5
Upper Reservoir	1985	31	12.7	8.5-18.2	0.65	0.20-1.72	19.4	18	1.7
Upper Reservoir	1984	10	14.5	9.7-24.5	1.18	0.24-4.72	30.0	18	0.6
Timber Soda Cr.	1983	6	16.2	12.3-21.7	1.02	0.51-3.06	50.0	18	0.3

Table 8. Average weight and condition factors for various length groups of walleye captured by gill netting in Fort Peck Reservoir, 1985 and 1988.

Length Groups (inches)	1985			1988		
	Condition Factor	Average Weight	Number Sampled	Condition Factor	Average Weight	Number Sampled
14.0-14.9	28.4	0.85	(56)	30.3	0.93	(23)
15.0-15.9	28.6	1.06	(43)	29.9	1.08	(19)
16.0-16.9	30.0	1.32	(41)	30.8	1.35	(08)
17.0-17.9	30.7	1.63	(18)	31.9	1.73	(13)
18.0-18.9	29.3	1.82	(13)	34.0	2.18	(08)
19.0-19.9	30.9	2.30	(09)	34.6	2.52	(09)
20.0-20.9	33.1	2.84	(06)	36.3	3.11	(08)
21.0-21.9	32.1	3.13	(02)	37.2	3.65	(10)
22.0-22.9	33.4	3.60	(01)	37.7	4.30	(05)
23.0-23.9	32.0	4.56	(01)	36.0	4.78	(02)

Spottail shiners continued to be the most abundant forage fish sampled by beach seining, averaging 58 fish per seine haul. During summer gill netting spottail shiners were recovered from two walleye. While it is assumed that spottails have been eaten by game fish, this represents the first documented use of this species by game fish since their introduction in 1982.

According to beach seining results, the success of walleye stocking was very limited in 1988. The total number of walleye stocked in the reservoir in 1988 was 25.3 million fry and 25,000 fingerling. The catch rate for YOY walleye reservoir-wide was 0.3 fish per seine haul. At locations where 80% of the fry and 100% of the fingerlings were stocked, no YOY walleye were captured by seining. Walleye YOY were sampled, however, in several locations in the upper Missouri River Arm: Devils Creek, Fourchette Creek and Ghost Coulee Bays. Only 20% of the walleye fry were planted in this area, yet this represented 91% of YOY walleye captured by beach seining reservoir-wide. Due to the large number of YOY walleye recovered in this area, recruitment by natural reproduction should be considered.

The first walleye stocking began in the upper Missouri Arm in 1983, with 8.6 million walleye fry and nearly 0.5 million walleye fingerling. The intention of this planting effort was to establish a population of walleye that will spawn in the Missouri River above Fort Peck. To aid in determining if YOY walleye recovered in this area are the result of natural reproduction, all walleye plants will be temporarily discontinued in this region in 1989. If beach seining continues to produce large numbers of YOY, then it can be assumed that natural reproduction is occurring.

Table 9. Continued

[1]WE - walleye
NP - northern pike
SG - sauger
YP - yellow perch
GE - goldeye
WS - white sucker
RC - river carpsucker
Bsp - smallmouth/bigmouth buffalo
LC - lake chub
C - carp
SR - shorthead redhorse sucker
FD - freshwater drum
SMB - smallmouth bass
CI - cisco
SM - silvery/plains minnow
SS - sand shiner
CR - black/white crappie
FC - flathead chub
FM - fathead minnow
ES - emerald shiner
CC - channel catfish
ST - spottail shiner

[2]Upper Big Dry: Stone House, Big Dry Cr. Bay, Nelson Cr., Lone Tree, McGuire Cr.
[3]Lower Big Dry: Box Cr., S. & N. Fork Rock Cr., Rock Cr. Park, Box Elder Cr., Sandy Arroyo Cr., Spring Cr.
[4]Lower Missouri: Bear Cr., Duck Cr., Catfish Bay, Sturgeon Bay, Spillway Bay
[5]Mid Missouri: Pines, Gilbert Cr., Crooked Cr., Hell Cr., Sutherland Cr.
[6]Upper Missouri: Timber Cr., Blackfoot Cr., Fourchette Cr., Devils Cr., Musselshell, Crooked Cr., Soda Cr.

Table 9. Species and number of forage minnows and young-of-year fish captured by beach seining in Fort Peck Reservoir, 1988.

Species[1]	UBD[2] No. Fish	UBD[2] No./ Haul	LBD[3] No. Fish	LBD[3] No./ Haul	LMA[4] No. Fish	LMA[4] No./ Haul	MMA[5] No. Fish	MMA[5] No./ Haul	UMA[6] No. Fish	UMA[6] No./ Haul	TOTAL No. Fish	TOTAL No./ Haul
WE	3	0.2	0	———	0	———	1	<0.1	43	1.6	47	0.3
NP	3	0.2	59	1.4	7	0.2	5	0.1	0	———	74	0.4
SG	0	———	0	———	0	———	1	<0.1	16	0.6	17	<0.1
YP	196	10.3	335	7.8	102	2.3	399	9.7	13	0.5	1,045	6.0
GE	0	———	0	———	0	———	0	———	1	<0.1	1	<0.1
WS	3	0.2	1	<0.1	117	2.7	136	3.3	1	<0.1	258	1.5
RC	39	2.0	7	0.2	1	<0.1	0	———	29	1.1	76	0.4
Bsp	0	———	0	———	0	———	16	0.4	8	0.3	24	0.1
LC	7	0.4	4	<0.1	1	<0.1	0	———	0	———	12	<0.1
C	13	0.7	11	0.3	107	2.4	9	0.2	14	0.5	154	0.9
SR	0	———	0	———	0	———	1	<0.1	134	5.0	135	0.8
FD	144	7.6	3	<0.1	0	———	7	0.2	251	9.3	405	2.3
SMB	27	1.4	10	0.2	12	0.3	74	1.8	12	0.4	135	0.8
CI	0	———	0	———	1	<0.1	0	———	0	———	1	<0.1
SM	43	2.3	11	0.3	14	0.3	92	2.2	25	0.9	185	1.1
SS	0	———	3	<0.1	0	———	0	———	0	———	3	<0.1
CR	0	———	0	———	0	———	0	———	12	0.4	12	<0.1
FC	2	0.1	0	———	0	———	0	———	132	4.9	134	0.8
FM	8	0.4	0	———	1	<0.1	216	5.3	0	———	225	1.3
ES	133	7.0	313	7.3	376	8.5	118	2.9	509	18.9	1,449	8.3
CC	1	<0.1	0	———	0	———	0	———	1	<0.1	2	<0.1
ST	107	5.6	3,620	84.2	1,365	31.0	4,976	121.4	21	0.8	10,089	58.0
Totals	729	38.4	4,377	101.8	2,104	47.8	6,051	147.6	1,222	45.3	14,483	83.2
No. Hauls	19		43		44		41		27		174	

Table 10. A summary of the total catch and catch rate for selected sport and forage fish taken by seining in Fort Peck Reservoir, 1981-88.

		Species[1]						
		WE	NP	SG	SMB	YP	GE	WSU
1981	No. Hauls--142							
	No. Sampled	33	18	70	19	8,099	1,359	459
	No./Haul	0.2	0.1	0.5	0.1	57.0	9.6	3.2
1982	No. Hauls--195							
	No. Sampled	116	34	113	23	9,604	1,410	1,392
	No./Haul	0.6	0.2	0.6	0.1	49.3	7.2	7.1
1983	No. Hauls--263							
	No. Sampled	52	70	70	77	8,324	0	1,120
	No./Haul	0.2	0.3	0.3	0.3	32.0	0	4.3
1984	No. Hauls--210							
	No. Sampled	115	23	96	27	19,280	1,361	453
	No./Haul	0.5	0.1	0.5	0.1	91.8	6.5	2.2
1985	No. Hauls--197							
	No. Sampled	219	29	36	10	31,695	509	969
	No./Haul	1.1	0.1	0.2	0.1	160.9	2.6	4.9
1986	No. Hauls--176							
	No. Sampled	74	88	61	149	6,597	1,081	861
	No./Haul	0.4	0.5	0.3	0.8	37.5	6.1	4.9
1987	No. Hauls--185							
	No. Sampled	14	10	9	145	2,093	0	48
	No./Haul	0.1	<0.1	<0.1	0.8	11.3	0	0.3
1988	No. Hauls--174							
	No. Sampled	47	74	17	135	1,045	1	258
	No./Haul	0.3	0.4	<0.1	0.8	6.0	<0.1	1.5

Table 10. Continued

		Species[1]					
		BUFF	CARP	FWD	B/WC	ESH	SPSH
1981	No. Hauls--142						
	No. Sampled	1,252	1,047	1,122	3,388	2,488	----
	No./Haul	8.8	7.4	7.9	23.9	17.5	----
1982	No. Hauls--195						
	No. Sampled	4,577	742	658	6,958	2,764	0
	No./Haul	23.5	3.8	3.4	35.7	14.2	0
1983	No. Hauls--263						
	No. Sampled	2,345	1,582	245	9,244	5,859	1,681
	No./Haul	8.9	6.0	0.9	35.1	22.3	6.4
1984	No. Hauls--210						
	No. Sampled	11,414	1,853	584	7,858	10,312	2,120
	No./Haul	54.4	8.8	2.8	37.4	49.1	10.1
1985	No. Hauls--197						
	No. Sampled	363	289	640	1,907	14,109	4,444
	No./Haul	1.8	1.5	3.2	9.7	71.6	22.6
1986	No. Hauls--176						
	No. Sampled	1,378	951	713	3,011	6,443	22,436
	No./Haul	7.8	5.4	4.1	17.1	36.6	127.5
1987	No. Hauls--185						
	No. Sampled	388	509	43	40	3,688	10,027
	No./Haul	2.1	2.7	0.2	0.2	19.9	54.2
1988	No. Hauls--174						
	No. Sampled	24	154	405	12	1,449	10,089
	No./Haul	0.1	0.9	2.3	<0.1	8.3	58.0

[1]WE - walleye
NP - northern pike
SG - sauger
SMB - smallmouth bass
YP - yellow perch
GE - goldeye
WSU - white sucker
BUFF - smallmouth & bigmouth buffalo
CARP - carp
FWD - freshwater drum
B/WC - black/white crappie
ESH - emerald shiner
SPSH - spottail shiner

Table 11. A summary of walleye stocking and young-of-year abundance (determined by seining) in Fort Peck Reservoir, 1977-88.

Year	Area	No. Walleye Stocked		No. Seine Hauls	No. Y-Y WE Caught	No. Y-Y WE/ Haul
		Fingerling	Fry			
1977	Lower Reservoir	62,920	0	25	19	0.76
	Big Dry Arm	0	0	58	13	0.22
1978	Lower Reservoir	85,000	0	10	9	0.90
	Big Dry Arm	175,000	0.25 Mil	24	9	0.40
1979	Lower Reservoir	66,120	0	17	0	0
	Big Dry Arm	194,127	0	27	5	0.20
1980	Lower Reservoir	0	0	27	2	0.07
	Big Dry Arm	0	0.75 Mil	36	1	0.03
1981	Lower Reservoir	125,000	0	36	15	0.42
	Big Dry Arm	279,000	0	56	17	0.29
	Hell Creek	11,000	0	19	1	0.05
1982	Marina	102,000	0	12	7	0.58
	Bear-Duck Creek	0	1.42 Mil	46	83	1.80
	Big Dry Arm	0	0	69	23	0.33
	Hell Creek	17,000	0	13	1	0.08
1983	Bear-Duck Cr.	0	0	69	10	0.14
	S.F. Rock-Box Cr.	0	2.80 Mil	21	4	0.19
	Nelson Creek	0	1.00 Mil	7	1	0.14
	Pines	0	0.60 Mil	10	0	0
	Hell Creek	97,710	0	13	0	0
	Devils Creek	41,160	0	8	16	2.00
	Crooked Creek	7,600	0	10	5	0.50
1984	Marina-Spillway	0	7.00 Mil	21	12	0.57
	Gilbert Creek	0	5.40 Mil	8	9	1.13
	Bay E. of Pines	0	2.30 Mil	10	1	0.10
	Cattle Creek	0	1.00 Mil	7	0	0
	Hell Creek	100,620	0	9	2	0.22
	Duck Creek	43,500	0	8	9	1.13
	Bear Creek	58,820	0	7	9	1.29
	Devils Creek	85,150	0	7	5	0.71
	Crooked Creek	60,000	0	8	15	1.88

Table 11. Continued.

Year	Area	No. Walleye Stocked Fingerling	No. Walleye Stocked Fry	No. Seine Hauls	No. Y-Y WE Caught	No. Y-Y WE/ Haul
1985	Duck Creek	51,500	0	9	0	0
	Nelson Creek	0	1.80 Mil	8	20	2.50
	S.F. Rock Creek	0	1.50 Mil	6	8	1.33
	Box Creek	0	1.50 Mil	7	1	0.14
	Hell Creek	58,482	1.20 Mil	11	22	2.00
	Timber Creek	0	1.00 Mil	6	6	1.00
	Snow Creek	0	1.20 Mil	0	--	--
	Devils Creek	29,048	3.50 Mil	4	5	1.25
	Squaw Creek	41,040	0	0	--	--
	Crooked Creek	245,437	0	7	28	4.00
1986	Bear Creek	0	2.60 Mil	6	3	0.50
	Spillway Area	0	2.60 Mil	8	14	1.75
	N.F. Duck Creek	15,073	0	5	5	1.00
1987	Nelson Creek	0	2.70 Mil	8	5	0.60
	Rock Creek S.Frk.	0	3.00 Mil	8	0	0
	Hell Creek	0	3.00 Mil	8	0	0
	Gilbert Creek	0	1.20 Mil	10	0	0
	Cattle Creek	0	1.10 Mil	8	0	0
	Crooked Creek	0	1.00 Mil	8	0	0
	Duck Creek	29,935	0	15	4	0.30
	Timber Creek	0	0	7	1	0.10
	Devil's Creek	0	0	7	4	0.60
1988	Hell Creek	0	0.50 Mil	7	0	0
	Spillway Bay	0	3.70 Mil	8	0	0
	Bear Creek	0	6.10 Mil	11	0	0
	N.F. Duck Creek	25,000	1.80 Mil	7	0	0
	S.F. Duck Creek	0	2.30 Mil	8	0	0
	Main Duck Creek	0	5.80 Mil	5	0	0
	Devils Creek	0	3.20 Mil	6	18	3.00
	Ghost Coulee	0	1.90 Mil	7	21	3.00
	Fourchette Creek	0	0	7	4	0.57
	Sutherland Creek	0	0	8	1	0.13
	Nelson Creek	0	0	6	3	0.50

Cisco

Vertical gill nets, 100- x 6-foot with 1/2-inch monofilament mesh, were fished throughout the reservoir in September, 1988, to sample YOY cisco. In the past two years, nets have been fished in August, but due to the apparent poor rate of growth in 1988, YOY cisco were too small to be captured until September. Twenty-four net sets captured a total of 2,566 YOY cisco averaging 107 fish per set (Table 12). The majority of netted cisco were taken in the mid-Missouri Arm. The largest number of YOY captured per net was 730. Lengths ranged from 4.5-5.9 inches and averaged 5.2 inches. Average lengths of YOY cisco captured in August of 1986 and 1987 were 5.8 and 4.9, respectively. The smaller size of YOY cisco in 1987 may have been responsible for the reduced catch rate; however, sampling at a later date in the Duck Creek area was unproductive.

Table 12. A summary of young-of-year cisco taken by vertical monofilament gill nets in Fort Peck Reservoir during August, 1986 and 1987, and September, 1988.

Station	No. Sets			No. Sampled			No./Set		
	1986	1987	1988	1986	1987	1988	1986	1987	1988
Bear Cr.	4	4	4	154	52	28	39	13	7
Bear Cr.	2	2	--	439	20	--	220	10	--
Shaft Houses	2	2	2	324	20	11	162	10	6
Dam	2	2	2	642	11	17	321	6	9
Marina	2	2	2	153	2	91	77	1	46
S.F. Duck Cr.	2	1	2	893	24	302	447	12	151
Pines-Gilbert Cr.	4	4	4	1,864	42	1,244	466	11	311
Hell-Sutherland Cr.	2	2	2	596	13	299	298	6	150
Timber Cr.	1	--	1	5	--	178	5	--	178
Devils Cr.	1	--	1	1	--	46	1	--	46
N.F. Rock Cr.	1	2	2	46	47	328	46	24	164
Bug Cr.	1	2	2	15	31	22	15	16	11
TOTALS	24	23	24	5,132	262	2,566	213.8	11.4	107

Gill nets, 300- x 8-foot with 1 7/8-inch mesh were used to capture spawning cisco in early December, 1988. A total of 67 cisco were sampled. The average weight of females was 0.90 pounds and 0.91 pounds for males. The average total lengths were 14.8 inches for females and 14.9 inches for males.

The overall condition of cisco has declined dramatically since 1985. Condition factors and average weights have decreased for both one and two year olds (Tables 13 and 14; Figures 2 & 3). The deterioration of cisco was anticipated once the population reached the maximum carrying capacity of the reservoir. This is a typical biological response of many newly introduced populations. Intraspecific competition is

undoubtedly responsible for reduced growth rate, loss of body fat and lack of gonadal development in adult fish.

Table 13. Summary of average weights for various cisco age classes, Fort Peck Reservoir.

	Age I			Age II			Age III		
Date	Sex	Ave. Wt.	Number	Sex	Ave. Wt.	Number	Sex	Ave. Wt.	Number
October/1985	M	0.91	(35)						
	F	1.01	(26)						
October/1986	M	0.60	(09)	M	1.48	(94)			
	F	0.64	(05)	F	1.93	(13)			
October/1987				M	1.25	(26)			
				F	1.27	(04)			
October/1988	M	0.24	(48)	M	0.86	(27)	M	0.97	(01)
	F	0.23	(13)	F	0.84	(19)			

Table 14. Summary of condition factors for various cisco age classes, Fort Peck Reservoir.

	Age I			Age II			Age III		
Date	Sex	Cond. Factor	Number	Sex	Cond. Factor	Number	Sex	Cond. Factor	Number
October/1985	M	43.9	(35)						
	F	48.1	(26)						
October/1986	M	46.0	(09)	M	43.7	(94)			
	F	44.5	(05)	F	52.6	(13)			
October/1987				M	35.1	(26)			
				F	32.9	(04)			
October/1988	M	27.9	(48)	M	27.7	(27)	M	28.7	(01)
	F	28.2	(13)	F	27.9	(19)			

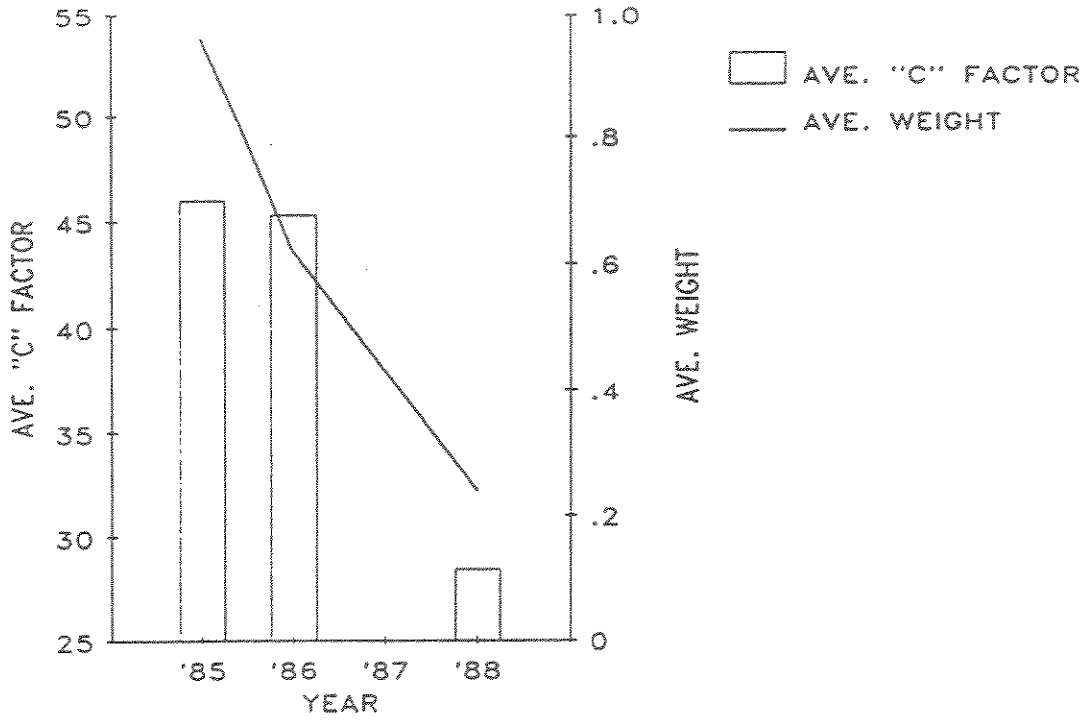

Figure 2. Summary data for Age I cisco, Fort Peck Reservoir.

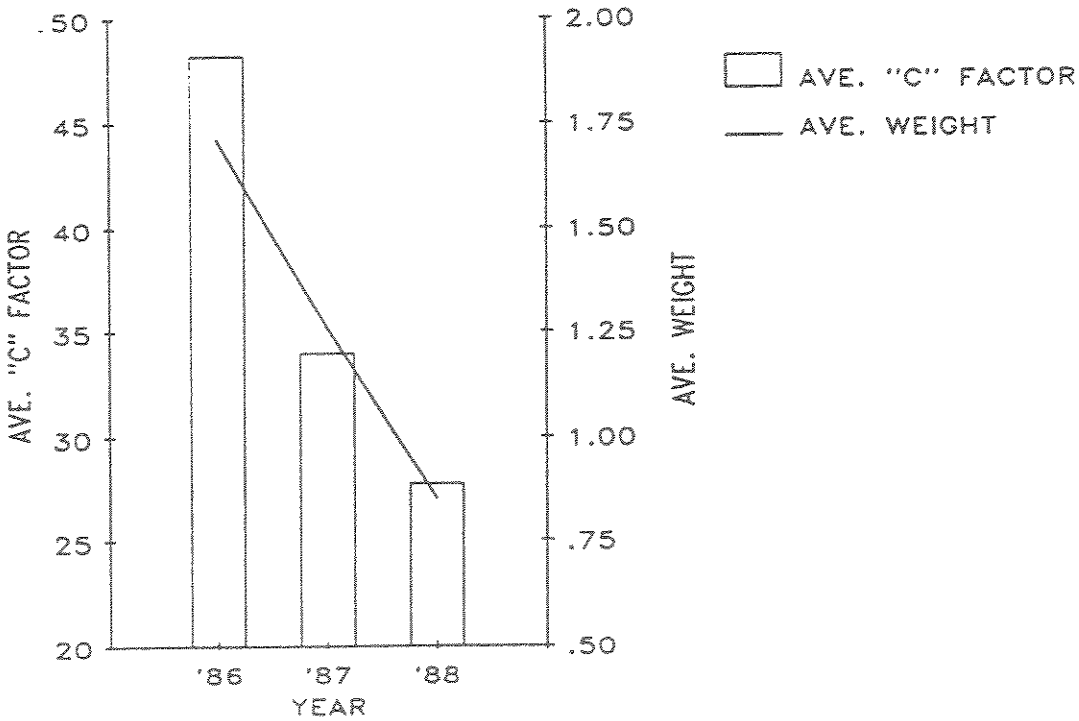

Figure 3. Summary data for Age II cisco, Fort Peck Reservoir.

Lake Trout

A creel survey has been conducted twice annually in the vicinity of the dam since 1985 to obtain catch rates and size data on lake trout (Table 15). In 1988, 153 anglers were interviewed in the spring and 164 in the fall, catch rates were 0.15 and 0.26 fish/hr., respectively. The average weight for lake trout (sexes combined) in the spring was 5.78 pounds and increased to 6.86 pounds in the fall.

Table 15. A summary of lake trout creel census and size data collected at the Fort Peck Marina, Fort Peck Reservoir.

	No. Anglers Creeled	No. LT Creeled	LT Per Trip	Avg. No.Hrs. Fished	LT Per Hr.	Males Avg. Lgth. (in.)	Males Avg. Wt. (lbs.)	Females Avg. Lgth. (in.)	Females Avg. Wt. (lbs.)
1985									
Spring	72	77	1.1	3.8	0.28	20.2	3.05	20.9	3.26
Fall	97	176	1.8	3.8	0.48	21.4	3.20	22.0	3.66
1986									
Spring	56	56	1.0	3.8	0.26	21.2	2.98	20.9	2.95
Fall	206	299	1.5	4.9	0.30	21.4	3.49	23.0	4.26
1987									
Spring	58	48	0.8	4.9	0.17	22.0	3.73	22.2	4.40
Fall	240	239	1.0	4.7	0.21	23.8	5.50	23.8	5.84
1988									
Spring	153	105	0.7	4.5	0.15	24.1	5.63	24.1	5.56
Fall	164	194	1.2	4.6	0.26	25.8	7.16	24.8	6.33

Average weights and overall condition of lake trout has improved steadily since 1985 (Figures 4, 5, and 6). It is presumed that the introduction of cisco is responsible, as considerable numbers of cisco have been observed in lake trout stomachs.

COMMERCIAL FISHING

Three commercial fishing permits were issued in 1988. One change was made to the commercial fishing regulations which extended the closed area west of the UL Bend to include the area of the reservoir upstream from the mouth of Squaw Creek Bay. This was done to avoid possible conflicts with sport fishermen from the newly developed Crooked Creek access.

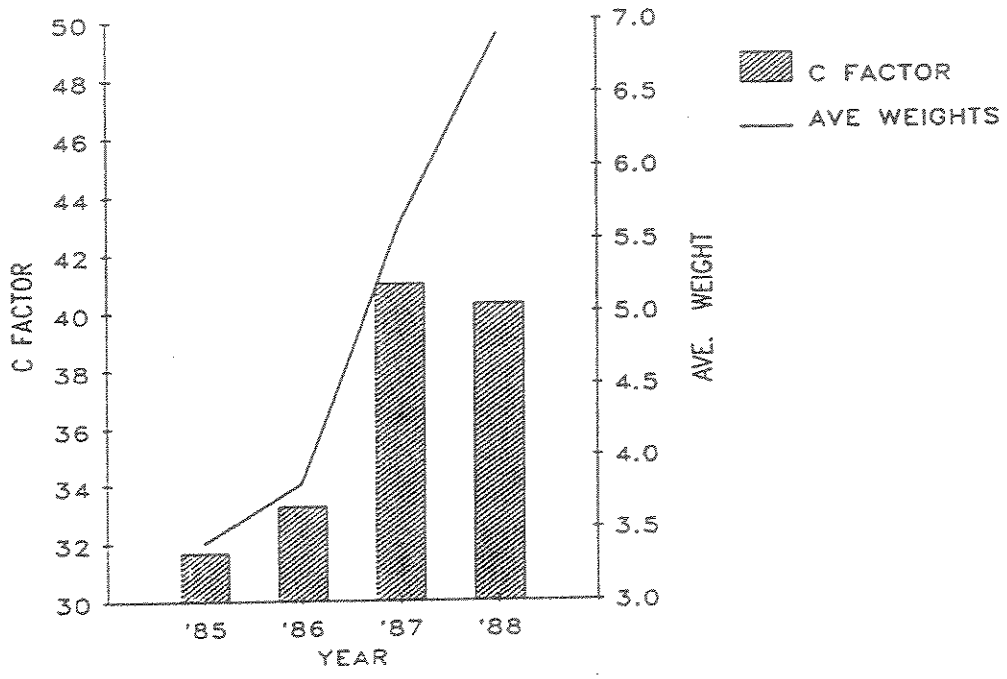

Figure 4. Condition factors and average weights of lake trout from fall creel survey, Fort Peck Reservoir.

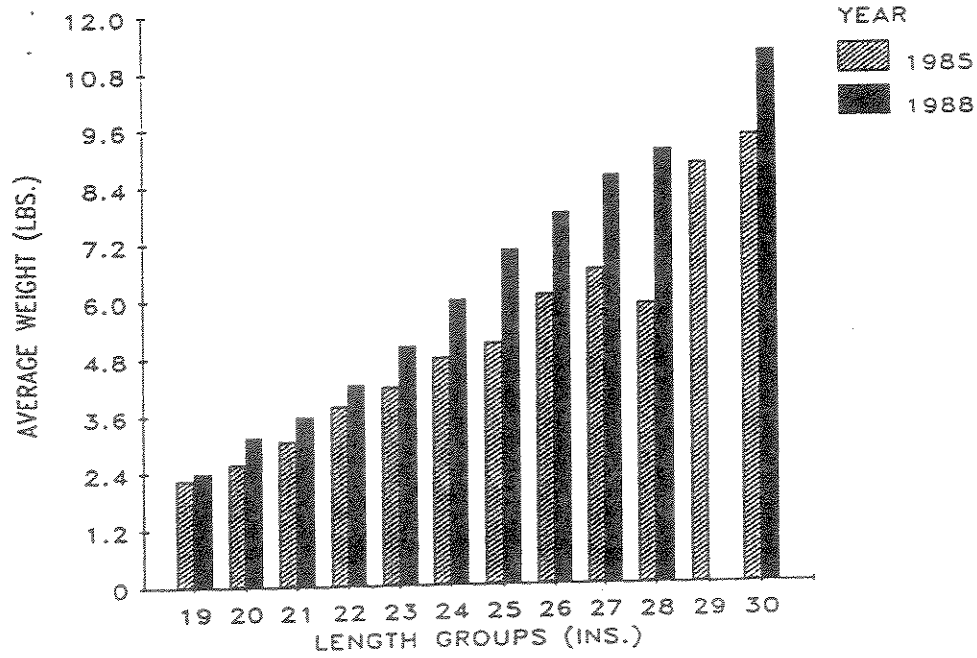

Figure 5. Comparison of average weights from various length groups of lake trout obtained from fall creel surveys, Fort Peck Reservoir.

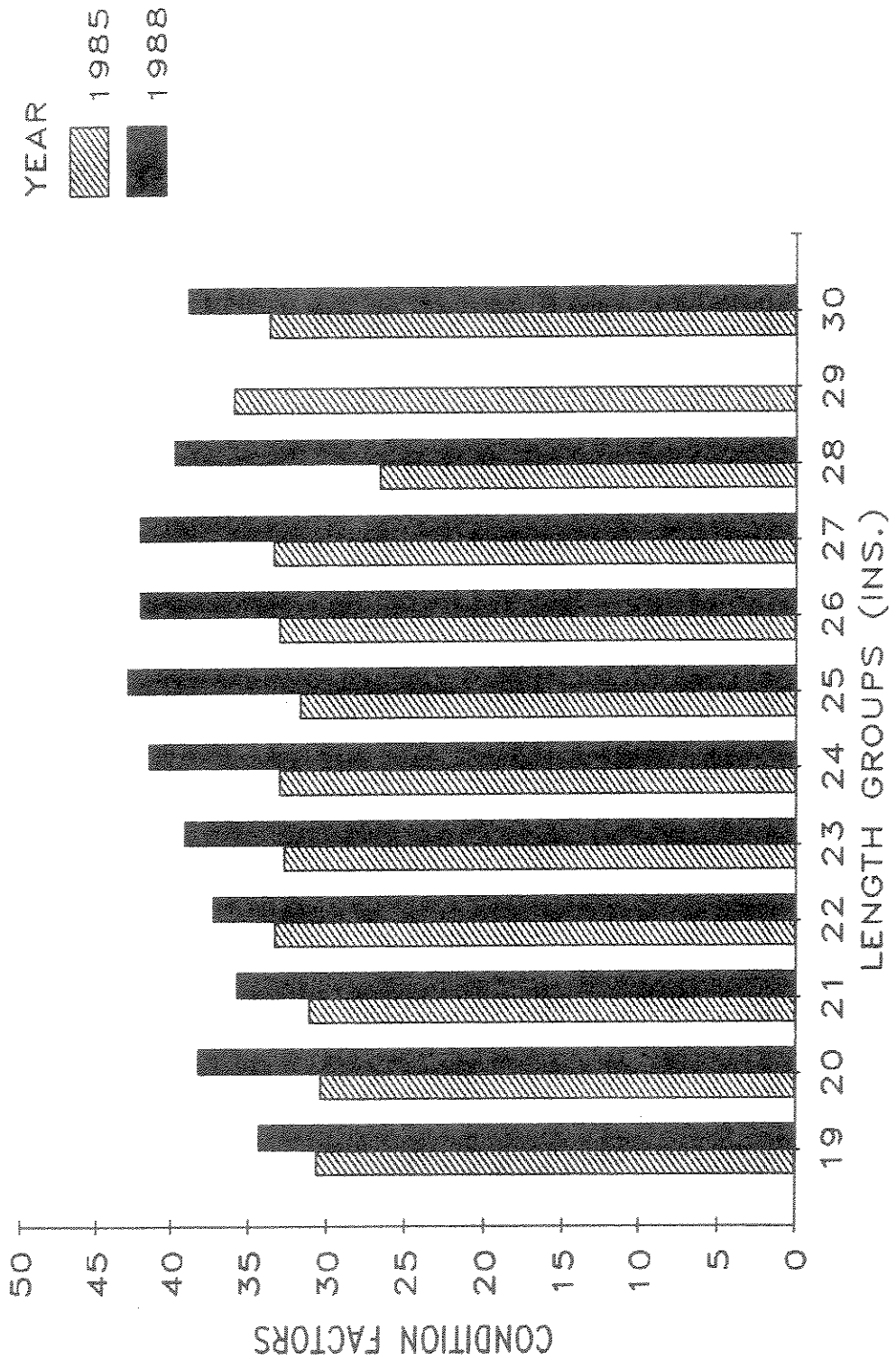

Figure 6. Comparison of average weights from various length groups of lake trout from fall creel surveys, Fort Peck Reservoir.

A total of 36,762 pounds (round weight) of goldeye was taken by commercial fishermen in 1988. This is the lowest goldeye yield since 1966, when commercial harvest of this species began in earnest (Table 16). Review of commercial catch records indicated that the netting efficiency of goldeye continued to drop from .008 in 1987 to .005 in 1988 (Table 17). The catch rate for goldeye captured in experimental nets during annual survey work rose slightly from 8.4 per net set in 1987, to 11.6 per net set in 1988 (Figure 7).

The total catch for smallmouth buffalo was 31,897 pounds and 6,445 pounds for bigmouth buffalo. River carpsucker harvest was 610 pounds and total catch for carp was 2,276 pounds.

DISCUSSION AND RECOMMENDATIONS

Improving condition factors and examination of stomach contents of lake trout and walleye indicate that cisco are being utilized as forage. Spottail shiners continue to be abundant as evidenced by fall beach seining, and have also been found in walleye stomachs. A detailed food habits study of walleye is warranted to determine actual use of various forage fish species.

Experimental gill nets indicate that adult cisco are well distributed throughout the lake, although overall numbers appear to have decreased slightly from previous sampling. This decrease in number may have resulted from a poor 1987 year-class or from reduced condition factors which made them less susceptible to the nets.

Annual fall gill netting of cisco shows that the condition of adult cisco has declined substantially since 1986, which is undoubtedly due to intense intraspecific competition brought about by the population reaching maximum density. The first indication that the cisco population might be experiencing problems occurred on August 31, 1988. A die-off of 50-100 adult cisco was reported in the vicinity of the dam. Additional dead cisco were sighted by anglers and commercial fishermen at the Pines on September 3 and 4. Samples of dead cisco were collected and examined by fish health biologists. No unusual diseases or pathogens were found; however, the poor physical condition of the fish was noted.

During the week of August 24, routine beach seining along shorelines in the Bear Creek area captured several adult cisco. The poor physical condition of these fish was apparent. In past years, no adult cisco were observed along shorelines, or were captured by this sampling method. It is not known why cisco suddenly appeared in water that was 68-70 degrees F. Cisco normally prefer much cooler water (Scott and Crossman, 1979). Cisco may have occupied this area while seeking food, or poor health may have resulted in an inadvertent movement into less habitable water, which contributed to their death.

It is assumed that the lack of gonadal development observed in adult cisco during November and early December will result in a small 1989 year-class. Ultimately, it is anticipated that the cisco population will decline to a level which can be sustained by the reservoir.

Table 16. Total pounds (round weight) of commercial species harvested from Fort Peck Reservoir by commercial fishermen, 1957-1988.

Year	Buffalo sp.	River Carpsucker	Carp	Carp & R.[1] Carpsucker	Channel[2] Catfish	Goldeye	Freshwater Drum	Sucker sp.	Total
1957	15,308	7,200	1,500	---	---	---	---	---	24,008
1958	176,091	---	---	25,837	100	17	107	---	202,152
1959	154,770	2,687	13,850	---	462	---	1,875	62	173,706
1960	26,435	11,500	50	---	585	---	---	---	38,570
1961	15,950	950	610	---	790	---	---	---	18,300
1962	130,842	---	---	---	22,215	---	---	---	153,057
1963	263,696	3,440	5,707	---	15,576	49	688	---	289,156
1964	145,706	3,775	1,012	---	7,492	---	1,350	---	159,335
1965	184,003	---	1,400	---	11,666	---	550	---	197,619
1966	266,142	---	---	22,935	16,879	42	2,581	---	308,579
1967	389,083	---	---	35,775	10,066	56,050	4,012	---	494,986
1968	452,230	---	---	100,774	7,749	53,318	5,445	1,625	621,141
1969	323,648	64,718	13,719	---	4,503	199,279	11,759	186	617,812
1970	437,308	49,731	8,944	---	10,619	68,384	19,287	56	594,329
1971	279,831	31,658	1,403	---	13,746	186,310	8,019	1,429	522,396
1972	474,025	40,327	10,992	---	8,060	61,830	9,228	141	604,603
1973	546,657	13,045	3,975	---	2,704	130,061	8,018	---	704,460
1974	376,850	16,719	---	---	1,011	93,825	94	---	488,499
1975	274,091	6,512	---	---	688	129,299	---	---	410,590
1976	402,543	8,456	---	---	---	91,358	---	---	502,357
1977	343,930	8,500	---	---	---	121,868	---	---	474,298
1978	243,166	6,075	---	---	---	105,919	---	---	355,160
1979	224,200	12,862	4,475	---	---	258,780	---	---	500,317
1980	178,777	8,454	5,662	---	---	356,755	509	---	550,157
1981	260,389	6,473	20,788	---	---	244,322	301	---	532,273
1982	123,100	4,357	---	---	---	208,736	---	---	336,193
1983	111,464	1,876	5,060	---	---	403,628	91	---	522,119
1984	64,113	636	---	---	---	362,313	11	---	427,073
1985	---	---	---	---	---	295,120	---	---	295,120
1986	12,115	47	103	---	---	222,163	---	---	234,428
1987	4,526	500	---	---	---	129,990	---	---	135,016
1988	38,342	610	2,276	---	---	36,792	---	---	78,020
Total	6,939,331	311,108	101,526	185,321	134,911	3,816,208	73,925	3,499	11,565,829

[1]Not differentiated by commercial fishermen when reported.
[2]Not allowed as commercial species after June 30, 1975.

Table 17. Netting efficiency of commercial fishermen at various locations on Fort Peck Reservoir from 1980 through 1988. Figures indicate pounds of goldeye taken per square foot of gill net.

Area	Year								
	1980	1981	1982	1983	1984	1985	1986	1987	1988
Duck Creek	0.019	0.010	0.012	0.014	0.014	0.011	0.016	0.006	0.004
Skunk Coulee	———	0.016	———	———	———	0.006	———	———	———
Haxby	———	0.012	———	———	———	———	———	———	———
3rd Point	———	———	———	0.015	0.013	———	———	———	———
Pines	———	———	0.016	0.012	0.010	0.007	0.017	0.011	0.004
6th-8th Point	———	0.011	———	0.012	0.007	0.010	0.001	0.005	———
Be Bee	———	———	0.014	0.010	———	———	———	———	———
Hell Creek	———	———	0.009	0.008	0.007	0.007	0.016	0.005	———
Sutherland	0.016	0.008	0.009	0.009	0.008	0.010	0.018	0.005	———
Snow Creek	0.125	0.007	0.008	0.010	0.013	0.011	0.018	0.004	———
Wagon Coulee	0.020	0.010	0.013	0.007	0.012	0.010	0.008	0.005	———
Bone Trail	0.023	0.014	0.012	———	0.012	0.011	———	———	———
Timber Creek	0.022	———	———	0.012	0.012	0.011	0.012	0.010	———
Blackfoot	0.021	———	———	———	———	———	———	———	———
Devils Creek	0.033	0.021	0.011	0.011	0.012	0.014	0.011	0.007	0.005
Lost Creek	0.016	———	———	———	———	———	———	———	———
Musselshell	0.125	———	———	0.019	———	———	———	0.012	———
Areas Combined	0.042	0.012	0.012	0.012	0.011	0.013	0.012	0.008	0.005

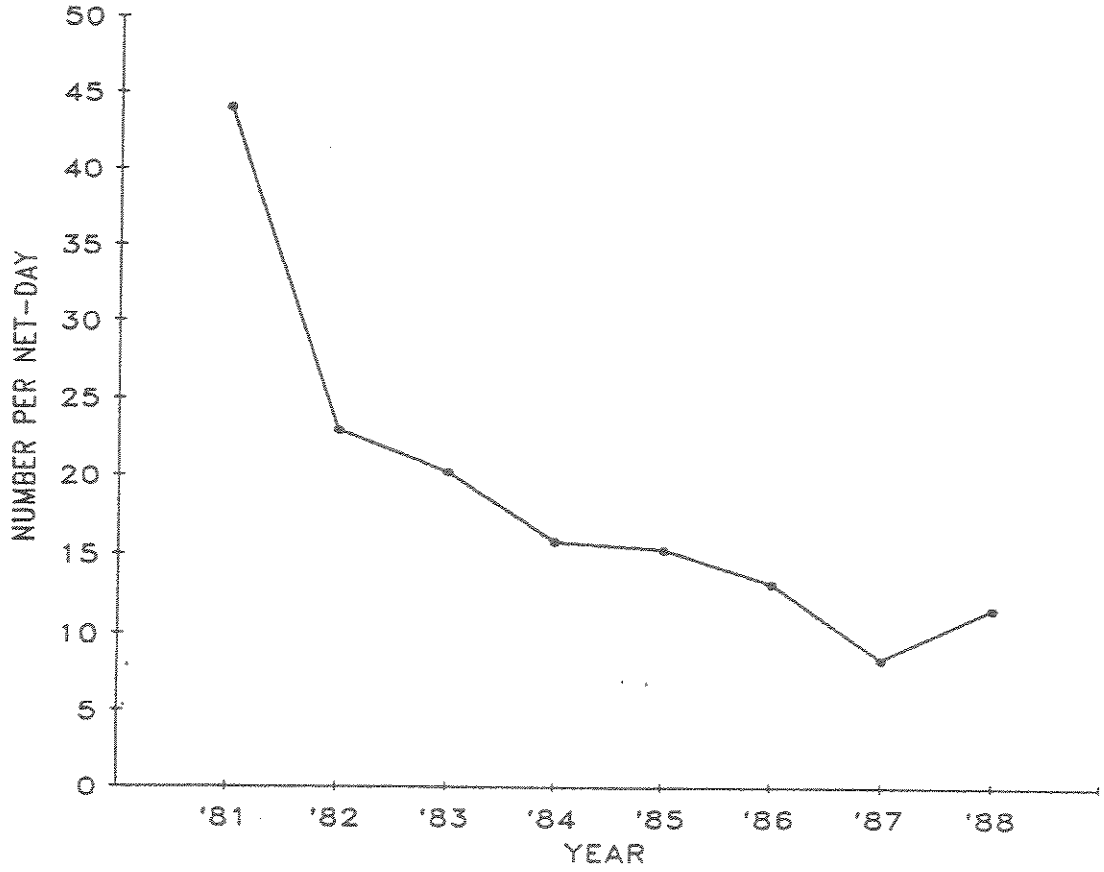

Figure 7. Catch rate for goldeye captured in experimental gill nets, Fort Peck Reservoir.

Present sampling methods such as trapping, gill netting and seining should be continued to monitor the status of sport and forage fish populations within the reservoir.

It is recommended that stocking of walleye continue, but more emphasis should be placed on fingerlings, as evaluation of fry plants by beach seining indicates limited survival. Stocking of walleye in the upper Missouri Arm should be temporarily curtailed to determine if YOY walleye captured in fall beach seining are the result of stocking or natural reproduction.

Continued stocking of chinook salmon fingerlings is recommended if a source of disease-free eggs can be maintained. Increases in stocking rates should be evaluated on the availability of rearing facilities and the status of the reservoir's cisco population.

Northern pike continue to decline in numbers as indicated by most sampling methods. It is recommended to prevent the further decline of a very small northern pike population, a modest stocking program be maintained. The planting effort in 1988 resulted in 225,000 fry being released in the Hell Creek area.

Fall beach seining shows that smallmouth bass have been very successful at reproducing in the reservoir over the last three years. At this point, no supplemental stocking is recommended. Smallmouth should begin to make up a significant percentage of the creel within a few years as these strong year-classes mature.

Recommendations for water levels to enhance the reservoir's fishery should continue to be submitted to the Corps of Engineers. These recommendations are presently being coordinated through the Natural Resource Committee of the Missouri River States and may ultimately be realized with this organization's efforts.

LITERATURE CITED

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Waters Referred to:

16-51040 Fort Peck Reservoir

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