

Report of Fisheries Investigations

Fisheries Reconnaissance

by

John N. Dorchester
Assistant Project Leader

Dingell-Johnson Project F-3-R-8, Job B-18
June 1, 1960 - January 31, 1961

H. D. Dodgen - Executive Secretary

Texas Game and Fish Commission
Austin, Texas

Marion Toole
Coordinator

Kenneth C. Jurgens and William H. Brown
Assistant Coordinators

A B S T R A C T

A reconnaissance survey was conducted on the Angelina, Attoyac and Neches Rivers in eastern Texas. Data included seining and netting collections as well as ecological data including water analysis. While no major overall changes were noted that could not be attributed to methods or procedure, there were several fish species collected which had not been previously collected from these waters. Conversely, there were many species collected before that were not collected during this survey. Water quality was generally good though there was one area of pollution in evidence. Lack of good public access is the major problem on these waters. Some aquatic vegetation was present in certain areas but generally presents no problems.

Job Completion Report

State of TEXAS

Project No. F-3-R-8

Name: Fisheries Investigations and Surveys
of the Waters of Region 5-B.

Job No. B-18

Title: Fisheries Reconnaissance

Period covered:

June 1, 1960 - January 31, 1961.

OBJECTIVES

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

INTRODUCTION

This report covers the reconnaissance work conducted on two major river systems in the eastern part of Texas. The rivers are the Angelina system including the Attoyac Bayou and the Neches River. The original basic survey conducted on the Angelina system was from March 1, 1956 through February 28, 1957. The Neches River survey was conducted from June 1, 1956 through November 30, 1957.

The procedures are basically the same for both systems, however, the findings for each river are kept separate in this report.

PROCEDURES

Location of Work and Methods

Collection sites were established during the original basic surveys. A total of 111 of these sites were revisited during this period. All previously established stations were not visited due to various reasons. Broken down by individual streams and methods there were 56 sites visited on the Angelina River excluding the Attoyac Bayou. These stations were seined with either a 26- by 6-foot bag seine with a $\frac{1}{4}$ -inch mesh, or a 15- by 4-foot straight seine with a $\frac{1}{8}$ -inch woven mesh.

Three sites which were previously designated as pollution stations were also revisited on the Angelina drainage.

There were 21 sites visited on the Attoyac Bayou drainage using the same seines as mentioned above.

On the Neches River there were 24 sites visited which were seined with the above equipment plus a 15- by 4-foot bag seine with a $\frac{1}{8}$ -inch woven mesh which was received near the end of the job. This type of seine appears to be very good for these types

of waters. In addition, there were seven sites revisited which were netted with experimental type gill nets. The dimensions of these nets were 125 feet long, eight feet deep with mesh sizes of 1-, $1\frac{1}{2}$ -, 2-, $2\frac{1}{2}$ -, and 3-inches changing every 25 feet.

All fish collected by seining were brought back to the laboratory for identification.

Limnological Data

Limnological conditions noted were turbidity (Secchi disk), air and surface water temperatures and aquatic vegetation present. In addition, water samples were taken and analyzed in the laboratory for pH, methyl orange alkalinity and chlorides.

FINDINGS

Angelina River

Table 1 lists each species of fish collected from the Angelina River including the original survey and the reconnaissance survey. This table gives the common names, scientific names, the number of specimens collected on each survey and the number of times each species was collected. While there are no major basic changes in fish populations there were several species which appear to be more common in the river than before. Species such as Gambusia affinis increased in numbers from 257 to 731. In a survey of this type these figures are not significant but act only as an indicator as to which species of fish are present and only approximately how abundant.

It is interesting to note that there were eight species of fish not previously collected from the Angelina River which were taken during this time. On the other hand there were 20 species collected previously which were not taken during the reconnaissance survey.

There was a total of 59 species of fish collected during the basic survey and 45 species collected during the reconnaissance survey. Combining the species from the first survey and the new species from the second survey there has been a total of 67 species of fish collected from the Angelina River excluding the Attoyac Drainage.

Table 2 gives the locations of the collection stations revisited and Table 3 shows the ecological data as a matter of record. A few of these stations had changed in character due mostly to new bridge construction or lake construction. The chemical and physical property of the water was generally about the same as before.

Public Use. During the visits made to the collection sites on this reconnaissance survey there were no fishermen, either sports or commercial, observed. There are two commercial camps located on the river and one of them appeared to be abandoned at the time. Facilities such as boat launching ramps would be a great asset as it is all but impossible to put a boat in at most of the roads crossing the lower section of the river.

Pollution. There are two areas of either active or potential pollution on the Angelina River. The active pollution is the effluent of the Southland Paper Mill, near Lufkin. The temperature of this black water taken several miles from the plant outlet is 95 degrees F. compared to 73 degrees F. of a nearby parallel

stream. With the coming of McGee Bend Dam and Reservoir on the Angelina River below the outfall, more pressure should be put on the paper mill to improve the quality of their effluent before it enters the river.

The potential pollution is in the Striker Creek area where the chloride content of the water is much higher than other waters from the Angelina System. This is from the East Texas oil fields.

Vegetation. There were only eight collection sites visited that had aquatic vegetation other than black willow, Salix nigra, which is fairly common. Sagittaria sp. was found on five occasions, sawgrass, Zizaniopsis miliacea, was found three times, parrot feather, Myriophyllum sp., twice, yellow water lily, Nuphar sp., white water lily, Nymphaea sp., and broad leaf pondweed, Potamogeton sp., once each.

Attoyac Drainage

This is spoken of as the Attoyac Drainage because most of the collection stations were located on the tributary streams.

Table 4 lists the species of fish collected from the Attoyac Drainage in a similar manner as Table 1. During the reconnaissance survey there were five species collected which were not previously taken bringing the total numbers of species collected from this drainage up to 66. However, 36 of these species were not captured during this survey making a total of only 30 species taken. This can be attributed to the fact that the original basic survey was much more intensive than the reconnaissance survey. The major changes noted were the failure to catch any black bullhead catfish, Ictalurus melas, during the second survey. Also, black and white crappie, Pomoxis nigromaculatus and P. annularis, which were common the first time were not found at this time. Other species were generally in about the same numbers or relative abundance as before.

Table 5 gives the geographical locations and Table 6 gives the ecological data of the collection stations. The chemical properties of the water were surprisingly similar to the qualities determined during the first survey.

Public Use. This stream is seldom used by fishermen and then they are usually colored people who fish with cane poles and worms or crawfish. Attoyac Bayou itself would possibly provide good fishing if it were easier to get to from public highways.

Pollution. There was no indication of any pollution on this stream.

Vegetation. Aquatic vegetation was found at three collection sites. The following vegetation was observed in a borrow ditch at one location: lizard's tail, Saururus cernuus, sawgrass, Zizaniopsis miliacea, white water lily, Nymphaea sp., and musk grass, Chara sp. At another location the following were found: cattails, Typha latifolia, and coontail, Ceratophyllum demersum. At a third site yellow water lily, Nuphar sp., was observed. At several locations black willow, Salix nigra, was found. Vegetation presents no problem on this drainage.

Neches River

Table 7 lists each species of fish collected from the Neches River during both surveys. There were six species collected which were not collected previously bringing the total species collected from the Neches River up to 72. There were only 42 species collected during the reconnaissance survey. However, during the reconnaissance survey the river level was up considerably above the level during the original basic survey. Also, previously there were collections made in the salt water section of the river which were not made during this time. In addition, the original survey was made during the summer months while the reconnaissance survey was made during the fall. This latter factor influenced the failure to catch many species which were quite abundant before. There were several private lakes included in the basic survey which were not included at this time.

Table 8 gives the geographical location of the sites revisited and Table 9 the ecological data. The chemical properties of the water were more "normal" for East Texas than before. The pH, alkalinity, and chlorides were lower and more uniform during this time.

Public Use. The Neches River is more widely used by the fishing public than the Angelina and Attoyac. There are several commercial camps located at the major highway crossings as well as private camps situated along the river. However, during the time of reconnaissance survey, which was late fall, there was no fishing activity observed.

Pollution. There was no active pollution observed at this time. However, the areas of pollution noted on the basic survey were not visited during the reconnaissance survey.

Vegetation. There was no aquatic vegetation observed other than black willow, Salix nigra, along the Neches River at this time. The water had backed up onto non-aquatic grasses and weeds which was not a normal situation.

CONCLUSIONS AND RECOMMENDATIONS

While a survey of this type probably does not indicate a true status of a fish population, especially in streams, it has provided a means of adding additional fish species to the previously compiled checklist. Also it provides an up-to-date indicator of the water quality over a comparatively short period of time.

No recommendations are made for fish management other than to provide better access in the form of permanent boat launching facilities at the major highway crossings. This could possibly be a function of the State Highway Department using fees collected from boat registration.

Prepared by John N. Dorchester
Assistant Project Leader

Approved by. Marion Toole
Director Inland Fisheries Division

Date April 18, 1961

Table 1. A checklist of Angelina River fish species.

Common name	Scientific name	Basic Survey (1956-57)		Reconnaissance (1960)	
		Numbers	Times collected	Numbers	Times collected
Spotted gar	<u>Lepisosteus productus</u>	2	2	1	1
Longnose gar	<u>L. osseus</u>	14	2	0	
Threadfin shad	<u>Dorosoma petenense</u>	0		1	1
Gizzard shad	<u>D. cepedianum</u>	260	15	155	8
Grass pickerel	<u>Esox americanus</u>	12	10	4	3
Smallmouth buffalo	<u>Ictiobus bubalus</u>	13	1	0	
River carpsucker	<u>Carpionodes carpio</u>	0		1	1
Gray redhorse	<u>Moxostoma congestum</u>	25	6	4	2
Blacktail redhorse	<u>M. poecilurum</u>	5	5	0	
Spotted sucker	<u>Minytrema melanops</u>	2	1	7	6
Lake chubsucker	<u>Erimyzon sucetta</u>	6	2	2	2
Creek chubsucker	<u>E. oblongus</u>	1	1	3	3
Golden shiner	<u>Notemigonus crysoleucas</u>	47	13	123	13
Creek chub	<u>Semotilus atromaculatus</u>	1	1	0	
Pugnose minnow	<u>Opsopoeodus emiliae</u>	30	4	0	
Speckled chub	<u>Hybopsis aestivalis</u>	38	3	10	6
Suckermouth minnow	<u>Phenacobius mirabilis</u>	0		6	3
Emerald shiner	<u>Notropis atherinoides</u>	55	9	5	3
Texas shiner	<u>N. amabilis</u>	1	1	0	
Ribbon shiner	<u>N. fumeus</u>	629	30	104	11
Brazos River shiner	<u>N. brazosensis</u>	13	2	0	
Weed shiner	<u>N. texanus</u>	37	5	360	8
Chub shiner	<u>N. potteri</u>	62	5	40	5
Longnose shiner	<u>N. sabiniae</u>	6	1	0	
Pallid shiner	<u>N. amnis</u>	193	10	0	
Spottail shiner	<u>N. venustus</u>	265	27	488	30
Redhorse shiner	<u>N. lutrensis</u>	9	5	3	2
Sand shiner	<u>N. stramineus</u>	240	24	155	16
Blackspot shiner	<u>N. atrocaudalis</u>	379	13	0	
Mimic shiner	<u>N. volucellous</u>	243	19	154	21
Silvery minnow	<u>Hybognathus nuchalis</u>	17	2	0	
Parrot minnow	<u>Pimephales vigilax</u>	150	23	420	28
Channel catfish	<u>Ictalurus punctatus</u>	10	6	32	5
Black bullhead	<u>I. melas</u>	0		2	2
Yellow bullhead	<u>I. natalis</u>	2	1	2	2
Flathead catfish	<u>Pylodictus olivaris</u>	1	1	0	
Tadpole madtom	<u>Schilbeodes gyrinus</u>	1	1	0	
Freckled madtom	<u>S. nocturnus</u>	3	2	0	
Redspot topminnow	<u>Fundulus chrysotus</u>	189	3	44	4
Blackstripe topminnow	<u>F. notatus</u>	0		168	26
Blackspot topminnow	<u>F. olivaceus</u>	409	45	3	1
Common mosquitofish	<u>Gambusia affinis</u>	257	33	731	27
Pirate perch	<u>Aphredoderus sayanus</u>	1	1	1	1
Brook silversides	<u>Labidesthes sicculus</u>	75	15	18	3
Spotted bass	<u>Micropterus punctulatus</u>	90	31	31	13

Table 1. (continued)

Largemouth bass	<u>M. salmoides</u>	0		11	6
Warmouth	<u>Chaenobryttus gulosus</u>	3	3	3	2
Green sunfish	<u>Lepomis cyanellus</u>	1	1	12	4
Spotted sunfish	<u>L. punctatus</u>	48	15	119	23
Redear sunfish	<u>L. microlophus</u>	6	3	0	
Bluegill sunfish	<u>L. macrochirus</u>	107	20	224	24
Orangespotted sunfish	<u>L. humilis</u>	1	1	0	
Yellowbelly sunfish	<u>L. auritus</u>	0		1	1
Longear sunfish	<u>L. megalotis</u>	7	6	2	2
White crappie	<u>Pomoxis annularis</u>	85	7	15	6
Black crappie	<u>P. nigromaculatus</u>	23	5	1	1
Banded pigmy sunfish	<u>Elassoma zonatus</u>	11	2	0	
Blackside darter	<u>Hadropterus maculatus</u>	0		2	2
Dusky darter	<u>H. scierus</u>	0		9	7
River darter	<u>H. shumardi</u>	4	4	0	
Logperch	<u>Percina caprodes</u>	1	1	8	2
Arkansas sand darter	<u>Ammocrypta vivax</u>	45	12	23	5
Western sand darter	<u>A. clara</u>	4	2	0	
Bluntnose darter	<u>Etheostoma chlorosomum</u>	19	5	40	14
Slough darter	<u>E. gracilie</u>	16	9	13	10
Redspot darter	<u>E. grahami</u>	1	1	0	
Freshwater drum	<u>Aplodinotus grunniens</u>	16	3	7	3
Total species		58		48	

Table 2. Location of collection stations on the Angelina River.

Station number	County	Name of water	Location
1	Rusk	Brumley Creek	3 mi SW Henderson on US 79
2	Rusk	Scoober Creek	7 mi SW Henderson on US 79
3	Rusk	Johnson Creek	10 mi SW Henderson on US 79
4	Cherokee	Mud Creek	3 mi SW Troup on FM 347
5	Cherokee	Caney Creek	3 mi S Troup on SH 110
6	Cherokee	Twin Creek	2½ mi N New Summerfield on SH 110
10	Nacogdoches	Angelina River	9 mi E Alto on SH 21
11	Angelina	Angelina River	9 mi N Lufkin on US 59
12	Angelina	Angelina River	14 mi E Lufkin, ¼ mi downstream from SH 10
13	Angelina	Angelina River	14 mi E Lufkin, ¾ mi downstream from SH 10
14	Nacogdoches	Angelina River	14 mi E Lufkin, 3 mi downstream from SH 10
15	Angelina	Angelina River	14 mi E Lufkin, 4 mi downstream from SH 10
16	Angelina	Angelina River	14 mi E Lufkin, 5 mi downstream from SH 10
17	Angelina	Angelina River	14 mi E Lufkin, 6 mi downstream from SH 10
18	Angelina	Angelina River	14 mi E Lufkin, 8 mi downstream from SH 10
19	Rusk	Jarrell Creek	8 mi SE Henderson on SH 26
20	Rusk	Ham Creek	3½ mi NE Mt. Enterprise on SH 26
21	Rusk	Trib. E Fork Ang. R.	4 mi SW Mt. Enterprise on County Road
22	Rusk	E. Fork Angelina R.	3 mi N Cushing on FM 225
23	Rusk	E. Fork Angelina R.	6 mi NW Cushing on County Road
24	Rusk	Trib. to Angelina R.	3½ mi E Reklaw on US 84
25	Rusk	Angelina River	3 mi E Reklaw on US 84
26	Cherokee	Mud Creek	1 mi SW Reklaw on US 84
27	Cherokee	Angelina River	12 mi E Rusk on FM 343
28	Cherokee	Angelina River	7½ mi NE Wells on County Road
29	Angelina	Angelina River	16 mi N Lufkin on SH 7
30	San Augustine	Ayish Bayou	4 mi N San Augustine on County Road
31	San Augustine	Ayish Bayou	1½ mi N San Augustine on County Road
33	San Augustine	Ayish Bayou	10 mi SSW San Augustine on SH 103
35	Sabine	Bear Creek	3 mi WNW Pineland on County Road
36	Sabine	Bear Creek	3 mi WSW Brookland on County Road
37	San Augustine	Ayish Bayou	5 mi WSW Brookland on County Road
38	San Augustine	Angelina River	8 mi WSW Brookland on County Road
40	Angelina	Rocky Creek	6 mi NE Zavalla on County Road
41	Jasper	Angelina River	10 mi W Jasper, 1 mi downstream from SH 63
42	Jasper	Indian Creek	7½ mi W Jasper on SH 63
43	Jasper	Angelina River	9 mi W Jasper on FM 1745
44	Jasper	Angelina River	12 mi NW Jasper, 1 mi upstream from Ayish B
45	Jasper	Angelina River	11 mi NW Jasper, mouth Ayish Bayou
46	Jasper	Angelina River	9 mi NW Jasper, 2 mi downstream from Ayish B
47	Jasper	Angelina River	11 mi NW Jasper, 2 mi ENE Ebernezer Road
48	Jasper	Angelina River	10 mi NW Jasper, 1½ mi S Ebernezer Road
49	Jasper	Angelina River	12 mi WNW Jasper, ½ mi upstream from SH 63
51	Jasper	Angelina River	9 mi W Jasper, 2 mi upstream from FM 1745
52	Jasper	Angelina River	11 mi W Jasper, half way between FM 1745 and SH 63

Table 2. (continued)

53	Rusk	Shawnee Creek	6 mi S Henderson, off of FM 225
54	Rusk	Barnhardt Creek	7 mi S Henderson on FM 225
55	Rusk	Barnhardt Creek	3 mi NW Laneville on County Road
56	Rusk	Shawnee Creek	3 $\frac{1}{2}$ mi NE Laneville on County Road
57	Rusk	Angelina River	5 mi SW Laneville on FM 1662
58	Rusk	Striker Creek	1 mi SW New Salem on FM 839
60	Rusk	Beaver Run	2 $\frac{3}{4}$ mi SW Carlisle on FM 13
61	Smith	Gilley Creek	9 mi W Troup on FM 848
62	Smith	Mud Creek	3 mi W Troup on SH 110
63	Smith	West Mud Creek	3 $\frac{1}{2}$ mi NE Bullard on FM 344
64	Smith	Shakleford Creek	4 $\frac{3}{4}$ mi NNE Bullard on FM 346
P-2	Angelina	Trib. to Willis Creek	1 mi W Moffett on FM 842
P-3	Angelina	Willis Creek	1 mi W Moffett on FM 842
P-4	Angelina	Angelina River	2 $\frac{1}{2}$ mi NNE Moffett below Mill Creek

P - pollution stations

Table 3. Ecological and chemical data on the Angelina drainage.

Station number	Name of Water	Date	Temperature (F.°)		Turbidity Secchi disk (inches)	Color of water	pH	M.O. Alkalinity (p.p.m.)	Chlorides (p.p.m.)
			Air	Surface					
1	Brunley Creek	8/17/60	90	84	12	brown	6.4	28	21.28
2	Scoober Creek	8/17/60	89	82	clear	rusty	6.0	15	14.18
3	Johnson Creek	8/17/60	88	84	clear	none	6.6	23	226.94
4	Mud Creek	8/17/60	88	80	11	black-brown	6.8	37	28.37
5	Caney Creek	8/17/60	88	85	11	black-brown	7.2	235	85.10
6	Twin Creek	8/17/60	87	85	clear	green	6.2	34	28.37
10	Angelina River	10/4/60	84	74	18	greenish-tan	6.4	17	106.38
11	Angelina River	10/11/60	82	79	18	brown	6.4	26	99.29
12	Angelina River	10/12/60	62	72	10	brown	6.6	22	127.66
13	Angelina River	11/2/60	70	61	8	milky black	6.7	23	56.74
14	Angelina River	11/2/60	68	61	8	milky black	6.7	32	70.92
15	Angelina River	11/2/60	68	61	8	milky black	6.7	32	70.92
16	Angelina River	11/2/60	68	61	8	milky black	6.7	32	70.92
17	Angelina River	11/2/60	68	61	8	milky black	6.7	35	92.20
18	Angelina River	11/2/60	65	61	8	milky black	6.7	35	92.20
19	Jarrell Creek	9/13/60	75	65	clear	milky black	6.6	15	21.28
20	Ham Creek	9/13/60	76	69	clear	tan	6.6	28	21.28
21	Tri-b. E Fork Ang. R.	9/13/60	89	70	clear	none	6.6	18	35.46
22	E Fork Angelina River	9/13/60	90	74	clear	none	6.8	20	14.18
23	E Fork Angelina River	9/13/60	90	74	clear	none	6.8	20	14.18
24	Tri-b to Angelina River	9/13/60	92	76	clear	tan	7.0	35	35.46
25	Angelina River	9/13/60	91	76	12	tan	7.0	39	78.01
26	Mud Creek	9/13/60	91	73	12	tan	7.0	35	49.64
27	Angelina River	10/11/60	82	73	12	tannish-brown	6.6	26	78.01
28	Angelina River	10/4/60	85	76	12	tannish-green	6.4	13	85.10
29	Angelina River	10/11/60	82	78	12	tannish-brown	6.2	18	156.02
30	Ayish Bayou	10/3/60	82	69	clear	brown	6.0	20	28.37
31	Ayish Bayou	10/3/60	82	71	12	none	6.2	40	28.37
33	Ayish Bayou	10/3/60	82	71	18	green-brown	7.2	55	28.37
35	Bear Creek	10/4/60	76	73	4	tan	6.6	20	35.46
36	Bear Creek	10/4/60	75	69	clear	tan	6.4	19	28.37
37	Ayish Bayou	10/3/60	78	77	8	none	6.8	36	28.37
38	Angelina River	10/3/60	75	74	6	tan	6.8	33	63.83
40	Rocky Creek	10/12/60	90	68	12	brown	6.6	45	70.92

Table 3. (continued)

41	Angelina River	10/25/60	81	69	8	brown	7.0	32	92.20
42	Indian Creek	10/12/60	80	68	clear	none	6.6	10	35.46
43	Angelina River	10/12/60	80	77	12	brown	6.6	18	99.29
44	Angelina River	10/25/60	82	69	9	brown-black	7.2	45	70.92
45	Angelina River	10/25/60	84	69	9	brown-black	7.2	39	70.92
46	Angelina River	10/25/60	84	69	8	brown	7.2	40	56.74
47	Angelina River	10/25/60	83	69	8	brown	7.2	40	70.92
48	Angelina River	10/25/60	83	69	8	brown	7.2	40	70.92
49	Angelina River	10/25/60	82	69	8	brown	7.2	38	70.92
51	Angelina River	10/25/60	82	69	8	brown	7.0	38	85.10
52	Angelina River	10/25/60	82	69	8	brown	7.0	38	85.10
53	Shawnee Creek	8/17/60	90	69	8	brown	7.0	42	85.10
54	Barnhardt Creek	8/17/60	92	84	15	green-brown	7.0	76	21.28
55	Barnhardt Creek	8/17/60	92	80	clear	green	6.6	11	21.28
56	Shawnee Creek	8/17/60	93	81	13	green-brown	6.8	48	7.09
57	Angelina River	8/17/60	95	90	26	green-brown	7.2	40	7.09
58	Striker Creek	8/17/60	95	93	10	tan	7.0	26	35.46
60	Striker Creek	8/17/60	87	100	clear	none	7.6	33	226.94
61	Gilley Creek	10/11/60	73	82	clear	rusty	6.2	34	680.83
62	Mud Creek	10/11/60	77	71	12	tan	6.6	15	35.46
63	West Mud Creek	10/11/60	75	72	12	black-brown	6.8	24	35.46
64	Shakleford Creek	10/11/60	75	69	24	tan-brown	6.6	26	35.46
P-2	Trtb. Willis Creek	10/11/60	72	95	1	black-gray	7.0	?	?
P-3	Willis Creek	10/11/60	72	73	1*	tan	6.8	136	35.46
P-4	Angelina River	10/11/60	70	76	12	black-brown	6.4	24	70.92

*Turbidity caused by pipeline construction upstream.

Table 4. A checklist of Attoyac Drainage fish species

Common name	Scientific name	Basic Survey (1956-57)		Reconnaissance (1960)	
		Numbers	Times collected	Numbers	Times collected
Spotted gar	<u>Lepisosteus productus</u>	2	2	0	
Longnose gar	<u>L. osseus</u>	2	1	0	
Gizzard shad	<u>Dorosoma cepedianum</u>	158	4	0	
Grass pickerel	<u>Esox americanus</u>	25	10	3	3
Smallmouth buffalo	<u>Ictiobus bubalus</u>	14	2	0	
River carpsucker	<u>Carpiodes carpio</u>	8	1	0	
Gray redhorse	<u>Moxostoma congestum</u>	4	4	0	
Blacktail redhorse	<u>M. poecilurum</u>	1	1	0	
Spotted sucker	<u>Minytrema melanops</u>	1	1	0	
Lake chubsucker	<u>Erimyzon sucetta</u>	4	3	3	3
Creek chubsucker	<u>E. oblongus</u>	49	5	0	
Golden shiner	<u>Notemigonus crysoleucas</u>	498	8	167	9
Creek chub	<u>Semotilus atromaculatus</u>	1	1	1	1
Pugnose minnow	<u>Opsopeodus emiliae</u>	122	6	0	
Silver chub	<u>Hybopsis storeriana</u>	2	1	0	
Emerald shiner	<u>Notropis atherinoides</u>	9	3	0	
Texas shiner	<u>N. amabilis</u>	14	2	0	
Ribbon shiner	<u>N. fumeus</u>	228	11	53	5
Redfin shiner	<u>N. umbratilis</u>	38	5	0	
Weed shiner	<u>N. texanus</u>	11	4	218	6
Chub shiner	<u>N. potteri</u>	0		1	1
Pallid shiner	<u>N. amnis</u>	3	1	0	
Spottail shiner	<u>N. venustus</u>	186	5	90	9
Redhorse shiner	<u>N. lutrensis</u>	5	3	2	1
Sand shiner	<u>N. stramineus</u>	81	8	10	1
Blackspot shiner	<u>N. atrocaudalis</u>	170	12	0	
Mimic shiner	<u>N. volucellus</u>	74	8	81	11
Silvery minnow	<u>Hybognathus nuchalis</u>	50	5	1	1
Plains minnow	<u>H. placita</u>	38	6	0	
Parrot minnow	<u>Pimephales vigilax</u>	24	5	36	7
Fathead minnow	<u>P. promelas</u>	2	2	0	
Channel catfish	<u>Ictalurus punctatus</u>	2	2	0	
Blue catfish	<u>I. furcatus</u>	1	1	0	
Black bullhead	<u>I. melas</u>	1,546	3	0	
Yellow bullhead	<u>I. natalis</u>	0		1	1
Flathead catfish	<u>Pylodictus olivaris</u>	1	1	0	
Tadpole madtom	<u>Schilbeodes gyrinus</u>	1	1	0	
Redspot topminnow	<u>Fundulus chrysotus</u>	9	1	0	
Blackstripe topminnow	<u>F. notatus</u>	0		140	12
Blackspot topminnow	<u>F. olivaceus</u>	179	17	0	
Common mosquitofish	<u>Gambusia affinis</u>	180	13	215	7
Pirate perch	<u>Aphredoderus sayanus</u>	16	5	1	1
Brook silverside	<u>Labidesthes sicculus</u>	36	3	0	
Spotted bass	<u>Micropterus punctulatus</u>	33	9	5	3
Largemouth bass	<u>M. salmoides</u>	2	2	2	2

Table 4. (continued)

Warmouth	<u>Chaenobryttus gulosus</u>	8	5	11	1
Green sunfish	<u>Lepomis cyanellus</u>	32	7	3	1
Spotted sunfish	<u>L. punctatus</u>	93	12	29	8
Redear sunfish	<u>L. microlophus</u>	46	3	0	
Bluegill sunfish	<u>L. macrochirus</u>	183	12	61	6
Orangespotted sunfish	<u>L. humilis</u>	9	2	0	
Yellowbelly sunfish	<u>L. auritus</u>	2	1	0	
Longear sunfish	<u>L. megalotis</u>	72	8	0	
White crappie	<u>Pomoxis annularis</u>	87	5	0	
Black crappie	<u>P. nigromaculatus</u>	31	5	0	
Flier	<u>Centrarchus macropterus</u>	1	1	1	1
Banded pigmy sunfish	<u>Elassoma zonatum</u>	39	2	0	
Blackside darter	<u>Hadropterus maculatus</u>	1	1	0	
Dusky darter	<u>H. scierus</u>	0		4	2
River darter	<u>H. shumardi</u>	9	3	0	
Arkansas sand darter	<u>Ammocrypta vivax</u>	11	3	3	1
Bluntnose darter	<u>Etheostoma chlorosomum</u>	59	9	55	8
Snubnose darter	<u>E. histrio</u>	7	1	1	1
Slough darter	<u>E. gracilie</u>	34	10	7	4
Cypress darter	<u>E. proeliare</u>	1	1	0	
Freshwater drum	<u>Aplodinotus grunniens</u>	2	1	0	
Total species		62		30	

Table 5. Location of collection stations on the Attoyac Drainage.

Station number	County	Name of water	Location
At-Sh-1	Shelby	Attoyac Bayou	6 3/4 mi. W Timpson on US 84
At-Sh-2	Shelby	Sandy Creek	4 1/2 mi. NE Martinsville on County Road
At-Sh-3	Shelby	Borrow ditch	2 1/4 mi. NE of Garrison on US 59
At-R-1	Rusk	Attoyac Bayou	1 1/2 mi. N Caledonia on County Road
At-R-2	Rusk	Golondrino Creek	2 1/2 mi. SSE Concord on County Road off FM 1274
At-R-3	Rusk	Golondrino Creek	3 mi. NNW Garrison on FM 95
At-R-4	Rusk	Attoyac Bayou	2 mi. NE Garrison on US 59
At-N-1	Nacogdoches	No-named creek	1 1/2 mi. NE Garrison on US 59
At-N-2	Nacogdoches	Neconiche Creek	5 1/2 mi. S Garrison on County Road W of FM 1274
At-N-4	Nacogdoches	Neconiche Creek	8 mi. SSE Garrison on FM 1274
At-N-5	Nacogdoches	Un-named Creek	5 mi. S Garrison on FM 1274
At-N-6	Nacogdoches	Turkey Creek	10 mi. SSE Garrison on FM 1274
At-N-7	Nacogdoches	Attoyac Bayou	1 mi. E Martinsville on SH 7
At-N-8	Nacogdoches	Polly Creek	2 1/2 mi. SE Martinsville on FM 1274
At-N-9	Nacogdoches	Tandakee Creek	4 1/2 mi. SE Martinsville on FM 1274
At-N-10	Nacogdoches	Alamodares Creek	2 mi. N Chireno on FM 1274
At-N-11	Nacogdoches	Attoyac Bayou	7 mi. SSE Chireno, 2 mi N SH 103 crossing
At-SA-1	San Augustine	Tributary Creek	3 mi. E Chireno, 5 mi S SH 21 on FM 1196
At-SA-3	San Augustine	Prairie Creek	2 mi. NE Broaddus on County Road
At-SA-6	San Augustine	Spear Creek	3 1/2 mi. S Denning on County Road
At-SA-7	San Augustine	Arenose Creek	3 mi. SSW Camp Worth on County Road

Table 6. Ecological and chemical data on the Attoyac Drainage.

Station number	Name of Water	Date	Temperature (F.°)		Turbidity Secchi disk (inches)	Color of water	pH	M.O. Alkalinity (p.p.m.)	Chlorides (p.p.m.)
			Air	Surface					
At-R-1	Attoyac Bayou	9/13/60	84	82	20	tan	6.8	28	21.28
At-R-2	Golondrino Creek	9/13/60	80	68	clear	none	6.8	19	21.28
At-R-3	Golondrino Creek	9/13/60	81	68	12	tan	6.8	21	35.46
At-R-4	Attoyac Bayou	9/13/60	83	70	clear	none	7.0	20	21.28
At-SH-1	Attoyac Bayou	9/13/60	87	68	12	tan	6.8	24	21.28
At-SH-2	Sandy Creek	9/16/60	87	73	12	green	6.2	31	14.18
At-SH-3	Borrow Ditch	9/13/60	84	77	13	tan	7.0	50	35.46
At-N-1	No-Named Creek	9/16/60	80	68	clear	green	6.6	67	92.20
At-N-2	Neconiche Creek	9/16/60	82	76	12	green-brown	6.6	34	14.18
At-N-4	Neconiche Creek	9/16/60	83	68	clear	none	6.6	18	14.18
At-N-5	Un-named Creek	9/16/60	81	76	4	tan	7.0	135	28.37
At-N-6	Turkey Creek	9/16/60	84	79	18	green	6.7	31	14.18
At-N-7	Attoyac Bayou	9/16/60	85	78	6	tan	7.2	53	35.46
At-N-8	Polly Creek	9/16/60	88	79	clear	none	6.0	22	14.18
At-N-9	Tandakee Creek	9/16/60	88	71	24	green	6.4	23	21.28
At-N-10	Alamodares Creek	10/4/60	85	74	clear	none	6.8	32	28.37
At-N-11	Attoyac Bayou	10/4/60	85	72	18	green-brown	6.4	23	35.46
At-SA-1	Tributary Creek	10/4/60	85	85	4	light brown	6.6	10	14.18
At-SA-3	Prairie Creek	10/4/60	84	69	24	brown	6.8	42	45.55
At-SA-6	Spear Creek	10/4/60	85	68	8	brown	6.0	13	28.37
At-SA-7	Arenosa Creek	9/16/60	89	69	24	green	6.7	18	14.18

Table 7. A checklist of Neches River fish species.

Common name	Scientific name	Basic Survey (1956-57)		Reconnaissance (1960)	
		Numbers	Times collected	Numbers	Times collected
Chestnut lamprey	<u>Ichthyomyzon castaneus</u>	1	1	0	
Alligator gar	<u>Lepisosteus spatula</u>	13	4	0	
Shortnose gar	<u>L. platostomus</u>	2	2	0	
Spotted gar	<u>L. productus</u>	46	15	2	2
Longnose gar	<u>L. osseus</u>	40	12	0	
Bowfin	<u>Amia calva</u>	309	5	1	1
Threadfin shad	<u>Dorosoma petenense</u>	0		8	2
Gizzard shad	<u>D. cepedianum</u>	331	16	12	6
Grass pickerel	<u>Esox americanus</u>	19	9	1	1
Bigmouth buffalo	<u>Ictiobus cyprinellus</u>	2	2	0	
Smallmouth buffalo	<u>I. bubalus</u>	80	22	18	6
River carpsucker	<u>Carpiodes carpio</u>	16	7	3	3
Blacktail redhorse	<u>Moxostoma poecilurum</u>	3	2	0	
Spotted sucker	<u>Minytrema melanops</u>	34	8	32	8
Lake chubsucker	<u>Erimyzon sucetta</u>	83	2	0	
Carp	<u>Cyprinus carpio</u>	8	4	0	
Golden shiner	<u>Notemigonus crysoleucas</u>	84	7	6	2
Pugnose minnow	<u>Opsopoeodus emiliae</u>	9	4	58	9
Speckled chub	<u>Hybopsis aestivalis</u>	4	2	0	
Emerald shiner	<u>Notropis atherinoides</u>	0		2	2
Ribbon shiner	<u>N. fumeus</u>	26	10	4	3
Brazos River shiner	<u>N. brazosensis</u>	62	1	0	
River shiner	<u>N. blennius</u>	11	2	0	
Chub shiner	<u>N. potteri</u>	272	10	3	1
Longnose shiner	<u>N. sabinæ</u>	44	4	0	
Pallid shiner	<u>N. amnis</u>	198	3	0	
Spottail shiner	<u>N. venustus</u>	541	21	173	17
Redhorse shiner	<u>N. lutrensis</u>	368	12	162	8
Sand shiner	<u>N. stramineus</u>	193	15	61	10
Blackspot shiner	<u>N. atrocaudalis</u>	84	6	0	
Mimic shiner	<u>N. volucellus</u>	27	4	27	6
Taillight shiner	<u>N. maculatus</u>	17	4	0	
Silvery minnow	<u>Hybognathus nuchalis</u>	0		1	1
Plains minnow	<u>H. placita</u>	7	2	0	
Parrot minnow	<u>Pimephales vigilax</u>	313	14	207	14
Channel catfish	<u>Ictalurus punctatus</u>	28	12	12	5
Blue catfish	<u>I. furcatus</u>	7	1	10	4
Black bullhead	<u>I. melas</u>	121	3	0	
Yellow bullhead	<u>I. natalis</u>	4	4	0	
Flathead catfish	<u>Pylodictus olivaris</u>	2	2	1	1
Bayou killifish	<u>Fundulus pulvereus</u>	1	1	0	
Redspot topminnow	<u>F. chrysotus</u>	17	5	0	
Starhead topminnow	<u>F. notti</u>	0		1	1
Blackstripe topminnow	<u>F. notatus</u>	303	25	61	13
Variegated cyprinodon	<u>Cyprinodon variegatus</u>	36	5	0	

Table 7. (continued)

Common mosquitofish	<u>Gambusia affinis</u>	1,418	31	134	14
Pirate perch	<u>Aphredoderus sayanus</u>	4	2	0	
Striped mullet	<u>Mugil cephalus</u>	2	2	0	
Tidewater silverside	<u>Menidia beryllina</u>	836	3	0	
Brook silverside	<u>Labidesthes sicculus</u>	355	15	17	8
Spotted bass	<u>Micropterus punctulatus</u>	206	14	3	3
Largemouth bass	<u>M. salmoides</u>	136	16	4	3
Warmouth	<u>Chaenobryttus gulosus</u>	17	5	12	5
Green sunfish	<u>Lepomis cyanellus</u>	2	1	0	
Spotted sunfish	<u>L. punctatus</u>	34	14	48	7
Redear sunfish	<u>L. microlophus</u>	40	12	35	3
Bluegill sunfish	<u>L. macrochirus</u>	248	30	143	16
Yellowbelly sunfish	<u>L. auritus</u>	4	2	0	
Longear sunfish	<u>L. megalotis</u>	24	4	1	1
White crappie	<u>Pomoxis annularis</u>	49	14	33	6
Black crappie	<u>P. nigromaculatus</u>	32	8	45	7
Flier	<u>Centrarchus macropterus</u>	16	2	0	
Blackside darter	<u>Hadropterus maculatus</u>	3	2	0	
Dusky darter	<u>H. scierus</u>	0		2	2
River darter	<u>H. shumardi</u>	8	4	8	2
Logperch	<u>Percina caprodes</u>	0		2	1
Arkansas sand darter	<u>Ammocrypta vivax</u>	50	8	1	1
Bluntnose darter	<u>Etheostoma chlorosomum</u>	1	1	3	2
Slough darter	<u>E. gracilie</u>	28	10	14	5
Greenthroat darter	<u>E. lepidum</u>	7	1	0	
Freshwater drum	<u>Aplodinotus grunniens</u>	28	12	10	3
Clown goby	<u>Microgobius gulosus</u>	40	2	0	
Total species			66		42

Table 8. Location of collection stations on the Neches River.

Station number	County	Name of water	Location
N-1	Van Zandt-Smith	Neches River	8 mi W Tyler on SH 64
N-2	Van Zandt-Smith	Neches River	2 mi E Chandler on SH 31
N-3	Henderson	Kickapoo Creek	2 mi W Chandler on SH 31
N-4	Henderson	Neches River	4 mi SW Chandler on County Road
N-5	Smith	Neches River	12 mi SW Tyler on SH 155
N-6	Cherokee	Neches River	4 mi E Frankston on US 175
N-7	Cherokee	Neches River	11 mi SW Jacksonville on US 79
N-8	Cherokee	Neches River	15 mi W Rusk on US 84
N-9	Cherokee	Neches River	12 mi W Alto on SH 294
N-10	Cherokee	Neches River	8 mi SW Alto on SH 21
N-11	Cherokee	Neches River	8 mi ENE Ratcliff on National Forest Hwy 11
N-12	Trinity	Neches River	9 mi WSW Lufkin on SH 94
N-13	Angelina	Neches River	9 mi N Corrigan on US 59
N-14	Jasper	Neches River	18 mi N Woodville on US 69
N-15	Tyler	Dam "B" Reservoir	12 mi W Jasper on US 190
N-16	Tyler	Neches River	5 mi E Spurger on County Road
N-17	Jasper	Neches River	6 mi E Silsby on US 96
N-18	Jasper	Neches River	6 mi below US 96 on County Road
N-19	Hardin	Neches River	9 mi S Evadale on County Road off FM 1131
N-30	Angelina	Neches River	15 $\frac{1}{2}$ mi WNW Lufkin on SH 103
N-31	Jasper	Dam "B" Reservoir	12 mi W Jasper above US 190
N-32	Jasper	Dam "B" Reservoir	12 mi W Jasper above US 190
N-33	Jasper	Dam "B" Reservoir	12 mi W Jasper below US 190
N-34	Jasper	Dam "B" Reservoir	12 mi W Jasper below US 190
N-G-1	Smith-Henderson	Neches River	12 mi SW Tyler on County Road off SH 155
N-G-11	Jasper	Dam "B" Reservoir	12 mi W Jasper above US 190
N-G-12	Jasper	Dam "B" Reservoir	12 mi W Jasper above US 190
N-G-13	Jasper	Dam "B" Reservoir	12 mi W Jasper above US 190
N-G-17	Jasper	Dam "B" Reservoir	12 mi W Jasper below US 190
N-G-18	Jasper	Dam "B" Reservoir	12 mi W Jasper below US 190
N-G-19	Jasper	Dam "B" Reservoir	12 mi W Jasper below US 190

Table 9. Ecological and chemical data on the Neches River.

Station number	Name of water	Date	Temperature (F.°)		Turbidity Secchi disk (inches)	Color of water	pH	M.O. Alkalinity (p.p.m.)	Chlorides (p.p.m.)
			Air	Surface					
N-1	Neches River	11/22/60	65	57	30	brown	6.2	26	56.74
N-2	Neches River	11/22/60	68	50	10	brown	6.4	28	63.83
N-3	Kickapoo Creek	11/22/60	65	57	25	brown	6.4	17	35.46
N-4	Neches River	11/22/60	68	57	18	brown	6.4	19	35.46
N-5	Neches River	11/22/60	68	61	clear	none	6.2	28	49.64
N-6	Neches River	11/22/60	68	57	12	tan-brown	6.4	20	56.74
N-7	Neches River	11/22/60	71	59	12	dark tan	6.4	22	85.10
N-8	Neches River	11/22/60	67	60	24	tan	6.4	18	70.92
N-9	Neches River	11/22/60	67	59	9	tan	6.4	20	56.74
N-10	Neches River	11/23/60	59	60	6	tan	6.4	17	35.46
N-11	Neches River	11/23/60	60	58	8	tan	6.4	17	35.46
N-12	Neches River	11/23/60	61	59	8	tan	6.4	12	35.46
N-13	Neches River	11/23/60	61	58	6	tan	6.2	22	35.46
N-14	Neches River	11/23/60	60	60	6	tan	6.4	24	35.46
N-15	Dan "B" Reservoir	11/23/60	60	58	15	tan	6.4	27	35.46
N-16	Neches River	11/23/60	61	62	7	tan	6.6	27	35.46
N-17	Neches River	12/6/60	76	60	10	tan	6.2	18	56.74
N-18	Neches River	12/6/60	76	60	10	tan-brown	6.4	20	56.74
N-19	Neches River	12/6/60	76	60	10	tan	6.4	23	70.92
N-30	Neches River	11/23/60	61	58	8	tan	6.2	13	35.46
N-31	Dam "B" Reservoir	12/7/60	64	63	12	tan	6.6	23	35.46
N-32	Dam "B" Reservoir	12/7/60	63	62	12	tan	6.4	19	28.37
N-33	Dam "B" Reservoir	12/7/60	63	62	12	tan	6.4	19	28.37
N-34	Dam "B" Reservoir	12/7/60	63	62	15	tan	6.6	18	28.37
N-G-1	Neches River	12/15/60	30	44	12	brown	6.6	18	28.37
N-G-11	Dam "B" Reservoir	12/7/60	63	62	12	tan	7.2	52	70.92
N-G-12	Dam "B" Reservoir	12/7/60	63	62	12	tan	6.4	19	28.37
N-G-13	Dam "B" Reservoir	12/7/60	63	62	12	tan	6.4	19	28.37
N-G-17	Dam "B" Reservoir	12/7/60	63	62	12	tan	6.4	19	28.37
N-G-18	Dam "B" Reservoir	12/7/60	63	62	12	tan	6.4	19	28.37
N-G-19	Dam "B" Reservoir	12/7/60	63	62	12	tan	6.4	19	28.37