

SEGMENT COMPLETION REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-3-R-10

Fisheries Investigations and Surveys of the Waters of Region 3-B

Job No. B-18

Title: Fisheries Reconnaissance

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ABSTRACT

During this segment reconnaissance surveys were conducted on seven reservoirs in Region 3-B. Data for these lakes are written separately in the following order: Tyler State Park Lake, Dam "B" Reservoir, Lake O' the Pines, Lake Murvaul, Lake Striker, Caddo Lake and Lake Tyler. Netting and seining collections were made on each lake and the data compiled during this segment were compared to that of past collections. Water analyses which included pH, methyl-orange alkalinity, chlorides, turbidity readings and surface temperatures were also run.

According to the data included in this report, there have been few gross changes in the fish populations of the seven reservoirs studied. Excessive aquatic vegetation however, is becoming an increased problem in several of the lakes.

The water quality of the reservoirs is generally good, which indicates that they are capable of supporting their existing fish populations.

SEGMENT COMPLETION REPORT

State of Texas

Project No. F-3-R-10

Name: Fisheries Investigations and Surveys
of the Waters of Region 3-B.

Job No. B-18

Title: Fisheries Reconnaissance

Period Covered: February 1, 1962 - January 31, 1963

OBJECTIVE:

To conduct limited investigations to obtain current information concerning gross changes in fishing conditions and factors influencing fish populations.

TECHNIQUES USED:

Netting trips were made to seven reservoirs that had previously been surveyed. These lakes are as follows: Tyler State Park Lake, Dam "B" Reservoir, Lake O' the Pines, Lake Murvaul, Lake Striker, Caddo Lake and Lake Tyler.

Fish were collected with experimental type gill nets, the dimensions of which are 125 feet long, 6 and 8 feet deep with mesh size ranging from 1 to 3 inches. Also bag seines were used to make seining collections on some of the lakes surveyed. These seines were of two sizes, one was 26 feet long, 6 feet deep with 1/4-inch mesh. The other was 15 feet long, 4 feet deep with 1/8-inch mesh.

Observations were made on several items such as water level, status of aquatic vegetation, fishing pressure and public access.

Water analysis includes pH, methyl-orange alkalinity, chlorides, turbidity (secchi) and water temperature.

The findings for each lake are written separately and as follows:

TYLER STATE PARK LAKE

Tyler State Park Lake, located in Smith County 10 miles north of Tyler, was first surveyed in 1959. A complete lake renovation was completed in 1961. Surveys were also conducted in 1960, 1961 and during this segment.

Table 1 is a checklist of all species taken from the lake over the 4-year period. In 1962, four species were added to the checklist in addition to the return of a rough fish species. Table 2 compares the percentage of numbers of fish taken by netting and Table 3 compares the percentage by weight. These data indicate that the fish population is still in good condition compared to the pre-treatment figure. Table 4 compares the average weight in grams, average standard length in millimeters and average coefficients of condition for four principal game fish species for the four periods. Bluegill sunfish is the only fish to cause concern as their average size is decreasing.

The water quality is fairly constant with no change at all in the pH. The water level dropped about 18 inches during the spring and summer drouth of 1962. Fishing on the lake has only been poor to fair at times, due mainly to the extremely clear water. Though recommendations were made to the Parks Board to fertilize the lake at regular intervals, this was not done because of the lack of funds.

Vegetation in the form of muskgrass (Chara sp.) began reappearing in the lake in late summer. Plans have been made to treat the lake in 1963 with copper sulphate. Public access is excellent and people utilize the lake to a large extent, however, the only boat launch is unpaved and is easily washed out.

Table 1. A checklist of Tyler State Park Lake fish species.

<u>Species</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
Spotted gar (<u>Lepisosteus oculatus</u>)		x		
Blacktail redhorse (<u>Moxostoma poecilurum</u>)	x			
Lake chubsucker (<u>Erimyzon sucetta</u>)	x	x		
Carp (<u>Cyprinus carpio</u>)	x			
Golden shiner (<u>Notemigonus crysoleucas</u>)		x		
Red shiner (<u>Notropis lutrensis</u>)	x		x	x
Mimic shiner (<u>Notropis volucellus</u>)				x
Channel catfish (<u>Ictalurus punctatus</u>)			x	x
Yellow bullhead (<u>Ictalurus natalis</u>)	x	x		x
Blackstripe topminnow (<u>Fundulus notatus</u>)	x			
Mosquito fish (<u>Gambusia affinis</u>)	x			x
Largemouth bass (<u>Micropterus salmoides</u>)	x	x	x	x
Warmouth (<u>Chaenobryttus gulosus</u>)	x	x	x	
Green sunfish (<u>Lepomis cyanellus</u>)				x
Spotted sunfish (<u>Lepomis punctatus</u>)	x			x
Redear sunfish (<u>Lepomis microlophus</u>)	x	x		x
Bluegill sunfish (<u>Lepomis macrochirus</u>)	x	x	x	x
Longear sunfish (<u>Lepomis megalotis</u>)		x		
White crappie (<u>Pomoxis annularis</u>)				x
Black crappie (<u>Pomoxis nigromaculatus</u>)	—	x	—	—
Number of Species	12	10	5	11

Table 2. Comparison of per cent of numbers of netted fish from Tyler State Park Lake.

<u>Species</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
Spotted gar*	0	0.89	0	0
Lake chubsucker*	16.67	55.37	0	0
Carp*	4.17	0	0	0
Golden shiner*	0	0.89	0	0
Channel catfish	0	0	6.67	40.00
Yellow bullhead*	41.66	0.89	0	5.00
Largemouth bass	12.50	7.14	40.00	5.00
Warmouth	4.17	5.36	40.00	15.00
Redear sunfish	4.17	10.72	0	0
Bluegill sunfish	16.66	15.18	13.33	15.00
Longear sunfish	0	0.89	0	0
White crappie	0	0	0	20.00
Black crappie	0	2.67	0	0
Rough Fish*	62.50	58.04	0	5.00
Game Fish	37.50	41.96	100.00	95.00
Total	100.00	100.00	100.00	100.00

Table 3. Comparison of per cent of weight of netted fish from Tyler State Park Lake.

<u>Species</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
Spotted gar*	0	1.64	0	0
Lake chubsucker*	16.62	58.14	0	0
Carp*	23.56	0	0	0
Golden shiner*	0	0.39	0	0
Channel catfish	0	0	11.96	59.89
Yellow bullhead*	39.22	1.55	0	2.86
Largemouth bass	10.56	20.12	66.86	25.12
Warmouth	0.96	2.41	18.89	6.80
Redear sunfish	2.29	7.80	0	0
Bluegill sunfish	6.79	5.72	2.29	1.47
Longear sunfish	0	0.68	0	0
White crappie	0	0	0	3.86
Black crappie	0	1.55	0	0
Rough Fish*	79.40	61.72	0	2.86
Game Fish	20.60	38.28	100.00	97.14
Total	100.00	100.00	100.00	100.00

Table 4. Comparison of average standard lengths in millimeters of several game fish species from Tyler State Park Lake.

Species	1959		1960	1961		1962	
	Number of Fish	Length	Not Taken	Number of Fish	Length	Number of Fish	Length
Channel catfish	0	0		1	340.00	7	286.00
Largemouth bass	3	209.00		6	268.83	1	355.00
Warmouth	1	117.00		6	163.50	3	131.66
Bluegill sunfish	4	137.50		2	110.50	3	95.00

Comparison of average weight in grams of several game fish species from Tyler State Park Lake

Species	1959		1960	1961		1962	
	Number of Fish	Weight	Not Taken	Number of Fish	Weight	Number of Fish	Weight
Channel catfish	0	0		1	737.00	7	459.71
Largemouth bass	3	216.60		6	680.50	1	1474.00
Warmouth	1	58.00		6	191.66	3	119.33
Bluegill sunfish	4	104.00		2	55.00	3	28.00

Comparison of average coefficients of condition ("K") of several game fish species from Tyler State Park Lake.

Species	1959		1960	1961		1962	
	Number of Fish	"K"	Not Taken	Number of Fish	"K"	Number of Fish	"K"
Channel catfish	0	0		1	1.87	7	1.62
Largemouth bass	3	2.15		6	2.97	1	3.29
Warmouth	1	3.62		6	4.31	3	4.19
Bluegill sunfish	4	3.66		2	4.08	3	3.27

WATER QUALITY

	1959	1960	1961	1962
pH	7.6	Not taken	7.6	7.6
Alkalinity	27.00 p.p.m.		0.5 p.p.m.	30.00 p.p.m.
Chlorides	28.37 p.p.m.		21.28 p.p.m.	21.28 p.p.m.

DAM "B" RESERVOIR

Dam "B" Reservoir, located in Jasper and Tyler Counties on the Angelina and Neches Rivers had considerable netting conducted on it in 1958-59 followed by reconnaissance surveys in 1961 and 1962.

Table 5 is a checklist of all fish collected in the various surveys. During the 1962 survey there were eight species added to the checklist. These included threadfin shad, a very important forage fish. Table 6 and 7 is a comparison of the per cent of numbers and weights respectively of the netted fish. This lake has one of the highest percentage of game fish in Region 3-B. Gizzard shad, channel catfish and white crappie made the strongest increases. White bass which were introduced into the lake on several occasions have apparently failed to become established as none has been collected since 1959.

Vegetation, which has always been a problem, has increased to serious proportions. Besides the infestation of water hyacinths, thick growths of willow and buttonbush have become established in several sections of the lake. Also submerged vegetation has become quite a problem. The water level this past year was lower than usual in the late summer and it is hoped that the lake can be drained, possibly in 1965, to help rid it of vegetation.

U. S. Corps of Engineers estimate that more than 624,000 fishermen visited the lake in 1962. It was estimated that a million and a quarter pounds of fish were harvested by sportsmen. Nevertheless, there have been complaints of the crappie fishing being poorer this year and many are infested with leeches. The crappie are getting more numerous but smaller.

New areas of access are being opened and constructed by the U.S. Corps of Engineers.

Table 5. A checklist of Dam "B" Reservoir fish species.

Species	1958-59	1961	1962
Alligator gar (<u>Lepisosteus spatula</u>)	x		
Shortnose gar (<u>Lepisosteus platostomus</u>)	x		
Spotted gar (<u>Lepisosteus oculatus</u>)	x	x	x
Longnose gar (<u>Lepisosteus ossæus</u>)	x	x	x
Bowfin (<u>Amia calva</u>)	x		
Threadfin shad (<u>Dorosoma petenense</u>)			x
Gizzard shad (<u>Dorosoma cepedianum</u>)	x	x	x
Blue sucker (<u>Cycleptus elongatus</u>)	x		

Table 5. A checklist of Dam "B" Reservoir fish species (continued).

Species	1958-59	1961	1962
Smallmouth buffalo (<u>Ictiobus bubalus</u>)	x	x	x
River carpsucker (<u>Carpiodes carpio</u>)	x	x	x
Gray redhorse (<u>Moxostoma congestum</u>)	x		
Blacktail redhorse (<u>Moxostoma poecilurum</u>)	x		
Spotted sucker (<u>Minytrema melanops</u>)	x		x
Lake chubsucker (<u>Erimyzon sucetta</u>)	x		
Carp (<u>Cyprinus carpio</u>)	x		
Ribbon shiner (<u>Notropis fumeus</u>)	x		
Weed shiner (<u>Notropis texanus</u>)			x
Chub shiner (<u>Notropis potteri</u>)			x
Pallid shiner (<u>Notropis amnis</u>)	x		x
Blacktail shiner (<u>Notropis venustus</u>)	x	x	
Red shiner (<u>Notropis lutrensis</u>)	x	x	
Sand shiner (<u>Notropis stramineus</u>)	x		
Mimic shiner (<u>Notropis volucellus</u>)	x		
Silvery minnow (<u>Hybognathus nuchalis</u>)	x		x
Bullhead minnow (<u>Pimephales vigilax</u>)	x		x
Channel catfish (<u>Ictalurus punctatus</u>)	x	x	x
Blue catfish (<u>Ictalurus furcatus</u>)	x	x	x
Black bullhead (<u>Ictalurus melas</u>)	x		
Yellow bullhead (<u>Ictalurus natalis</u>)	x		
Flathead catfish (<u>Pylodictis olivaris</u>)	x	x	x
Golden topminnow (<u>Fundulus chrysotus</u>)	x		x
Blackstripe topminnow (<u>Fundulus notatus</u>)	x		x
Mosquitofish (<u>Gambusia affinis</u>)	x	x	x
Brook silversides (<u>Labidesthes sicculus</u>)	x		x
White bass (<u>Roccus chrysops</u>) *	x		
Spotted bass (<u>Micropterus punctulatus</u>)	x		x
Largemouth bass (<u>Micropterus salmoides</u>)	x	x	x
Warmouth (<u>Chaenobryttus gulosus</u>)	x		x
Spotted sunfish (<u>Lepomis punctatus</u>)	x		x
Redear sunfish (<u>Lepomis microlophus</u>)	x	x	x
Bluegill sunfish (<u>Lepomis macrochirus</u>)	x	x	x
Longear sunfish (<u>Lepomis megalotis</u>)			x
White crappie (<u>Pomoxis annularis</u>)	x	x	x
Black crappie (<u>Pomoxis nigromaculatus</u>)	x	x	x
River darter (<u>Hadropterus shumardi</u>)			x
Logperch (<u>Percina caprodes</u>)			x
Scaly sand darter (<u>Ammocrypta vivax</u>)			x
Bluntnose darter (<u>Etheostoma chlorosomum</u>)	x		
Slough darter (<u>Etheostoma gracile</u>)			x
Freshwater drum (<u>Aplodinotus grunniens</u>)			x
Number of species	41	16	33

* Introduced.

Table 6. Comparison of percentages of number of netted fish from Dam "B" Reservoir.

Species	1958-59	1961	1962
Alligator gar*	0.34	0	0
Longnose gar*	3.12	14.74	5.66
Shortnose gar*	0.08	6.31	0
Spotted gar*	4.68	0	5.00
Bowfin*	0.68	0	0
Gizzard shad*	16.27	10.53	27.00
Blue sucker*	0.08	0	0
Smallmouth buffalo*	22.11	18.95	14.33
River carpsucker*	4.96	4.21	6.34
Gray redhorse*	0.24	0	0
Blacktail redhorse*	0.36	0	0
Spotted sucker*	5.38	0	0.66
Lake chubsucker*	0.08	0	0
Carp*	0.80	0	0
Channel catfish	6.20	4.21	11.33
Blue catfish	2.72	12.63	3.00
Black bullhead*	0.16	0	0
Yellow bullhead*	0.47	0	0
Flathead catfish	0.60	2.11	0.34
Spotted bass	0.24	0	0
Largemouth bass	3.36	4.21	1.34
Warmouth	0.47	0	0
Redear sunfish	3.80	4.21	3.00
Bluegill sunfish	4.24	1.05	1.67
Longear sunfish	0	0	0.33
White crappie	10.60	2.11	10.00
Black crappie	5.40	5.26	4.00
Freshwater drum*	2.56	9.47	6.00
Rough Fish *	62.37	64.21	64.99
Game Fish	37.63	35.79	35.01
Total	100.00	100.00	100.00

Table 7. Comparison of percentages of weights of netted fish from Dam "B" Reservoir.

Species	1958-59	1961	1962
Alligator gar*	1.08	0	0
Longnose gar*	6.47	29.34	15.73
Shortnose gar*	0.16	7.61	0
Spotted gar*	9.70	0	6.57
Bowfin*	2.86	0	0
Gizzard shad*	6.17	3.39	13.79
Blue sucker*	0.20	0	0
Smallmouth buffalo*	29.23	28.31	27.23
River carpsucker*	7.38	4.79	10.77
Gray redhorse*	0.36	0	0
Blacktail redhorse*	0.14	0	0
Spotted sucker*	4.75	0	0.29
Lake chubsucker*	0.02	0	0
Carp*	2.42	0	0
Channel catfish	4.29	1.84	7.27
Blue catfish	3.08	7.48	3.39
Black bullhead*	0.21	0	0
Yellow bullhead*	0.24	0	0
Flathead catfish	1.91	3.57	1.86
Spotted bass	0.14	0	0
Largemouth bass	3.83	2.26	1.54
Warmouth	0.17	0	0
Redear sunfish	1.02	0.66	0.42
Bluegill sunfish	0.71	0.09	0.24
Longear sunfish	0	0	0.03
White crappie	6.59	1.38	4.09
Black crappie	3.66	2.13	3.00
Freshwater drum*	3.21	7.15	3.78
Rough Fish*	74.60	80.59	78.16
Game Fish	25.40	19.41	21.84
Total	100.00	100.00	100.00

LAKE O' THE PINES

Located west of Jefferson in Marion County, Lake O' the Pines was originally surveyed in 1958-59 but the lake level was lowered to facilitate further construction. The lake was resurveyed in 1960 and the first reconnaissance survey was made in 1961. Another reconnaissance survey was made in October 1962.

Table 8 is a check list of all species collected during the four periods. The percentages of numbers of netted fish are shown in Table 9. Among the game fish netted in 1962, the black crappie showed a decided increase over the 1961 collection. This species composed 20.12 per cent of the 1962 collection as compared to 7.26 per cent of the 1961 collection. Largemouth bass decreased from 7.26 per cent last year to 3.55 per cent in 1962. Several species of rough fish showed a decrease in percentage. The gizzard shad decreased from 44.14 per cent to 30.78 per cent. Bullheads were also down slightly. The spotted gar however, increased from 2.79 per cent last year to 6.51 per cent in 1962. Table 10 shows the results of percentages by weights of fish netted.

The "K" factor data does not show any marked change when compared to the 1961 collection. The crappie do, however, show a definite increase in size. This indicates that these species are well established in the lake. Table 11 contains the average lengths, weights and "K" factor data on several game fish species.

The water analysis made in 1962 indicated that in general the water quality of the lake has not changed greatly. Both the methyl orange alkalinity and the chlorides increased since 1961 but the pH decreased from 7.0 to 6.8. Water analysis data for the four periods is contained in Table 11, also.

Submerged vegetation continues to be a major problem in the lake. The level of the lake is to be raised 1 1/2 feet due to public complaints of brush and vegetation in the upper end. It is felt that this will only be a temporary relief.

The Corps of Engineers records indicate that over three million people visited Lake O' the Pines during the past year. Public access to the lake has also been greatly improved.

Table 8. A checklist of Lake O' the Pines fish species.

<u>Species</u>	<u>1958-59</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
Shortnose gar (<u>Lepisosteus platostomus</u>)	x			
Spotted gar (<u>Lepisosteus oculatus</u>)	x	x	x	x
Longnose gar (<u>Lepisosteus osseus</u>)	x	x		
Bowfin (<u>Amia calva</u>)	x	x		x
Threadfin shad (<u>Dorosoma petenense</u>)	x	x	x	
Gizzard shad (<u>Dorosoma cepedianum</u>)	x	x	x	x
Grass pickerel (<u>Esox americanus</u>)	x	x	x	x
Chain pickerel (<u>Esox niger</u>)	x	x		
Smallmouth buffalo (<u>Ictiobus bubalus</u>)	x	x		
Blacktail redhorse (<u>Moxostoma poecilurum</u>)	x			
Spotted sucker (<u>Minytrema melanops</u>)	x	x	x	x
Lake chubsucker (<u>Erimyzon sucetta</u>)	x	x	x	x
Carp (<u>Cyprinus carpio</u>)	x	x		
Golden shiner (<u>Notemigonus crysoleucas</u>)	x			x
Ribbon shiner (<u>Notropis fumeus</u>)	x	x		
Spottail shiner (<u>Notropis venustus</u>)	x	x	x	x
Redhorse shiner (<u>Notropis lutrensis</u>)	x	x	x	x
Sand shiner (<u>Notropis stramineus</u>)	x			
Mimic shiner (<u>Notropis volucellus</u>)	x			
Silvery minnow (<u>Hybognathus nuchalis</u>)	x	x		
Bullhead minnow (<u>Pimephales vigilax</u>)	x	x		x
Channel catfish (<u>Ictalurus punctatus</u>)	x	x	x	
Blue catfish (<u>Ictalurus furcatus</u>)	x	x		
Black bullhead (<u>Ictalurus melas</u>)	x	x	x	x
Yellow bullhead (<u>Ictalurus natalis</u>)	x	x	x	x
Flathead catfish (<u>Pylodictis olivaris</u>)	x	x		
Golden topminnow (<u>Fundulus chrysotus</u>)	x	x		x
Starhead topminnow (<u>Fundulus notti</u>)		x		
Blackstripe topminnow (<u>Fundulus notatus</u>)	x	x	x	x
Common mosquitofish (<u>Gambusia affinis</u>)	x	x	x	x
Pirate perch (<u>Aphredoderus sayanus</u>)	x			
Brook silversides (<u>Labidesthes sicculus</u>)	x	x	x	x
White bass (<u>Roccus chrysops</u>)	x	x	x	x
Spotted bass (<u>Micropterus punctulatus</u>)	x	x		
Largemouth bass (<u>Micropterus salmoides</u>)	x	x	x	x
Warmouth (<u>Chaenobryttus gulosus</u>)	x	x	x	x
Green sunfish (<u>Lepomis cyanellus</u>)	x			
Spotted sunfish (<u>Lepomis punctatus</u>)	x	x	x	x
Redear sunfish (<u>Lepomis microlophus</u>)	x	x	x	x
Bluegill sunfish (<u>Lepomis macrochirus</u>)	x	x	x	x
Redbreast sunfish (<u>Lepomis auritus</u>)	x	x		
Longear sunfish (<u>Lepomis megalotis</u>)	x	x		
White crappie (<u>Pomoxis annularis</u>)	x	x	x	x
Black crappie (<u>Pomoxis nigromaculatus</u>)	x	x	x	x
Flier (<u>Centrarchus macropterus</u>)	x	x		
Blackside darter (<u>Hadropterus maculatus</u>)	x			
Log perch (<u>Percina caprodes</u>)	x	x		
Freshwater drum (<u>Aplodinotus grunniens</u>)	x			
Number of species	47	39	22	24

Table 9. Comparison of percentages of numbers of netted fish from Lake O' the Pines.

Species	1958-59	1960	1961	1962
Shortnose gar*	0.08	0	0	0
Spotted gar*	18.23	13.44	2.79	6.51
Longnose gar*	0.42	0.23	0	0
Bowfin*	1.04	0.80	0	0.59
Threadfin shad*	0	0	0.56	0
Gizzard shad*	7.00	26.19	44.14	30.78
Grass pickerel*	0.45	0.12	0	0.59
Chain pickerel*	0.40	0	0	0
Smallmouth buffalo*	10.78	0.58	0	0
Blacktail redhorse*	0.56	0	0	0
Spotted sucker*	2.03	10.20	8.94	5.33
Lake chubsucker*	0.56	0.12	0.56	6.51
Carp*	1.04	0.46	0	0
Golden shiner*	0.06	0	0	2.96
Channel catfish	4.98	0.58	2.23	0
Blue catfish	2.78	0.23	0	0
Black bullhead*	17.41	10.66	8.94	6.51
Yellow bullhead*	3.67	3.71	1.12	3.55
Flathead catfish	1.24	0.23	0	0
White bass	2.15	4.52	4.47	0.59
Spotted bass	2.82	0.12	0	0
Largemouth bass	6.46	5.21	7.26	3.55
Warmouth	4.49	2.67	1.12	1.77
Green sunfish	0.03	0	0	0
Spotted sunfish	0.59	0.80	0	0.59
Redear sunfish	0.54	1.51	2.79	2.96
Bluegill sunfish	3.73	7.88	4.47	5.91
Rebreast sunfish	0.11	0.58	0	0
Longear sunfish	0.25	0	0	0
White crappie	2.82	4.98	3.35	1.18
Black crappie	3.22	4.06	7.26	20.12
Flier	0	0.12	0	0
Freshwater drum*	0.06	0	0	0
Rough fish*	63.79	66.51	67.05	63.33
Game fish	36.21	33.49	32.95	36.67
Total	100.00	100.00	100.00	100.00

Table 10. Comparison of percentages of weights of all netted fish from Lake O' the Pines.

Species	1958-59	1960	1961	1962
Shortnose gar*	0.27	0	0	0
Spotted gar*	14.30	23.28	4.17	11.22
Longnose gar*	0.77	1.16	0	0
Bowfin*	3.47	5.98	0	1.41
Threadfin shad*	0	0	0.03	0
Gizzard shad*	3.50	19.34	33.03	24.03
Grass pickerel*	0.22	0.05	0	0.42
Chain pickerel*	0.17	0	0	0
Smallmouth buffalo*	30.12	3.31	0	0
Blacktail redhorse*	0.23	0	0	0
Spotted sucker*	1.50	16.18	20.91	18.48
Lake chubsucker*	0.14	0.03	0.30	2.68
Carp*	1.98	1.34	0	0
Golden shiner*	0.01	0	0	0.60
Channel catfish	6.02	1.06	5.38	0
Blue catfish	3.32	0.52	0	0
Black bullhead*	13.43	6.44	13.03	6.11
Yellow bullhead*	2.64	2.80	0.98	3.65
Flathead catfish	3.35	0.90	0	0
White bass	1.80	4.65	6.25	1.55
Spotted bass	1.63	0.03	0	0
Largemouth bass	4.79	4.81	6.06	5.25
Warmouth	1.80	0.64	0.38	0.42
Green sunfish	0.01	0	0	0
Spotted sunfish	0.10	0.11	0	0.09
Redear sunfish	0.11	0.52	0.76	0.99
Bluegill sunfish	0.89	1.96	1.21	1.55
Redbreast sunfish	0.04	0.12	0	0
Longear sunfish	0.03	0	0	0
White crappie	1.70	2.94	3.03	2.11
Black crappie	1.56	1.78	4.48	19.44
Flier	0	0.05	0	0
Freshwater drum*	0.10	0	0	0
Rough fish *	72.85	79.91	72.45	68.60
Game fish	27.15	20.09	27.55	31.40
Total	100.00	100.00	100.00	100.00

Table 11. Comparison of average standard lengths in millimeters of several game fish species from Lake O' the Pines.

Species	1958-59		1960		1961		1962	
	Number of Fish	Length						
Channel catfish	136	292.40	5	315.40	4	381.00	0	0
Blue catfish	61	281.68	2	363.50	0	0	0	0
Flathead catfish	29	365.44	2	400.00	0	0	0	0
White bass	69	210.82	37	217.60	8	265.25	1	305.00
Spotted bass	55	200.87	1	180.00	0	0	0	0
Largemouth bass	146	219.97	32	221.03	12	236.33	6	269.83
Warmouth	114	147.12	21	127.04	2	155.00	3	125.00
Bluegill sunfish	72	116.15	40	125.60	8	134.62	10	132.90
White crappie	76	185.00	36	186.83	6	222.16	2	274.50
Black crappie	88	161.29	34	160.20	13	190.15	10	220.20

Comparison of average weight in grams of several game fish species from Lake O' the Pines.

Species	1958-59		1960		1961		1962	
	Number of Fish	Weight	Number of Fish	Weight	Number of Fish	Weight	Number of Fish	Weight
Channel catfish	136	481.69	5	651.20	4	1,007.00	0	0
Blue catfish	61	421.21	2	836.50	0	0	0	0
Flathead catfish	29	1,030.24	2	1,361.00	0	0	0	0
White bass	69	324.59	37	373.64	8	601.00	1	936.00
Spotted bass	55	291.63	1	119.00	0	0	0	0
Largemouth bass	146	336.26	32	338.03	12	353.33	6	462.83
Warmouth	114	155.77	31	86.85	2	134.50	3	80.00
Bluegill sunfish	72	80.02	40	95.22	8	108.50	10	94.10
White crappie	76	235.77	36	211.80	6	369.50	2	652.00
Black crappie	88	184.71	34	142.67	13	254.84	10	406.00

Comparison of average coefficients of condition ("K") of several game fish species from Lake O' the Pines.

Species	1958-59		1960		1961		1962	
	Number of Fish	"K"						
Channel catfish	136	1.72	5	1.80	4	1.72	0	0
Blue catfish	61	1.73	2	1.77	0	0	0	0
Flathead catfish	29	1.95	2	1.96	0	0	0	0
White bass	69	3.28	37	3.02	8	3.19	1	3.29
Spotted bass	55	2.73	1	2.04	0	0	0	0
Largemouth bass	146	2.74	32	2.59	12	2.48	6	2.32
Warmouth	114	4.58	21	3.76	2	3.52	3	3.62
Bluegill sunfish	72	4.53	40	4.36	8	4.40	10	3.79
White crappie	76	3.39	36	2.91	6	3.25	3	3.15
Black crappie	88	3.59	34	3.38	13	3.57	10	3.66

Lake O' the Pines Water Quality

	1958-59	1960	1961	1962
pH	6.5	6.9	7.0	6.8
Alkalinity	18.00 p.p.m.	41.00 p.p.m.	15.00 p.p.m.	38.00 p.p.m.
Chlorides	24.11 p.p.m.	54.37 p.p.m.	21.28 p.p.m.	35.46 p.p.m.

LAKE MURVAUL

Following a 3-year basic survey during 1958, 1959 and 1960 a reconnaissance survey was made in 1961 and 1962 at Lake Murvaul, located in Panola County. Table 12 is a checklist of all fish species taken from the lake since its beginning, late in 1957. One species was added to the list in 1962. Tables 13 and 14 presents the percentage of numbers and weights of netted fish. Over the year no great change has occurred though the game fish weight is up some 10 per cent. Table 15 is the data on the condition of crappie from the lake. Crappie have been considered a problem because of their large numbers and small size. However, those netted in 1962 were of a larger average size than those taken in previous years, except the first year.

Water quality is good and vegetation is a problem in some areas. The water level was down about 3 feet during the summer and winter of 1962. Efforts have been made to chemically control some types of the vegetation, both by lake personnel and Game and Fish Commission people.

Fishing has been good with "bream" being the fish most taken again. Public access is good with additional roads being built this past year. Construction is underway on a permanent Boy Scout Camp on the lake.

Table 12. A checklist of Lake Murvaul fish species.

Species	1958	1959	1960	1961*	1962
Spotted gar (<u>Lepisosteus oculatus</u>)	x				x
Bowfin (<u>Amia calva</u>)	x	x	x	x	x
Gizzard shad (<u>Dorosoma cepedianum</u>)	x	x	x	x	x
Grass pickerel (<u>Esox americanus</u>)	x	x	x	x	
Smallmouth buffalo (<u>Ictiobus bubalus</u>)	x	x	x		
River carpsucker (<u>Carpionodes carpio</u>)	x				
Blacktail redhorse (<u>Moxostoma poecilurum</u>)	x	x			
Spotted sucker (<u>Minytrema melanops</u>)	x	x	x	x	
Lake chubsucker (<u>Erimyzon sucetta</u>)	x	x	x	x	x
Golden shiner (<u>Notemigonus crysoleucas</u>)	x	x	x	x	x
Pugnose minnow (<u>Opsopoeodus emiliae</u>)		x			
Ribbon shiner (<u>Notropis fumeus</u>)	x	x			
Pallid shiner (<u>Notropis amnis</u>)					x
Blacktail shiner (<u>Notropis venustus</u>)	x	x	x		x
Redhorse shiner (<u>Notropis lutrensis</u>)	x	x	x		x
Sand shiner (<u>Notropis stramineus</u>)	x	x	x		
Blackspot shiner (<u>Notropis atrocaudalis</u>)	x	x	x		
Mimic shiner (<u>Notropis volucellus</u>)	x				
Taillight shiner (<u>Notropis maculatus</u>)	x				
Silvery minnow (<u>Hybognathus nuchalis</u>)	x				
Bullhead minnow (<u>Pimephales vigilax</u>)	x	x	x		
Channel catfish (<u>Ictalurus punctatus</u>)	x	x	x	x	x
Blue catfish (<u>Ictalurus furcatus</u>)	x	x	x	x	
Black bullhead (<u>Ictalurus melas</u>)	x	x	x	x	x
Yellow bullhead (<u>Ictalurus natalis</u>)	x	x	x	x	x
Flathead catfish (<u>Pylodictis olivaris</u>)	x	x			
Tadpole madtom (<u>Schilbeodes gyrinus</u>)	x				x

Table 12. A checklist of Lake Murvaul fish species (Continued)

Species	1958	1959	1960	1961*	1962
Blackstripe topminnow (<u>Fundulus notatus</u>)	x	x			
Common mosquitofish (<u>Gambusia affinis</u>)	x	x	x		x
Pirate perch (<u>Aphredoderus sayanus</u>)	x				
Spotted bass (<u>Micropterus punctulatus</u>)	x	x	x	x	x
Largemouth bass (<u>Micropterus salmoides</u>)	x	x	x	x	x
Green sunfish (<u>Lepomis cyanellus</u>)	x	x	x		
Spotted sunfish (<u>Lepomis punctatus</u>)	x	x	x	x	x
Redear sunfish (<u>Lepomis microlophus</u>)	x	x	x	x	x
Bluegill sunfish (<u>Lepomis macrochirus</u>)	x	x	x	x	x
Redbreast sunfish (<u>Lepomis auritus</u>)	x	x			x
Longear sunfish (<u>Lepomis megalotis</u>)	x	x	x		
White crappie (<u>Pomoxis annularis</u>)	x	x	x	x	x
Black crappie (<u>Pomoxis nigromaculatus</u>)	x	x	x	x	x
Flier (<u>Centrarchus macropterus</u>)	x	x			
Scaly sand darter (<u>Ammocrypta vivax</u>)	x				
Slough darter (<u>Etheostoma gracile</u>)	x		x		
Number of species	41	33	27	17	21

* Netting only.

Table 13. Comparison of percentages of numbers of netted fish from Lake Murvaul.

Species	1958	1959	1960	1961	1962
Spotted gar*	0.08	0	0	0	0.51
Bowfin*	13.74	10.16	4.11	3.58	0.51
Gizzard shad*	4.30	19.39	31.71	12.90	44.44
Grass pickerel *	0.98	1.85	0.29	0.38	0
Smallmouth buffalo*	0.98	0.09	0.09	0	0
River carpsucker*	2.04	0	0	0	0
Blacktail redhorse*	0.45	0.09	0	0	0
Spotted sucker*	1.50	5.82	1.91	0.69	0
Lake chubsucker*	3.00	9.60	6.78	15.23	7.07
Golden shiner*	2.19	1.75	0.48	2.94	4.55
Channel catfish	0.16	0.65	2.29	0.80	0.51
Blue catfish	0.08	0.37	0.19	0.16	0
Black bullheads*	27.85	13.48	16.24	13.05	5.81
Yellow bullhead*	8.30	8.13	6.40	8.72	6.05
Spotted bass	0.32	0.09	0	0	0
Largemouth bass	9.82	12.19	1.43	2.30	2.53
Warmouth	6.87	1.39	0.48	3.26	1.25
Green sunfish	0.98	0.37	0	0	0
Spotted sunfish	0.39	0.09	0.29	0.92	0
Redear sunfish	0.60	0.55	0.48	2.51	2.53
Bluegill sunfish	11.18	7.29	6.69	14.06	14.65
Redbreastsunfish	0.83	0.28	0	0	0.51
Longear sunfish	0.08	0.09	0.09	0	0
White crappie	2.19	1.57	13.56	16.63	6.30
Black crappie	0.70	4.62	6.49	1.87	2.78
Flier	0.39	0.09	0	0	0
Rough fish*	65.41	70.36	68.00	57.49	68.94
Game fish	34.59	29.64	32.00	42.51	31.06
Total	100.00	100.00	100.00	100.00	100.00

Table 14. Comparison of percentages of weights of all netted fish from Lake Murvaul.

Species	1958	1959	1960	1961	1962
Spotted gar*	**	0	0	0	2.98
Bowfin*		39.58	34.84	34.35	6.49
Gizzard shad*		3.84	8.84	5.64	33.05
Grass pickerel*		1.03	0.23	0.31	0
Smallmouth buffalo*		0.91	1.38	0	0
River carpsucker*		0	0	0	0
Blacktail redhorse*		0.03	0	0	0
Spotted sucker*		5.90	5.23	2.58	0
Lake chubsucker*		3.72	6.08	9.91	4.02
Golden shiner*		0.41	0.15	1.10	1.82
Channel catfish		0.66	6.84	2.70	4.39
Blue catfish		0.91	1.84	0.52	0
Black bullhead*		7.16	11.30	12.29	7.30
Yellow bullhead*		4.89	7.54	10.22	9.84
Spotted bass		0.05	0	0	0
Largemouth bass		26.45	6.79	6.63	13.98
Warmouth		0.56	0.21	1.23	0.48
Green sunfish		0.09	0	0	0
Spotted sunfish		0.02	0.06	0.19	0
Redear sunfish		0.18	0.45	1.45	1.53
Bluegill sunfish		1.89	2.41	5.47	6.41
Redbreast sunfish		0.10	0	0	0.18
Longear sunfish		0.02	0.02	0	0
White crappie		0.82	3.22	4.85	5.81
Black crappie		0.75	2.57	0.56	1.72
Flier		0.03	0	0	0
Rough fish*		67.46	75.59	76.40	65.50
Game fish		32.54	24.41	23.60	34.50
Total		100.00	100.00	100.00	100.00

** No weights were recorded the first year.

Table 15. Comparison of average standard lengths in millimeters of crappie from Lake Murvaul.

Species	1958		1959		1960		1961		1962	
	No.	Length								
White crappie	30	207.26	15	146.53	60	129.48	425	133.15	17	179.70
Black crappie	9	190.55	30	116.86	39	135.20	48	129.53	11	150.09

Comparison of average weight in grams of crappie from Lake Murvaul.

Species	1958		1959		1960		1961		1962	
	No.	Weight								
White crappie	30	380.30	15	183.46	60	60.93	425	66.65	17	184.29
Black crappie	9	299.55	30	55.40	39	79.56	48	59.35	11	113.09

Comparison of average coefficients of condition ("K") of crappie from Lake Murvaul.

Species	1958		1959		1960		1961		1962	
	No.	"K"								
White crappie	30	3.52	15	2.98	60	2.66	425	2.51	17	2.48
Black crappie	9	3.62	30	3.01	39	2.99	48	2.62	11	3.13

Water Quality

	1958	1959	1960	1961	1962
pH	6.6	Not taken	7.3	7.1	7.4
Alkalinity	44.00 p.p.m.		50.00 p.p.m.	32.00 p.p.m.	45.00 p.p.m.
Chlorides	27.56 p.p.m.		63.83 p.p.m.	35.46 p.p.m.	56.74 p.p.m.

LAKE STRIKER

Lake Striker has a 3-year basic survey beginning in 1957 and completed in 1960. Reconnaissance surveys were conducted in 1961 and 1962.

Table 16 is the checklist of fish species collected from the lake. During this segment there were two additional fish added to the checklist. Table 17 is the per cent of netted fish, comparing the 5 years. The high count of rough fish was caused by the exceptionally large amount of gizzard shad caught. Table 18 also indicates a high per cent by weight of rough fish. This was caused by spotted gar, gizzard shad and carp. Most of the game fish are in good condition as indicated by Table 19 and the water quality is normal for the lake at the present time.

Aquatic vegetation is increasing though some of it was treated by Game and Fish Commission personnel. Correspondence concerning recommendations for the management of the lake has been completely ignored by the President of the Water District. Under the prevailing circumstances it is doubtful if any additional work will be conducted on Lake Striker by Region 3-B personnel.

In spite of the apparent increase in rough fish and infestations of vegetation, fishing has remained good. Considering this and the lack of cooperation, any artificial population manipulation which might be considered would not be advisable anyway.

It is interesting to note that the white bass which was collected was unmarked indicating that it is probably an offspring of the fish stocked in the lake in previous years.

Table 16. A checklist of Lake Striker fish species.

Species	1958	1959	1960	1961	1962
Shortnose gar (<u>Lepisosteus platostomus</u>)					x
Spotted gar (<u>Lepisosteus oculatus</u>)	x	x	x	x	x
Bowfin (<u>Amia calva</u>)	x	x		x	
Gizzard shad (<u>Dorosoma cepedianum</u>)	x	x	x	x	x
Grass pickerel (<u>Esox americanus</u>)	x	x	x		
River carpsucker (<u>Carpionodes carpio</u>)		x			
Blacktail redhorse (<u>Moxostoma poecilurum</u>)	x	x			
Spotted sucker (<u>Minytrema melanops</u>)	x	x	x	x	x
Lake chubsucker (<u>Erimyzon sucetta</u>)	x	x	x	x	x
Carp (<u>Cyprinus carpio</u>)	x	x	x	x	x
Golden shiner (<u>Notemigonus crysoleucas</u>)	x	x	x		x
Pugnose minnow (<u>Opsopoeodus emiliae</u>)	x	x	x		
Texas shiner (<u>Notropis amabilis</u>)				x	
Ribbon shiner (<u>Notropis fumeus</u>)	x	x	x	x	
Redfin shiner (<u>Notropis umbratilis</u>)	x	x			
Brazos River shiner (<u>Notropis brazosensis</u>)	x				
Weed shiner (<u>Notropis texanus</u>)	x				x
River shiner (<u>Notropis blennius</u>)	x				
Blacktail shiner (<u>Notropis venustus</u>)	x	x	x	x	x
Redhorse shiner (<u>Notropis lutrensis</u>)	x	x	x	x	x
Sand shiner (<u>Notropis stramineus</u>)	x	x	x		
Blackspot shiner (<u>Notropis atrocaudalis</u>)	x				
Mimic shiner (<u>Notropis volucellus</u>)	x		x		
Bullhead minnow (<u>Pimephales vigilax</u>)	x	x	x	x	x
Silvery minnow (<u>Hybognathus nuchalis</u>)		x	x		
Channel catfish (<u>Ictalurus punctatus</u>)	x	x	x	x	x
Black bullhead (<u>Ictalurus melas</u>)	x	x	x	x	x
Yellow bullhead (<u>Ictalurus natalis</u>)	x	x	x	x	
Golden topminnow (<u>Fundulus chrysotus</u>)	x		x	x	
Blackstripe topminnow (<u>Fundulus notatus</u>)	x	x	x	x	x
Mosquitofish (<u>Gambusia affinis</u>)	x	x	x	x	x
Brook silversides (<u>Labidesthes sicculus</u>)	x	x	x	x	
White bass (<u>Roccus chrysops</u>)*					x
Spotted bass (<u>Micropterus punctulatus</u>)		x	x		
Largemouth bass (<u>Micropterus salmoides</u>)	x	x	x	x	x
Warmouth (<u>Chaenobryttus gulosus</u>)	x	x	x		x
Green sunfish (<u>Lepomis cyanellus</u>)	x	x	x		
Spotted sunfish (<u>Lepomis punctatus</u>)	x	x	x		x
Redear sunfish (<u>Lepomis microlophus</u>)	x	x	x	x	x
Bluegill sunfish (<u>Lepomis macrochirus</u>)	x	x	x	x	x
Redbreast sunfish (<u>Lepomis auritus</u>)	x	x			x
Longear sunfish (<u>Lepomis megalotis</u>)	x	x			
White crappie (<u>Pomoxis annularis</u>)	x	x	x	x	x
Black crappie (<u>Pomoxis nigromaculatus</u>)	x	x	x	x	
Scaly sand darter (<u>Ammocrypta vivax</u>)	x	x	x	x	
Slough darter (<u>Etheostoma gracile</u>)	x	x		x	
Number of species	40	37	32	25	23

* Believed to be offspring of stock fish

Table 17. Comparison of percentages of numbers of netted fish from Lake Striker.

Species	1957-58	1958-59	1959-60	1961	1962
Shortnose gar*	0	0	0	0	0.25
Spotted gar*	2.87	2.87	0.71	5.76	6.18
Bowfin*	0.18	0.39	0	1.69	0
Gizzard shad*	29.93	34.68	38.86	37.63	58.42
Grass pickerel*	0.15	0.07	0	0	0
River carpsucker*	0	0.07	0	0	0
Blacktail redhorse*	0.31	0.59	0	0	0
Spotted sucker*	4.75	14.79	17.29	2.72	1.98
Lake chubsucker*	7.82	5.67	7.86	1.36	3.96
Carp*	2.87	0.26	0.14	2.38	5.69
Golden shiner*	0	0.07	0	0	0
Channel catfish	0.26	2.15	2.86	6.10	0.25
Blue catfish	0	0	0	0.33	0
Black bullhead*	16.89	6.65	2.57	7.12	4.45
Yellow bullhead*	9.12	7.56	4.29	11.53	0
White bass	0	0	0	0	0.25
Largemouth bass	7.77	6.06	5.00	3.39	0.75
Spotted bass	0	0.52	0.29	0	0
Warmouth	3.02	1.50	0.43	0	0.50
Green sunfish	0	0	0.28	0	0
Spotted sunfish	2.70	0.59	1.71	0	0
Redear sunfish	0	0.20	0	1.01	4.70
Bluegill sunfish	6.83	10.03	13.57	11.53	10.14
Redbreast sunfish	1.82	0.39	0	0.33	2.23
Longear sunfish	0.20	0.78	0	0	0
White crappie	0.16	0.85	2.43	3.06	0.25
Black crappie	2.35	3.26	1.71	4.06	0
Rough fish*	74.89	73.66	71.72	70.19	80.93
Game fish	25.11	26.34	28.28	29.81	19.07
Total	100.00	100.00	100.00	100.00	100.00

Table 18. Comparison of percentages of weights of all netted fish from Lake Striker.

Species	1957-58**	1958-59**	1959-60	1961	1962
Shortnose gar*			0	0	1.39
Spotted gar*			3.24	23.12	25.89
Bowfin*			0	7.44	0
Gizzard shad*			17.78	11.85	29.81
River carpsucker*			0	0	0
Blacktail redhorse*			0	0	0
Spotted sucker*			40.38	5.53	5.22
Lake chubsucker*			7.23	0.45	3.90
Carp*			1.19	3.32	21.68
Golden shiner*			0	0	0
Channel catfish			5.72	15.94	0.63
Blue catfish			0	3.08	0
Black bullhead*			2.52	7.04	5.79
Yellow bullhead*			2.56	10.52	0
White bass			0	0	0.37
Spotted bass			0.09	0	0
Largemouth bass			12.86	3.78	0.88
Warmouth			0.13	0	0.25
Green sunfish			0.07	0	0
Spotted sunfish			0.23	0	0
Redear sunfish			0	0.40	1.80
Bluegill sunfish			2.07	2.18	1.96
Redbreast sunfish			0	0.08	0.31
Longear sunfish			0	0	0
White crappie			2.61	2.66	0.12
Black crappie			1.32	2.61	0
Rough fish*			74.90	69.27	93.68
Game fish			25.10	30.73	6.32
Total			100.00	100.00	100.00

** Weights not taken.

Table 19. Comparison of standard length in millimeters of several game fish species from Lake Striker.

Species	1957-58		1958-59		1959-60		1961		1962	
	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length
Channel catfish	0	0	32	265.62	20	319.25	18	342.50	1	350.00
Largemouth bass	142	225.60	88	266.31	35	278.14	10	247.20	3	256.66
Warmouth	58	127.50	21	143.00	3	135.66	0	0	2	146.00
Bluegill sunfish	65	119.20	72	106.12	45	103.73	22	124.40	20	123.85
White crappie	3	187.00	12	163.00	17	198.29	9	181.66	1	188.00

Comparison of weight in grams of several game fish species from Lake Striker.

Species	1957-58		1958-59		1959-60		1961		1962	
	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length
Channel catfish	0	0	32	335.40	20	599.00	18	932.94	1	879.00
Largemouth bass	142	332.80	88	606.23	35	705.20	10	399.50	3	400.00
Warmouth	58	99.80	21	124.47	3	82.33	0	0	2	137.50
Bluegill sunfish	65	92.30	72	47.18	45	39.40	22	80.77	20	91.00
White crappie	3	235.70	12	210.16	17	286.94	9	156.66	1	160.00

Comparison of average coefficients of condition ("K") of several game fish species from Lake Striker.

Species	1957-58		1958-59		1959-60		1961		1962	
	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length
Channel catfish	0	0	32	1.51	20	1.65	18	1.74	1	2.05
Largemouth bass	142	2.69	88	2.78	35	2.88	10	2.27	3	2.32
Warmouth	58	4.73	21	3.90	3	3.26	0	0	2	4.41
Bluegill sunfish	65	4.81	72	4.11	45	3.46	22	3.92	20	4.56
White crappie	3	3.29	12	2.76	17	2.88	9	2.47	1	2.41

Water Quality

	1957-58	1958-59	1959-60	1961	1962
pH	6.3	6.5	6.8	7.0	6.8
Alkalinity	21.0 p.p.m.	19.0 p.p.m.	26.0 p.p.m.	- -	8.0 p.p.m.
Chlorides	192.51p.p.m.	163.93p.p.m.	170.21p.p.m.	156.02p.p.m.	141.84 p.p.m.

CADDO LAKE

Caddo Lake was first surveyed in 1953-55. No fisheries work was conducted on the lake again until November 1961 and January 1962, when the reconnaissance surveys were made. In September 1962, a netting survey which is still in progress, was begun and to this date thirteen netting collections have been made on the lake. This frequent netting program was created due to the greatly increased growth of submerged aquatic plants which are more commonly referred to as "moss". This survey is being conducted in an effort to determine what effects, either advantageous or detrimental, this "moss" may have on the fish populations of Caddo Lake. This work is to be continued under a separate job during the coming segment.

Table 20 lists the species of fish collected during the three major collection periods. This checklist includes species collected by both seining and netting with the exception of the 1962-63 list which represents only netted fish. One additional species, the carp (Cyprinus carpio), was collected in 1962-63.

Table 21 compares the percentage of numbers of fish collected by netting. In general, there was little change in the netting results. Gizzard shad increased slightly this year over the 1961-62 collection, but was considerably lower than the 1953-55 figure. Yellow bass decreased in 1962-63 but this species was netted more frequently during the latter collections of this year, indicating that they were just beginning to move. The time of the year that collections are made is an influencing factor in determining the number of most species that are collected. The total per cent of rough fish collected this year increased 3.48 per cent over last year and 1.03 per cent below the 1953-55 total. The game fish percentage decreased accordingly.

Table 22 is a comparison of the per cent of weights of netted fish. The ratio of game and rough fish weights varied with the same trend as the per cent by number indicates.

The condition of some species of game fish collected conforms generally with last year's data, with only slight increases or decreases among the species. Table 23 contains these data as well as comparisons of average standard lengths and average standard weights of several game fish species.

The water quality has changed slightly since the 1961-62 collection. The methyl orange alkalinity increased from 9.00 p.p.m. to 18.00 p.p.m. The chlorides averaged 26.09 last year as compared to 39.30 p.p.m. this year. The vast amounts of decaying vegetation ("moss") in the lake may account for this increase. The pH of the water has improved slightly also. It was 6.4 last year and has increased to 6.7. This is normal for the acid waters of this region.

Fishing has been good in some areas of Caddo Lake while other areas have been choked with submerged vegetation. This dense growth of aquatic plants has made access to fishermen impossible. Bass and crappie have been taken in good numbers in areas not infested with these plants.

Table 20. A checklist of Caddo Lake fish species.

Species	1953-55	1961-62	1962-63
Chestnut lamprey (<u>Ichthyomyzon castaneus</u>)	x		
Alligator gar (<u>Lepisosteus spatula</u>)	x		
Shortnose gar (<u>Lepisosteus platostomus</u>)	x		
Spotted gar (<u>Lepisosteus oculatus</u>)	x	x	x
Longnose gar (<u>Lepisosteus osseus</u>)	x	x	x
Bowfin (<u>Amia calva</u>)	x	x	x
Skipjack (<u>Alosa chrysochloris</u>)	x		
Threadfin shad (<u>Dorosoma petenense</u>)	x	x	
Gizzard shad (<u>Dorosoma cepedianum</u>)	x	x	x
Grass pickerel (<u>Esox americanus</u>)	x		
Chain pickerel (<u>Esox niger</u>)	x	x	x
Bigmouth buffalo (<u>Ictiobus cyprinellus</u>)	x		
Smallmouth buffalo (<u>Ictiobus bubalus</u>)	x	x	
River carpsucker (<u>Carpionodes carpio</u>)	x	x	
Spotted sucker (<u>Minytrema melanops</u>)	x	x	x
Lake chubsucker (<u>Erimyzon sucetta</u>)	x	x	x
Carp (<u>Cyprinus carpio</u>)			x
Golden shiner (<u>Notemigonus crysoleucas</u>)	x		
Pugnose minnow (<u>Opsopoeodus emiliae</u>)	x		
Ironcolor shiner (<u>Notropis chalybaeus</u>)	x	x	
Weed shiner (<u>Notropis texanus</u>)	x	x	
Pallid shiner (<u>Notropis amnis</u>)	x		
Blacktail shiner (<u>Notropis venustus</u>)	x	x	
Redhorse shiner (<u>Notropis lutrensis</u>)	x		
Sand shiner (<u>Notropis stramineus</u>)	x	x	
Blackspot shiner (<u>Notropis atrocaudalis</u>)	x		
Mimic shiner (<u>Notropis volucellus</u>)	x		
Taillight shiner (<u>Notropis maculatus</u>)	x		
Silvery minnow (<u>Hybognathus nuchalis</u>)	x		
Bullhead minnow (<u>Pimephales vigilax</u>)	x	x	
Channel catfish (<u>Ictalurus punctatus</u>)	x		x
Blue catfish (<u>Ictalurus furcatus</u>)	x	x	
Black bullhead (<u>Ictalurus melas</u>)	x	x	x
Yellow bullhead (<u>Ictalurus natalis</u>)	x	x	x
Flathead catfish (<u>Pylodictis olivaris</u>)	x	x	x
Tadpole madtom (<u>Schilbeodes gyrinus</u>)	x		
American eel (<u>Anguilla rostrata</u>)	x		
Golden topminnow (<u>Fundulus chrysotus</u>)	x	x	
Starhead topminnow (<u>Fundulus notti</u>)	x		
Blackstripe topminnow (<u>Fundulus notatus</u>)	x	x	
Pirate perch (<u>Aphredoderus sayanus</u>)		x	
Mosquitofish (<u>Gambusia affinis</u>)	x	x	
Mississippi silversides (<u>Menidia audens</u>)	x		
Brook silverside (<u>Labidesthes sicculus</u>)	x	x	
White bass (<u>Roccus chrysops</u>)	x	x	
Yellow bass (<u>Roccus interruptus</u>)	x	x	x
Spotted bass (<u>Micropterus punctulatus</u>)	x		
Largemouth bass (<u>Micropterus salmoides</u>)	x	x	x
Warmouth (<u>Chaenobryttus gulosus</u>)	x	x	x
Bantam sunfish (<u>Lepomis symmetricus</u>)	x		
Spotted sunfish (<u>Lepomis punctatus</u>)	x	x	x

Table 20. A checklist of Caddo Lake fish species (Continued)

Species	1953-55	1961-62	1962-63
Redear sunfish (<u>Lepomis microlophus</u>)	x	x	x
Bluegill sunfish (<u>Lepomis macrochirus</u>)	x	x	x
Redbreastsunfish (<u>Lepomis auritus</u>)	x		
Longear sunfish (<u>Lepomis megalotis</u>)	x	x	
Dollar sunfish (<u>Lepomis marginatus</u>)	x		
White crappie (<u>Pomoxis annularis</u>)	x	x	x
Black crappie (<u>Pomoxis nigromaculatus</u>)	x	x	x
Flier (<u>Centrarchus macropterus</u>)	x		
Banded pygmy sunfish (<u>Elassoma zonatum</u>)	x		
River darter (<u>Hadropterus shumardi</u>)	x		
Logperch (<u>Percina caprodes</u>)	x		
Scaly sand darter (<u>Ammocrypta vivax</u>)	x		
Bluntnose darter (<u>Etheostoma chlorosomum</u>)	x		
Slough darter (<u>Etheostoma gracile</u>)	x		
Scalyhead darter (<u>Etheostoma barratti</u>)	x	x	
Cypress darter (<u>Etheostoma proeliare</u>)	x		
Fountain darter (<u>Etheostoma fonticola</u>)	x		
Freshwater drum (<u>Aplodinotus grunniens</u>)	x	x	x
Number of species	67	36	21

Table 21. Comparison of per cent of numbers of netted fish from Caddo Lake.

Species	1953-55	1961-62	1962-63
Alligator gar*	0.02	0	0
Shortnose gar*	0.26	0	0
Spotted gar*	4.14	1.51	1.19
Longnose gar*	1.15	0.90	0.08
Bowfin*	0.21	0.60	1.36
Skipjack*	0.02	0	0
Gizzard shad*	45.83	24.09	26.78
Chain pickerel*	4.27	13.25	11.05
Bigmouth buffalo*	0.02	0	0
Smallmouth buffalo*	0.34	1.81	0
River carpsucker*	0.81	0.60	0
Spotted sucker*	8.22	19.58	21.00
Lake chubsucker*	4.59	3.93	3.82
Carp*	0	0	0.08
Golden shiner*	0.10	0	0
Channel catfish	0.21	0	1.10
Blue catfish	0.08	0.90	0
Black bullhead*	2.75	1.20	1.61
Yellow bullhead*	0.89	0.90	1.44
Flathead catfish	0.33	0.30	0.08
White bass	1.32	0.30	0
Yellow bass	8.56	18.98	7.99
Spotted bass	0.02	0	0
Largemouth bass	1.39	1.20	2.21
Warmouth	3.61	0.30	4.16
Spotted sunfish	0.10	0	0.08

Table 21. Comparison of per cent of numbers of netted fish from Caddo Lake.
(Continued)

Species	1953-55	1961-62	1962-63
Redear sunfish	2.31	0.90	2.38
Bluegill sunfish	2.44	1.81	3.06
Longear sunfish	0.02	0	0
White crappie	0.69	1.81	0.17
Black crappie	4.73	3.93	10.28
Flier	0.11	0	0
Freshwater drum*	0.46	1.20	0.08
Rough fish*	74.08	69.57	68.49
Game fish	25.92	30.43	31.51
Total	100.00	100.00	100.00

Table 22. Comparison of per cent of weights of netted fish from Caddo Lake.

Species	1953-55	1961-62	1962-63
Alligator gar*	0.04	0	0
Shortnose gar*	0.91	0	0
Spotted gar*	7.95	1.66	1.21
Longnose gar*	10.14	11.91	0.45
Bowfin*	0.76	1.47	3.23
Skipjack*	0.01	0	0
Gizzard shad*	36.97	15.98	68.47
Chain pickerel*	6.08	15.30	6.13
Bigmouth buffalo*	0.07	0	0
Smallmouth buffalo*	1.14	4.71	0
River carpsucker*	1.48	1.57	0
Spotted sucker*	11.94	23.83	8.91
Lake chubsucker*	2.86	2.39	1.14
Carp*	0	0	0.08
Golden shiner*	0.02	0	0
Channel catfish	0.22	0	0.95
Blue catfish	0.08	2.50	0
Black bullhead*	3.43	1.25	1.15
Yellow bullhead*	0.83	0.76	0.89
Flathead catfish	1.09	0.43	0.21
White bass	1.11	0.27	0
Yellow bass	3.50	8.00	1.84
Spotted bass	0.02	0	0
Largemouth bass	1.48	1.27	0.92
Warmouth	1.41	0.12	0.63
Spotted sunfish	0.01	0	0.01
Redear sunfish	0.72	0.25	0.27
Bluegill sunfish	0.75	0.29	0.29
Longear sunfish	0.01	0	0
White crappie	0.51	1.94	0.05
Black crappie	3.70	3.32	3.07
Freshwater drum*	0.76	0.78	0.10
Rough fish*	85.39	81.61	91.76
Game Fish	14.61	18.39	8.24
Total	100.00	100.00	100.00

Table 23. Comparison of average standard lengths in millimeters of several game fish species from Caddo Lake.

Species	1953-55		1961-62		1962-63	
	No. Fish	Length	No. Fish	Length	No. Fish	Length
Channel catfish	6	273	0	0	13	324
Flathead catfish	18	426	1	325	1	520
White bass	62	232	1	250	0	0
Largemouth bass	75	247	4	275	21	267
Warmouth	124	158	1	155	38	157
Redear sunfish	66	156	2	148	23	138
Bluegill sunfish	62	143	7	118	29	124
Black crappie	213	212	13	210	89	201
White crappie	42	205	6	251	2	238

Comparison of average weights in grams of several game fish species from Caddo Lake

Species	1953-55		1961-62		1962-63	
	No. Fish	Weight	No. Fish	Weight	No. Fish	Weight
Channel catfish	6	438	0	0	13	822
Flathead catfish	18	1315	1	1135	1	2552
White bass	62	391	1	442	0	0
Largemouth bass	75	421	4	?	21	560
Warmouth	124	171	1	160	38	166
Redear sunfish	66	148	2	130	23	118
Bluegill sunfish	62	130	7	76	29	97
Black crappie	213	356	13	330	89	281
White crappie	42	275	6	527	2	392

Comparison of average coefficients of condition ("K") of several game fish species from Caddo Lake

Species	1953-55		1961-62		1962-63	
	No. Fish	"K"	No. Fish	"K"	No. Fish	"K"
Channel catfish	6	1.80	0	0	13	1.96
Flathead catfish	18	1.60	1	3.30	1	1.81
White bass	62	2.66	1	2.83	0	0
Largemouth bass	75	2.36	4	0	21	2.57
Warmouth	124	3.93	1	4.30	38	4.27
Redear sunfish	66	3.57	2	4.02	23	4.29
Black crappie	213	3.22	13	3.45	89	3.21
White crappie	42	2.91	6	3.13	2	2.59

Water Quality

	1953-55	1961-62	1962-63
pH	6.7	6.5	6.7
Alkalinity	Unknown	9.00 p.p.m.	18.00 p.p.m.
Chlorides	Unknown	26.09 p.p.m.	39.30 p.p.m.

LAKE TYLER

Lake Tyler, located 8 miles southeast of Tyler, was impounded in 1949. A basic survey was made in 1953-54 and the reconnaissance survey was made in August 1962. Table 24 is a checklist of fish species from Lake Tyler.

Table 25 is composed of the per cents of total numbers and per cents of total weights for the two collections. The gizzard shad population has increased greatly in the lake. In 1953-54 no shad were collected but in the reconnaissance survey they composed 36.72 per cent of the total catch. Carp also show an increase from 0.20 per cent in 1953-54 to 17.02 per cent in 1962. Chubsuckers composed 23.58 per cent of the 1953-54 catch and only 2.99 per cent of the 1962 collection. Spotted suckers dropped from 25.19 per cent to 11.34 per cent. Black bullheads represented 35.14 per cent of the 1953-54 collection and none were caught in 1962. The majority of the game fish species collected in 1962 shows an increase over their 1953-54 figures. The bluegill sunfish increased from 4.94 per cent to 12.24 per cent. The total percentage of rough fish has decreased from 88.22 per cent in 1953-54 to 73.74 per cent in 1962. The game fish percentage increased accordingly. The total percentages of weights paralleled the per cents by number. Two new game fish species and one rough fish species was collected in the 1962 reconnaissance survey.

It should be noted that 148 gill nets were set over a year's time to compile the 1953-54 collection data, whereas, the reconnaissance survey consisted of 16 nets set for one night only. Therefore, those species that show a marked decrease in per cent in the 1962 collection may have actually been present in much greater numbers than the data indicates. The degree of movement of many species is governed by the season of the year. If a certain species is not moving when a one night reconnaissance netting is made it will not be caught successfully, and therefore be poorly represented.

Table 24 is a checklist of the species collected in both collections. Two new game fish species and two rough fish species were collected from Lake Tyler in 1962.

From the data contained in Table 26, which includes the average standard lengths, standard weights, and "K" factors of several game fish species, it appears that some species have a lower average size and weight. The bluegill sunfish, redear sunfish and warmouth show a decrease in their average "K" factor. This is true for other species also. Actually a larger number of individuals for each species is needed to arrive at an accurate average.

Public access to Lake Tyler is good and from observations made during the survey, fishing pressure is fairly heavy on the lake.

RECOMMENDATIONS:

It is recommended that this job be continued and that a reconnaissance survey be made on the above lakes at least once each year in order to keep information current.

Prepared by John N. Dorchester Approved by Marion Toole
Project Leader Coordinator

Date: December 4, 1963 Charles E. Gray
Regional Supervisor

Table 24. A checklist of Lake Tyler fish species.

Species	1953-54	1962
Bowfin (<u>Amia calva</u>)	x	
Gizzard shad (<u>Dorosoma cepedianum</u>)	x	x
Blacktail redhorse (<u>Moxostoma poecilurum</u>)	x	
Spotted sucker (<u>Minytrema melanops</u>)	x	x
Lake chubsucker (<u>Erimyzon sucetta</u>)	x	x
Carp (<u>Cyprinus carpio</u>)	x	x
Golden shiner (<u>Notemigonus crysoleucas</u>)	x	x
Pugnose minnow (<u>Opsopoeodus emiliae</u>)	x	
Emerald shiner (<u>Notropis atherinoides</u>)	x	
Weed shiner (<u>Notropis texanus</u>)	x	
Pallid shiner (<u>Notropis amnis</u>)		x
Blacktail shiner (<u>Notropis venustus</u>)	x	x
Red shiner (<u>Notropis lutrensis</u>)	x	
Blackspot shiner (<u>Notropis atrocaudalis</u>)	x	
Parrot minnow (<u>Pimephales vigilax</u>)	x	x
Channel catfish (<u>Ictalurus punctatus</u>)	x	x
Black bullhead (<u>Ictalurus melas</u>)	x	
Yellow bullhead (<u>Ictalurus natalis</u>)	x	x
Starhead topminnow (<u>Fundulus notti</u>)	x	
Blackstripe topminnow (<u>Fundulus notatus</u>)	x	x
Mosquitofish (<u>Gambusia affinis</u>)	x	x
Brook silversides (<u>Labidesthes sicculus</u>)	x	x
Spotted bass (<u>Micropterus punctulatus</u>)	x	x
Largemouth bass (<u>Micropterus salmoides</u>)	x	x
Warmouth (<u>Chaenobryttus gulosus</u>)	x	x
Spotted sunfish (<u>Lepomis punctatus</u>)	x	x
Redear sunfish (<u>Lepomis microlophus</u>)	x	x
Bluegill sunfish (<u>Lepomis macrochirus</u>)	x	x
Redbreast sunfish (<u>Lepomis auritus</u>)	x	x
Longear sunfish (<u>Lepomis megalotis</u>)		x
White crappie (<u>Pomoxis annularis</u>)	x	x
Black crappie (<u>Pomoxis nigromaculatus</u>)	x	x
Flier (<u>Centrarchus macropterus</u>)	x	
Western swamp darter (<u>Etheostoma gracile</u>)	x	
Number of species	32	23

Table 25. Lake Tyler netting collections.

Species	Per cent of Total Number		Per cent of Total Weight	
	1953-54	1962	1953-54	1962
Bowfin*	0.78	0	3.69	0
Gizzard shad*	0	36.72	0	10.64
Blacktail redhorse*	0.59	0	0.81	0
Spotted sucker*	25.18	11.34	50.67	10.59
Chubsucker*	23.58	2.99	15.81	0.82
Carp*	0.20	17.02	0.29	60.64
Golden shiner*	1.37	1.49	0.28	0.24
Channel catfish	0.12	2.39	0.09	6.06
Black bullhead*	35.14	0	19.89	0
Yellow bullhead*	1.37	4.18	1.53	2.58
Spotted bass	0	0.30	0	0.20
Largemouth bass	2.04	2.68	2.56	4.96
Warmouth	0.12	1.79	0.04	0.44
Redear sunfish	1.80	4.18	0.71	0.60
Bluegill sunfish	4.94	12.24	1.22	1.50
Redbreast sunfish	0	0.30	0	0.02
Longear sunfish	0	0.30	0	0.04
White crappie	1.20	0.30	0.80	0.27
Black crappie	1.33	1.78	1.53	0.40
Flier	0.24	0	0.08	0
Rough fish*	88.21	73.74	92.97	85.51
Game Fish	11.79	26.26	7.03	14.49
Total	100.00	100.00	100.00	100.00

Table 26. Comparison of average lengths, weights and "K" factors of some Lake Tyler game fish species.

Species	Number		Average Std. Length		Ave. Std Weight		"K" Average	
	1953-54	1962	1953-54	1962	1953-54	1962	1953-54	1962
Largemouth bass	46	9	251	317.22	425	928.44	2.13	2.48
Warmouth	2	6	164	140.66	165	111.17	3.76	3.71
Redear	30	11	159	121.82	152	64.09	3.66	3.27
Bluegill	40	10	137	122.30	104	67.70	3.99	3.52
White crappie	15	1	234	243.00	299	418.00	2.73	2.91
Black crappie	22	6	177	154.00	177	102.00	3.07	2.65

Water Quality

	1953-54	1962
pH	7.5	7.4
Alkalinity	Unknown	19 p.p.m.
Chlorides	Unknown	21.28 p.p.m.

