Report of Fisheries Investigations

Resurvey of the Major Streams in Region 5-B

by

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Dingell-Johnson Project F-3-R-7, Job B-15
June 1, 1959 - May 31, 1960

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A B S T R A C T

During this segment seining and hoop net collections were made on the Cypress Bayous and seining collections were made on the Sabine River. The Angelina, Attoyac, and Neches Rivers were not included because of a lake renovation job that came up.

It was determined that there were no major changes occurring in the fish populations of either stream as cyprinids were the most commonly collected fish from both bodies of water. Also the chemical properties of the water are about the same as during the initial surveys. The most significant change to take place on either stream was the creation of Lake O' the Pines on Cypress Bayou.

Recommendations are made to install boat launching ramps for better access to these streams.

Job Completion Report

State of TEXAS

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

Job No. B-15 Title: Resurvey of the Major Streams in Region 5-B

Period Covered: June 1, 1959 - May 31, 1960

OBJECTIVES

To determine the present status of the major streams and fish populations which have been surveyed in previous segments.

INTRODUCTION

Resurvey collections were to have been made on the Cypress Bayou, down to but not including Caddo Lake; the Sabine River; the Angelina and Attoyac Rivers; and the Neches River. The Angelina, Attoyac, and Neches Rivers were not resurveyed during this segment because of a major lake renovation job which came up after the resurvey job description was written. Time did not permit the continuation of this job.

Collections were made on the Cypress Bayou and the Sabine River in approximately the same locations as the original surveys. It is difficult to compare collections in detail with the original surveys because the Cypress Bayou survey was reported in two reports (Project F-3-R-1, Jobs A-1 and B-5) and the Sabine River survey was reported in five reports (Project F-3-R-1, Jobs A-2 and B-6; Project F-3-R-2, Jobs A-3 and B-8; and Project F-3-R-3, Job B-9). The dates for these surveys are as follows: Cypress Bayou:- July 1953 through May 1954; Sabine River:- July 1953 through May 1956.

Each of these streams is reported separately in this report.

PROCEDURE AND FINDINGS

Cypress Bayous

Cypress Bayous include three streams, all of which join together before entering Caddo Lake. These streams are the Little Cypress, Cypress, and Black Cypress Bayous and all lie within Marion County except Little Cypress which forms the boundary between Marion and Harrison Counties. There were six collection stations visited, two on each stream, in both the original survey and the resurvey.

Seining was done with a 26- by 6-foot by $\frac{1}{4}$-inch mesh bag seine. In addition there was one hoop net (mesh sizes of one inch, $1\frac{1}{2}$-inches, and two inches) set at each location one night. Ecological data taken included water analyses which con-

sisted of pH, methyl orange alkalinity, chlorides, dissolved oxygen, turbidity, color, surface temperatures, and air temperature.

A total of 12 collections were made at the six locations on Little Cypress, Cypress, and Black Cypress Bayous in Marion County. Table 1 gives these locations. Six seining collections yielded a total of 31 species compared to 35 seining collections and 55 species in the initial survey. Two species, Notropis volucellus and Percina caprodes, were recorded in the resurvey which were not collected in the initial survey. A total of 705 specimens were taken, compared to 1,793 taken initially, which shows that more specimens were taken per collection on the resurvey.

As found before, cyprinids and other forage species made up the majority of the fish in the collections.

Six hoop net collections yielded only two specimens compared to 61 collections which yielded 18 species and 97 specimens before.

The results of seining and hoop net collections are given in Table 2.

Table 3 gives the ecological data collected. As can be seen, there are no major chemical differences in these waters and they are similar to conditions found in the initial survey, though resurvey data is more complete.

The most significant change to take place on Cypress Bayou is the creation of Lake O' the Pines, formed by the construction of Ferrell's Bridge Dam located just above Ferrell's Bridge on Cypress Bayou which was a collection station. Cypress Bayou formerly fluctuated greatly over the year depending upon rainfall. Now it is expected that the water below the dam will remain at a fairly constant level, though the new lake won't affect the levels of Little Cypress or Black Cypress Bayous.

There has been increased fishing pressure in the vicinity of Ferrell's Bridge and fisherman access in the particular area is better than it was in 1953-54.

CONCLUSIONS

Cypress Bayous

Generally speaking there were no major changes in the fish populations in Cypress Bayous as near as could be determined by such a survey. The most important change noted is the forming of Lake O' the Pines, which will stabilize the water level of Cypress Bayou and possibly make some changes in fishing pressure at such places as just below the dam, in the vicinity of the old Ferrell's Bridge, and at the mouths of Little Cypress and Black Cypress.

Table 1. - Collection stations on Little Cypress, Cypress, and Black Cypress Bayous.

Little Cypress

Highway 59
(south of Jefferson)

Highway 134
(Jefferson to Karnack)

Cypress

Farm Road 726
(Ferrell's Bridge)

Highway 134
(Downtown Jefferson)

Black Cypress

Highway 49
(Smithland Highway)

Highway 59
(north of Jefferson)

Table 2. - Results of seining on Cypress Bayous

No.	Species	Little Cypress		Cypress		Black Cypress		Total
		Hwy 59	Hwy 134	FR 726	Jeff.	Hwy 49	Hwy 59	
1.	Dorosoma cepedianum	0	0	5	0	0	0	5
2.	Esox americanus	1	1	0	0	4	2	8
3.	E. niger	2	2	0	0	0	0	4
4.	Notemigonus crysoleucas	8	0	23	0	0	0	31
5.	Notropis atherinoides	0	0	0	0	0	3	3
6.	N. amabilis	15	0	0	0	38	0	53
7.	N. fumeus	0	0	4	0	1	0	5
8.	N. amnis	0	0	78	4	0	0	82
9.	N. venustus	0	0	4	0	0	0	4
10.	N. lutrensis	0	0	23	0	0	0	23
11.	N. stramineus	11	1	164	0	2	0	178
12.	N. volucellus	0	4	0	0	2	0	6
13.	Hybognathus nuchalis	0	0	1	0	0	0	1
14.	Ictalurus natalis	0	0	0	0	0	1	1
15.	Schilbeodes mollis	0	0	0	0	1	0	1
16.	Fundulus chrysotus	5	0	0	0	0	0	5
17.	F. notatus	36	9	2	0	14	8	69
18.	Gambusia affinis	60	25	5	14	1	4	109
19.	Labidesthes sicculus	1	0	2	1	1	0	5
20.	Micropterus punctulatus	0	0	8	0	0	0	8
21.	M. salmoides	4	0	8	2	0	8	22
22.	Lepomis cyanellus	0	1	0	0	0	0	1
23.	L. punctatus	0	3	0	7	1	1	12
24.	L. microlophus	0	0	0	0	0	2	2
25.	L. macrochirus	0	0	2	5	1	1	9
26.	L. megalotis	0	2	0	11	0	0	13
27.	Pomoxis nigromaculatus	0	0	0	0	1	0	1
28.	Hadropterus scierus	0	2	0	0	0	2	4
29.	Percina caprodes	0	0	0	2	0	0	2
30.	Ammocrypta vivax	0	0	0	0	1	34	35
31.	Etheostoma gracilie	0	3	0	0	0	0	3
	Totals	143	53	329	46	68	66	705
	Results of hoop net collections							
	1. Lepomis macrochirus					1		1
	2. Pomoxis nigromaculatus					1		1
	Totals					2		2

Table 3. - Results of water analysis, Cypress Bayous, June 17, 1959

	Little Cypress		Cypress		Black Cypress	
	Hwy 59	Hwy 134	FR 726	Jeff.	Hwy 49	Hwy 59
pH	6.5	6.6	6.6	6.6	6.6	6.4
Methyl orange alkalinity (p.p.m.)	13	18	25	28	15	25
Chlorides (p.p.m.)	35.46	28.37	28.37	28.37	21.28	14.18
Dissolved oxygen (p.p.m.)	6.4	5.2	6.0	4.4	4.4	1.0
Turbidity (inches Secchi disk)	16	16	15	15	9	15
Color	Dark tan	Dark tan	Dark tan	Brown	Dark tan	Dark tan
Air temperature (Degrees F.)	82	90	84	90	86	87
Surface water temperature (Degrees F.)	77	78	82	82	80	76

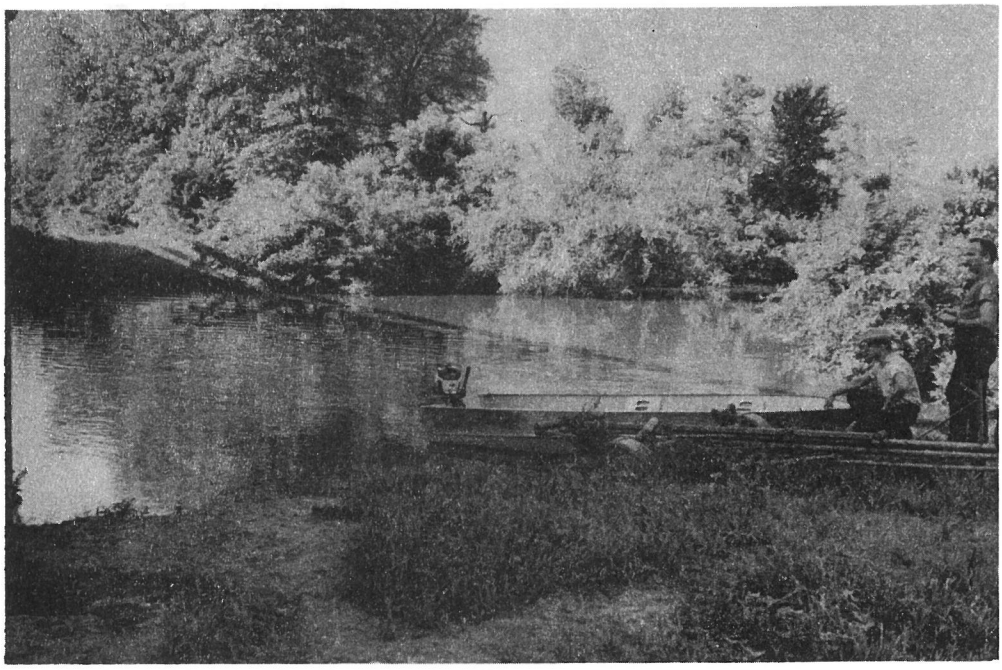

Figure 1. Little Cypress at Highway 59 south of Jefferson

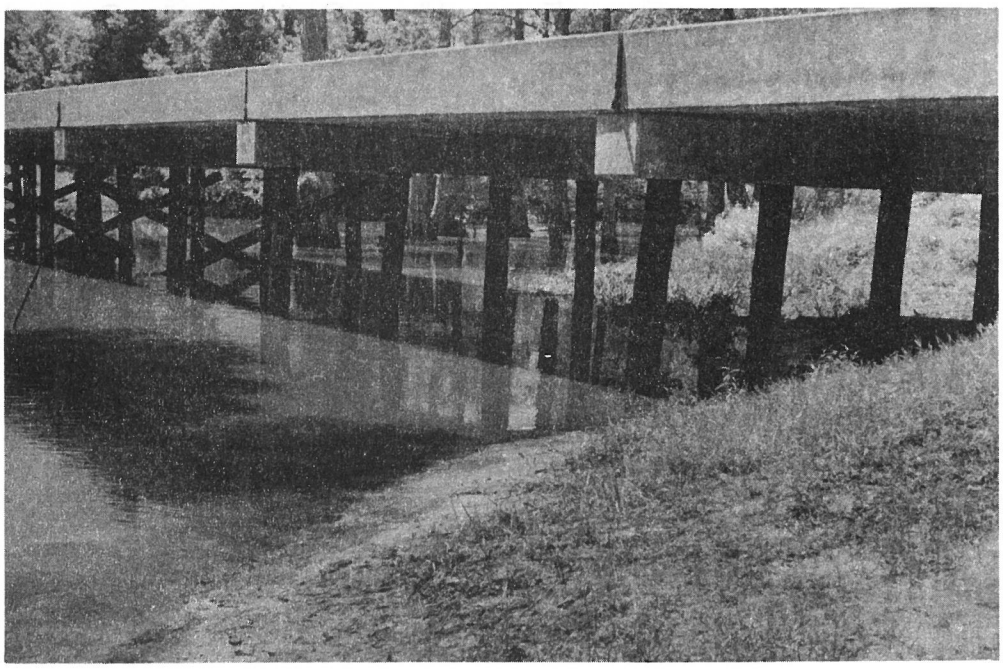

Figure 2. - Little Cypress at Highway 134 between Jefferson and Karnack

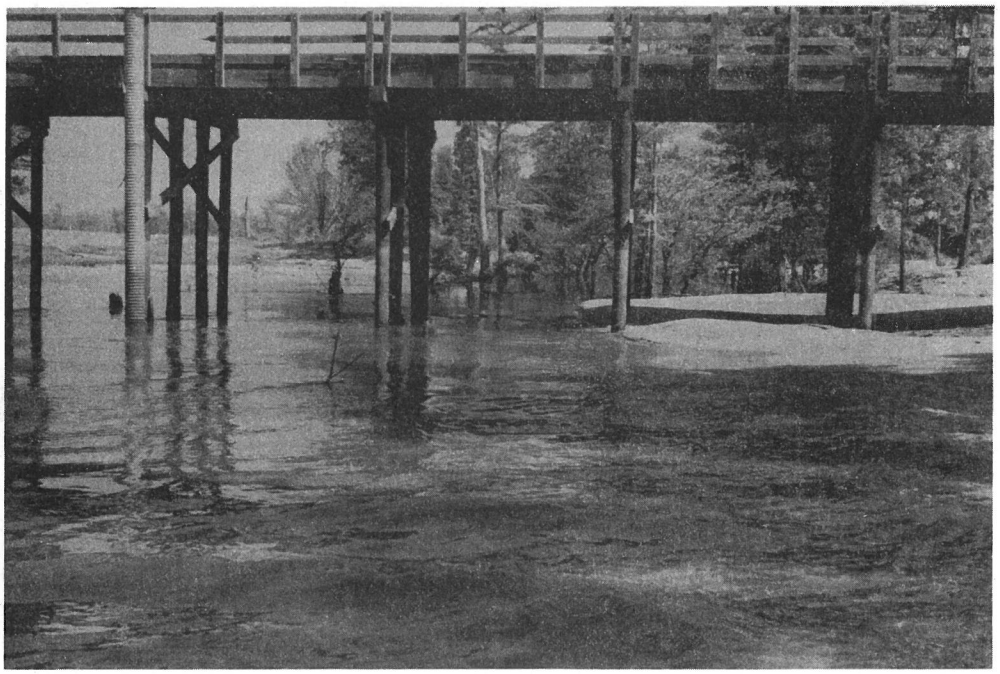

Figure 3. Cypress Bayou at Ferrell's Bridge on Farm Road 726

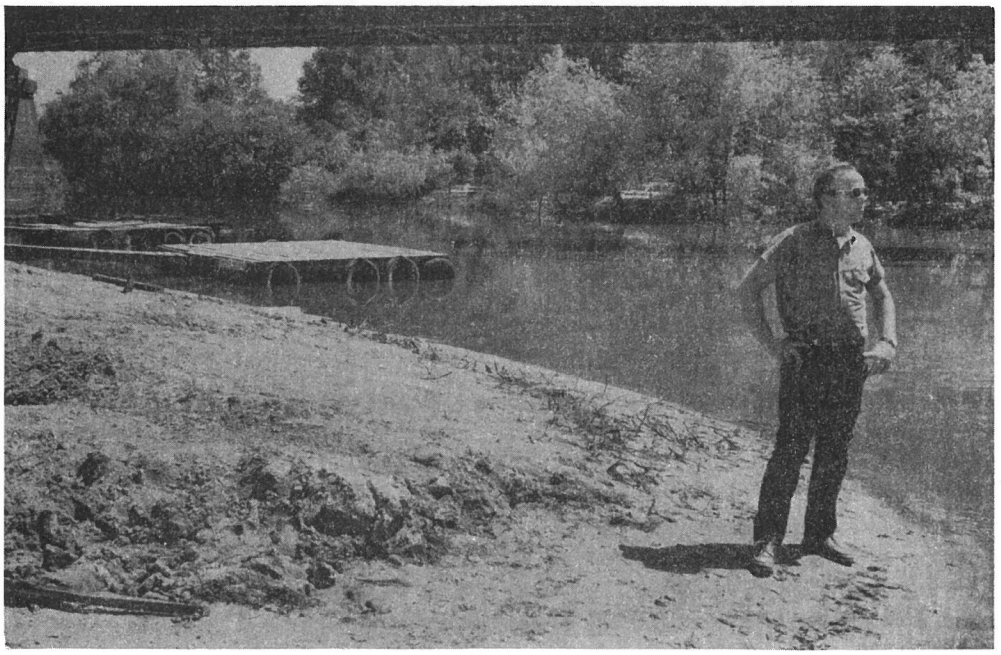

Figure 4. - Cypress Bayou in downtown Jefferson on Highway 134 business route

Figure 5. Black Cypress on Highway 49 on Smithland Highway

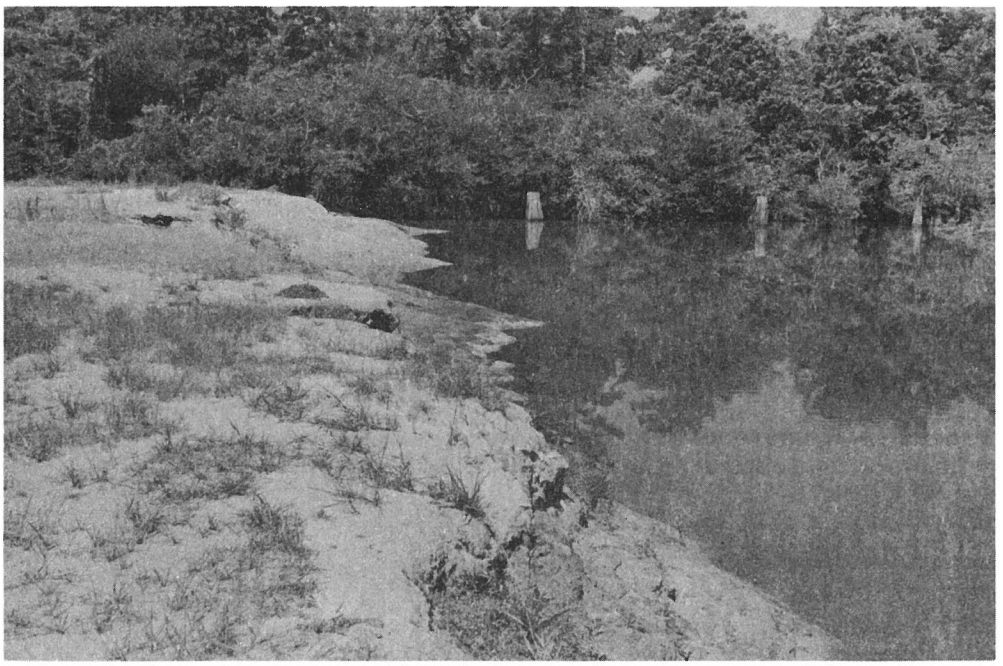

Figure 6. Black Cypress Bayou on Highway 59 north of Jefferson

PROCEDURE AND FINDINGS

Sabine River

The initial inventory of species of the Sabine River was divided into three segments according to the counties worked at the time. The first segment included all of Gregg County, the second segment included Van Zandt, Wood, Upshur, Harrison, Panola, and Shelby Counties, and the third segment included Sabine, Newton, and Orange Counties. There were some 447 seining collections made which yielded 134,099 specimens and an undetermined number of species (this was undetermined because of the way the reports were written).

Though there were gill net, hoop net, and rotenone collections made in addition to seining collections on the initial survey, only seining collections were made on the resurvey. This method was faster and since the greatest numbers of fish were originally collected in this manner, it was felt that the best picture could be made of any major changes in the status of fish populations in the river.

On the resurvey, there were 102 seining collections made which includes 84 collections on the river proper and 18 collections on tributary streams. These seining collections yielded 46 species of fish and 13,387 specimens. Usually only one seine haul was made at each station. Collections were made at bridge crossings above Longview while collections below Longview down to Orange were made traveling by boat. Boat travel was greatly expedited by a timely rise in the river for those collections below Logansport, Louisiana.

Table 1 gives a list of those species collected by seining as well as the numbers collected and times collected. It is interesting to note that after several years and through periods of drought and floods, the population of Notropis lutrensis has remained virtually large and unchanged. This species made up approximately 50 percent of the total numbers of specimens collected on each survey. Of the 102 collections made, Notropis lutrensis was collected on 71 occasions and the numbers collected each time ranged from 3 to 622. It is also interesting to note that the occurrence of this species began in the Longview area and was found from there on downstream. There are many sandbars and gravel shoals below Longview down to Orange. The river bottom above Longview is mud from the Blackland Prairie section, in which the river heads.

It can be said that the most abundant and common species collected are cyprinids. This was also found to be true in the initial surveys even though the condition of the river at the two times varied from very low to near flood stage.

Table 2 gives certain limnological data taken from each collection. This data is more complete than the data collected from the initial surveys as determined from information given in previous reports. However, chemical data seems to be about the same as before.

CONCLUSIONS

Sabine River

As near as could be determined by the resurvey, no major changes in the fish populations took place over the period of years between the surveys on the Sabine River. There is a tremendous forage fish population even though bait dealers remove thousands by "jugging". Commercial fishing for large fish is practically nil although a few scattered fishing camps are present.

RECOMMENDATIONS

Both streams

Since inaccessability is the major problem encountered by fishermen on both streams, it is recommended that it would be beneficial to sport fishermen if boat launching ramps were installed at the major road crossings. Perhaps funds collected from boat registrations could be used for this purpose. This alone would help greatly to develop a sport fishery on these two streams.

Prepared by John N. Dorchester, Assistant Project Leader Approved by Marion Toole, Director Inland Fisheries Division

Date August 11, 1960

Table 1. - Results of seining, Sabine River

No.	Species	Common names	Number collected	Times collected
1.	Lepisosteus productus	Spotted gar	3	3
2.	Dorosoma petenense	Threadfin shad	12	1
3.	D. cepedianum	Gizzard shad	27	7
4.	Esox americanus	Grass pickerel	2	2
5.	Ictiobus bubalus	Smallmouth buffalo	3	3
6.	Carpiodes carpio	River carpsucker	70	20
7.	Moxostoma poecilurum	Blacktail redhorse	4	2
8.	Minytrema melanops	Spotted sucker	1	1
9.	Notemigonus crysoleucas	Golden shiner	40	6
10.	Opsopoeodus emiliae	Pugnose minnow	54	24
11.	Hybopsis aestivalis	Speckled chub	100	18
12.	Notropis atherinoides	Emerald shiner	181	25
13.	N. fumeus	Ribbon shiner	578	51
14.	N. texanus	Weed shiner	24	5
15.	N. sabinae	Longnose shiner	802	58
16.	N. amnis	Pallid shiner	57	4
17.	N. venustus	Spottail shiner	312	35
18.	N. lutrensis	Redhorse shiner	6,730	71
19.	N. stramineus	Sand shiner	229	44
20.	N. volucellus	Mimic shiner	902	59
21.	Hybognathus nuchalis	Silvery minnow	97	30
22.	Pimephales vigilax	Parrot minnow	1,928	66
23.	Ictalurus punctatus	Channel catfish	2	2
24.	I. furcatus	Blue catfish	2	2
25.	I. melas	Black bullhead	93	2
26.	Pylodictus olivaris	Flathead catfish	1	1
27.	Fundulus chrysotus	Redspot topminnow	5	2
28.	F. notatus	Blackstripe topminnow	58	24
29.	Gambusia affinis	Mosquitofish	460	39
30.	Labidesthes sicculus	Brook silversides	91	16
31.	Micropterus punctulatus	Spotted bass	27	20
32.	M. salmoides	Largemouth bass	13	5
33.	Chaenobryttus gulosus	Warmouth	9	4
34.	Lepomis cyanellus	Green sunfish	3	1
35.	L. punctatus	Spotted sunfish	109	21
36.	L. microlophus	Redear sunfish	1	1
37.	L. macrochirus	Bluegill sunfish	172	23
38.	Pomoxis annularis	White crappie	3	3
39.	P. nigromaculatus	Black crappie	16	3
40.	Centrarchus macropterus	Flier	41	1

Cl p.p.m.	Turb Secchi	H_2O Temp F.	Air Temp. F.	Sky	Wind	Location
42.55	7	85	91	Clear	Calm	Sabine River
21.28	9	85	91	Clear	Calm	Sabine River
56.74	Clear	79	91	Clear	Calm	Little Sandy Creek
	6	92	92	Clear	Calm	Lake Fork Creek
28.37	10	88	92	Few clouds	Calm	Sabine River
21.28	6	87	92	Few clouds	Calm	Sabine River
	6	89	92	Few clouds	Calm	Sabine River
21.28	4	90	92	Few clouds	Calm	Sabine River
49.64	9	88	90	Few clouds	Calm	Lake Fork Creek
34.39	6	76	80	Clear	Calm	Sabine River
56.02	11	76	84	Clear	Calm	Sabine River
56.74	8	78	85	Clear	Calm	Sabine River
	8	80	85	Clear	Calm	Sabine River
48.22	11	80	80	Low overcast	Calm	Sabine River
26.94	12	80	80	Low overcast	Calm	Sabine River
98.58	11	80	80	Low overcast	Calm	Sabine River
98.58	12	80	80	Low overcast	Calm	Sabine River
98.58	18	80	85	Low overcast	Calm	Sabine River
12.76	36	81	85	Low overcast	Calm	Sabine River
63.12	16	82	85	Low overcast	Calm	Sabine River
56.02	19	76	65	Clear	Calm	Sabine River
63.12	19	76	68	Clear	Calm	Sabine River
63.12	21	76	70	Clear	Calm	Sabine River
63.12	21	77	80	Clear	Calm	Sabine River
63.12	18	77	80	Clear	Calm	Sabine River
98.58	14	75	80	Clear	Calm	Sabine River
63.12	15	75	82	Clear	Calm	Sabine River
56.02	Clear	78	84	Clear	Calm	Sabine River
63.12	18	76	85	Clear	Calm	Sabine River
98.93	13	76	87	Few clouds	Calm	Sabine River
14.18	6	70	65	Clear	Calm	Sabine River
21.28	6	70	65	Clear	Calm	Sabine River
21.28	6	70	65	Clear	Calm	Sabine River
21.28	7	70	65	Clear	Calm	Sabine River
14.18	7	70	66	Clear	Calm	Sabine River
14.18	6	70	67	Clear	Mod N	Sabine River
17.09	6	71	67	Clear	Mod N	Sabine River
21.28	6	70	67	Clear	Mod N	Sabine River

Table 2. - Limnological data from the Sabine River (continued)

Station	Date	Time	pH	Alk p.p.m.	DO p.p.m.	Cl p.p.m.	Turb Secchi	H_2O Temp. F.	Air Temp. F.	
R-S-S-39	19 Oct 59	9:40a	6.9	34	2.4	21.28	5	69	63	Cle
R-S-S-40	19 Oct 59	10:05a	6.8	37		21.28	5	69	63	Cle
R-S-S-41	19 Oct 59	10:30a	6.8	34		28.37	6	69	64	Cle
R-S-S-42	19 Oct 59	11:00a	6.6	29	3.4	28.37	6	69	64	Cle
R-S-S-43	19 Oct 59	11:30a	6.8	30		28.37	6	72	67	Cle
R-S-S-44	19 Oct 59	11:55a	6.8	33	4.2	35.46	6	69	75	Cle
R-S-S-45	19 Oct 59	12:30p	6.8	30		35.46	5	70	75	Cle
R-S-S-46	19 Oct 59	12:45p	6.8	30		35.46	5	70	75	Cle
R-S-S-47	19 Oct 59	1:00p					5	70	78	Cle
R-S-S-48	19 Oct 59	1:15p					5	70	78	Cle
R-S-S-49	19 Oct 59	1:35p	6.8	28	4.4	45.55	5	69	78	Cle
R-S-S-50	19 Oct 59	2:00p					5	69	82	Cle
R-S-S-51	19 Oct 59	2:20p	6.8	30	6.2	35.46	5	70	85	Cle
R-S-S-52	30 Oct 59	8:45a	7.0	40	6.8	85.10	8	65	66	Ove
R-S-S-53	30 Oct 59	9:00a	7.0	39		42.55	7	65	68	Ove
R-S-S-54	30 Oct 59	9:30a	7.0	46		49.64	8	65	66	Ove
R-S-S-55	30 Oct 59	9:45a	7.0	45		49.64	8	65	66	Ove
R-S-S-56	30 Oct 59	10:05a	7.0	45		49.64	8	65	66	Ove
R-S-S-57	30 Oct 59	10:30a	7.0	42	7.0	49.64	8	65	66	Ove
R-S-S-58	30 Oct 59	11:00a	7.0	40		49.64	8	65	67	Ove
R-S-S-59	30 Oct 59	11:40a	6.8	42		56.74	8	65	67	Ove
R-S-S-60	30 Oct 59	12:15p	6.8	40		63.83	8	66	70	Ove
R-S-S-61	30 Oct 59	12:45p	7.1	42	6.0	49.64	8	66	70	Ove
R-S-S-62	30 Oct 59	1:00p	7.0	40		49.64	8	66	70	Ove
R-S-S-63	30 Oct 59	1:30p	7.0	41		49.64	8	66	72	Ove
R-S-S-64	4 Nov 59	9:55a	6.9	30	3.4	42.55	7	72	78	Par
R-S-S-65	4 Nov 59	10:15a	6.9			35.46	7	72	78	Par
R-S-S-66	4 Nov 59	10:40a	6.9			35.46	7	72	76	Lig
R-S-S-67	4 Nov 59	11:15a	6.9			56.74	7	73	76	Lig
R-S-S-68	4 Nov 59	11:50a	6.9			49.64	6	73	76	Lig
R-S-S-69	4 Nov 59	12:15p	6.9		7.6	35.46	8	72	76	Int
R-S-S-70	4 Nov 59	12:45p	6.9			49.64	6	72	76	Int
R-S-S-71	4 Nov 59	1:15p	6.9			42.55	7	72	76	Int
R-S-S-72	4 Nov 59	1:45p	6.9			49.64	7	72	76	Cle
R-S-S-73	4 Nov 59	2:10p	6.9			42.55	8	72	76	Cle
R-S-S-74	5 Nov 59	8:30a	6.9		4.0	42.55	7	72	74	Low
R-S-S-75	5 Nov 59	9:00a	6.9			42.55	8	72	74	Low
R-S-S-76	5 Nov 59	9:35a	6.9			42.55	8	72	74	Low
R-S-S-77	5 Nov 59	10:00a				42.55	7	72	75	Cle
-S-S-78	5 Nov 59	10:50a	6.9			.64	8	72	76	Cle

(continued)

Cl p.p.m.	Turb Secchi	H_2O Temp. F.	Air Temp. F.	Sky	Wind	Location
12.55	8	75	76	High clouds	Mod N	Sabine River
19.64	8	75	76	High clouds	Mod N	Sabine River
35.46	7	74	71	High clouds	Mod N	Sabine River
12.55	7	74	65	Clear (cold front)	Mod NW	Sabine River
12.55	8	67	35	High overcast	N	Sabine River
12.55	8	67	35	High overcast	N	Sabine River
19.64	8	67	35	High overcast	N	Sabine River
12.55	8	67	35	High overcast	N	Sabine River
19.64	8	67	35	High overcast	N	Sabine River
	14	45	59	Clear	Calm	Colorow Creek
	16	47	59	Clear	Calm	Reeves Creek
	13	46	60	High clouds	Calm	Cariece Creek
	10	49	60	High clouds	Calm	Boragas Creek
	10	50	60	High clouds	Calm	Pala Gaucho Creek
	11	49	60	Few clouds	Calm	Tebo Creek
	10	50	60	Few clouds	Calm	Pala Gaucho Creek
	11	48	60	Few clouds	Light SE	Housen Creek
	18	49	61	Few clouds	Light SE	Bull Creek
	8	55	61	Few clouds	Light SE	Six Mile Creek
	20	50	62	Few clouds	Light SE	Aurelia Creek
	22	51	63	Few clouds	Light SE	S. Prong Sandy Creek
	12	58	65	Few clouds	Light SE	Sandy Creek
	8	50	65	Few clouds	Light SE	Six Mile Creek
	12	49	65	Few clouds	Light SE	Housen Creek

Table 3. - Key to collection stations on the Sabine River

Station*	Location
R-S-S-1	SH 155, SW Big Sandy
R-S-S-2	SH 14, S Hawkins
R-S-S-3	US 80, W Hawkins
R-S-S-4	US 80, W Hawkins
R-S-S-5	US 69, S Mineola
R-S-S-6	County road, NNW Grand Saline
R-S-S-7	SH 19, NE Edgewood
R-S-S-8	SH 17, W Golden
R-S-S-9	SH 182, E Alba
R-S-S-10	US 271, S Gladewater
R-S-S-11	SH 259, S Longview
R-S-S-12	SH 26, S Longview
R-S-S-13	FM 2087, S Longview
R-S-S-14	SH 149, S Longview
R-S-S-15	Below SH 149
R-S-S-16	Below SH 149
R-S-S-17	Below SH 149
R-S-S-18	Below SH 149
R-S-S-19	Below SH 149
R-S-S-20	Below SH 149
R-S-S-21	SH 43, SW Marshall
R-S-S-22	Below SH 43
R-S-S-23	Below SH 43
R-S-S-24	Below SH 43
R-S-S-25	Below SH 43
R-S-S-26	US 59, S Marshall
R-S-S-27	Below US 59
R-S-S-28	Below US 59
R-S-S-29	Below US 59
R-S-S-30	Below US 59
R-S-S-31	US 79, NE Carthage
R-S-S-32	Below US 79
R-S-S-33	Below US 79
R-S-S-34	Below US 79
R-S-S-35	Below US 79
R-S-S-36	Below US 79
R-S-S-37	Below US 79
R-S-S-38	Below US 79
R-S-S-39	Below US 84, E Joaquin
R-S-S-40	Below US 84
R-S-S-41	Below US 84
R-S-S-42	Below US 84
R-S-S-43	Below US 84
R-S-S-44	Below US 84
R-S-S-45	Below US 84
R-S-S-46	Below US 84
R-S-S-47	Below US 84
R-S-S-48	Below US 84
R-S-S-49	Below US 84
R-S-S-50	Below US 84
R-S-S-51	Below US 84
R-S-S-52	Below SH 21, E Milam
R-S-S-53	Below SH 21
R-S-S-54	Below SH 21
R-S-S-55	Below SH 21
R-S-S-56	Below SH 21
R-S-S-57	Below SH 21
R-S-S-58	Below SH 21
R-S-S-59	Below SH 21
R-S-S-60	Below SH 21
R-S-S-61	Below SH 21
R-S-S-62	Below SH 21
R-S-S-63	Below SH 21
R-S-S-64	Below SH 63, E Burkeville
R-S-S-65	Below SH 63
R-S-S-66	Below SH 63
R-S-S-67	Below SH 63
R-S-S-68	Below SH 63
R-S-S-69	Below SH 63
R-S-S-70	Below SH 63
R-S-S-71	Below SH 63
R-S-S-72	Below SH 63
R-S-S-73	Below SH 63
R-S-S-74	Below US 190, E Bon Wier
R-S-S-75	Below US 190
R-S-S-76	Below US 190
R-S-S-77	Below US 190
R-S-S-78	Below US 190
R-S-S-79	Below US 190
R-S-S-80	Below US 190
R-S-S-81	Below US 190
R-S-S-82	Below US 190
R-S-S-83	Below SH 12, E Deweyville
R-S-S-84	Below SH 12
R-S-S-85	Below SH 12
R-S-S-86	Below SH 12
R-S-S-87	Below SH 12
R-S-S-88	SH 87, SE Sexton
R-S-S-89	SH 87, SE Sexton
R-S-S-90	SH 21, E Milam
R-S-S-91	SH 87, S Milam
R-S-S-92	SH 87, S Milam
R-S-S-93	FM 1592, SW Milam
R-S-S-94	County road, SW Milam
R-S-S-95	SH 83, SW Hemphill
R-S-S-96	FM 994, SE Hemphill
R-S-S-97	FM 994, SE Hemphill
R-S-S-98	County road, S Fairdale
R-S-S-99	SH 87, SSE Hemphill
R-S-S-100	SH 87, SSE Hemphill
R-S-S-101	SH 87, SSE Hemphill
R-S-S-102	SH 87, S Hemphill

* refer to Table 2 for names of streams.

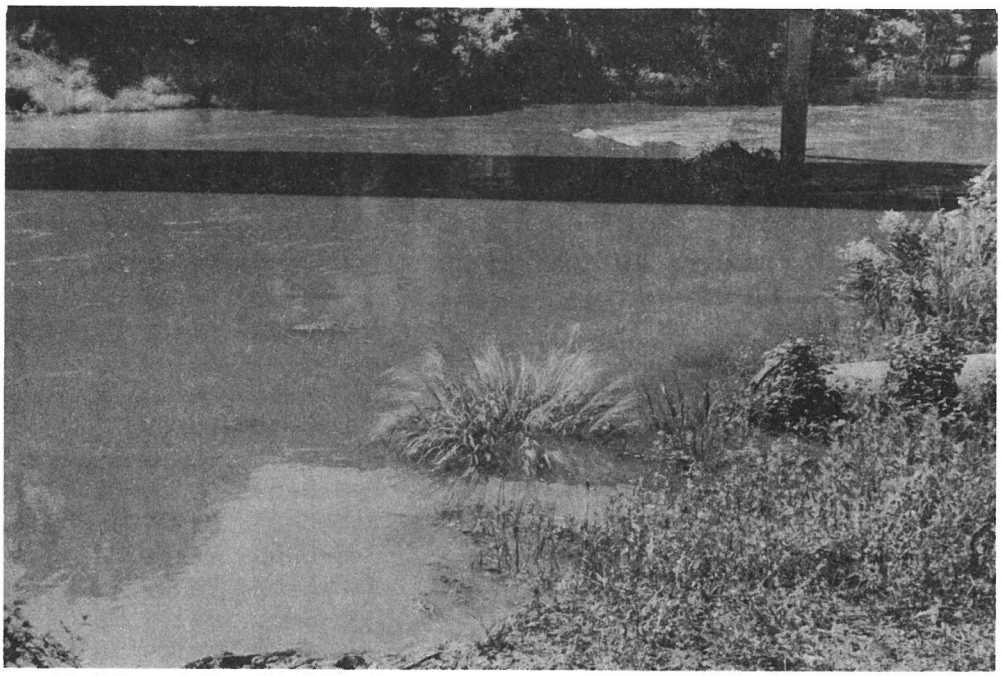

Figure 1. Typical collection station on the Sabine River above Longview. Station R-S-S-2

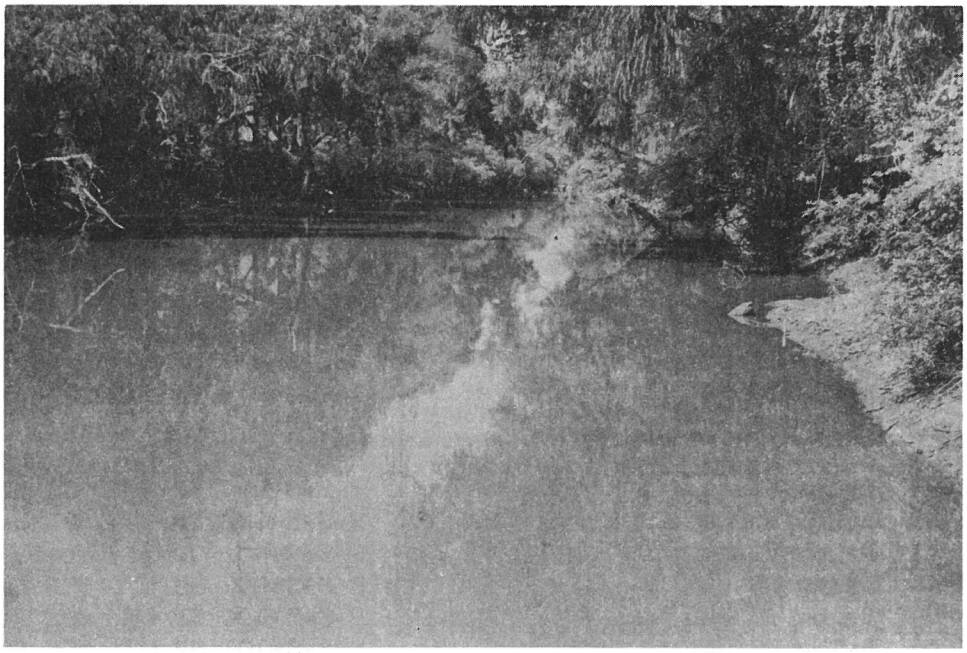

Figure 2. Station R-S-S-11 showing steep mud banks. Note reflection of oil well derricks in the water.

Figure 3. Hardpan outcropping in the Sabine River at Station R-S-S-54.

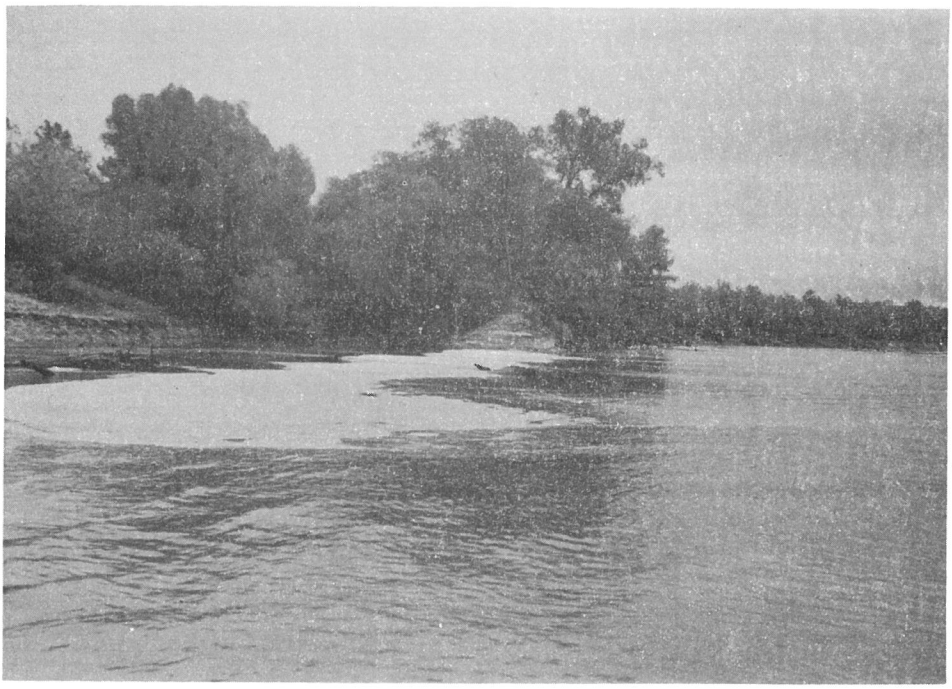

Figure 4. Typical Sabine River sandbar. This one is at the mouth of Little Cow Creek. (All photos by the author)