Commercial Fishery of Fort Peck Reservoir

Annual Report for Segment 1 of Project 1-56-D

INTRODUCTION

This project was relatively inactive during the first half of Segment 1 as the position of Project Leader was vacant until mid-December, 1970. However, some goldeye population data were obtained and seining operations for young-of-the-year fish were conducted during August and September, 1970, in Fort Peck reservoir.

A considerable amount of the new project leaders' initial time was devoted to review of previous project reports, project documents, commercial fishing records and data, area familiarization, etc. Some winter netting was accomplished while major emphasis during the spring was directed towards gathering data concerning commercial fish populations within the reservoir.

MONITORING OF COMMERCIAL FISH POPULATIONS

Goldeye

As brought out in past progress reports concerning this project, there is evidence of decline in the goldeye population in the lower reaches of the reservoir. Supporting data for this contention were: Lower catch per unit effort in succeeding years (Table I); increase in average weight of commercial size females (Table II); increase in number of older females; decline in number captured in small mesh gill net. During the 1970-1971 sampling period the catch per unit effort was again lower while the average weight of commercial size females increased.

Table I. Average yearly catch of goldeye per 300 feet of gill net in standard sampling area by Montana Fish and Game.

Year	1966	1967	1968	1969	1970
Ave. catch	182	159	128	96	75

Attempts were made to tag large numbers of goldeye during the spring of 1971 to further evaluate evidence for the apparent decline in the goldeye population. Information on harvest rate, movement and population dynamics might then be obtained.

Table II. Average weight of commercial size femaled goldeye captured in standard sampling area by Montana Fish and Game.

Year	1967	1969	1970
Ave. weight (lbs.)	0.77	0.82	0.85

Due to the pelagic nature of goldeye, floating gill nets were used to capture them. Of 862 goldeye captured, only 152 were tagged and released; the remaining fish were of questionable vigor and were not used. This method was abandoned due to the high mortality and time involved in handling.

Goldeye were found to be susceptible to capture using trap nets during their spawning migration to the upper end of the Big Dry arm of the reservoir. This area is relatively narrow (<100 yards wide) and the water is very turbid which apparently are considerable advantages in trapping goldeye. A total of 909 goldeye (431 males, 478 females) were subsequently tagged and released in this area.

Smallmouth Buffalo

Since tagging of this species was initiated in 1968, 4,532 have been tagged and released in Fort Peck reservoir. The majority of these fish were captured in 1970 and 1971, by trap nets in the upper end of the Big Dry arm during their spring spawning run.

Tag returns, mainly from commercial fishermen, indicate an approximate 18 percent total recapture. Although this would not appear to be an excessive number of returns, commercial fishermen indicate smallmouth buffalo have become increasingly difficult to catch. The total Montana Fish and Game trap net catch of this species in the Big Dry arm during 1971 was down 66 percent from the 1970 catch for the approximate same time period. However, more information from this area is needed before a proper evaluation of this fact can be made, e.g. a weak year class or other variables such as water temperature and reservoir level, may have resulted in fewer smallmouth buffalo using this area for spawning during 1971. Also the effect of commercial fishermen fishing in the area at that time is unknown.

Tag returns from this species also indicate repeat spawning and a possible reproductive homing tendency as well as extensive movement throughout the reservoir.

River Carpsucker

Tagging of this species began in 1970, and was continued in 1971. A total of 1,967 fish have been tagged and released in the Big Dry arm. Tag returns, mainly from commercial fishermen, amount to only 3.3 percent of the total number tagged. The population appears to be abundant and in no immediate danger of over-harvest by commercial fishermen.

Other Commercial Species

Freshwater drum, channel catfish, carp and suckers comprise the remaining commercial species in Fort Peck reservoir. The catch of freshwater drum has increased each year while the harvest of channel catfish has fluctuated considerably over the years. Carp and suckers have remained as relatively unimportant commercial species.

While more information concerning freshwater drum and channel catfish populations within the reservoir would be desirable, both species appear to be abundant and are not considered in jeopardy from commercial fishing.

COMMERCIAL FISHERIES

Six commercial fishing permits were issued for 1970 which provided employment for about 15 people. One licensee fished exclusively for channel catfish, three fished primarily for goldeye, and the remaining two fished mainly for smallmouth buffalo, river carpsucker, and freshwater drum.

A total (all round weight) of 437,308 pounds of primarily smallmouth buffalo, 68,384 pounds goldeye, 49,731 pounds river carpsucker, 19,287 pounds freshwater drum, 10,619 pounds channel catfish, 8,944 pounds carp and 56 pounds sucker were removed during 1971. The buffalo catch was the second greatest since commercial fishing began in 1957 in Fort Peck reservoir. The goldeye catch was down 66 percent from the previous year's total due to unfavorable commercial market conditions in Winnipeg, Canada. The freshwater drum catch was the highest on record for the reservoir while the channel catfish harvest exceeded the 1969 harvest by about 58 percent. The carp and river carpsucker catches were down 35 percent and 28 percent respectively from the 1969 harvest.

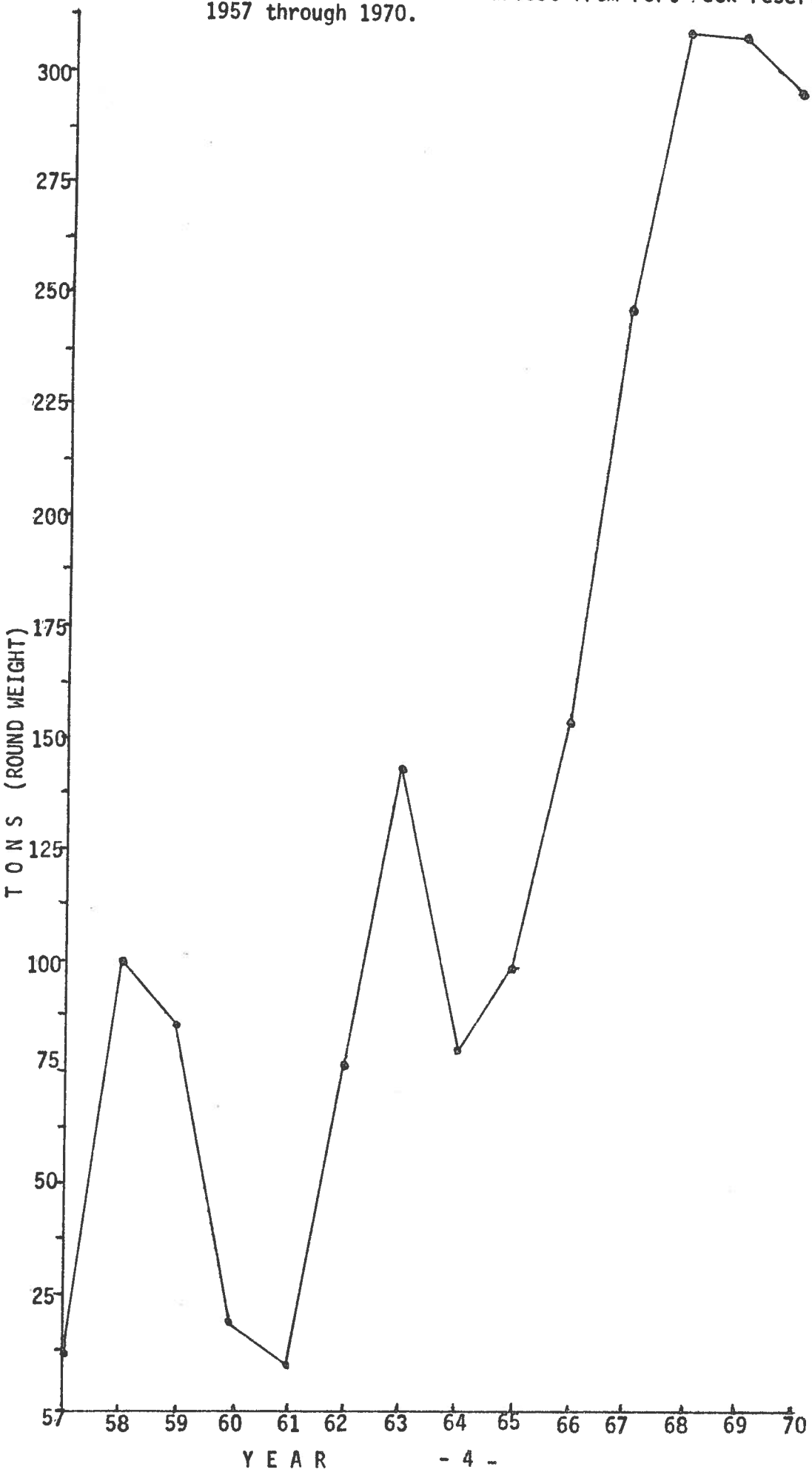
Figure 1 shows the annual commercial harvest of all commercial species since commercial fishing began in 1957.

SUPPORTING DATA

Winter Netting

During February 1971, two 125-foot experimental gill nets were fished under the ice for a total of about 331 hours. Both nets were set in 12 to 15 feet of water. Twelve northern pike, four common sucker, two

Figure 1. Annual commercial fish harvest from Fort Peck reservoir for years 1957 through 1970.



yellow perch and one each of coho salmon, sauger and goldeye were the only fish captured.

Additionally, a 100-foot x 40-foot gill net (1½ in. sq. mesh) was fished under the ice over 126 feet of water for a total of about 815 hours. This net is divided into five 8-foot panels in order that depth preference of captured fish may be delineated. A total of 83 goldeye (48 females, 35 males) and nine coho salmon were taken. Of the goldeye captured, 77.1 percent were found between 8 and 24 feet, 15.7 percent between 24 and 32 feet, 4.8 percent between 32 and 40 feet and 2.4 percent between 0 and 8 feet of water. The average total length and weight of female goldeye was 13.1 inches and 0.73 pounds and that of males was 12.6 inches and 0.62 pounds. The coho did not exhibit any particular depth preference.

Young-of-the-Year

Beach seining for young-of-the-year fish was done during September, 1970. Only areas near the dam were sampled. Thirty-eight seine hauls were made with yellow perch and black crappie predominating the total catch. The paucity of commercial species, other than river carpsucker, was probably due to the type of gear used and locations of sampling areas. The results are given in Table III.

Table III. Total number of young-of-the-year fish captured by seining during September, 1970, in Fort Peck reservoir.

Species*	YP	BC	RCS	C	NP	SMB	SHR	GE
Number	11,132	2,412	1,658	121	39	12	9	1

*YP- yellow perch; BC- black crappie; RCS- river carpsucker; C- carp; NP- northern pike; SMB- smallmouth buffalo; SHR- shorthead redhorse; GE- goldeye.

Trap Net Operations

A comparison of the spring 1970 and 1971 trapping operations in the Big Dry arm shows the diverse species composition found here, most of which apparently use this area for spawning. In 1970, four traps were fished from May 8 to June 18 and in 1971, six traps were used for the period May 19 to July 19. Generally, the bulk of the fish were trapped earlier in 1970 than in 1971 due probably to an earlier warming of waters in the area. Walleye appear to be the earliest spawner followed closely by northern pike. River carpsucker probably are the earliest spawning commercial fish in Fort Peck reservoir. The results of trapping efforts in both years are shown in Table IV.

Table IV. Species and numbers of fish captured in trap nets during the spring of 1970 and 1971, in the Big Dry arm of Fort Peck reservoir.

Species*	SMB	RCS	GE	CS	SHR	CC	C	SH	BMB
1970	3,203	994	262	45	54	13	32	3	10
1971	746	1,721	1,246	131	268	55	43	13	7

*SMB- smallmouth buffalo; RCS- river carpsucker; GE- goldeye; CS- common sucker; SHR- shorthead redhorse; CC- channel catfish; C- carp; SH- sheepshead; BMB- bigmouth buffalo.

Species*	S	WE	NP	COS	BB	BC	YP	B	GRAND TOTAL
1970	75	56	126	0	383	2	75	1	5,334
1971	307	129	144	4	1,529	142	6	6	6,497

*S- sauger; WE- walleye; NP- northern pike; COS- coho salmon; BB- black bullhead; BC- black crappie; YP- yellow perch; B- burbot.

FUTURE WORK

Major emphasis will continue to be directed towards monitoring goldeye, smallmouth buffalo and river carpsucker populations. Tagging of these species will continue in order to obtain more definitive data on commercial harvest rate, movement, mortality and population estimates. Additional information such as occurrence of repeat spawning, reproductive homing, and location of spawning areas other than the Big Dry arm may also be procured from continued tagging efforts.

Life histories of commercial species within the reservoir as well as influences of temperature and reservoir levels on spawning success will be studied.

Use of sophisticated sonar equipment and acquisition of a precision bathythermonitor unit will provide information on the interrelationships between fish, bottom type, depth and temperature during the open-water season.

New commercial fishing techniques and equipment will continue to be tried in order to aid commercial fishing interests if possible and also to compare and evaluate different methods and gear.

It is hoped good working relationships with commercial fishermen on Fort Peck reservoir can be maintained particularly in view of the fact that certain

restrictions on commercial fishing activities may be necessary in order to provide optimum sport and commercial fishing in keeping with the available fisheries resource.

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