

SEGMENT COMPLETION REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-3-R-12

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

Job No. B-18 Fisheries Reconnaissance

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## ABSTRACT

Netting trips were made to six reservoirs and portions of three rivers in Inland Fisheries Region 3-B during the 1964 segment to collect reconnaissance data. Such limited netting collections on large reservoirs cannot provide accurate data on population trends. It is recommended that this job be terminated for this reason.

## JOB COMPLETION REPORT

State of Texas

Project No. F-3-R-12

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

Job No. B-18

Title: Fisheries Reconnaissance

Period Covered: February 1, 1964 - January 31, 1965

### OBJECTIVES:

1. To determine gross changes in the relative abundance of individual species.
2. To determine the quality of fishing.
3. To determine changes in those factors which may influence fish populations.
4. To insure adequate fishing regulations.

### TECHNIQUES USED:

Netting trips were made to six reservoirs in Region 3-B and to portions of three rivers during this segment. The lakes are as follows: Dam "B" Reservoir, Lake O' the Pines, Lake Murvaul, Caddo Lake, Lake Striker and Lake Tyler. Collections were also made on portions of the Sabine, Neches and Trinity Rivers.

Fish were collected with standardized gill nets 150 feet in length and 8 feet in depth with mesh size ranging from 1 to 3½ inches. Bag seines were used to supplement the netting with seining collections.

Observations were made on the status of aquatic vegetation, fishing pressure, and public access.

Water analyses included pH, methyl orange alkalinity, chlorides, turbidity and water temperature.

### DAM "B" RESERVOIR

Dam "B" Reservoir, located in Jasper and Tyler Counties on the Angelina and Neches Rivers, has been surveyed in 1958-59, 1961-62, 1963 and 1964. Table 1 is a checklist of all species of fish collected from Dam "B" during all surveys. Table 2 is a comparison of the percentage of numbers of netted fish for all surveys. In 1963, the number of game fish collected reached an all-time low of 27.41 per cent. During the 1964 segment, game fish comprised 40.07 per cent of the collection.

Dam "B" continues to be a very productive reservoir, due to its shallow depth and water fluctuation. During the summer months of 1964, the lake was drawn down to the river channels in many areas, exposing most of the basin to aeration and sunlight. This provided for the growth of lush vegetation which in turn produced natural fertilization when inundated in the fall.

It is doubtful however if Dam "B" will continue to be as productive with the completion of Sam Rayburn Reservoir, located upstream on the Angelina River. The water level of Dam "B" will be stabilized and without the annual fluctuations of the water level the fertility of the reservoir may decrease.

The aerial spraying conducted by the U. S. Corps of Engineers for the control of water hyacinths on Dam "B" has been very successful. Low water level and increased turbidity during the summer of 1964 also aided in the control of submerged vegetation.

Dam "B" continues to be a favorite spot to fishermen and campers. The Dam "B" State Park has recently been completed.

Table 3 is a comparison of the 1963 and 1964 average "K" factors for the reservoir as compared to the regional averages according to species. The white crappie (*Pomoxis annularis*) from the 1964 collection showed an increase in condition factor over the 1963 figure. In general the game fish collected from Dam "B" are below the regional average for the respective species.

Table 1. A checklist of Dam "B" Reservoir Fish Species

<u>Species</u>	<u>1958-59</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Alligator gar ( <i>Lepisosteus spatula</i> )	x				
Shortnose gar ( <i>L. platostomus</i> )	x				
Spotted gar ( <i>L. oculatus</i> )	x	x	x	x	x
Longnose gar ( <i>L. osseus</i> )	x	x	x	x	
Bowfin ( <i>Amia calva</i> )	x				x
Threadfin shad ( <i>Dorosoma petenense</i> )			x		x
Gizzard shad ( <i>D. cepedianum</i> )	x	x	x	x	x
Blue sucker ( <i>Cycleptus elongatus</i> )	x				
Smallmouth buffalo ( <i>Ictiobus bubalus</i> )	x	x	x	x	x
River carpsucker ( <i>Carpionodes carpio</i> )	x	x	x	x	x
Gray redbreast ( <i>Moxostoma congestum</i> )	x				
Blacktail redbreast ( <i>M. poecilurum</i> )	x				
Spotted sucker ( <i>Minytremma melanops</i> )	x		x	x	x
Lake chubsucker ( <i>Erimyzon sucetta</i> )	x				
Carp ( <i>Cyprinus carpio</i> )	x			x	x
Golden shiner ( <i>Notemigonus crysoleucas</i> )				x	
Emerald shiner ( <i>Notropis atherinoides</i> )				x	
Ribbon shiner ( <i>N. fumeus</i> )	x				
Weed shiner ( <i>N. texanus</i> )			x	x	
Chub shiner ( <i>N. potteri</i> )			x	x	
Pallid shiner ( <i>N. amnis</i> )	x		x		
Blacktail shiner ( <i>N. venustus</i> )	x	x		x	x
Red shiner ( <i>N. lutrensis</i> )	x	x		x	x
Sand shiner ( <i>N. stramineus</i> )	x			x	
Mimic shiner ( <i>N. volucellus</i> )	x				
Silvery minnow ( <i>Hybognathus nuchalis</i> )	x		x		
Bullhead minnow ( <i>Pimephales vigilax</i> )	x		x	x	x
Channel catfish ( <i>Ictalurus punctatus</i> )	x	x	x	x	x
Blue catfish ( <i>I. furcatus</i> )	x	x	x	x	x
Black bullhead ( <i>I. melas</i> )	x				
Yellow bullhead ( <i>I. natalis</i> )	x				
Flathead catfish ( <i>Pylodictis olivaris</i> )	x	x	x	x	x
Golden topminnow ( <i>Fundulus chrysotus</i> )	x		x	x	
Blackstrip topminnow ( <i>F. notatus</i> )	x		x	x	

Table 1. A Checklist of Dam "B" Reservoir  
Fish Species (Continued)

<u>Species</u>	<u>1958-59</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Mosquitofish ( <u>Gambusia affinis</u> )	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	x	x
Largemouth bass ( <u>M. salmoides</u> )	x	x	x	x	x
Warmouth ( <u>Chaenobryttus gulosus</u> )	x		x		
Spotted sunfish ( <u>Lepomis punctatus</u> )	x		x	x	
Redear sunfish ( <u>L. microlophus</u> )	x	x	x	x	x
Bluegill sunfish ( <u>L. macrochirus</u> )	x	x	x	x	x
Longear sunfish ( <u>L. megalotis</u> )			x		
White crappie ( <u>Pomoxis annularis</u> )	x	x	x	x	x
Black crappie ( <u>P. nigromaculatus</u> )	x	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>E. gracile</u> )			x		
Freshwater drum ( <u>Aplodinotus grunniens</u> )			x	x	x
Number of Species	41	16	33	30	21
*Introduced					

Table 2 Comparison of Percentages of Numbers of  
Netted Fish from Dam "B" Reservoir

<u>Species</u>	<u>1958-59</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Alligator gar*	0.34	0	0	0	0
Longnose gar*	3.12	14.74	5.66	2.88	0
Shortnose gar*	0.08	6.31	0	0	0
Spotted gar*	4.68	0	5.00	6.73	11.35
Bowfin*	0.68	0	0	0	0.35
Gizzard shad*	16.27	10.53	27.00	40.38	28.76
Blue sucker*	0.08	0	0	0	0
Smallmouth buffalo*	22.11	18.95	14.33	15.38	10.29
River carpsucker*	4.96	4.21	6.34	0.96	1.77
Gray redhorse*	0.24	0	0	0	0
Blacktail redhorse*	0.36	0	0	0	0
Spotted sucker*	5.38	0	0.66	2.40	3.90
Lake chubsucker*	0.08	0	0	0	0
Carp*	0.80	0	0	0.48	1.06
Channel catfish	6.20	4.21	11.33	2.40	5.32
Blue catfish	2.72	12.63	3.00	7.22	12.06
Black bullhead*	0.16	0	0	0	0
Yellow bullhead*	0.47	0	0	0	0
Flathead catfish	0.60	2.11	0.34	0.96	1.77
Spotted bass	0.24	0	0	0.48	0.35

Table 2 Comparison of Percentages of Numbers of  
Netted Fish from Dam "B" Reservoir (Continued)

<u>Species</u>	<u>1958-59</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Largemouth bass	3.36	4.21	1.34	2.88	2.48
Warmouth	0.47	0	0	0	0
Redear sunfish	3.80	4.21	3.00	1.45	3.55
Bluegill sunfish	4.24	1.05	1.67	1.45	2.13
Longear sunfish	0	0	0.33	0	0
White crappie	10.60	2.11	10.00	7.69	12.41
Black crappie	5.40	5.26	4.00	2.88	0
Freshwater drum*	2.56	9.47	6.00	3.38	2.48
Rough Fish *	62.37	64.21	64.99	72.59	59.93
Game Fish	37.63	35.79	35.01	27.41	40.07
Totals	100.00	100.00	100.00	100.00	100.00

Table 3 Comparison of Dam "B" Average "K" Factor  
to Average "K" for Region.

<u>Species</u>	<u>1963</u>		<u>1964</u>		<u>"K"</u> <u>Regional Average</u>
	<u>Number</u>	<u>Average "K"</u>	<u>Number</u>	<u>Average "K"</u>	
Channel catfish	5	1.56	7	1.57	1.70
Blue catfish	15	1.57	7	1.55	1.82
Flathead catfish	2	1.98	2	1.79	2.03
Largemouth bass	6	2.25	1	2.00	2.72
Spotted bass	1	2.09	0	--	2.55
Redear sunfish	3	3.82	4	3.83	3.82
Bluegill sunfish	3	4.18	5	4.64	4.38
White crappie	16	2.90	12	2.30	3.03
Black crappie	6	3.13	0	--	3.34

LAKE O' THE PINES

Lake O' the Pines is located in Marion County west of Jefferson. This reservoir was surveyed in 1958-59, 1960-61, 1963 and 1964. Table 4 is a checklist of fish species from all collections. Table 5 is a comparison of the per cent of numbers of fish collected by nets. A sharp increase was noted in sunfish and black bullhead catfish populations during the 1964 collection. A decrease in gizzard shad was indicated by the 1964 collection. It is the writer's belief, however, that for a reservoir of this size, a series of netting collections throughout the year is necessary to obtain valid data concerning relative species abundance. Lake O' the Pines produces an excellent fishery for both largemouth bass and black crappie although the reconnaissance netting data for the 1964 segment indicates a decrease in both of these important game fish species.

Submerged vegetation is an increasing problem in the shallow marginal areas of Lake O' the Pines. The clear water and stable water level of the reservoir provide a good habitat for the submerged plants.

Public access and facilities are very good at Lake O' the Pines. Many camping areas and swimming beaches are available as well as boat launching ramps. Over three million people visit the reservoir annually.

Table 6 contains water analysis data on Lake O' the Pines collected during the 1963 and 1964 segments. Table 7 lists coefficient of condition figures for several game fish species.

Table 4. 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>	<u>1963</u>	<u>1964</u>
Shortnose gar ( <u>Lepisosteus platostomus</u> )	x					
Spotted gar ( <u>L. oculatus</u> )	x	x	x	x	x	x
Longnose gar ( <u>L. osseus</u> )	x	x				
Bowfin ( <u>Amia calva</u> )	x	x		x	x	
Threadfin shad ( <u>Dorosoma petenense</u> )	x	x	x		x	
Gizzard shad ( <u>D. cepedianum</u> )	x	x	x	x	x	x
Grass pickerel ( <u>Esox americanus</u> )	x	x	x	x		
Chain pickerel ( <u>E. niger</u> )	x	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	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	x	
Ribbon shiner ( <u>Notropis fumeus</u> )	x	x				
Spottail shiner ( <u>N. venustus</u> )	x	x	x	x	x	
Redhorse shiner ( <u>N. lutrensis</u> )	x	x	x	x	x	
Sand shiner ( <u>N. stramineus</u> )	x				x	
Mimic shiner ( <u>N. volucellus</u> )	x					
Silvery minnow ( <u>Hybognathus nuchalis</u> )	x	x				
Bullhead minnow ( <u>Pimephales vigilax</u> )	x	x		x	x	x
Channel catfish ( <u>Ictalurus punctatus</u> )	x	x	x			
Blue catfish ( <u>I. furcatus</u> )	x	x				

Table 4. A Checklist of Lake O' the Pines Fish Species (Continued)

<u>Species</u>	<u>1958-59</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Black bullhead ( <u>I. melas</u> )	x	x	x	x	x	x
Yellow bullhead ( <u>I. natalis</u> )	x	x	x	x	x	
Flathead catfish ( <u>Pylodictis olivaris</u> )	x	x				x
Tadpole madtom ( <u>Schilbeodes gyrinus</u> )						x
Golden topminnow ( <u>Fundulus chrysotus</u> )	x	x		x	x	
Starhead topminnow ( <u>F. notti</u> )		x				
Blackstripe topminnow ( <u>F. notatus</u> )	x	x	x	x	x	
Mosquito fish ( <u>Gambusia affinis</u> )	x	x	x	x	x	x
Pirate perch ( <u>Aphredoderus sayanus</u> )	x					
Brook silversides ( <u>Labidesthes sicculus</u> )	x	x	x	x	x	x
White bass ( <u>Roccus chrysops</u> )	x	x	x	x	x	x
Spotted bass ( <u>Micropterus punctulatus</u> )	x	x			x	x
Largemouth bass ( <u>Micropterus salmoides</u> )	x	x	x	x	x	x
Warmouth ( <u>Chaenobryttus gulosus</u> )	x	x	x	x	x	x
Green sunfish ( <u>Lepomis cyanellus</u> )	x					
Spotted sunfish ( <u>L. punctatus</u> )	x	x	x	x	x	x
Redear sunfish ( <u>L. microlophus</u> )	x	x	x	x	x	x
Bluegill sunfish ( <u>L. macrochirus</u> )	x	x	x	x	x	x
Redbreast sunfish ( <u>L. auritus</u> )	x	x				x
Longear sunfish ( <u>L. megalotis</u> )	x	x				
White crappie ( <u>Pomoxis annularis</u> )	x	x	x	x	x	
Black crappie ( <u>P. nigromaculatus</u> )	x	x	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			x	x
Bluntnose darter ( <u>Etheostoma chlorosomum</u> )					x	
Freshwater drum ( <u>Aplodinotus grunniens</u> )	x					
Number of Species	47	39	22	24	29	19

Table 5. Comparison of Percentages of Number of Netted Fish from Lake O' the Pines.

<u>Species</u>	<u>1958-59</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Shortnose gar *	0.08	0	0	0	0	0
Spotted gar *	18.23	13.44	2.79	6.51	9.13	2.88
Longnose gar *	0.42	0.23	0	0	0	0
Bowfin *	1.04	0.80	0	0.59	0.48	0
Threadfin shad *	0	0	0.56	0	0	0
Gizzard shad *	7.00	26.19	44.14	30.78	48.08	12.99
Grass pickerel *	0.45	0.12	0	0.59	0	0
Chain pickerel *	0.40	0	0	0	0	0
Smallmouth buffalo *	10.78	0.58	0	0	0	0
Blacktail redhorse *	0.56	0	0	0	0	0
Spotted sucker*	2.03	10.20	8.94	5.33	1.44	0.72
Lake chubsucker *	0.56	0.12	0.56	6.51	0	0
Carp *	1.04	0.46	0	0	0	0
Golden shiner *	0.06	0	0	2.96	0	0
Channel catfish	4.98	0.58	2.23	0	0	0
Blue catfish	2.78	0.23	0	0	0.48	0
Black bullhead *	17.41	10.66	8.94	6.51	3.85	10.79
Yellow bullhead *	3.67	3.71	1.12	3.55	1.44	0

Table 5. Comparison of Percentages of Number of Netted Fish from Lake O' the Pines.  
(Continued)

<u>Species</u>	<u>1958-59</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Flathead catfish	1.24	0.23	0	0	0	2.88
White bass	2.15	4.52	4.47	0.59	1.44	0.72
Spotted bass	2.82	0.12	0	0	0.96	0.72
Largemouth bass	6.46	5.21	7.26	3.55	4.33	1.44
Warmouth	4.49	2.67	1.12	1.77	0.48	2.16
Green sunfish	0.03	0	0	0	0	0
Spotted sunfish	0.59	0.80	0	0.59	1.44	0
Redear sunfish	0.54	1.51	2.79	2.96	4.81	30.21
Bluegill sunfish	3.73	7.88	4.47	5.91	9.13	20.14
Redbreast sunfish	0.11	0.58	0	0	0	5.03
Longear sunfish	0.25	0	0	0	0	0
White crappie	2.82	4.98	3.35	1.18	1.93	0
Black crappie	3.22	4.06	7.26	20.12	10.58	4.32
Flier	0	0.12	0	0	0	0
Freshwater drum *	0.06	0	0	0	0	0
Rough fish *	63.79	66.51	67.05	63.33	64.42	32.37
Game fish	36.21	33.49	32.95	36.67	35.58	67.63
Total	100.00	100.00	100.00	100.00	100.00	100.00

Table 6. Water Quality of Lake O' the Pines

	<u>1958-59</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
pH	6.5	6.9	7.0	6.8	7.2	7.2
Alkalinity (p.p.m.)	18.00	41.00	15.00	38.00	35.00	35.00
Chlorides (p.p.m.)	24.11	54.37	21.28	35.46	35.46	35.46

Table 7. Comparison of Lake O' the Pines Average "K" and Regional Average "K" Factor.

<u>Species</u>	<u>Lake O' the Pines</u>		<u>Regional</u>
	<u>1963</u>	<u>1964</u>	
Flathead catfish	0	1.75	2.03
Blue catfish	1.30	0	1.82
Channel catfish	0	1.51	1.70
Largemouth bass	2.54	2.22	2.72
Spotted bass	2.50	2.42	2.55
Warmouth	3.33	3.57	4.10
Redear sunfish	3.93	3.69	3.82
Bluegill sunfish	4.07	3.90	4.38
White crappie	2.99	0	3.03
Black crappie	3.50	0	3.34
White bass	2.97	3.14	3.16

Lake Murvaul

Lake Murvaul, located in Panola County near Carthage, was surveyed in 1958, 1959, 1960, 1961, 1962, 1963 and 1964. Table 8 is a checklist for Lake Murvaul. No additional species were added in 1964.

Table 9 is a comparison of the percentages of numbers of netted fish for the past collections. Lake Murvaul contains a high percentage of game fish. The reservoir contains large populations of bluegill and redear sunfish, in addition to an increasing population of white crappie. These species, as well as a high population of gizzard shad, provide an abundant food supply for the largemouth bass in the reservoir. Lake Murvaul has gained the reputation of being the best lake in Texas for catching large bass. Many bass weighing from 7 to 10 pounds have been caught from Lake Murvaul. January and February of 1964 were productive months for bass fishermen. Table 10 is the Lake Murvaul average "K" factors compared to the regional average. With the exception of largemouth bass and channel catfish, all of the game fish collected during 1964 had a higher condition factor than did those of the 1963 collection. Table 11 gives water quality data from Lake Murvaul.

Table 8. A Checklist of Lake Murvaul Fish Species

<u>Species</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Spotted gar ( <u>Lepisosteus oculatus</u> )	x				x	x	x
Bowfin ( <u>Amia calva</u> )	x	x	x	x	x	x	
Gizzard shad ( <u>Dorosoma cepedianum</u> )	x	x	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	x	
Golden shiner ( <u>Notemigonus crysoleucas</u> )	x	x	x	x	x	x	x
Pugnose minnow ( <u>Opsopoeodus emiliae</u> )		x					x
Ribbon shiner ( <u>Notropis fumeus</u> )	x	x					
Pallid shiner ( <u>N. amnis</u> )					x		
Blacktail shiner ( <u>N. venustus</u> )	x	x	x		x	x	x
Redhorse shiner ( <u>N. lutrensis</u> )	x	x	x		x		
Sand shiner ( <u>N. stramineus</u> )	x	x	x			x	x
Blackspot shiner ( <u>N. atrocaudalis</u> )	x	x	x				
Mimic shiner ( <u>N. volucellus</u> )	x						
Taillight shiner ( <u>N. 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	x	x
Blue catfish ( <u>I. furcatus</u> )	x	x	x	x			
Black bullhead ( <u>I. melas</u> )	x	x	x	x	x	x	x
Yellow bullhead ( <u>I. natalis</u> )	x	x	x	x	x	x	x
Flathead catfish ( <u>Pylodictis olivaris</u> )	x	x					
Tadpole madtom ( <u>Schilbeodes gyrinus</u> )	x				x		
Blackstripe topminnow ( <u>Fundulus notatus</u> )	x	x				x	x
Mosquitofish ( <u>Gambusia affinis</u> )	x	x	x		x	x	x
Pirate perch ( <u>Aphredoderus sayanus</u> )	x						
Spotted bass ( <u>Micropterus punctulatus</u> )	x	x	x	x	x		

Table 8. A Checklist of Lake Murvaul Fish Species (Continued)

<u>Species</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Largemouth bass ( <u>M. salmoides</u> )	x	x	x	x	x	x	x
Warmouth ( <u>Chaenobryttus gulosus</u> )	x	x	x	x	x	x	x
Green sunfish ( <u>Lepomis cyanellus</u> )	x	x	x				
Spotted sunfish ( <u>L. punctatus</u> )	x	x	x	x	x	x	x
Redear sunfish ( <u>L. microlophus</u> )	x	x	x	x	x	x	x
Bluegill sunfish ( <u>L. macrochirus</u> )	x	x	x	x	x	x	x
Redbreast sunfish ( <u>L. auritus</u> )	x	x			x		
Longear sunfish ( <u>L. megalotis</u> )	x	x	x			x	
White crappie ( <u>Pomoxis annularis</u> )	x	x	x	x	x	x	x
Black crappie ( <u>P. nigromaculatus</u> )	x	x	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	42	34	28	18	22	20	19

Table 9. Comparison of Percentages of Number of Netted Fish from Lake Murvaul

<u>Species</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Spotted gar*	0	0	0.51	0.27	0.81
Bowfin*	4.11	3.58	0.51	0.55	0
Gizzard shad*	31.71	12.90	44.44	40.44	41.13
Grass pickerel*	0.29	0.38	0	0	0
Smallmouth buffalo*	0.09	0	0	0	0
Spotted sucker*	1.91	0.69	0	0	0
Lake chubsucker*	6.78	15.23	7.07	1.09	0
Golden shiner*	0.48	2.94	4.55	0	0
Channel catfish	2.29	0.80	0.51	0.55	0.81
Blue catfish	0.19	0.16	0	0	0
Black bullhead*	16.24	13.05	5.81	3.55	8.87
Yellow bullhead*	6.40	8.72	6.05	8.47	15.31
Largemouth bass	1.43	2.30	2.53	1.91	4.03
Warmouth	0.48	3.26	1.25	0.55	3.23
Spotted sunfish	0.29	0.92	0	0	3.23
Redear sunfish	0.48	2.51	2.53	5.19	8.87
Bluegill sunfish	6.69	14.06	14.65	24.86	8.87
Redbreast sunfish	0	0	0.51	0	0
Longear sunfish	0.09	0	0	0.82	0
White crappie	13.56	16.63	6.30	8.20	4.03
Black crappie	6.49	1.87	2.78	3.55	0.81
Rough fish*	68.00	57.49	68.94	54.37	66.12
Game fish	32.00	42.51	31.06	45.63	33.88
Total	100.00	100.00	100.00	100.00	100.00

Table 10. Comparison of Lake Murvaul "K" Factors and Regional "K" Factors

<u>Species</u>	<u>Lake Murvaul</u>		<u>Regional Average</u>
	<u>1963</u>	<u>1964</u>	
Channel catfish	1.83	1.65	1.70
Largemouth bass	2.51	2.31	2.72
Redear sunfish	3.57	3.85	3.82
Bluegill sunfish	3.98	4.44	4.38
White crappie	2.08	2.82	3.03
Black crappie	2.96	3.15	3.34

Table 11. Water Quality of Lake Murvaul

	<u>1958</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
pH	6.6	7.3	7.1	7.4	7.2	7.0
Alkalinity (p.p.m.)	44.00	50.00	32.00	45.00	45.00	31.00
Chlorides (p.p.m.)	27.56	63.83	35.46	56.74	70.92	42.55

#### Lake Striker

A basic fisheries survey was conducted on Lake Striker beginning in 1957 and completed in 1960. Reconnaissance surveys were made in 1961, 1962 and 1964. One new species, the flathead catfish (Pylodictus olivaris) was netted in 1964. Table 12 is a checklist of fish species collected from the lake for all collections. Table 13 contains a comparison of the percentages of numbers of fish netted from Lake Striker.

The 1964 collection was made up of 64.28 per cent of game fish as compared to the normal 20.00 to 30.00 per cent of past collections. This high game fish percentage for 1964 was primarily due to large numbers of redear and bluegill sunfish netted.

In 1960, Department personnel released an initial stocking of white bass in Lake Striker. In 1962, the first white bass was netted from the reservoir. In 1964, five white bass weighing 1.75 pounds were netted. This indicates that this species has successfully spawned in the lake.

Aquatic vegetation, primarily coontail (Ceratophyllum sp.) and parrot feather (Myriophyllum sp.) is a problem in the upper wooded area of Lake Striker.

Sunfish collected during the 1964 survey had a lower condition factor than those from earlier collections. Table 14 contains water analyses data from all collections.

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Table 12. A Checklist of Lake Striker Fish Species

<u>Species</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1964</u>
Shortnose gar ( <u>Lepisosteus platostomus</u> )					x	
Spotted gar ( <u>L. oculatus</u> )	x	x	x	x	x	x
Bowfin ( <u>Amia calva</u> )	x	x		x		x
Gizzard shad ( <u>Dorosoma cepedianum</u> )	x	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	x
Lake chubsucker ( <u>Erimyzon sucetta</u> )	x	x	x	x	x	x
Carp ( <u>Cyprinus carpio</u> )	x	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>N. fumeus</u> )	x	x	x	x		
Redfin shiner ( <u>N. umbratilis</u> )	x	x				
Brazos River shiner ( <u>N. brazosensis</u> )	x					
Weed shiner ( <u>N. texanus</u> )	x				x	
River shiner ( <u>N. blennius</u> )	x					
Blacktail shiner ( <u>N. venustus</u> )	x	x	x	x	x	x
Redhorse shiner ( <u>N. lutrensis</u> )	x	x	x	x	x	
Sand shiner ( <u>N. stramineus</u> )	x	x	x			
Blackspot shiner ( <u>N. atrocaudalis</u> )	x					
Mimic shiner ( <u>N. 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	x
Black bullhead ( <u>I. melas</u> )	x	x	x	x	x	
Yellow bullhead ( <u>I. natalis</u> )	x	x	x	x		x
Flathead catfish ( <u>Pylodictis olivaris</u> )						x
Golden topminnow ( <u>Fundulus chrysotus</u> )	x		x	x		
Blackstripe topminnow ( <u>F. notatus</u> )	x	x	x	x	x	x
Mosquitofish ( <u>Gambusia affinis</u> )	x	x	x	x	x	x
Brook silversides ( <u>Labidesthes sicculus</u> )	x	x	x	x		
White bass * ( <u>Roccus chrysops</u> )					x	x
Spotted bass ( <u>Micropterus punctulatus</u> )		x	x			
Largemouth bass ( <u>M. salmoides</u> )	x	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>L. punctatus</u> )	x	x	x		x	x
Redear sunfish ( <u>L. microlophus</u> )	x	x	x	x	x	x
Bluegill sunfish ( <u>L. macrochirus</u> )	x	x	x	x	x	x
Redbreast sunfish ( <u>L. auritus</u> )	x	x			x	
Longear sunfish ( <u>L. megalotis</u> )	x	x				
White crappie ( <u>Pomoxis annularis</u> )	x	x	x	x	x	x
Black crappie ( <u>P. nigromaculatus</u> )	x	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	19

\* Introduced.

Table 13. Comparison of Percentages of Numbers of Netted Fish from Lake Striker.

Species	1957-58	1958-59	1959-60	1961	1962	1964
Shortnose gar*	0	0	0	0	0.25	0
Spotted gar*	2.87	2.87	0.71	5.76	6.18	1.59
Bowfin*	0.18	0.39	0	1.69	0	0.79
Gizzard shad*	29.93	34.68	38.86	37.63	58.42	26.99
Grass pickerel*	0.15	0.07	0	0	0	0
River carpsucker*	0	0.07	0	0	0	0
Blacktail redhorse*	0.31	0.59	0	0	0	0
Spotted sucker*	4.74	14.79	17.29	2.72	1.98	2.38
Lake chubsucker*	7.82	5.67	7.86	1.36	3.96	0.79
Carp*	2.87	0.26	0.14	2.38	5.69	1.59
Golden shiner*	0	0.07	0	0	0	0
Channel catfish	0.26	2.15	2.86	6.10	0.25	1.59
Blue catfish	0	0	0	0.33	0	0
Black bullhead*	16.89	6.65	2.57	7.12	4.45	0
Yellow bullhead*	9.12	7.56	4.29	11.53	0	1.59
Flathead catfish	0	0	0	0	0	1.59
White bass	0	0	0	0	0.25	3.96
Largemouth bass	7.77	6.06	5.00	3.39	0.75	1.59
Spotted bass	0	0.52	0.29	0	0	0
Warmouth	3.02	1.50	0.43	0	0.50	0
Green sunfish	0	0	0.28	0	0	0
Spotted sunfish	2.70	0.59	1.71	0	0	0
Redear sunfish	0	0.20	0	1.01	4.70	37.30
Bluegill sunfish	6.83	10.03	13.57	11.53	10.14	15.87
Redbreast sunfish	1.82	0.39	0	0.33	2.23	0
Longear sunfish	0.20	0.78	0	0	0	0
White crappie	0.16	0.85	2.43	3.06	0.25	0.79
Black crappie	2.36	3.26	1.71	4.06	0	1.59
Rough fish *	74.89	73.66	71.72	70.19	80.93	35.72
Game fish	25.11	26.34	28.28	29.81	19.07	64.28
Total	100.00	100.00	100.00	100.00	100.00	100.00

Table 14. Water Quality for Lake Striker

Turbidity	28 inches
pH	6.6
Alkalinity	17 p.p.m.
Chlorides	283.68 p.p.m.

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Table 12. A Checklist of Lake Striker Fish Species

<u>Species</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1964</u>
Shortnose gar ( <u>Lepisosteus platostomus</u> )					x	
Spotted gar ( <u>L. oculatus</u> )	x	x	x	x	x	x
Bowfin ( <u>Amia calva</u> )	x	x		x		x
Gizzard shad ( <u>Dorosoma cepedianum</u> )	x	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	x
Lake chubsucker ( <u>Erimyzon sucetta</u> )	x	x	x	x	x	x
Carp ( <u>Cyprinus carpio</u> )	x	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>N. fumeus</u> )	x	x	x	x		
Redfin shiner ( <u>N. umbratilis</u> )	x	x				
Brazos River shiner ( <u>N. brazosensis</u> )	x					
Weed shiner ( <u>N. texanus</u> )	x				x	
River shiner ( <u>N. blennioides</u> )	x					
Blacktail shiner ( <u>N. venustus</u> )	x	x	x	x	x	x
Redhorse shiner ( <u>N. lutrensis</u> )	x	x	x	x	x	
Sand shiner ( <u>N. stramineus</u> )	x	x	x			
Blackspot shiner ( <u>N. atrocaudalis</u> )	x					
Mimic shiner ( <u>N. 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	x
Black bullhead ( <u>I. melas</u> )	x	x	x	x	x	
Yellow bullhead ( <u>I. natalis</u> )	x	x	x	x		x
Flathead catfish ( <u>Pylodictis olivaris</u> )						x
Golden topminnow ( <u>Fundulus chrysotus</u> )	x		x	x		
Blackstripe topminnow ( <u>F. notatus</u> )	x	x	x	x	x	x
Mosquitofish ( <u>Gambusia affinis</u> )	x	x	x	x	x	x
Brook silversides ( <u>Labidesthes sicculus</u> )	x	x	x	x		
White bass * ( <u>Roccus chrysops</u> )					x	x
Spotted bass ( <u>Micropterus punctulatus</u> )		x	x			
Largemouth bass ( <u>M. salmoides</u> )	x	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>L. punctatus</u> )	x	x	x		x	x
Redear sunfish ( <u>L. microlophus</u> )	x	x	x	x	x	x
Bluegill sunfish ( <u>L. macrochirus</u> )	x	x	x	x	x	x
Redbreast sunfish ( <u>L. auritus</u> )	x	x			x	
Longear sunfish ( <u>L. megalotis</u> )	x	x				
White crappie ( <u>Pomoxis annularis</u> )	x	x	x	x	x	x
Black crappie ( <u>P. nigromaculatus</u> )	x	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	19

\* Introduced.



Table 13. Comparison of Percentages of Numbers of Netted Fish from Lake Striker.

Species	1957-58	1958-59	1959-60	1961	1962	1964
Shortnose gar*	0	0	0	0	0.25	0
Spotted gar*	2.87	2.87	0.71	5.76	6.18	1.59
Bowfin*	0.18	0.39	0	1.69	0	0.79
Gizzard shad*	29.93	34.68	38.86	37.63	58.42	26.99
Grass pickerel*	0.15	0.07	0	0	0	0
River carpsucker*	0	0.07	0	0	0	0
Blacktail redhorse*	0.31	0.59	0	0	0	0
Spotted sucker*	4.74	14.79	17.29	2.72	1.98	2.38
Lake chubsucker*	7.82	5.67	7.86	1.36	3.96	0.79
Carp*	2.87	0.26	0.14	2.38	5.69	1.59
Golden shiner*	0	0.07	0	0	0	0
Channel catfish	0.26	2.15	2.86	6.10	0.25	1.59
Blue catfish	0	0	0	0.33	0	0
Black bullhead*	16.89	6.65	2.57	7.12	4.45	0
Yellow bullhead*	9.12	7.56	4.29	11.53	0	1.59
Flathead catfish	0	0	0	0	0	1.59
White bass	0	0	0	0	0.25	3.96
Largemouth bass	7.77	6.06	5.00	3.39	0.75	1.59
Spotted bass	0	0.52	0.29	0	0	0
Warmouth	3.02	1.50	0.43	0	0.50	0
Green sunfish	0	0	0.28	0	0	0
Spotted sunfish	2.70	0.59	1.71	0	0	0
Redear sunfish	0	0.20	0	1.01	4.70	37.30
Bluegill sunfish	6.83	10.03	13.57	11.53	10.14	15.87
Redbreast sunfish	1.82	0.39	0	0.33	2.23	0
Longear sunfish	0.20	0.78	0	0	0	0
White crappie	0.16	0.85	2.43	3.06	0.25	0.79
Black crappie	2.36	3.26	1.71	4.06	0	1.59
Rough fish *	74.89	73.66	71.72	70.19	80.93	35.72
Game fish	25.11	26.34	28.28	29.81	19.07	64.28
Total	100.00	100.00	100.00	100.00	100.00	100.00

Table 14. Water Quality for Lake Striker

Turbidity	28 inches
pH	6.6
Alkalinity	17 p.p.m.
Chlorides	283.68 p.p.m.



Caddo Lake, located on the Texas-Louisiana line and lying in Marion and Harrison Counties, was surveyed in 1953-55, 1961-62, 1962-63 and 1964. Table 15 is a checklist of all species of fish collected from Caddo Lake.

Table 16 is a comparison of the per cent of numbers of fish species from all collections. Table 17 contains condition factors on some game fish species from Caddo Lake.

For several years, Caddo Lake has been choked with a variety of submerged aquatic vegetation. A lack of flooding on Big Cypress Bayou which feeds Caddo Lake provided a habitat of clear shallow waters in which these plants flourished. During the fall of 1964, however, heavy rains created a substantial rise on the lake and increased its turbidity. This natural control of the submerged vegetation should provide fine fishing on Caddo during the coming year. Caddo Lake contains a large variety of fish species and continues to be a favorite fishing spot to many Texas and Louisiana sportsmen.

Table 15. A Checklist of Caddo Lake Fish Species

<u>Species</u>	<u>1953-55</u>	<u>1961-62</u>	<u>1962-63</u>	<u>1964</u>
Chestnut lamprey ( <u>Ichthyomyzon castaneus</u> )	x			x
Alligator gar ( <u>Lepisosteus spatula</u> )	x			
Shortnose gar ( <u>L. platostomus</u> )	x			
Spotted gar ( <u>L. oculatus</u> )	x	x	x	x
Longnose gar ( <u>L. 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>D. cepedianum</u> )	x	x	x	x
Grass pickerel ( <u>Esox americanus</u> )	x			x
Chain pickerel ( <u>E. niger</u> )	x	x	x	
Bigmouth buffalo ( <u>Ictiobus cyprinellus</u> )	x			
Smallmouth buffalo ( <u>I. bubalus</u> )	x	x		
River carpsucker ( <u>Carpiodes carpio</u> )	x	x		
Spotted sucker ( <u>Minytrema melanops</u> )	x	x	x	
Lake chubsucker ( <u>Erimyzon sucetta</u> )	x	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>N. texanus</u> )	x	x		
Pallid shiner ( <u>N. amnis</u> )	x			
Blacktail shiner ( <u>N. venustus</u> )	x	x		
Redhorse shiner ( <u>N. lutrensis</u> )	x			
Sand shiner ( <u>N. stramineus</u> )	x	x		
Blackspot shiner ( <u>N. atrocaudalis</u> )	x			
Mimic shiner ( <u>N. volucellus</u> )	x			
Taillight shiner ( <u>N. 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>I. furcatus</u> )	x	x		
Black bullhead ( <u>I. melas</u> )	x	x	x	
Yellow bullhead ( <u>I. natalis</u> )	x	x	x	

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Table 15. A Checklist of Caddo Lake Fish Species (Continued)

<u>Species</u>	<u>1953-55</u>	<u>1961-62</u>	<u>1962-63</u>	<u>1964</u>
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>F. notti</u> )	x			
Blackstripe topminnow ( <u>F. 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 silversides ( <u>Labidesthes sicculus</u> )	x	x		
White bass ( <u>Roccus chrysops</u> )	x	x		
Yellow bass ( <u>R. interruptus</u> )	x	x	x	x
Spotted bass ( <u>Micropterus punctulatus</u> )	x			
Largemouth bass ( <u>M. salmoides</u> )	x	x	x	x
Warmouth ( <u>Chaenobryttus gulosus</u> )	x	x	x	x
Bantam sunfish ( <u>Lepomis symmetricus</u> )	x			
Spotted sunfish ( <u>L. punctatus</u> )	x	x	x	
Redear sunfish ( <u>L. microlophus</u> )	x	x	x	
Bluegill sunfish ( <u>L. macrochirus</u> )	x	x	x	
Redbreast sunfish ( <u>L. auritus</u> )	x			
Longear sunfish ( <u>L. megalotis</u> )	x	x		
Dollar sunfish ( <u>L. marginatus</u> )	x			
White crappie ( <u>Pomoxis annularis</u> )	x	x	x	x
Black crappie ( <u>P. nigromaculatus</u> )	x	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 carpodes</u> )	x			
Scaly sand darter ( <u>Ammocrypta vivax</u> )	x			
Bluntnose darter ( <u>Etheostoma chlorosomum</u> )	x			
Slough darter ( <u>E. gracile</u> )	x			
Scalyhead darter ( <u>E. barratti</u> )	x	x		
Cypress darter ( <u>E. proeliare</u> )	x			
Fountain darter ( <u>E. fonticola</u> )	x			
Freshwater drum ( <u>Aplodinotus grunniens</u> )	x	x	x	x
Number of Species	67	36	21	11

Table 16. Comparison of Per Cent of Numbers of Netted Fish from Caddo Lake.

<u>Species</u>	<u>1953-55</u>	<u>1961-62</u>	<u>1962-63</u>	<u>1964</u>
Chestnut lamprey*	0	0	0	1.43
Alligator gar*	0.02	0	0	0
Shortnose gar*	0.26	0	0	0
Spotted gar*	4.14	1.51	1.19	1.42
Longnose gar*	1.15	0.90	0.08	0
Bowfin*	0.21	0.60	1.36	0
Skipjack*	0.02	0	0	0
Gizzard shad*	45.83	24.09	26.78	30.00
Chain pickerel*	4.27	13.25	11.05	20.00
Bigmouth buffalo*	0.02	0	0	0
Smallmouth buffalo*	0.34	1.81	0	0
River carpsucker*	0.81	0.60	0	0
Spotted sucker*	8.22	19.58	21.00	5.72
Lake chubsucker*	4.59	3.93	3.82	12.86
Carp*	0	0	0.08	0
Golden shiner*	0.10	0	0	0
Channel catfish	0.21	0	1.10	0
Blue catfish	0.08	0.90	0	0
Black bullhead*	2.75	1.20	1.61	0
Yellow bullhead*	0.89	0.90	1.44	0
Flathead catfish	0.33	0.30	0.08	0
White bass	1.32	0.30	0	0
Yellow bass	8.56	18.98	7.99	11.43
Spotted bass	0.02	0	0	1.42
Largemouth bass	1.39	1.20	2.21	0
Warmouth	3.61	0.30	4.16	2.87
Spotted sunfish	0.10	0	0.08	0
Redear sunfish	2.31	0.90	2.38	0
Bluegill sunfish	2.44	1.81	3.06	0
Longear sunfish	0.02	0	0	0
White crappie	0.69	1.81	0.17	2.87
Black crappie	4.73	3.93	10.28	7.14
Flier	0.11	0	0	0
Freshwater drum*	0.46	1.20	0.08	1.42
Rough fish*	74.08	69.57	68.49	72.85
Game fish	25.92	30.43	31.51	27.15
Total	100.00	100.00	100.00	100.00

Table 17. Comparison of Average Coefficients of Condition "K" of several Game Fish Species from Caddo Lake.

<u>Species</u>	<u>1953-55</u>	<u>1961-62</u>	<u>1962-63</u>	<u>1964</u>
Channel catfish	1.80	0	1.96	0
Flathead catfish	1.60	3.30	1.81	0
White bass	2.66	2.83	0	0
Largemouth bass	2.36	0	0	2.51
Warmouth	3.93	4.30	4.27	4.05
Redear sunfish	3.57	4.02	4.29	0
Black crappie	3.22	3.45	3.21	3.56
White crappie	2.91	3.13	2.59	0

Lake Tyler, located in Smith County, is the water supply reservoir for the City of Tyler. Surveys were conducted in 1953-54, 1962, 1963 and 1964.

Table 18 is a checklist of all fish collected from the lake. Table 19 is a comparison of the percentage of numbers of fish collected during all collections. The per cent of game fish has increased with each collection made on Lake Tyler. White crappie represented a substantial 17.65 per cent of the 1964 collection compared to 5.59 per cent of the 1963 collection.

Aquatic vegetation is not a problem in this reservoir with the exception of American lotus (Nelumbo lutea) in the shallow flats of the upper end of the lake.

Table 20 is a comparison of coefficient of condition factors on several game fish species from Lake Tyler. Table 21 contains water quality analyses data.

Table 18. A Checklist of the Fish Species of Lake Tyler

<u>Species</u>	<u>1953-54</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Bowfin ( <u>Amia calva</u> )	x			
Gizzard shad ( <u>Dorosoma cepedianum</u> )	x	x	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	x	x
Golden shiner ( <u>Notemigonus crysoleucas</u> )	x	x	x	x
Pugnose minnow ( <u>Opsopoeodus emiliae</u> )	x			
Emerald shiner ( <u>Notropis atherinoides</u> )	x			
Weed shiner ( <u>N. texanus</u> )	x			
Pallid shiner ( <u>N. amnis</u> )		x		
Blacktail shiner ( <u>N. venustus</u> )	x	x	x	x
Redhorse shiner ( <u>N. lutrensis</u> )			x	
Blackspot shiner ( <u>N. atrocaudalis</u> )	x			
Parrot minnow ( <u>Pimephales vigilax</u> )	x	x		x
Channel catfish ( <u>Ictalurus punctatus</u> )	x	x	x	x
Black bullhead ( <u>I. melas</u> )	x		x	
Yellow bullhead ( <u>I. natalis</u> )	x	x	x	x
Starhead topminnow ( <u>Fundulus notti</u> )	x			
Blackstripe topminnow ( <u>F. notatus</u> )	x	x	x	x
Mosquitofish ( <u>Gambusia affinis</u> )	x	x	x	
Brook silversides ( <u>Labidesthes sicculus</u> )	x	x	x	x
Spotted bass ( <u>Micropterus punctulatus</u> )	x	x	x	x
Largemouth bass ( <u>M. salmoides</u> )	x	x	x	x
Warmouth ( <u>Chaenobryttus gulosus</u> )	x	x	x	
Spotted sunfish ( <u>Lepomis punctatus</u> )	x	x	x	x
Redear sunfish ( <u>L. microlophus</u> )	x	x	x	x
Bluegill sunfish ( <u>L. macrochirus</u> )	x	x	x	x
Redbreast sunfish ( <u>L. auritus</u> )	x	x		
Longear sunfish ( <u>L. megalotis</u> )		x	x	
White crappie ( <u>Pomoxis annularis</u> )	x	x	x	
Black crappie ( <u>P. nigromaculatus</u> )	x	x	x	x
Flier ( <u>Centrarchus macropterus</u> )	x			
Bluntnose darter ( <u>Ethostoma chlorosomum</u> )			x	
Slough darter ( <u>E. gracile</u> )	x			
Number of Species	32	23	23	17

Table 19. A Comparison of Percentages of Numbers of Netted Fish from Lake Tyler.

<u>Species</u>	<u>1953-54</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Bowfin*	0.78	0	0	0
Gizzard shad*	0	36.72	30.59	22.35
Blacktail redhorse*	0.59	0	0	0
Spotted sucker*	25.18	11.34	16.45	29.41
Chubsucker*	23.58	2.99	2.63	4.71
Carp*	0.20	17.02	9.54	2.35
Golden shiner*	1.37	1.49	0.66	0
Channel catfish	0.12	2.39	3.95	2.35
Black bullhead*	35.14	0	0.33	0
Yellow bullhead*	1.37	4.18	6.91	4.71
Spotted bass	0	0.30	0	0
Largemouth bass	2.04	2.68	5.26	0
Warmouth	0.12	1.79	1.32	0
Spotted sunfish	0	0	0	1.18
Redear sunfish	1.80	4.18	3.29	12.94
Bluegill sunfish	4.94	12.24	11.84	2.35
Redbreast sunfish	0	0.30	0	0
Longear sunfish	0	0.30	0.33	0
White crappie	1.20	0.30	5.59	17.65
Black crappie	1.33	1.78	1.31	0
Flier	0.24	0	0	0
Rough Fish*	88.21	73.74	67.11	63.53
Game Fish	11.79	26.26	32.89	36.47
Total	100.00	100.00	100.00	100.00

Table 20. A Comparison of Lake Tyler "K" Factor Averages and Region "K" Factor Averages.

<u>Species</u>	<u>Lake Tyler Average "K"</u>		<u>Regional "K"</u>
	<u>1963</u>	<u>1964</u>	
Channel catfish	1.75	2.32	1.70
Largemouth bass	2.60	0	2.72
Warmouth	3.39	0	4.10
Redear sunfish	3.54	2.92	3.82
Bluegill sunfish	3.47	3.30	4.38
White crappie	2.42	2.19	3.03
Black crappie	2.88	0	3.34

Table 21. Water Quality for Lake Tyler

	<u>1953-54</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
pH	7.5	7.4	7.4	7.6
Alkalinity (p.p.m.)	Unknown	19.00	30.00	40.00
Chlorides (p.p.m.)	Unknown	21.28	21.28	21.28

Approximately twenty miles of the Sabine River in Newton County was surveyed in 1964. Table 22 is a checklist of all fish species collected. Table 23 contains the per cent by number and the per cent by weight of fish collected. Table 24 contains water analysis data.

Table 22. A Checklist of the Fish Species of the Sabine River (1964)

<u>Species</u>
Spotted gar ( <u>Lepisosteus oculatus</u> )
Longnose gar ( <u>L. osseus</u> )
Gizzard shad ( <u>Dorosoma cepedianum</u> )
Striped mullet ( <u>Mugil cephalus</u> )
Sabine shiner ( <u>Notropis sabiniae</u> )
Blacktail shiner ( <u>N. venustus</u> )
Red shiner ( <u>N. lutrensis</u> )
Pallid shiner ( <u>N. amnis</u> )
Bullhead minnow ( <u>Pimephales vigilax</u> )
Western sand darter ( <u>Ammocrypta clara</u> )
Blue catfish ( <u>Ictalurus furcatus</u> )
Spotted bass ( <u>Micropterus punctulatus</u> )
Warmouth ( <u>Chaenobryttus gulosus</u> )
Bluegill sunfish ( <u>Lepomis macrochirus</u> )
Spotted sunfish ( <u>L. punctatus</u> )
Redbreast sunfish ( <u>L. auritus</u> )
White crappie ( <u>Pomoxis annularis</u> )

Number of Species 17

Table 23. Comparison of Percentages of Numbers and Weights of Netted Fish from the Sabine River (1964)

<u>Species</u>	<u>Number</u>	<u>Per Cent Number</u>	<u>Weight</u>	<u>Per Cent Weight</u>
Longnose gar*	12	37.50	33.62	72.50
Spotted gar*	6	18.75	6.44	13.89
Gizzard shad*	4	12.50	2.06	4.44
Blue catfish	1	3.12	2.00	4.31
Spotted bass	1	3.12	0.69	1.49
Warmouth	2	6.25	0.62	1.34
Bluegill sunfish	1	3.12	0.19	0.41
Spotted sunfish	2	6.25	0.19	0.41
Redbreast sunfish	1	3.12	0.06	0.13
White crappie	2	6.25	0.50	1.08
Rough fish*	22	68.75	42.12	90.83
Game fish	10	31.25	4.25	9.17
Total	32	100.00	46.37	100.00

Table 24. Water Quality for the Sabine River

Turbidity	8 inches	Alkalinity	22 p.p.m.
pH	6.4	Chlorides	14.18 p.p.m.

TRINITY RIVER

A 30-mile section of the Trinity River in Polk County was surveyed in April, 1964. The river was falling rapidly after a heavy rise and conditions were poor for setting gill nets. Only 2.47 per cent by number of game fish species was netted and this is not a valid figure for the game fish populations.

Many gar were netted and valuable data was collected for the Project's evaluation of bowfin and gar study. Table 25 is a checklist of all species collected from the Trinity River. Table 26 contains per cents by number and weights for each species. Table 27 contains water analysis data.

Table 25. A Checklist of Trinity River Fish Species (1964)

<u>Species</u>	
Spotted gar ( <u>Lepisosteus oculatus</u> )	Pallid shiner ( <u>Notropis amnis</u> )
Alligator gar ( <u>L. spatula</u> )	Blacktail shiner ( <u>N. venustus</u> )
Longnose gar ( <u>L. osseus</u> )	Red shiner ( <u>N. lutrensis</u> )
Gizzard shad ( <u>Dorosoma cepedianum</u> )	Black bullhead ( <u>Ictalurus melas</u> )
Bowfin ( <u>Amia calva</u> )	Spotted bass ( <u>Micropterus punctulatus</u> )
River carpsucker ( <u>Carpionodes carpio</u> )	White crappie ( <u>Pomoxis annularis</u> )
Smallmouth buffalo ( <u>Ictiobus bubalus</u> )	White bass ( <u>Roccus chrysops</u> )
Striped mullet ( <u>Mugil cephalus</u> )	Freshwater drum ( <u>Aplodinotus grunniens</u> )
Bullhead minnow ( <u>Pimephales vigilax</u> )	
Total species - - - 17	

Table 26. Comparison of Percentages of Numbers and Weights from the Trinity River (1964)

<u>Species</u>	<u>Number</u>	<u>Per Cent Number</u>	<u>Weight</u>	<u>Per Cent Weight</u>
Spotted gar*	23	14.20	31.44	7.30
Alligator gar*	9	5.56	138.50	32.14
Longnose gar*	70	43.20	217.60	50.50
Gizzard shad*	13	8.03	5.31	1.23
Bowfin*	1	0.62	6.75	1.57
River carpsucker*	21	12.97	6.00	1.39
Smallmouth buffalo*	1	0.62	2.75	0.64
Black bullhead*	1	0.62	0.88	0.20
Spotted bass	1	0.62	0.75	0.17
White crappie	1	0.62	1.12	0.26
White bass	2	1.22	0.76	0.18
Freshwater drum*	1	0.62	0.12	0.03
Striped mullet*	18	11.12	18.93	4.39
Rough fish*	158	97.53	428.28	99.39
Game fish	4	2.47	2.63	0.61
Total	162	100.00	430.91	100.00

Table 27. Water Quality for the Trinity River

Turbidity	1½ inches secchi	Alkalinity	57.00 p.p.m.
pH	7.0	Chlorides	70.92 p.p.m.

NECHES RIVER

A survey was conducted in the Neches River below U. S. Highway 59 in Trinity County immediately following the Trinity River Survey. The Neches River was also high and netting conditions were poor. Only 4.44 per cent of the fish netted were game species. A total of 45 fish were netted from 1500 feet of gill nets. Table 28 is a checklist of all species collected. Table 29 contains the percentages of weights and numbers by species. Table 30 contains water analysis data from the Neches River.

Table 28. A Checklist of the Fish Species of the Neches River (1964)

Species

- Spotted gar (Lepisosteus oculatus)
- Longnose gar (L. osseus)
- Alligator gar (L. spatula)
- Smallmouth buffalo (Ictiobus bubalus)
- Carp (Cyprinus carpio)
- Black bullhead (Ictalurus melas)
- Flathead catfish (Pylodictis olivaris)
- Redear sunfish (Lepomis microlophus)
- Freshwater drum (Aplodinotus grunniens)

Number of Species - - - - - 9

Table 29. Comparison of Percentages of Numbers and Weights of netted fish from the Neches River (1964).

<u>Species</u>	<u>Number</u>	<u>Per Cent Number</u>	<u>Weight</u>	<u>Per Cent Weight</u>
Spotted gar*	9	20.03	14.62	8.85
Longnose gar*	22	48.88	118.91	71.97
Alligator gar*	1	2.22	6.56	3.97
Smallmouth buffalo*	5	11.11	10.06	6.09
Carp*	3	6.66	8.50	5.15
Black bullhead*	1	2.22	0.19	0.11
Flathead catfish	1	2.22	4.50	2.73
Redear sunfish	1	2.22	0.19	0.11
Freshwater drum*	2	4.44	1.69	1.02
Rough fish*	43	95.56	160.53	97.16
Game fish	2	4.44	4.69	2.84
Total	45	100.00	165.22	100.00

Table 30. Water Quality for the Neches River

pH	6.2
Alkalinity	13.00 p.p.m.
Chlorides	21.28 p.p.m.

CONCLUSIONS AND RECOMMENDATIONS:

Limited reconnaissance netting on large reservoirs is not adequate for providing valid data concerning population trends. For this reason, it is recommended that this job be terminated.

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