

## JOB COMPLETION REPORT

State of TEXAS

Project No. F4R4 Name: Fisheries Investigations and Surveys of the Waters of Region 4-B.

Job No. B-17 Title: Basic Survey and Inventory of Fish Species in the Trinity River Watershed Lying in the Following Counties: Parker, Tarrant, Dallas, Rockwall, Kaufman, Van Zandt, Johnson, Leon, Ellis, Navarro, Henderson, Freestone, Anderson, Houston, Trinity, Madison, Walker, San Jacinto, Polk, Liberty and Chambers.

Period Covered: November 1, 1955 - October 31, 1957

### ABSTRACT:

A basic survey and inventory of the fish species present was conducted on that part of the Trinity River Watershed lying within Region 4-B. The streams and lakes below Lake Bridgeport, Lake Grapevine, Garza-Little Elm Lake, and Lake Lavon were included in this survey.

There have been a total of fifty-seven species collected from this watershed during the progress of the work since 1953 and twenty-nine of these species were taken during this investigation.

The extremes in water level fluctuation ranged from no flow during the 1955-56 segment to fifty-seven days of flood during the 1956-57 segment. This flooding served to flush out the stream channels and remove debris that had accumulated during the period when there was little or no flow.

An increase in the population concentration in the Dallas-Fort Worth area has placed a strain on the sewage disposal facilities. This, together with inadequately treated industrial wastes and salt water from oil production, constitutes a serious pollution problem that greatly limits the fish production.

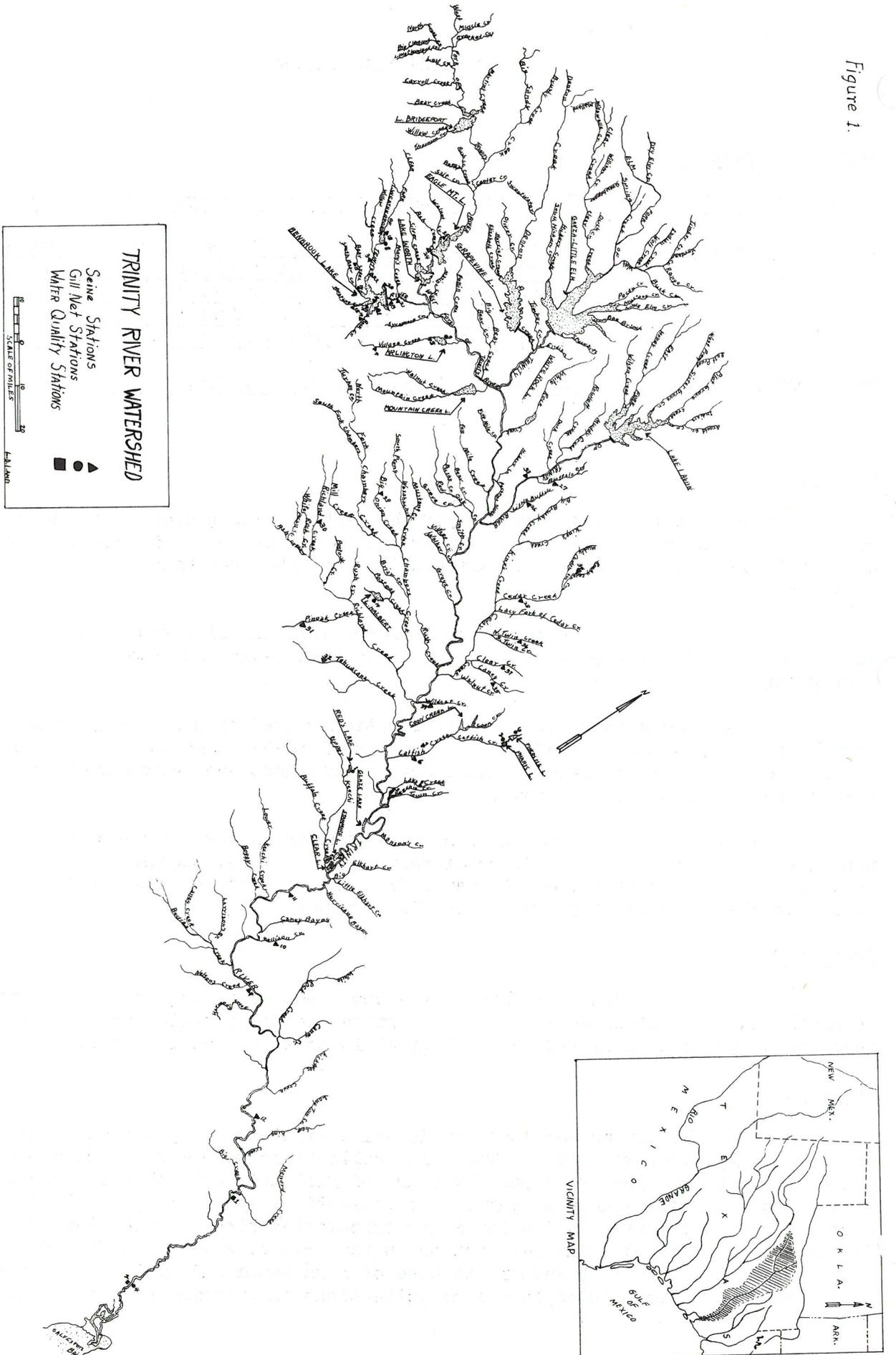
### OBJECTIVES:

To gather fundamental data on the above waters in regard to their physical, chemical, and biological aspects. To determine the distribution of fish species present, their relative abundance, and the ecological factors influencing their distribution.

### METHODS:

Fish collections were made at 39 seine stations and 9 net stations (Figure 1) on the Trinity River Watershed. The seine collections were made by means of small mesh seines. Net collections were made by means of gill nets of mesh sizes varying from one inch to three inches square measure. The collections made during the 1955-1956 segment were limited to the river and a few major tributaries since the smaller tributaries were dry during this period. The net station on the Trinity River near Moss Bluff was abandoned during the 1956-1957 segment because of high water and gill net collections in the small lakes were substituted for seine collections on streams since the heavy rains made seining impracticable.

Figure 1.



TRINITY RIVER WATERSHED

- Seive Stations
- Gill Net Stations
- Water Quality Stations



Seine collections were preserved in formalin and transported to the laboratory for identification and examination. Net collections were identified in the field and weight, length, sexual development and other data was recorded.

Ecological data was recorded for each seine or net station and included: stream width, stream depth, bottom type, cover, vegetation, relative turbidity and land use. (Tables 1 and 2)

Water quality was determined by chemical analysis of the Trinity River Water at two sample stations operated by the U. S. Geological Survey whose records were made available for this report. These stations are located at Romayor and Moss Bluff. (Figure 1)

#### PHYSICAL CHARACTERISTICS:

The Watershed of the Trinity River is roughly triangular in shape. It extends from the Red River to the Gulf of Mexico, a distance of 455 miles with a maximum width of 131 miles. The drainage area is about 17,600 square miles. This watershed is generally flat with few deep valleys. The lakes that have been formed on the tributaries are usually broad and shallow. The land use is largely given to farming in the upper part but as the valley narrows near the gulf ranching and rice growing become the more common land use.

Silting plays an important part in limiting the fish production in the lakes but becomes less important in the watershed below the major lakes. The cities of Dallas and Fort Worth have a combined population of more than 1,500,000 people together with many industries that add to the waste disposal problem.

The Trinity River Watershed is primarily located in the Coastal Plains Physiographic Region but the West Fork and the Elm Fork extend into the North Central Plains Region. The West Fork arises in the West Cross Timbers Belt and extends across the Grand Prairie Belt, where it is joined by the Elm Fork. The West Fork then continues across the East Cross Timbers Belt to a juncture with the East Fork in the Blackland Prairie Belt. The resulting River then flows southward across the Post Oak Belt, Pine Belt, and Coastal Prairie to enter Trinity Bay near Anahuac.

The Cross Timbers Belt is composed of soils that are largely sand or sandy loam and are grayish in color. The surface is a mixture of hills and prairies with a dominant vegetation of blackjact oak, post oak and with some pecan and elm along the streams.

Thin limestone soil with rolling hills giving way at times to low cedar covered mountains characterizes the Grand Prairie Belt. The dominant vegetation is generally grasses with pecan and other hardwoods along the streams. The cedar that covers some of the foothill type mountains is a dominant vegetation only on these mountains.

There are few trees on the Blackland Prairie where the deep black soil supports a dominant vegetation of grasses and causes the streams to remain muddy for long periods of following rains.

Post oak and blackjact oak comprise the dominant vegetation of the belt that separates the Blackland Prairie from the Pine Belt where the soil changes gradually from

a black limestone produced clay to a red sandy soil. The soil of the Pine Belt contains much iron and supports a vegetation dominated by pine and tall hardwoods. The streams carry less silt and tend to clear more rapidly after rains.

The Coastal Prairie part of the Trinity River Watershed is an aluvial flood plain type of narrow valley and is generally covered with trees which are a mixture of pine and hardwoods.

#### CHEMICAL CHARACTERISTICS:

The United States Geological Survey determined the water quality of the Trinity River by means of chemical analysis of water taken at sampling stations located at Romayor and Moss Bluff. The period from December 1, 1955 to October 31, 1957 was covered by the Romayor data, (Table 3), and from December 1, 1955, to September 30, 1957 by the Moss Bluff data. (Table 4)

Fluctuations in water flow during this period were quite pronounced since there was no flow in the river during the latter months of 1956 and from April 18, 1957 to June 21, 1957 the Trinity River was flooding the lowlands below the confluence of the East Fork with the West Fork. This abundance of water tended to reduce the usual concentration of salts by dilution and served to flush out the channel which removed much of the organic material that had accumulated during the period of low water.

The heavy concentration of population in the Dallas-Fort Worth area has placed an overload on the rather inadequate sewage disposal systems of the various municipalities. Rainfall during the five years prior to the 1957 rains had been very inadequate and the stream flow was insufficient to carry away the organic debris that varied from partially treated sewage to raw sewage that was bypassed into the river at peak loads. During the period of little rainfall that portion of the West Fork between Fort Worth and the confluence with the East Fork below Dallas was polluted by inadequately treated sewage to an extent that it was rendered useless for production of useful fish species. The moderate rains that fell during that period served to carry the more recently deposited organic material down the river in what is locally termed "Black Rises" which caused heavy mortality among the fish population the entire length of the river.

Salt water from oil production in fields adjacent to the Trinity and its tributaries contributes to the pollution problem at intervals. When the water in the streams is low the salt water collects in pools from seepage or slugh pit overflow and light rains tend to move this material into the river where considerable fish kills result. The problem is greatly reduced when the stream flow is normal and is eliminated entirely at times of high water.

The Texas Gulf Sulphur Company plant at Moss Bluff has been suspected, by local fishermen, of polluting the lower part of the river but no evidence of such pollution has been found. Daily water samples are taken by employees of the sulphur company to enable the plant operators to avoid pollution.

#### FISH COLLECTIONS:

Seine and net collections were made on the Trinity River while only seine collections were made on the tributary streams. Both seine and net collections were made on the representative lakes that were surveyed during this investigation.

The Checklist of Species from the Trinity River Watershed (Table 5) numbers 55

species and includes all fish collected from this watershed since June 1, 1953 when his project was started.

Twenty-eight freshwater and two saltwater species were collected at 39 seine stations (Table 6) and the results indicate that the red shiner (Notropis lutrensis) is the most numerous as well as the most widely distributed species. The red shiner was taken at 28 of the 39 seine stations and made up 65 percent of the total number of specimens taken.

Twenty-five freshwater species and two saltwater species were taken at nine net stations (Table 7) and of the 3271 specimens taken the bluegill sunfish (Lepomis macrochirus) was the most numerous with 722 specimens making up 22 percent of the total. Gizzard shad (Dorosoma cepedianum) followed with 707 specimens for 21.6 percent. Bluegill sunfish were taken at 8 of the 9 net stations while gizzard shad were taken at 7 stations.

The weight distribution of the various species taken (Table 8) in nets indicates a dominance by the alligator gar (Lepisosteus spatula). This species provided 37 percent of the total weight of 5,004 pounds followed by longnose gar (Lepisosteus osseus) with 27 percent.

A comparison of the game and rough species taken in nets (Table 9) shows that the average weight of the 3271 specimens was 1.53 pounds. Rough fish made up 86 percent of the total weight and averaged 2.67 pounds while game species were 51 percent of the total number and averaged only 0.42 pounds.

#### FAMILY LEPISOSTEIDAE:

Lepisosteus spatula: alligator gar. This species was collected only in net samples. The lakes along the Trinity River and the lower part of the river near Moss Bluff provided the only specimens. The floods of the past spring have resulted in heavy populations of this species being introduced in the river bottom lakes that were inundated.

Lepisosteus platostomus: shortnose gar. Only two specimens of this species were taken and they were netted at the Moss Bluff station on the lower Trinity River.

Lepisosteus productus: spotted gar. This species was rather well distributed in the net catches. Three of the lakes netted failed to produce spotted gar. The spotted gar taken averaged less than four pounds.

Lepisosteus osseus: longnose gar. Longnose gar are the most widely distributed of the gars. It is second to alligator gar in both numbers and weight, however, since much of the netting was done in the lower portion of the river where the habitat is more favorable to the alligator gar.

#### FAMILY AMIIDAE:

Amia calva: bowfin (grindle). The bowfin was taken in only one collection. One specimen was taken in a net collection from Red Lake, near Fairfield in Freestone County. Other specimens were observed but not collected. This species is known to be present in the lower portion of the Trinity and tributary streams but was not taken in other seine or net samples.

FAMILY CLUPEIDAE:

Brevoortia gunteri: bay menhaden. Only two specimens of this species were taken. They were taken in gill nets from the Trinity River near Moss Bluff. This collection was made during the period of low water when the water in the river was quite brackish. These specimens were taken along with many blue crabs which indicates that they are occasional visitors to the area probably during low water periods.

Dorosoma cepedianum: gizzard shad. The gizzard shad was present in abundance in all parts of the watershed. They were taken in the majority of the collections and were sufficiently prevalent in some lakes to warrant selective control measures.

FAMILY CHARACIDAE:

Astyanax fasciatus: banded tetra. This species has been introduced into these waters by bait dealers and frequently are released by fishermen. There is little evidence to support the theory that this species may survive the winter in this area.

FAMILY CATASTIOMIDAE:

Ictiobus bubalus: smallmouth buffalo. This is one of the more popular commercial species of the area and is present in the entire length of the Trinity together with most of the lakes. Much fishing, both commercially and for sport, is done for the buffalo.

Carpoides carpio: river carpsucker. Carpsuckers are present in the entire Trinity Watershed and constitute one of the major rough fish problems of the area. They are a difficult species to control by selective kill methods and are sufficiently prolific to threaten the more desirable species with over crowding.

Minytrema melanops: spotted sucker. The spotted sucker is not widely distributed in the Trinity Watershed but is found in Lake Benbrook and tributaries to the Clear Fork.

Erimyzon sucetta: lake chubsucker. This species was found in three lakes but was not taken in any of the seine samples from the streams. The chubsucker population has become a problem in some lakes on the Neches River drainage but is not sufficiently large to cause concern in any of the Trinity Drainage Lakes that have been worked.

FAMILY CYPRINIDAE:

Cyprinus carpio: carp. The carp was introduced into Texas Waters before 1900 and has been able to establish itself very well. Although this species is widely distributed, comparatively few were taken in seine and net samples during this investigation. This is possible due to the tendency of the carp to move in rather large schools so that the catch is either a large number or only a few stragglers.

Notemigonus crysoleucas: golden shiner. This is a rather important bait minnow in some areas but is not popular in this vicinity. The golden shiner attains a rather large size in the Neches Drainage where specimens up to 15 inches in length have been recovered from Ratcliff Lake in Houston County. This size has not been observed in the samples from the Trinity Watershed but specimens of 8 to 10 inches have been taken.

Notropis fumeus: ribbon shiner. All the specimens of ribbon shiner collected were found in the upper part of the watershed. The Clear Fork provided three collections while Cedar Creek provided the other. This species appears to prefer clear streams with rock or gravel bottoms.

Notropis umbratilis: redbfin shiner. The only specimens of this species collected were taken from Kellison Creek, in Houston County, near Weldon. This is a small sandy stream flowing through timber and grazing lands.

Notropis venustis: blacktail shiner. This species was rather widely distributed since it was collected from streams in the upper, central and lower part of the watershed. In each case the stream was a clear stream with much of its length over sand or gravel bottom.

Notropis lutrensis: red shiner (redhorse shiner). The most popular bait minnow in this area is the red shiner which is also the most widely distributed as well as the most numerous species in the seine collections. Red shiner specimens were collected at 30 of the 39 seine stations.

Notropis atrocaudalis: blackspot shiner. This species was not numerous in the collections but the few specimens were taken from widely separated localities. The first collection was made in Tarrant County and the remaining two were made in Anderson County.

Hybognathus nuchalis: silvery minnow. The silvery minnow was not a numerous species in the collections. One was taken in Tarrant County and the remaining five were taken from the Trinity River near Livingston in Polk County. This distribution covers the greater part of the watershed and indicates a wide distribution.

Pimephales vigilax: parrot minnow. Parrot minnows were taken throughout the watershed where seining could be done. The twelve seine stations where they were found represented all sections of the watershed but few were taken from murky or muddy streams.

Pimephales promelas: fathead minnow. Only one specimen of this species was taken and that one was recovered from Kellison Creek near Weldon in Houston County.

#### FAMILY AMEIURIDAE:

Ictalurus punctatus: channel catfish. Channel catfish were found in only two seine samples but are known to inhabit the entire watershed. They were recovered at six of the nine net stations and are known to be present at the other three stations since previous net runs and fishing trips have produced them. This species is by far the most important commercial and food fish that is found in the Trinity River Watershed. It also provides the greatest number of man-hours of sport fishing in those areas that are not near one of the larger impoundments.

Ictalurus furcatus: blue catfish. This species is probably present in much larger numbers than the one specimen recovered indicates. This specimen was taken at Moss Bluff on the Trinity River. The tendency of fishermen to mistake the blue catfish for the channel catfish, and vice versa, makes the acceptance of their reports somewhat risky and therefore the writer has little real information as to the distribution of this species.

Ictalurus melas: black bullhead. The black bullhead is very widely distributed. They were found in all sections of the watershed with the exception of the extreme lower part of the Trinity River at Moss Bluff. In some of the newer lakes this species becomes so numerous as to seriously overcrowd the more desirable species. This condition tends to exist until the channel catfish and flathead catfish population is increased to the point where they can serve as a control on the bullheads.

Ictalurus natalis: yellow bullhead. The yellow bullhead is rather widely distributed in the Trinity River Watershed. Collections of this species were made at all net stations except Buzzard Lake and Moss Bluff on the lower end of the Trinity. No yellow bullheads were collected in seine samples but there is ample reason to believe that they were present in many of the streams but probably were in water too deep for seining.

#### FAMILY CYPRINODONTIDAE

Fundulus olivaceus: blackspot topminnow. This species is rather widely distributed throughout the Trinity Watershed. It is of little value as a forage fish since it appears to be taken by other species only when other food is scarce or absent.

#### FAMILY POECILIIDAE:

Gambusia affinis: common mosquitofish. The mosquito fish is one of the most widely distributed species in the watershed having been found in all parts of the drainage area. They have little value as a forage species but act as a control on mosquito larvae. They are a live bearing species and thus are not subject to the heavy hatching loss that the egg laying fishes experience. Since a few young are produced at several times during the year the danger of having an entire spawn lost through water level fluctuation is avoided.

#### FAMILY MUGILIDAE:

Mugil cephalus: striped mullet. This saltwater species enters the Trinity rather freely and has been collected from Clear Lake following the overflow of the Trinity River. Collections have been made from the Trinity River near Livingston, in Polk County, as well as at the Moss Bluff netting station. Small mullet have been transported to inland lakes by bait dealers and have been known to attain a weight of more than ten pounds in Possum Kingdom Lake, on the Brazos River, where at least two such specimens were taken by commercial fishermen.

#### FAMILY SERRANIDAE:

Roccus chrysops: white bass. The white bass was introduced into the Trinity River System when they were stocked in Lake Dallas in 1934. This species rapidly became a popular fish with the anglers and in 1937 was introduced into Eagle Mountain Lake and Lake Worth. The tendency of the white bass to congregate at the upper end of a lake in the late winter or early spring and migrate up the streams to spawn render them accessible to the fisherman. This habit together with the schooling habit makes locating them a fairly simple problem and adds to their popularity. This species appears to be the most effective control on gizzard shad that can be found in the water of this vicinity. They prefer deep lakes with permanent streams up which they migrate to spawn but will spawn on windswept shoals or sandbars. They are seldom found in small shallow streams but are rather abundant in the deeper waters of the lower Trinity River.

Roccus mississippiensis: yellow bass. This species is closely related to the white bass and is found in the same general habitat. They generally do not attain the average size of the white bass but are game and good food fishes. The yellow bass is found only in the Trinity River and in those lakes that are subject to overflow from the river. Those lakes that are not subject to overflow appear to be free of this species. The watersheds to the east of the Trinity are quite heavily populated with the yellow bass.

FAMILY CENTRARCHIDAE:

Micropterus salmoides: largemouth bass. The largemouth bass is widely distributed. It is found in all parts of the Trinity Watershed. This species is abundant in both lakes and streams and is highly prized by the artificial lure fisherman.

Chaenobryttus gulosus: warmouth. This species was not taken in seine collections but is known to exist in the streams of the Trinity Watershed. Clear Lake and Stanmire Lake have high populations as does Red Lake and Pharris Lake. Many warmouths are taken from these lakes as well as the streams of the watershed. This species readily takes: worms, insects, minnows, or artificial lures. They fight gamely and are excellent panfish. The fish hatcheries of Texas have reared and distributed the warmouth for many years and they have been stocked in many lakes and streams from this source.

Lepomis cyanellus: green sunfish. The green sunfish is probably the most widely distributed of the sunfishes in this area. The large mouth enables this species to be less selective in the matter of food and improves the chances for survival. This is also a game fighter and a fine panfish. It may be taken on most natural baits as well as artificial lures.

Lepomis symmetricus: small sunfish. Only one of this species was collected. It was taken from Kellison Creek near Weldon in Crockett County. This is a small clear sand bottom stream.

Lepomis punctatus: spotted sunfish. The four specimens of spotted sunfish collected were taken from two seine stations on the Clear Fork of the Trinity River. These seine stations are now covered by Lake Benbrook in Tarrant County.

Lepomis microlophus: redear sunfish. The redear sunfish was not taken in any of the seine samples but is known to be present in the Trinity River since it was taken in almost all the lakes that were netted. Many of these lakes are subject to overflow and it is reasonable to suppose that some redear would be left in the streams when the water recedes. The small size of the mouth limits the food that can be taken by this species but when taken on worms, insects or artificial flies the redear is a game fish in every respect. The pan qualities of this species deserve a very high rating and it is quite popular among the still fishermen and fly fishermen.

Lepomis macrochirus: bluegill sunfish. The bluegill is the most widely distributed of the game species. The net catches showed the bluegill to be present at all stations except Moss Bluff and there is ample reason to believe they are also present there. The majority of the seine stations produced bluegills and much of the still fishing in the area is done in an attempt to take this fine little panfish. The bluegill readily takes worms, insects, or artificial flies and is limited to small baits only because of the size of the mouth.

Lepomis auritis: yellowbelly sunfish. This species is often confused with both bluegill and longear by the fisherman. It has been reared in the State fish hatcheries and distributed to the various waters of the state. The only collection of this species was made in Stanmire Lake but they have appeared in the catches of fishermen in various streams and lakes of the Trinity Watershed.

Lepomis megalotis: longear sunfish. The longear sunfish has the smallest mouth of the sunfishes found in this area. It is limited to feeding on small objects and is usually taken on small worms, insects and small artificial flies. The longear is game and a fine panfish but requires considerable skill from the fisherman since a small bait must be carefully presented or no strikes result. This species is much more widely distributed than the collections indicate. They frequent the deeper water except for the spawning period when they move into the gravel and sand bars if such are available.

Pomoxis annularis: white crappie. This is the most popular of the panfishes. They are found in almost all waters in the area and provide year-around fishing for those minnow fishermen who will brave the heat of the summer and cold of the winter. The white crappie causes the lakes of North Texas to take on the appearance of small cities when the crappie fishermen go out at night with lanterns to avoid the summer heat. The most popular method of crappie fishing is with minnows but they are taken quite readily on spinning or fly tackle as long as small baits are used. The white crappie seems to prefer the murky alkaline waters but are often found in clear waters that are either alkaline or neutral. They tend to give way to the black crappie (Pomoxis nigromaculatus) in the stained, acid waters of the eastern part of the state. No black crappie were taken in the seine and net collections but they are known to be present since hatchery stocking has placed them in the lakes and streams of the Trinity River Watershed.

#### FAMILY PERCIDAE:

Etheostoma chlorosomum: bluntnose darter. Only two specimens of this species were taken. One at Highway 45 crossing on the Trinity River in Trinity County and the other at Highway 175 crossing on Clear Creek near Eustace in Henderson County.

#### FAMILY SCIAENIDAE:

Aplodinotus grunniens: freshwater drum. This species was collected at only one seine station and two net stations. Their comparative absence from the collections is not a true indication of their distribution or relative abundance. Many lakes in the Trinity drainage are being overcrowded by this species. Mountain Creek Lake was found to have a very abundant drum population as did Eagle Mountain Lake. This species furnishes some sport and is a rather good panfish but is of more interest to the commercial fisherman since they find a ready sale at a good price.

#### CONCLUSIONS:

The Trinity River Watershed above Dallas and Fort Worth appears to be relatively free from pollution and the many impoundments offer good sport fishing together with a significant amount of commercial fishing by contract fishermen engaged in rough fish removal.

The middle portion of the watershed offers some fishing in the larger tributary

streams but the river from Fort Worth to a point below Trinidad suffers from pollution by inadequately treated industrial and municipal wastes. This condition is largely due to the excessive increase in population experienced together with the inadequate planning on the part of the municipalities in this area. This condition has been somewhat relieved by the heavy rains of the past few months.

There is some salt water pollution at times of low rainfall in the vicinity of Tehuacana Creek which drains a part of the Wortham Oil Field but recent rains have served to dilute any salt water from this field to the point where it is no longer lethal to fish.

The lower part of the Trinity River supports a large amount of sport and commercial fishing with the taking of bait minnows being quite prominent in the area around Centerville and Livingston. This fishery is limited by the amount of pollution that exists in the middle segment of the river.

Vegetation is rather scarce in the river and is not excessive in most of the tributary streams. The banks are largely clay with some sand and there is a general absence of rocky cover in the majority of the streams that make up the watershed.

The sulphur plant at Moss Bluff is a potential source of pollution but at present there is no evidence that such a pollution exists.

The most necessary step in improving the fish production in the Trinity River Watershed appears to be the clearing of pollution in the Fort Worth-Dallas area which may be accomplished by enlargement of the various municipal sewage treatment plants to a point where they can handle the wastes from the enlarged populations. A further step is to correct the waste disposal practices of some industries of this area and provide injection wells for returning the salt water to the proper oil sand instead of storage in surface pits where it often gets into streams by seepage or overflow.

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Approved by

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Date January 10, 1958

Table 1. Key to Seine Collection Stations on the Trinity River Watershed Below the Bridgeport, Grapevine, Lavon, and Garza-Little Elm Dams. November 1, 1955 to October 31, 1957.

Station Number	Collection Number	Location of Seine Station	Bottom Type	Water Type	Land Use
1	Bl 7S-1	Rock Creek immediately above the confluence with Mustang Creek, Tarrant County.	Gravel and Clay	Clear	Grazing
2	Bl 7S-2	Mustang Creek immediately above confluence with Rock Creek, Tarrant County	Gravel and Clay	Murky	Grazing
3	Bl 7S-3	Clear Fork of Trinity at Durke's Ford near Aledo, Parker County.	Rock and Clay	Clear	Grazing
4	Bl 7S-4	Village Creek, U. S. Highway 287 near Kennedale, Tarrant County.	Gravel and Clay	Clear	Grazing & Cultivation
5	Bl 7S-5	Village Creek, 3 miles above U. S. Highway 80 near Handley, Tarrant County.	Gravel and mud	Slightly Murky	Grazing
6	Bl 7S-6	Catfish Creek on Engling Wildlife Area, Tennessee Colony, Anderson County.	Muck	Clear	Wildlife - Grazing
7	Bl 7S-7	Small Lake on Engling Wildlife Area, Tennessee Colony, Anderson County.	Muck and Clay	Clear	Wildlife - Grazing
8	Bl 7S-8	Lake Creek at Highway 287 crossing, Anderson County.	Muck and Clay	Slightly Murky	Grazing
9	Bl 7S-9	Trinity River at Highway 45 crossing, Trinity County.	Gravel and mud	Slightly Murky	Grazing
10	Bl 7S-10	Kellison Creek, near Weldon, Houston County.	Mud	Muddy	Timber & Grazing
11	Bl 7S-11	Trinity River at Highway 7, Leon - Houston County Line	Sand and Rock	Slightly Murky	Grazing & Cultivation
12	Bl 7S-12	Trinity River at Highway 59 crossing near Livingston, Polk County.	Sand	Slightly Murky	Grazing

Table 1. (Continued).

Station Number	Collection Number	Location of Seine Station	Bottom Type	Water Type	Land Use
13	BI 7S-13	Clear Fork of Trinity River below Benbrook Dam, Tarrant County.	Gravel and Rock	Clear	Grazing
14	BI 7S-14	Rock Creek above Benbrook Lake at crossing near Plover, Tarrant County.	Gravel and Rock	Clear	Grazing
15	BI 7S-15	Mustang Creek at low water crossing above Lake Benbrook, Tarrant County.	Gravel and Rock	Clear	Grazing
16	BI 7S-16	Bear Creek above bridge at upper end of Benbrook Lake, Tarrant County.	Gravel and silt	Clear	Grazing
17	BI 7S-17	North Bear Creek at Bear Creek Ranch low water crossing, Tarrant County.	Gravel and Rock	Clear	Grazing
18	BI 7S-18	Lake Weatherford near Clear Fork Bridge at upper end of lake, Parker County.	Mud	Murky	Wooded Shore
19	BI 7S-19	Lake Halbert on Postoak Creek near Corsicana, Navarro County.	Mud	Murky	Grassed Shore
20	BI 7S-20	Benbrook Lake, North Shore of Dutch Branch Arm near dam. Tarrant County.	Gravel and Clay	Clear	Grassed Shore
21	BI 7S-21	Clear Fork 1 mile below Benbrook Dam, Tarrant County.	Gravel and Clay	Clear	Grazing
22	BI 7S-22	Clear Fork at Highway 377 crossing, Tarrant County.	Gravel and Clay	Clear	Grazing & Cultivation
23	BI 7S-23	Benbrook Lake, South Shore near old Armstrong Ranch Brick Killn, Tarrant County.	Gravel and Clay	Slightly Murky	Grassed Shore
24	BI 7S-24	Eagle Mountain Lake, South Shore near spillway, Tarrant County.	Sand	Slightly Murky	Swimming Beach
25	BI 7S-25	Eagle Mountain Lake, Walnut Creek Arm at Snugg Harbor, Tarrant County.	Sand	Slightly Murky	Grassed Shore
26	BI 7S-26	Little Buffalo Creek, Highway 741 between Grandall and Forney, Kaufman County.	Mud	Murky	Grazing & Cultivation

Table 1. (Continued).

Station Number	Collection Number	Location of Seine Station	Bottom Type	Water Type	Land Use
27	BL7S-27	Buffalo Creek, Highway 205 from Terrell to Rockwall, Rockwall County.	Mud	Muddy	Grazing and Cultivation
28	BL7S-28	Cedar Creek at Highway 175 near Kaufman, Kaufman County.	Gravel and Clay	Murky	Grazing and Cultivation
29	BL7S-29	Big Onion Creek at Highway 77 near Forresteron, Ellis County.	Rock	Clear	Cultivation
30	BL7S-30	Richland Creek at Highway 77 near Milford, Ellis County.	Shale	Clear	Cultivation
31	BL7S-31	Pinoak Creek at Highway 638, Tehuacana to Dawson, Navarro County.	Gravel and Clay	Murky	Grazing and Cultivation
32	BL7S-32	Tehuacana Creek, Highway 14, Mexia to Wortham, Freestone County.	Shale	Murky	Grazing
33	BL7S-33	Slough off East Fork at Highway 80 West of Forney, Kaufman County.	Pavement and clay	Clear	Grazing and Cultivation
34	BL7S-34	Rocky Cedar Creek, Highway 80 East of Terrell, Kaufman County.	Mud	Murky	Grazing
35	BL7S-35	Caney Creek Highway 175 near Pickens, Henderson County.	Mud	Murky	Grazing
36	BL7S-36	North Twin Creek, Highway 175 near Mabank, Henderson County.	Mud	Murky	Grazing
37	BL7S-37	Clear Creek, Highway 175 near Eustace, Henderson County.	Mud	Murky	Grazing
38	BL7S-38	Keechi Creek, Highway 645 near Johnson, Anderson County.	Sand & Silt	Clear	Grazing
39	BL7S-39	Wildcat Creek, Highway 59 at Cross Roads, Henderson County.	Mud and Sand	Murky - Brownish	Grazing

Table 2. Key to Gill Net Collection Stations on Trinity River Watershed Below the Bridgeport, Grapevine, Lavon, and Garza-Little Elm Dams. November 1, 1955 - October 31, 1957.

Station Number	Collection No.	Location
1	B17G-1	Red's Lake, on Postoak Creek a tributary to Upper Keechi Creek near Fairfield, Freestone County.
2	B17G-2	Pharris Lake, on a tributary to Catfish Creek near Larue, Henderson County.
3	B17G-3 B17G-4 B17G-7 B17G-17	Stammire Lake, an oxbow cutoff from the Trinity River about 19 miles south of Oakwood in Leon County.
4	B17G-5 B17G-6	Trinity River near Moss Bluff, Liberty County.
5	B17G-8 B17G-9 B17G-11 B17G-16 B17G-18	Clear Lake, an oxbow cutoff from the Trinity River about 1 mile south of Stammire Lake near Oakwood, Leon County.
6	B17G-10 B17G-15	Fincastle Lake, on a tributary to Catfish Creek near Larue in Henderson County.
7	B17G-12	Buzzard Lake, an oxbow cutoff from the Trinity River near Clear Lake, Leon County.
8	B17G-13 B17G-20 B17G-21	Weatherford Lake, on Clear Fork of the Trinity near Weatherford, Parker County.
9	B17G-14 B17G-19 B17G-22	Arlington Lake on Village Creek near Handley, Tarrant County.

Table 3. Monthly Variations in the Chemical Content of Trinity River Water at Romayor Between December 1, 1955 and October 31, 1956.

	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Silica (SiO <sub>2</sub> )	10.4	11.0	13.0	15.5	13.7	17.8	13.7	18.0	21.5	17.0	17.7
Calcium (Ca)	62.7	51.0	37.5	44.5	31.0	46.5	55.0	58.0	69.5	59.0	76.7
Magnesium (Mg)	7.7	6.0	4.5	5.6	5.6	5.8	6.0	5.6	8.3	9.2	11.6
Sodium+Potassium (Na+K)	297.0	254.0	120.3	105.0	86.7	127.0	148.7	124.3	191.5	312.0	473.7
Bicarbonate (HCO <sub>3</sub> )	167.0	152.0	102.0	110.0	81.3	138.0	172.0	155.3	227.5	206.3	229.7
Sulfate (SO <sub>4</sub> )	101.0	93.0	55.0	54.0	44.7	54.0	66.0	56.0	61.5	102.0	145.3
Chloride (Cl)	412.7	335.0	160.0	148.0	122.0	173.0	193.7	159.0	264.0	415.3	657.7
Nitrate (NO <sub>3</sub> )	11.2	8.7	8.4	8.4	3.9	3.2	3.7	1.3	1.5	1.6	1.1
Dissolved Solids	986.7	838.0	461.3	459.0	347.7	495.0	572.7	516.3	729.5	1018.3	1496.7
Total Hardness as CaCO <sub>3</sub>	187.7	153.7	112.3	133.5	101.0	139.5	162.3	167.3	207.5	184.7	238.7
Non-Carbonate Hardness	50.7	29.3	28.5	43.8	33.7	26.5	21.3	12.7	21.0	15.3	50.7
pH	7.7	7.6	7.3	7.9	7.3	7.9	8.1	8.0	8.2	8.2	8.1
Percent Sodium	77.2	78.0	65.0	61.3	61.0	59.0	61.0	61.3	66.5	78.0	81.0

Table 3. (Continued).

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Silica (SiO <sub>2</sub> )	11.3	10.4	20.5	16.0	15.5	15.2	15.3	22.7	36.0	28.3	11.1
Calcium (Ca)	48.6	62.7	66.0	54.5	31.0	34.2	39.0	29.3	29.3	32.0	41.7
Magnesium (Mg)	6.6	7.7	9.9	5.6	3.3	3.0	3.2	2.2	1.0	2.4	3.7
Sodium+Potassium (Na+K)	231.0	297.0	311.5	146.5	82.5	40.8	20.3	22.0	37.0	36.0	64.3
Bicarbonate (HCO <sub>3</sub> )	145.7	167.0	153.0	121.3	85.3	87.8	122.7	86.7	93.3	105.7	135.0
Sulfate (SO <sub>4</sub> )	96.0	101.0	129.3	67.3	44.5	29.8	23.0	22.3	24.0	21.7	31.3
Chloride (Cl)	305.0	412.7	413.0	196.8	106.3	57.0	20.0	24.3	39.0	41.0	82.3
Nitrate (NO <sub>3</sub> )	2.0	11.2	12.8	9.8	5.2	3.4	1.5	1.2	0.8	1.4	0.5
Dissolved Solids	775.3	983.7	1227.0	547.3	330.0	226.8	188.0	174.0	234.7	218.0	307.3
Total Hardness as CaCO <sub>3</sub>	149.0	187.7	176.0	136.5	91.3	97.2	110.3	82.3	77.3	89.3	119.3
Non-Carbonate Hardness	29.7	51.0	50.8	37.0	23.8	25.2	10.0	11.0	2.0	3.7	9.0
pH	7.9	7.7	7.8	7.7	7.5	7.5	7.4	7.5	8.9	8.4	7.9
Percent Sodium	70.0	77.3	78.3	66.0	63.5	46.0	28.7	36.3	51.0	47.0	53.0

Table 4. Monthly Variations in the Chemical Content of Trinity River Water at Moss Bluff Between December 1, 1955 and October 31, 1956.

	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Silica (SiO <sub>2</sub> )	6.5	12.5	13.0	13.0	10.7	16.7	18.0	18.0	19.0	14.9	17.0
Calcium (Ca)	62.5	52.0	35.7	41.0	29.3	49.0	35.0	76.0	101.3	89.3	78.5
Magnesium (Mg)	7.0	7.1	4.4	5.2	3.6	4.9	4.6	39.7	80.7	47.0	18.5
Sodium+Potassium (Na+K)	244.0	248.0	135.3	80.0	62.7	97.3	96.5	470.0	839.0	574.7	367.0
Bicarbonate (HCO <sub>3</sub> )	167.5	159.5	92.7	112.5	81.0	145.3	163.0	183.3	206.3	239.3	251.7
Sulfate (SO <sub>4</sub> )	80.5	85.5	47.0	45.5	34.0	48.3	51.5	131.5	216.3	146.0	105.0
Chloride (Cl)	347.5	334.0	192.0	109.0	85.3	129.3	120.0	769.5	1430.0	933.4	740.0
Nitrate (NO <sub>3</sub> )	5.4	9.2	7.4	2.9	2.3	1.8	2.7	2.1	1.5	1.8	1.4
Dissolved Solids	836.0	839.5	480.3	380.0	269.7	425.7	440.5	1595.0	2786.7	1923.3	1245.0
Total Hardness as CaCO <sub>3</sub>	185.0	159.0	107.7	124.0	88.0	141.7	149.0	352.5	584.7	416.0	338.0
Non-Carbonate Hardness	48.0	28.0	31.7	31.0	21.7	22.3	15.0	202.3	415.3	220.0	131.3
pH	7.7	7.6	7.3	7.5	7.1	7.8	7.9	8.1	7.7	8.0	8.2
Percent Sodium	74.0	77.0	69.7	58.5	59.3	55.0	58.5	74.3	75.3	73.7	74.5

Table 4. (Continued).

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Silica (SiO <sub>2</sub> )	8.0	12.0	15.0	14.3	13.0	11.2	11.7	11.5	11.0	11.7	17.9
Calcium (Ca)	56.7	56.5	68.0	46.0	32.3	23.7	36.0	46.0	48.7	39.3	40.7
Magnesium (Mg)	6.3	6.1	10.2	5.6	3.9	2.9	3.4	3.9	4.3	3.2	3.6
Sodium + Potassium (Na+K)	241.3	155.0	223.0	176.3	82.0	31.3	22.3	27.5	33.7	32.3	46.5
Bicarbonate (HCO <sub>3</sub> )	168.7	142.5	189.5	120.7	83.7	70.0	115.3	139.5	143.3	123.7	134.2
Sulfate (SO <sub>4</sub> )	88.0	72.5	145.0	82.7	48.0	24.3	19.3	22.0	27.3	21.7	24.0
Chloride (Cl)	327.3	218.5	421.5	230.0	108.3	38.3	26.3	34.5	44.3	39.0	58.5
Nitrate (NO <sub>3</sub> )	3.6	3.1	18.0	13.3	5.4	2.1	4.4	2.9	3.5	2.3	1.7
Dissolved Solids	822.3	604.5	1104.0	627.7	334.6	168.0	191.3	230.5	236.3	210.0	246.0
Total Hardness as CaCO <sub>3</sub>	169.3	166.0	212.5	137.3	97.0	70.3	104.0	131.0	138.0	111.0	181.5
Non-Carbonate Hardness	31.3	49.0	57.0	38.7	28.3	13.0	9.7	16.5	20.7	9.7	8.0
pH	7.7	7.6	7.8	7.6	7.4	6.7	6.8	7.1	7.6	7.8	7.7
Percent Sodium	70.0	65.5	76.5	69.3	64.0	48.7	32.0	30.0	34.7	38.6	47.5

Table 5. Checklist of Species from the Trinity River Watershed.

Common Name	Scientific Name
Alligator gar	<u>Lepisosteus spatula</u>
Shortnose gar	<u>Lepisosteus platostomus</u>
Spotted gar	<u>Lepisosteus productus</u>
Longnose gar	<u>Lepisosteus osseus</u>
Bowfin	<u>Amia calva</u>
Menhaden	<u>Brevoortia gunteri</u>
Gizzard shad	<u>Dorosoma cepedianum</u>
Banded tetra	<u>Astyanax fasciatus</u>
Smallmouth buffalo	<u>Ictiobus bubalus</u>
River carpsucker	<u>Carpionodes carpio</u>
Grey redhorse	<u>Moxostoma congestum</u>
Spotted sucker	<u>Minytrema melanops</u>
Chubsucker	<u>Erimyzon sucetta</u>
Carp	<u>Cyprinus carpio</u>
Golden shiner	<u>Notemigonus crysoleucas</u>
Suckermouth minnow	<u>Phenacobius mirabilis</u>
Ribbon shiner	<u>Notropis fumeus</u>
Redfin shiner	<u>Notropis umbratalis</u>
Brazos River shiner	<u>Notropis brazosensis</u>
Blacktail shiner	<u>Notropis venustus</u>
Red shiner	<u>Notropis lutrensis</u>
Sand shiner	<u>Notropis deliciosus</u>
Blackspot shiner	<u>Notropis atrocaudalis</u>
Silvery minnow	<u>Hybognathus nuchalis</u>
Plains minnow	<u>Hybognathus placita</u>
Parrot minnow	<u>Pimephales vigilax</u>
Fathead minnow	<u>Pimephales promelas</u>
Stoneroller	<u>Campostoma anomalum</u>
Channel catfish	<u>Ictalurus punctatus</u>
Blue catfish	<u>Ictalurus furcatus</u>
Black bullhead	<u>Ictalurus melas</u>
Yellow bullhead	<u>Ictalurus natalis</u>
Flathead catfish	<u>Pylodictus olivaris</u>
Tadpole madtom	<u>Schilbeodes gyrinus</u>
Blackstripe topminnow	<u>Fundulus notatus</u>
Blackspot topminnow	<u>Fundulus olivaceus</u>
Mosquitofish	<u>Gambusia affinis</u>
Striped mullet	<u>Mugil cephalus</u>
White bass	<u>Roccus chrysops</u>
Yellow bass	<u>Roccus mississippiensis</u>
Spotted bass	<u>Micropterus punctulatus</u>
Largemouth bass	<u>Micropterus salmoides</u>
Warmouth	<u>Chaenobryttus gulosus</u>
Green sunfish	<u>Lepomis cyanellus</u>
Small sunfish	<u>Lepomis symmetricus</u>
Spotted sunfish	<u>Lepomis punctatus</u>
Redear sunfish	<u>Lepomis microlophus</u>

Table 5. (Continued).

Common Name	Scientific Name
Bluegill sunfish	<u>Lepomis macrochirus</u>
Orange spotted sunfish	<u>Lepomis humilis</u>
Yellowbelly sunfish	<u>Lepomis auritus</u>
Longear sunfish	<u>Lepomis megalotis</u>
White crappie	<u>Pomoxis annularis</u>
Flier sunfish	<u>Centrarchus macropterus</u>
Dusky darter	<u>Hadropterus scierus</u>
Logperch	<u>Percina caprodes</u>
Bluntnose darter	<u>Ethoestoma chlorosomum</u>
Freshwater drum	<u>Aplodinotus grunniens</u>

Table 6. Number of Each Species Collected from Seine Stations on the Trinity River Watershed, November 1, 1955 - October 31, 1957.

Station Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Gizzard shad	7	2							1				2	2	104
Banded tetra					2										1
Smallmouth buffalo															
River carpsucker															3
Spotted sucker															
Carp						34									
Golden shiner															
Ribbon shiner															
Redfin shiner															
Blacktail shiner								12		12			2	13	6
Red shiner	41	12	82	22	46			7	888	198	144		3	6	33
Blackspot shiner	9	1								2	5	22		7	6
Silvery minnow															
Parrot minnow										1					
Flathead minnow									2						
Channel catfish										3	16		2		
Blackbullhead								11		6	7	9			1
Blackspot topminnow	17	1	11	25	5	2						1			
Mosquitofish															
Striped mullet						2		2							
Spotted bass													1	1	3
Largemouth bass	1	1	11				2							4	110
Green sunfish															
Spotted sunfish	2	3		5	9										
Bluegill sunfish	1	3	30	5	9	5	1	18	1	20	11	6		1	7
Longear sunfish						1		1							
White crappie															
Small sunfish															
Bluntnose darter									1						
Freshwater drum										1					
Crayfish															
Total	79	115	134	52	62	52	3	51	899	46	236	178	10	34	274

Table 6. (Continued).

Station Number	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Gizzard shad	2						57	5							
Banded tetra															
Smallmouth buffalo															
River carpsucker															
Spotted sucker		4													
Carp							1								
Golden shiner											2				
Ribbon shiner		1					3								
Redfin shiner															
Blacktail shiner															
Red shiner	3	8	64				3	1	19	20	2	137	70	74	38
Blackspot shiner															
Silvery minnow															
Parrot minnow	20	4					1	10	3				4	18	
Parrot minnow															
Fathead minnow															
Channel catfish															
Black bullhead	10	8					1				1				
Blackspot topminnow															1
Mosquitofish	4			5		10							3	20	4
Striped mullet					5	25									
Spotted bass															
Largemouth bass	2	7													
Green sunfish	12	5									2			11	2
Spotted sunfish															
Bluegill sunfish	1	11						2							
Longear sunfish															
White crappie											2				
Small sunfish															
Bluntnose darter															
Freshwater drum															
Crayfish															
Total	56	48	64	5	16	35	67	18	22	20	10	141	94	107	41

Table 6. (Continued).

Station Number	31	32	33	34	35	36	37	38	39	Total
Gizzard shad										182
Banded tetra										1
Smallmouth buffalo										2
River carpsucker									1	1
Spotted sucker										4
Carp									2	6
Golden shiner										36
Ribbon shiner				12						24
Redfin shiner										12
Blacktail shiner										48
Red shiner	31	17			2		11	1		2042
Blackspot shiner								2		18
Silvery minnow									3	6
Parrot minnow										100
Fathead minnow										1
Channel catfish										3
Black bullhead										25
Blackspot topminnow					1					48
Mosquitofish		7	34		1					205
Striped mullet					1					1
Spotted bass										4
Largemouth bass										29
Green sunfish	2	5								156
Spotted sunfish										4
Bluegill sunfish										133
Longear sunfish										3
White crappie										2
Small sunfish										1
Bluntnose darter										1
Freshwater drum										1
Crayfish						48	2			56
Total	33	29	34	12	4	48	19	3	3	3156

Table 7. Results of Net Collections from the Trinity River Watershed in Terms of Number and Percentage, November 1, 1955 - October 31, 1957.

Net Station	Arlington Lake		Buzzard Lake		Clear Lake		Fincastle Lake		Moss Bluff River	
	No.	%	No.	%	No.	%	No.	%	No.	%
Alligator gar	0	0.0	26	63.5	153	9.2	0	0.0	29	8.5
Shortnose gar	0	0.0	0	0.0	0	0.0	0	0.0	2	0.6
Spotted gar	0	0.0	1	2.4	114	6.8	14	3.0	33	9.7
Longnose gar	0	0.0	0	0.0	58	3.5	0	0.0	138	40.5
Bowfin	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Menhaden	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Gizzard shad	5	3.0	0	0.0	201	12.1	244	51.6	2	0.6
Smallmouth buffalo	0	0.0	0	0.0	29	1.7	0	0.0	1	0.3
River carpsucker	7	4.2	2	4.9	74	4.4	0	0.0	30	8.8
Chubsucker	0	0.0	0	0.0	0	0.0	5	1.1	0	0.0
Carp	10	5.9	5	12.2	39	2.3	0	0.0	0	0.0
Channel catfish	1	0.6	1	2.4	111	6.7	0	0.0	50	14.6
Blue catfish	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3
Black bullhead	60	35.7	5	12.2	12	0.7	1	0.2	0	0.0
Yellow bullhead	3	1.8	0	0.0	12	0.7	5	1.1	0	0.0
Striped mullet	0	0.0	0	0.0	1	0.1	0	0.0	31	9.1
White bass	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Yellow bass	0	0.0	0	0.0	1	0.1	0	0.0	18	5.3
Largemouth bass	49	29.2	0	0.0	46	2.8	2	0.4	0	0.0
Warmouth	0	0.0	0	0.0	158	9.5	0	0.0	0	0.0
Green sunfish	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Redear sunfish	0	0.0	0	0.0	8	0.5	0	0.0	0	0.0
Bluegill sunfish	31	18.4	1	2.4	521	31.3	108	22.8	0	0.0
Yellowbelly sunfish	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Longear sunfish	0	0.0	0	0.0	2	0.1	0	0.0	0	0.0
White crappie	2	1.2	0	0.0	97	5.8	37	7.8	0	0.0
Freshwater drum	0	0.0	0	0.0	29	1.7	0	0.0	6	1.7
Total	168	100.0	41	100.0	1666	100.0	473	100.0	341	100.0

Table 7. (Continued).

Net Station	Pharris Lake No.	Pharris Lake %	Red Lake No.	Red Lake %	Stammire Lake No.	Stammire Lake %	Weatherford Lake No.	Weatherford Lake %	Total No.	Total %
Alligator gar	0	0.0	0	0.0	7	2.8	0	0.0	215	6.57
Shortnose gar	0	0.0	0	0.0	0	0.0	0	0.0	2	0.06
Spotted gar	0	0.0	3	1.7	20	7.9	0	0.0	185	5.66
Longnose gar	0	0.0	0	0.0	1	0.4	0	0.0	197	6.02
Bowfin	0	0.0	1	0.6	0	0.0	0	0.0	1	0.03
Menhaden	0	0.0	0	0.0	0	0.0	0	0.0	2	0.06
Gizzard shad	0	0.0	107	59.8	125	49.6	24	20.5	707	21.62
Smallmouth buffalo	0	0.0	0	0.0	0	0.0	0	0.0	59	1.80
River carpsucker	0	0.0	0	0.0	13	5.1	0	0.0	96	2.94
Chubsucker	5	14.7	25	14.0	0	0.0	0	0.0	35	1.07
Carp	0	0.0	0	0.0	5	2.0	15	12.8	74	2.26
Channel catfish	0	0.0	0	0.0	15	5.9	2	1.7	180	5.50
Blue catfish	0	0.0	0	0.0	0	0.0	0	0.0	1	0.03
Black bullhead	0	0.0	8	4.4	5	2.0	32	27.4	123	3.76
Yellow bullhead	9	26.5	0	0.0	12	4.8	2	1.7	43	1.32
Striped mullet	0	0.0	0	0.0	0	0.0	0	0.0	32	0.98
White bass	0	0.0	0	0.0	1	0.4	0	0.0	1	0.03
Yellow bass	0	0.0	0	0.0	4	1.6	0	0.0	23	0.70
Largemouth bass	0	0.0	2	1.1	9	3.6	21	17.9	129	3.94
Warmouth	0	0.0	1	0.6	3	1.2	0	0.0	162	4.95
Green sunfish	0	0.0	0	0.0	0	0.0	1	0.9	1	0.03
Redear sunfish	5	14.7	17	9.4	1	0.4	7	6.0	95	2.91
Bluegill sunfish	15	44.1	13	7.3	27	10.7	6	5.1	722	22.07
Yellowbelly sunfish	0	0.0	0	0.0	1	0.4	0	0.0	1	0.03
Longear sunfish	0	0.0	0	0.0	0	0.0	0	0.0	2	0.06
White crappie	0	0.0	2	1.1	3	1.2	7	6.0	148	4.53
Freshwater drum	0	0.0	0	0.0	0	0.0	0	0.0	35	1.07
<b>Total</b>	<b>34</b>	<b>100.0</b>	<b>179</b>	<b>100.0</b>	<b>252</b>	<b>100.0</b>	<b>117</b>	<b>100.0</b>	<b>3271</b>	<b>100.00</b>

Table 8. Results of Net Collections from the Trinity River Watershed in Terms of Weight (lbs.) and Percentage, November 1, 1955 - October 31, 1957.

Net Station	Arlington Lake		Buzzard Lake		Clear Lake		Fincastle Lake		Moss Bluff River	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
Alligator gar	0.00	0.0	60.12	85.3	435.56	31.1	0.00	0.0	1330.00	45.6
Shortnose gar	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	91.31	3.1
Spotted gar	0.00	0.0	2.94	4.2	280.62	20.1	35.81	17.0	47.87	1.6
Longnose gar	0.00	0.0	0.00	0.0	36.81	2.6	0.00	0.0	1310.31	44.9
Bowfin	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Menhaden	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.25	0.0
Gizzard shad	2.32	3.1	0.00	0.0	121.37	8.7	114.37	54.2	0.50	0.0
Smallmouth buffalo	0.00	0.0	0.00	0.0	42.25	3.0	0.00	0.0	67.25	2.3
River carpsucker	3.25	4.3	1.00	1.4	45.62	3.3	0.00	0.0	0.00	0.0
Chubsucker	0.00	0.0	0.00	0.0	0.00	0.0	3.94	1.9	0.00	0.0
Carp	10.06	13.3	2.12	3.0	17.19	1.2	0.00	0.0	0.00	0.0
Channel catfish	2.00	2.7	0.94	1.3	91.31	6.5	0.00	0.0	36.62	1.3
Blue catfish	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.81	0.0
Black bullhead	25.75	34.1	3.12	4.4	8.50	0.6	1.75	0.8	0.00	0.0
Yellow bullhead	1.60	2.1	0.00	0.0	6.56	0.5	3.00	1.4	0.00	0.0
Striped mullet	0.00	0.0	0.00	0.0	1.75	0.1	0.00	0.0	21.19	0.7
White bass	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Yellow bass	0.00	0.0	0.00	0.0	0.38	0.1	0.00	0.0	10.37	0.4
Largemouth bass	23.91	31.7	0.00	0.0	38.75	2.8	8.69	4.1	0.00	0.0
Warmouth	0.00	0.0	0.00	0.0	73.00	5.2	0.00	0.0	0.00	0.0
Green sunfish	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Redear sunfish	0.00	0.0	0.00	0.0	4.75	0.3	17.06	8.1	0.00	0.0
Bluegill sunfish	6.06	8.0	0.25	0.04	145.12	10.4	11.56	5.5	0.00	0.0
Yellowbelly sunfish	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Longear sunfish	0.00	0.0	0.00	0.0	1.37	0.1	0.00	0.0	0.00	0.0
White crappie	0.49	0.7	0.00	0.0	33.56	2.4	14.75	7.0	0.00	0.0
Freshwater drum	0.00	0.0	0.00	0.0	14.31	1.0	0.00	0.0	3.94	0.1
Total	75.44	100.0	70.49	100.0	1398.78	100.0	210.93	100.0	2920.42	100.0

Table 8. (Continued).

Net Station	Pharris Lake		Red Lake		Stammiere Lake		Weatherford Lake		Total	
	Wt.	%	Wt.	%	Wt.	%	Wt.	%	Wt.	%
Alligator gar	0.00	0.0	0.00	0.0	19.06	11.7	0.00	0.0	1844.74	36.87
Shortnose gar	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	91.31	1.82
Spotted gar	0.00	0.0	6.87	7.2	31.62	19.5	0.00	0.0	405.73	8.11
Longnose gar	0.00	0.0	0.00	0.0	5.25	3.2	0.00	0.0	1352.37	27.03
Bowfin	0.00	0.0	3.19	3.4	0.00	0.0	0.00	0.0	3.19	0.06
Menhaden	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	.25	0.01
Gizzard shad	0.00	0.0	52.25	54.8	37.62	23.1	5.37	10.1	333.80	6.67
Smallmouth buffalo	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	109.50	2.19
River carpsucker	0.00	0.0	0.00	0.0	11.06	6.8	0.00	0.0	60.93	1.22
Chubsucker	4.50	26.5	17.00	17.8	0.00	0.0	0.00	0.0	25.44	0.51
Carp	0.00	0.0	0.00	0.0	3.12	1.9	12.62	23.8	45.11	0.90
Channel catfish	0.00	0.0	0.00	0.0	15.50	9.5	3.00	5.7	149.37	2.98
Blue catfish	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	.81	0.02
Black bullhead	0.00	0.0	5.75	6.0	5.19	3.2	16.81	31.7	66.87	1.34
Yellow bullhead	6.31	37.1	0.00	0.0	9.06	5.6	0.00	0.0	26.53	0.53
Striped mullet	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	22.94	0.46
White bass	0.00	0.0	0.00	0.0	0.69	0.4	0.00	0.0	.69	0.01
Yellow bass	0.00	0.0	0.00	0.0	3.63	2.2	1.18	2.2	15.56	0.31
Largemouth bass	0.00	0.0	1.25	1.3	10.62	6.5	7.87	14.9	91.09	1.82
Warmouth	0.00	0.0	0.31	0.3	1.06	0.7	0.00	0.0	74.37	1.49
Green sunfish	0.00	0.0	0.00	0.0	0.00	0.0	0.12	0.2	.12	0.0-
Redear sunfish	1.62	9.5	4.94	5.2	0.31	0.2	2.43	4.6	31.11	0.62
Bluegill sunfish	4.56	26.9	3.12	3.3	6.12	3.8	1.50	2.8	178.29	3.56
Yellowbelly sunfish	0.00	0.0	0.69	0.7	0.50	0.3	0.00	0.0	1.19	0.02
Longear sunfish	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	1.37	0.03
White crappie	0.00	0.0	0.00	0.0	2.18	1.4	2.12	4.0	53.10	1.06
Freshwater drum	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	18.25	0.36
Total	16.99	100.0	95.37	100.0	162.59	100.0	53.02	100.0	5004.03	100.00



Figure 2. Sewer Break in West Fork of Trinity at Fort Worth Admitting Raw Sewage to River.



Figure 3. Dead Fish in West Fork of Trinity. These Fish were Killed by the Sewage.



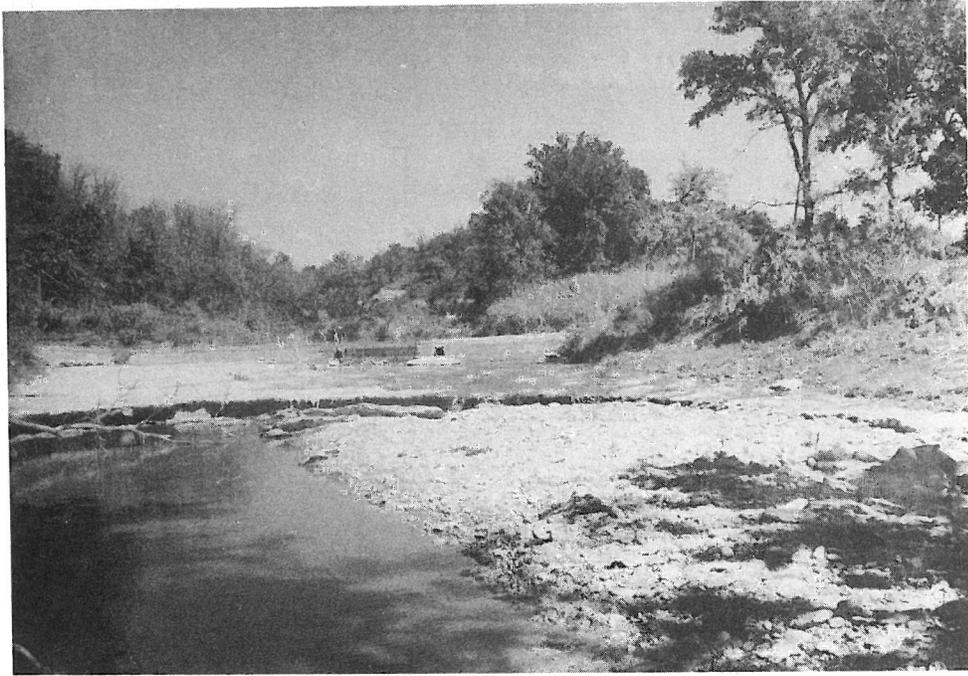


Figure 4. Seine Station No.17 on North Bear Creek.



Figure 5. Net Station No.5, Clear Lake, an Oxbow Cutoff from the Trinity River



Figure 6. Fish Species that Were deposited in Clear Lake by Overflow from Trinity River.



Figure 7. Other Species of Fish deposited in Clear Lake by Overflow. Specimen on right is Striped Mullet.