Report of Fisheries Investigations

Basic Survey and Inventory of Fish Species in Murvaul Bayou Reservoir

by

John N. Dorchester
Assistant Project Leader

Dingell-Johnson Project F-3-R-7, Job B-13
December 1, 1958 - May 31, 1960

H. D. Dodgen - Executive Secretary

Texas Game and Fish Commission
Austin, Texas

Marion Toole
Coordinator

Kenneth C. Jurgens & William H. Brown
Assistant Coordinators

A B S T R A C T

This report covers the second year of Lake Murvaul's existence, December 1, 1958, through November 30, 1959, in detail. Data was collected on a bimonthly basis and includes netting and seining results and certain limnological observations. It was found during this second year that the largemouth bass was the only game fish species to show continuous gains both in size and numbers. Other game fish species such as bluegill, redear, and other Lepomis sp. showed reductions in numbers and condition, while on the other hand black crappie increased in numbers but lost in condition. Overall, rough fish increased while game fish declined. The principal problems encountered during the second year were the increasing numbers of large bowfin, gizzard shad, and small crappie. Also, the first signs of aquatic vegetation became evident. There was a definite lack of specimens collected by seining during this period, compared to the first year. Recommendations were made to continue gathering data for another year, but only on a quarterly basis.

Job Completion Report

Investigation Project

State of TEXAS

Project No. F-3-R-7 Name: Fisheries Investigations and Surveys of the Waters of Region 5-B

Job No. B-13 Title: Basic Survey and Inventory of Fish Species in Murvaul Bayou Reservoir

Period Covered: December 1, 1958 - May 31, 1960

OBJECTIVES

To continue to gather information regarding the fish population in Lake Murvaul concerning numbers and condition of fish. This work stems from the fact that the lake was closed to fishing through two spawning seasons and is now open to fishing.

INTRODUCTION

This report is presented in two parts in order that data coincide with the age of the lake on an annual basis. The first part goes back beyond the present segment period and begins with the lake's second year of existence. The second part, which is less detailed, covers the beginning of the third year of the lake's existence to the present. This is done because collection of the initial data on Lake Murvaul was begun in the middle of a project year in December 1957. Lake Murvaul began filling in October 1957.

PART I

PROCEDURE

Data was collected bimonthly, generally on the 20th of each month, during the second year. The only limnological data recorded were turbidity (Secchi disk), color of the water, sky conditions, wind, time and air and surface water temperatures.

Netting

Eight experimental type gill nets (1,000 feet) were set at six random locations each collection month. The dimensions of the nets were 125 feet long, eight feet deep with mesh sizes of 1-, 1½-, 2-, 2½-, and 3-inches changing every 25 feet. The nets were set late in the afternoon and picked up the following morning. A total of 36 sets made up of 48 nets were made.

All fish caught in nets were saved. These fish were then separated according to species, counted, and their total weight taken. The rough fish were then destroyed and returned to the lake. The game fish were also individually weighed and measured for both standard and total lengths. Spot checks were made on stomach contents and

sexual developments. Coefficients of condition ("K" factors) were determined in the laboratory. The average lengths, weights, and condition factors were calculated for each species.

Seining

Seining collections were made with a 26- by 6-foot bag seine witha a $\frac{1}{4}$-inch mesh. Six collections, consisting of 47 hauls, were made. All specimens were preserved in 10 percent formalin solution and brought back to the laboratory for identification.

Additional Stocking

During this second year, the most significant stocking was with adult flathead catfish and blue catfish. Through the cooperation of the U. S. Corps of Engineers and Game and Fish Commission personnel of Region 2-B, fish were obtained from the draft tubes at Denison Dam Powerhouse during February 1959. In all, there were 103 flathead catfish taken from these tubes and transferred to Lake Murvaul. The fish ranged from an estimated 2 to 40 pounds and averaged an estimated 5 to 6 pounds. In addition, there were 46 blue catfish, averaging about 2 pounds each, transferred.

FINDINGS

Netting and seining collections yielded a total of thirty-three species of fish representing nine families during the second year compared to forty-two species and twelve families the first year. Table 1 lists each species phylogenetically. The names are those used by Hubbs in his "A Checklist of Texas Freshwater Fishes", dated December 1958.

Netting Results

Table 2 gives a tabulation of monthly results of netting. There were twenty-five species collected in this manner. As can be seen from this table there were seven species collected every time compared to only three species collected every month the first year. However, it must be considered that the second year collections equals only one-half the first year's. The three species collected the first year every time were also among the seven species of the second year. These species are the bowfin, gizzard shad and black bullhead. This table also gives the totals of game fish and rough fish and percentages of each. Of the twenty-five species collected by gill nets, there were ten rough species and fourteen game species, compared to twelve rough species and fourteen game species the first year. The rough fish catch predominated the catch every month. The average percentages of rough fish and game fish were approximately 70 percent and 30 percent respectively over the second year, compared to 65 percent and 35 percent for the first year.

A total of 1,083 fish were caught by six gill net collections over the year compared to 1,325 fish caught by twelve gill net collections during the first year. This includes 762 rough fish and 321 game fish. Gizzard shad were the most abundant with 210, or 19.39 percent of the total numbers caught. Black bullhead were next with 146 or 13.48 percent, followed by largemouth bass with 132 or 12.19 percent, bowfin with 110 or 10.16 percent, and chubsuckers with 104 or 9.60 percent. The

number of species caught each month ranged from 12 to 17 and averaged 15. These figures do not include one flathead catfish which was caught in a gill net and immediately released.

Through the use of percentages and total numbers of fish caught by nets, a rough comparison can be made of the relative abundance of the species present. Of the rough fish the bowfin, gizzard shad, chub sucker, and bullhead catfish present the greatest problem with their large numbers. The most abundant game fish species are the largemouth bass, bluegill, and black crappie and there is an apparent large population of each species.

Lake personnel have removed several thousand bullhead catfish through the use of traps. Also, with the stocking of flathead catfish, it was hoped that a change could be seen in the bullhead numbers, and percentagewise according to the numbers collected by gill nets, there was a definite decrease made in bullheads.

A total of 799.16 pounds of fish were taken by netting over the year. Because total weights were not recorded for the first year no comparison can be made on this data. Table 3 gives the total weights of each species for each month as well as the total, percent, and average weights for the year. The percentages of game and rough fish for each month is also given. Over the year rough fish made up 67.46 percent of the total weight of fish collected by nets. The greatest percentage of the weights of fish in Lake Murvaul is represented by two species - bowfin and largemouth bass, while the highest average weights are carried by the bowfin, smallmouth buffalo (based on one specimen), blue catfish, and largemouth bass. The most significant information obtained from this data is the fact that the weight of the bowfin alone was greater than all the game fish combined. The average weight of the black crappie was the least of any fish collected.

Seining Results

Table 4 gives the numbers of fish collected by bag seine each month. Seining yielded only fifteen species and 577 specimens compared to thirty species and 7,099 specimens the first year. The most abundant species collected in this manner was the bluegill sunfish followed by largemouth bass. The greatest numbers of fish collected were in August, October, and April in that order. None was collected in June. Very noticeable in the seining collections were the small numbers of fish collected, compared to the first year. Also, there was a very sharp decline and disappearance of many notropid species, as well as other more or less common species.

The number of species collected each month ranged from none to ten and averaged 4.5. No species could be collected consistently, though three species were collected three times and seven species were collected twice.

It was concluded after the first year that there was a good supply of bait or small forage fish available. This conclusion is now quite doubtful and is possibly a contributing factor to the problem of small crappie in the lake.

Growth of Fish

Standard length records were kept on six game fish species in order to determine their growth. An average length was determined each month from those specimens

collected. Table 5 gives these standard lengths for each month (range and averages) as well as the number of specimens measured. The largemouth bass was the only species to show progressive, though slight, gains at all. The average lengths for bluegill, white and black crappie decreased during the year indicating little or no growth. Warmouth data followed no particular pattern.

Condition of Fish

Generally speaking the physical condition of game fish in Lake Murvaul during the second year, though still good, is below that of the first year. Only largemouth bass increased in condition. Table 6 gives data on condition of nine game species. The biggest decrease in condition was in the crappies which again points up a problem that is becoming apparent. Figure 3 shows the condition of a smallmouth buffalo.

Food Habits

Spot checks were made of stomach contents of some game fish. It is safe to say that the chief food item among most predator fish was gizzard shad. Aquatic insects were found occasionally in all stomachs. Stomach contents of bass contained such items as crappie, chub suckers, crawfish, and sunfish, as well as shed.

Sexual Development and Spawning Activity

Spot checks were made on some game fish for sexual development. In February, the bass were approaching ripeness; in April, all the sunfish were ripe, including the bass. By June, the bass were spent and the bluegills were gravid. The crappie were immature in June.

Annotated Checklist of Fish Species

This list includes all species collected in Lake Murvaul since the study began.

1. Lepisosteus productus (spotted gar) - none was collected during the second year.

2. Amia calva (bowfin) - one of the most abundant fishes in the lake. The average weight of those collected was 2.87 pounds.

3. Dorosoma cepedianum (gizzard shad) - the most commonly collected fish in the lake. Stomach analyses of game fish indicated this species to be the favorite food item.

4. Esox americanus (grass pickerel) - increased in numbers collected from the numbers taken the first year.

5. Ictiobus bubalus (smallmouth buffalo) - only one was collected and it weighed 7.25 pounds.

6. Carpiodes carpio (river carpsucker) - none was collected during the second year.

7. Moxostoma poecilurum (blacktail redhorse) - only one specimen was collected.

8. Minytrema melanops (spotted sucker) - their numbers increased considerably during the second year.

9. Erimyzon sucetta (chub sucker) - this species also increased greatly during the second year.

10. Notemigonus crysoleucas (golden shiner) - the numbers of this species fell off considerably, especially by seining, as only one was collected by this method compared to a total of 333 last year.

11. Notropis fumeus (ribbon shiner) - only two specimens were collected.

12. N. venustus (spottail shiner) - like many of the other minnows this species was conspicuous by its absence. Only eight were collected.

13. N. lutrensis (redhorse shiner) - this is the most common of the shiners and it wasn't too common by camparison to other waters of East Texas.

14. N. stramineus (sand shiner) - only two specimens collected.

15. N. atrocaudalis (blackspot shiner) - none was collected during the second year.

16. N. volucellus (mimic shiner) - none was collected during the second year.

17. N. maculatus (taillight shiner) - none was collected during the second year.

18. Hybognathus nuchalis (silvery minnow) - none was collected during the second year.

19. Pimephales vigilax (parrot minnow) - collected only once and in small numbers.

20. Ictalurus punctatus (channel catfish) - this species is on the increase in the lake.

21. I. furcatus (blue catfish) - this species, which was stocked by the water district, is also on the increase.

22. I. melas (black bullhead) - last year this species was the most commonly netted fish by a wide margin. The second year it fell to second place indicating a favorable decline.

23. I. natalis (yellow bullhead) - this species fell slightly in numbers collected.

24. Pylodictus olivaris (flathead catfish) - only one speciman was collected by netting. It was immediately returned to the lake and was not counted in the collection. Several large ones have been taken by fishermen.

25. Schilbeodes gyrinus (tadpole madtom) - none was collected during the second year.

26. Fundulus notatus (blackstripe topminnow) - only two were collected.

27. Gambusia affinis (common mosquitofish) - quite conspicuous by its sharp decline the second year.

28. Aphredoderus sayanus (pirate perch) - none was collected during the second year.

29. Micropterus punctulatus (spotted bass) - only one specimen was collected during the second year, showing a decline in numbers.

30. M. salmoides (largemouth bass) - this species was third in numbers collected, which is an increase over the first year.

31. Chaenobryttus gulosus (warmouth) - their numbers declined during the second year.

32. Lepomis cyanellus (green sunfish) - fairly rare in the lake.

33. L. punctatus (spotted sunfish) - only one was collected by netting and a few by seining.

34. L. microlophus (redear sunfish) - their numbers declined slightly over the first year.

35. L. macrochirus (bluegill sunfish) - even though netting indicates the numbers are declining, this is one of the most common fish taken by anglers. The most commonly collected by seining.

36. L. auritus (yellowbelly sunfish) - rare in the lake.

37. L. megalotis (longear) - only one was collected.

38. Pomoxis annularis (white crappie) - not too common; their numbers are declining.

39. P. nigromaculatus (black crappie) - this fish increased greatly in numbers during the second year and is presenting a problem by their small size.

40. Centrarchus macropterus (flier) - only one was collected by seining.

41. Ammocrypta vivax (Arkansas sand darter) - none was collected during the second year.

42. Etheostoma gracilie (slough darter) - none was collected during the second year.

Limnological Conditions

During the second year, the turbidity (Secchi disk) of Lake Murvaul ranged from 19 to 55 inches and averaged about 35 inches. The turbidity varied somewhat over different areas of the lake each time.

Air temperature ranged from 30 to 85 degrees F., while the water temperature ranged from 51 to 80 degrees F. The color of the water was usually green, but had a brown stain at times. Weather conditions varied from clear and calm, to sleet and light north winds.

Vegetation

During the spring of 1959 the first traces of various submerged aquatic vegetation began showing up. By late summer emergent species began making their appearances. Vegetation species present include Chara sp., Potemogeton sp., Sagittaria sp., Typha sp., and Nymphaeceae. Water district personnel were advised to begin a vegetation control program in order to keep the vegetation from getting overabundant.

Commercial Fishing

It was intended for contract netters to again remove rough fish from the lake during the spring of 1959, prior to spawning of these rough fish species. However, this plan failed to materialize so there was no large scale removal of rough fish from the lake.

Lake Management

There were two important lake management practices employed during the second year. First, there was the additional stocking of flathead catfish in the lake for bullhead control, which was a carry over from the first year.

The second and most important practice was the opening of the lake to public fishing on Memorial Day, May 30, 1959. Many hundreds of people converged on the lake and removed several thousand bass, bluegill, crappie, and other species of fish from the lake. However, since the opening date, bass fishing has been mediocre although "bream" fishing has been termed as excellent.

CONCLUSIONS AND RECOMMENDATIONS

During Lake Murvaul's second year of existence, the growth of game fish has slowed with largemouth bass the only species to show continuous growth. The large population of gizzard shad, bowfin, and small crappie are the biggest problems in the fish population. There was a marked decline in minnows, shiners, and other small fish species. Abundant growths of aquatic vegetation are becoming problems to the lake.

Considering the above discussion and conclusions, it is therefore recommended that:

1. Heavier fishing pressure be encouraged, especially for crappie and sunfish (bream).
2. The lake be kept closed to commerical fishing except that contract fishing be allowed for rough fish removal.
3. Bullhead catfish removal program being carried on by water district personnel be continued.
4. Additional flathead catfish be stocked.
5. An intensive vegetation control program be carried out.
6. Additional data be collected to keep population trends under observation.

Table 1. A checklist of Lake Murvaul species (second year of study)

I. Family: AMIIDAE - Bowfins
1. *Amia calva* - bowfin

II. Family: CLUPEIDAE - Herrings
2. *Dorosoma cepedianum* - gizzard shad

III. Family: ESOCIDAE - Pickerels
3. *Esox americanus* - grass pickerel

IV. Family: CATOSTOMIDAE - Suckers and buffalo fishes
4. *Ictiobus bubalus* - smallmouth buffalo
5. *Moxostoma poecilurum* - blacktail redhorse
6. *Minytrema melanops* - spotted sucker
7. *Erimyzon sucetta* - lake chubsucker

V. Family: CYPRINIDAE - Shiners and minnows
8. *Notemigonus crysoleucas* - golden shiner
9. *Opsopoeodus emiliae* - pugnose minnow
10. *Notropis fumeus* - ribbon shiner
11. *N. venustus* - spottail shiner
12. *N. lutrensis* - redhorse shiner
13. *N. stramineus* - sand shiner
14. *Pimephales vigilax* - parrot minnow

IV. Family: AMEIURIDAE - Freshwater catfishes
15. *Ictalurus punctatus* - channel catfish
16. *I. furcatus* - blue catfish
17. *I. melas* - black bullhead
18. *I. natalis* - yellow bullhead
19. *Pylodictus olivaris* - flathead catfish

VII. Family: CYPRINODONTIDAE - Killifish and topminnows
20. *Fundulus notatus* - blackstripe topminnow

VIII. Family: POECILIIDAE - Mosquitofishes
21. *Gambusia affinis* - common mosquitofish

IX. Family: CENTRARCHIDAE - Black basses and sunfishes
22. *Micropterus punctulatus* - spotted bass
23. *M. salmoides* - largemouth bass
24. *Chaenobryttus gulosus* - warmouth
25. *Lepomis cyanellus* - green sunfish
26. *L. punctatus* - spotted sunfish
27. *L. microlophus* - redear sunfish
28. *L. macrochirus* - bluegill sunfish
29. *L. auritus* - yellowbelly sunfish
30. *L. megalotis* - longear sunfish
31. *Pomoxis annularis* - white crappie
32. *P. nigromaculatus* - black crappie
33. *Centrarchus macropterus* - flier

Table 2. - Tabulation of bimonthly netting results on Lake Murvaul

No.	Species	Total last year	Dec.	Feb.	Apr.	Jun.	Aug.	Oct.	Total	Percent	Change from last year
1.	Lepisosteus productus *	1	0	0	0	0	0	0	0	0.00	-
2.	Amia calva *	182	5	45	45	7	3	5	110	10.16	-
3.	Dorosoma cepedianum *	57	3	5	13	9	35	145	210	19.39	+
4.	Esox americanus *	13	6	11	0	0	0	3	20	1.85	+
5.	Ictiobus bubalus *	13	0	0	0	0	0	1	1	0.09	-
6.	Carpiodes carpio *	27	0	0	0	0	0	0	0	0.00	-
7.	Moxostoma poecilurum *	6	1	0	0	0	0	0	1	0.09	-
8.	Minytrema melanops *	20	33	4	6	1	15	4	63	5.82	+
9.	Erimyzon sucetta *	40	0	56	8	13	18	9	104	9.60	+
10.	Notemigonus crysoleucas *	29	0	12	1	4	1	1	19	1.75	-
11.	Ictalurus punctatus	2	0	1	2	0	4	0	7	0.65	+
12.	I. furcatus	1	0	0	2	0	1	1	4	0.37	+
13.	I. melas *	369	20	5	59	47	8	7	146	13.48	-
14.	I. natalis *	110	1	27	14	24	4	18	88	8.13	-
15.	Pylodictus olivaris	0	0	0	0	0	1 **	0	0	0.00	
16.	Micropterus punctulatus	4	1	0	0	0	0	0	1	0.09	-
17.	M. salmoides	130	40	38	30	5	13	6	132	12.19	+
18.	Chaenobryttus gulosus	91	1	4	3	2	3	2	15	1.39	-
19.	Lepomis cyanellus	13	0	1	3	0	0	0	4	0.37	-
20.	L. punctatus	5	0	0	0	0	1	0	1	0.09	-
21.	L. microlophus	8	0	0	1	0	5	0	6	0.55	-
22.	L. macrochirus	148	1	5	6	35	26	6	79	7.29	-
23.	L. auritus	11	0	0	3	0	0	0	3	0.28	-
24.	L. megalotis	1	0	0	0	0	0	1	1	0.09	+
25.	Pomoxis annularis	29	3	0	7	1	5	1	17	1.57	-
26.	P. nigromaculatus	10	3	3	8	11	23	2	50	4.62	+
27.	Centrarchus macropterus	5	0	1	0	0	0	0	1	0.09	-
	Totals	1325	118	218	211	159	165	212	1083	100.00	
	Game fish numbers	458	49	53	65	54	81	19	321		
	Rough fish numbers	867	69	165	146	105	84	193	762		
	Game fish percentages	34.57	41.53	24.31	30.81	33.97	49.09	8.96	29.64		-
	Rough fish percentages	65.43	58.47	75.69	69.19	66.03	50.91	91.04	70.36		+
	Number of species		13	15	17	12	16	16			

** caught and released - not included in the tally
* indicates rough fish species

Table 3. - Weights of fish in pounds collected by netting on Lake Murvaul

No.	Species	Dec.	Feb.	Apr.	Jun.	Aug.	Oct.	Total	Percent	Total number	Average weight in pounds
1.	Amia calva *	25.38	154.87	108.94	4.69	7.19	15.25	316.32	39.58	110	2.87
2.	Dorosoma cepedianum *	1.00	3.19	4.25	1.00	4.13	17.13	30.70	3.84	210	0.14
3.	Esox americanus *	2.50	4.00	0.00	0.00	0.00	1.75	8.25	1.03	20	0.41
4.	Ictiobus bubalus *	0.00	0.00	0.00	0.00	0.00	7.25	7.25	0.91	1	7.25
5.	Moxostoma poecilurum *	0.25	0.00	0.00	0.00	0.00	0.00	0.25	0.03	1	0.25
6.	Minytrema melanops *	21.38	6.00	2.88	0.63	12.31	3.94	47.14	5.90	63	0.74
7.	Erimyzon sucetta *	2.06	14.13	1.69	3.25	5.25	3.31	29.69	3.72	104	0.28
8.	Notemigonus crysoleucas *	0.00	2.00	0.13	0.75	0.25	0.13	3.26	0.41	19	0.17
9.	Ictalurus punctatus	0.00	0.56	3.00	0.00	1.69	0.00	5.25	0.66	7	0.75
10.	I. furcatus	0.00	0.00	2.88	0.00	2.38	2.00	7.26	0.91	4	1.81
11.	I. melas *	11.13	1.56	27.75	10.81	3.69	2.25	57.19	7.16	146	0.39
12.	I. natalis *	0.25	11.63	9.75	8.56	1.19	7.69	39.07	4.89	88	0.44
13.	Micropterus punctulatus	0.40	0.00	0.00	0.00	0.00	0.00	0.40	0.05	1	0.40
14.	M. salmoides	60.00	62.00	43.88	7.56	22.69	15.25	211.38	26.45	132	1.60
15.	Chaenobryttus gulosus	0.20	1.56	1.00	0.28	0.75	0.69	4.48	0.56	15	0.29
16.	Lepomis cyanellus	0.00	0.19	0.50	0.00	0.00	0.00	0.69	0.09	4	0.17
17.	L. punctatus	0.00	0.00	0.00	0.00	0.13	0.00	0.13	0.02	1	0.13
18.	L. microlophus	0.00	0.00	0.25	0.00	1.19	0.00	1.44	0.18	6	0.24
19.	L. macrochirus	0.27	1.19	1.75	5.94	4.69	1.31	15.15	1.89	79	0.19
20.	L. auritus	0.00	0.00	0.81	0.00	0.00	0.00	0.81	0.10	3	0.27
21.	L. megalotis	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.02	1	0.19
22.	Pomoxis annularis	4.88	0.00	0.75	0.10	0.63	0.25	6.61	0.82	17	0.38
23.	P. nigromaculatus	1.06	0.25	0.88	1.00	2.50	0.31	6.00	0.75	50	0.12
24.	Centrarchus macropterus	0.00	0.25	0.00	0.00	0.00	0.00	0.25	0.03	1	0.25
	Totals	130.76	263.38	211.09	44.57	70.66	78.70	799.16	100.00	1,083	0.73
	Game fish weight	66.81	66.00	55.70	14.88	36.65	20.00	260.04			
	Rough fish weight	63.95	197.38	155.39	29.69	34.01	58.70	539.12			
	Game fish percentages	51.10	25.06	26.39	33.44	51.86	25.41	32.54			
	Rough fish percentages	48.90	74.94	73.61	66.56	48.14	74.59	67.46			

* indicates rough fish species

Table 4. - Tabulation of seining results on Lake Murvaul

No.	Species	Total last year	Dec.	Feb.	Apr.	Jun.	Aug.	Oct.	Total	Times collected
1.	Dorosoma cepedianum	5,089	0	0	5	0	3	0	8	2
2.	Esox americanus	57	0	0	2	0	0	0	2	1
3.	Erimyzon sucetta	1	0	0	0	0	0	0	0	0
4.	Notemigonus crysoleucas	333	0	0	0	0	0	1	1	1
5.	Opsopoeodus emiliae	0	0	0	0	0	0	30	30	1
6.	Notropis fumeus	1	0	0	0	0	2	0	2	1
7.	N. venustus	33	0	1	0	0	0	7	8	2
8.	N. lutrensis	82	0	1	0	0	76	2	79	3
9.	N. stramineus	157	1	0	0	0	1	0	2	2
10.	N. atrocaudalis	11	0	0	0	0	0	0	0	0
11.	N. volucellus	5	0	0	0	0	0	0	0	0
12.	N. maculatus	30	0	0	0	0	0	0	0	0
13.	Hybognathus nuchalis	15	0	0	0	0	0	0	0	0
14.	Pimephales vigilax	85	0	0	0	0	0	11	11	1
15.	Ictalurus melas	160	0	0	0	0	0	0	0	0
16.	I. natalis	4	0	0	0	0	0	0	0	0
17.	Schilbeodes gyrinus	1	0	0	0	0	0	0	0	0
18.	Fundulus notatus	1	0	0	0	0	0	2	2	1
19.	Gambusia affinis	619	0	0	5	0	9	23	37	3
20.	Aphredoderus sayanus	3	0	0	0	0	0	0	0	0
21.	Micropterus salmoides	222	2	0	99	0	4	0	105	3
22.	Chaenobryttus gulosus	4	0	0	0	0	0	0	0	0
23.	Lepomis cyanellus	2	0	0	0	0	0	0	0	0
24.	L. punctatus	16	0	0	0	0	2	3	5	2
25.	L. microlophus	6	0	0	2	0	1	0	3	2
26.	L. macrochirus	86	0	0	0	0	147	131	278	2
27.	L. megalotis	0	0	0	0	0	0	3	3	1
28.	Pomoxis annularis	26	0	0	0	0	1	0	1	1
29.	P. nigromaculatus	19	0	0	0	0	0	0	0	0
30.	Centrarchus macropterus	11	0	0	0	0	0	0	0	0
31.	Ammocrypta vivax	14	0	0	0	0	0	0	0	0
32.	Etheostoma gracilie	6	0	0	0	0	0	0	0	0
	Totals	7,099	3	2	113	0	246	213	577	
	Number of species	7 (avg.)	2	2	5	0	10	8	4.5 (avg.)	
	Number of drags	83	10	[illegible]	11	8	8	8	47	

Table 5. - Standard lengths in millimeters of some species showing growth

Species		December	February	April	June	August	October
Largemouth bass	Numbers	40	38	30	5	13	6
	Range	217-340	215-350	215-350	188-310	157-334	309-342
	Average	268.72	267.28	273.10	273.40	284.30	327.16
Bluegill sunfish	Numbers	1		5	10	10	6
	Range	143		123-148	120-160	99-145	103-138
	Average	143.00		136.80	138.10	118.70	124.33
Warmouth	Numbers	1	4	2	2	4	2
	Range	130	144-170	155-162	117-118	106-164	128-156
	Average	130.00	155.75	158.50	117.50	129.75	142.00
White crappie	Numbers	3		5	1	5	1
	Range	244-255		100-118	120	118-137	126
	Average	249.66		111.80	120.00	128.80	126.00
Black crappie	Numbers	3		5	10	10	2
	Range	98-212		104-115	103-127	110-127	113-119
	Average	140.00		109.40	112.70	118.00	116.00
Channel catfish	Numbers		1	2		4	
	Range		242	295-347		190-285	
	Average		242.00	321.00		224.25	

Table 6. - Data on condition of principle netted game fish from Lake Murvaul

Species	Numbers	Standard length range millimeters	Average standard length in millimeters	Weight range in grams	Average weight in grams	"K" range	Average "K"	"K" last year
Micropterus salmoides (Largemouth bass)	132	157-350	274.20	80-1701	694.45	1.97-4.68	3.18	2.89
M. punctulatus (Spotted bass)	1		195.00		182.00		2.46	2.50
Chaenobryttus gulosus (Warmouth)	15	106-170	140.53	46- 198	117.06	3.14-4.61	3.90	4.36
Lepomis macrochirus (Bluegill)	32	99-160	129.40	35- 205	102.65	3.38-5.67	4.50	4.93
L. microlophus (Redear)	5	114-154	142.00	54- 136	108.60	3.48-4.02	3.69	3.84
Ictalurus punctatus (Channel catfish)	7	190-347	254.42	103- 907	336.71	1.35-2.17	1.67	none
I. furcatus (Blue catfish)	4	285-365	333.50	454-1077	829.25	1.96-2.36	2.17	none
Pomoxis annularis (White crappie)	15	100-255	146.53	22- 794	183.46	2.18-4.79	2.98	3.52
P. nigromaculatus (Black crappie)	30	98-212	116.86	27- 397	55.40	2.30-4.17	3.01	3.62

Figure 1. Separating catfish taken from the draft tubes at the Denison Dam powerhouse prior to transferring to Lake Murvaul.

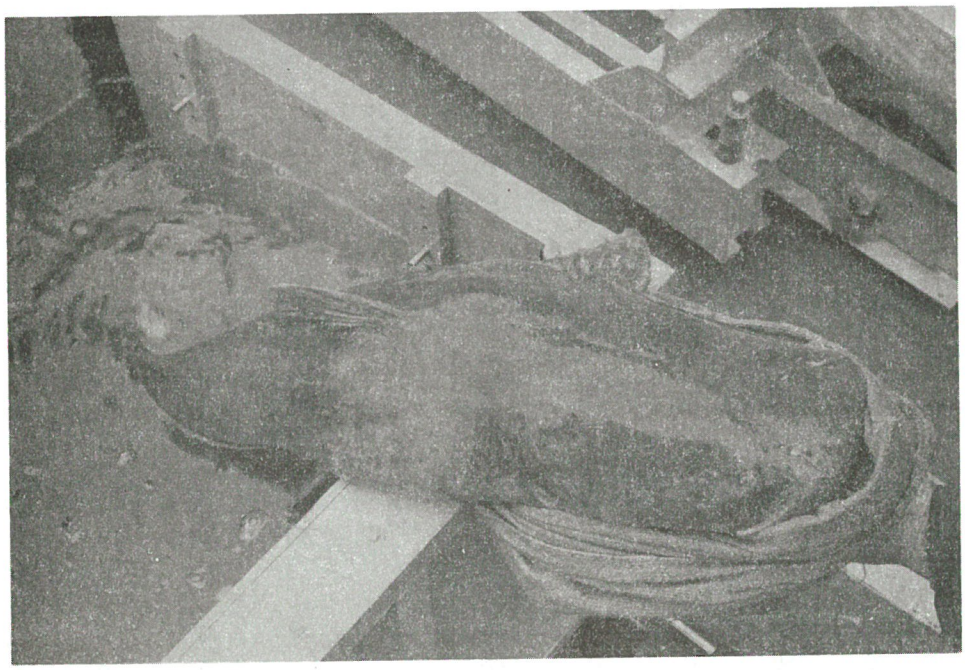

Figure 2. One of the large flathead catfish transferred to Lake Murvaul from Denison Dam.

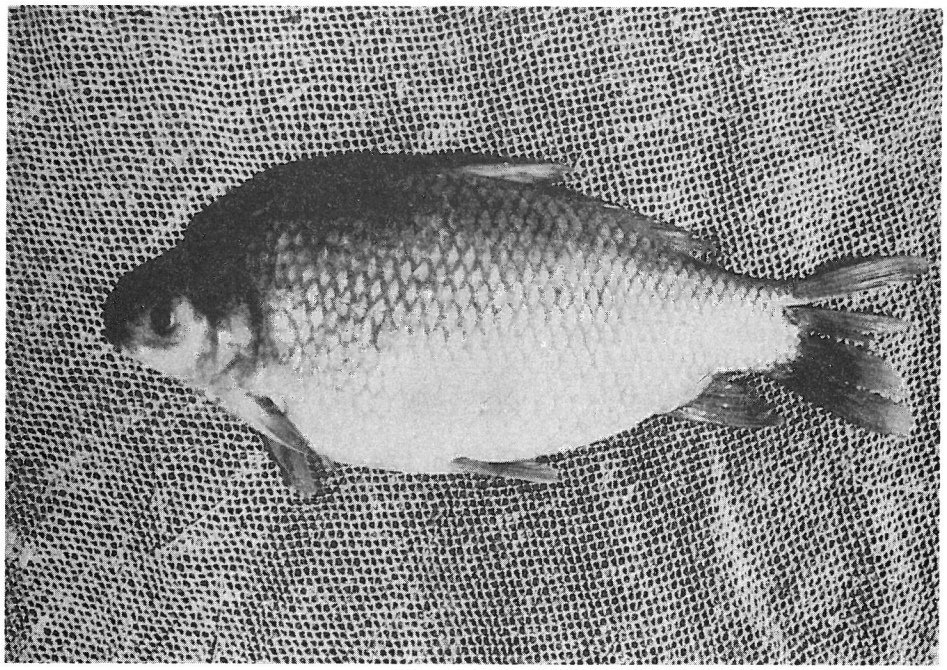

Figure 3. A smallmouth buffalo taken from Lake Murvaul. It weighed 7.25 pounds.

Figure 4. A nice string of "bream" taken on opening day of public fishing at Lake Murvaul. (Photos by the author)

PART II

December 1, 1959 through May 31, 1960

PROCEDURE

During this period data was collected quarterly. As before there were six gill net sets made each time. Only general limnological data was recorded. Seining collections were also made each time.

Netting

Experimental type gill nets were set in the same manner as in Part I. Only twelve sets made up of sixteen nets have been set during this period.

Fish caught in the nets were weighed collectively by species and individual game fish were weighed and measured for both standard and total lengths. Spot checks were made on stomach contents and sexual development.

Seining

Seining collections were made in the same manner as before. Only two collections were made during this period.

Limnological

Limnological data collected during this period included the surface water temperature, air temperature, turbidity (Secchi disk), color of the water, cloud conditions, wind and time of net sets.

FINDINGS

Insufficient data has been collected during this period to draw any conclusions except that black and white crappie are continuing to increase in numbers but are not increasing in size. Small, four-inch crappie were flowing eggs and milt in the May 1960 collection.

Also, submerged vegetation is beginning to choke some areas of the lake.

CONCLUSIONS AND RECOMMENDATIONS

All data collected during this period will be included in the final report at the end of the third year of Lake Murvaul's existence (November 1960).

Prepared by John N. Dorchester
Assistant Project Leader

Approved by Marion Toole
Director Inland Fisheries Division

Date August 10, 1960