

FILE

Job Completion Report

by

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TITLE

Inventory of Species Present in Lake Corpus Christi.

OBJECTIVES

To determine the species present and their relative numbers in Lake Corpus Christi.

PROCEDURE

The investigation of Lake Corpus Christi was divided into three jobs: Job A-3, Basic Survey of Lake Corpus Christi, to gather fundamental data on the chemical and physical characters of the lake, Job B-6, Creel Census and Check of Commercial Catch of Rough Fish from Lake Corpus Christi, to estimate the total catch of fish from the lake, and the present job. Refer to the job completion reports on the basic survey and the creel census for their applications to this job. Job E-2, Experimental Provision of Cover for Game Fish, began July 1, 1954 and is still in progress. Project F-1-D, Lake Corpus Christi Water Hyacinth Control, was begun on September 25, 1953 and is still underway.

The present job consisted of making monthly seining and experimental netting collections at nine stations on the lake. Hoop and fyke nets and 2" and 3" gill nets were used sporadically to supplement the data gathered from the regular stations. The information collected was kinds and relative numbers of fish in the lake, sizes and coefficient of condition, sex and sexual condition, feeding habits, parasites and the seasonal changes in the whole population.

a. Netting Collections.

1. Nine stations as shown in Map 1 were selected in Lake Corpus Christi to represent different locations and types of habitat. Station 1 was about 14 feet deep with a silt bottom and was exposed to winds from all directions. The prevailing wind direction was south or southeast but changing weather brought east winds, generally moderate, or moderate to strong west winds. During the fall and winter months strong north or northwest winds were to be expected. Station 2, north of a sandy point of Dennisons Slew, was from 4 to 10 feet deep with a bottom of fine sand and silt. It was exposed only to west winds. In September of 1954 a willow brush pile was built near the beach at this station to furnish cover for game and forage fish. Station 3 was northwest of a point in Pernitas Creek; 6 to 10 feet deep with a silt bottom; the set was made across the channel of the creek. It was well protected from the wind and was within 100 feet of dead mesquite trees holding beds of water hyacinths over deep water. Station 4 was off the moderately sloping beach at the Boy Scout Camp; 6 to 10 feet deep with a fine sand to silt bottom, it was exposed to the prevailing winds as well as to west winds. Rather small beds of

Potomogeton in about 2 to 5 feet of water furnished some fish cover. Station 5 was about 6 feet deep with a silt bottom and exposed to the northeast. It was across an old creek channel and on the offshore end was adjacent to many dead mesquite trees. Station 6 in the upper end of Coffin Bay was 5 feet deep with silt bottom. The prevailing wind crossing a wide stretch of open shallow water usually kept this station very turbid. Station 7 was distinctly different from the others. Located in Beldon Hollow, it could be reached only by a ranch road because an impenetrable bank of water hyacinths about 1/4 mile wide choked the mouth of the bay. Through the courtesy of Mr. H. D. Miller, we were granted access to an area of about 30 acres in the northwest end of the Bay which remained free of hyacinths. The banks and mouth of the Bay were covered with a solid mass of hyacinths held in place by mesquite trees killed when the lake was filled. Surrounding hills gave the Bay fair protection from all winds. The water depth was about 8 feet and the bottom was very soft, made up of silt and decaying hyacinths. The water, especially when low, was clearer than that of the main lake and often had a brownish cast. Station 8 was 7 to 12 feet deep with a silt bottom. The net was set across the channel of the Nueces River about 1/2 mile above the head of the main lake. High willow trees along either shore gave good wind protection. Station 9 was 15 to 18 feet deep with a silt bottom. It was very similar to station 8 in the sharply cut banks and high willow trees protecting it. The scouring action of flood waters down the channel kept these two stations rather deep and the protection from winds allowed the water to be relatively clearer than in Coffin Bay or the main lake except during the flood stages. All depths given above were measured when the lake was full (74 feet above mean sea level.) For the fluctuations in the lake level during the two segments, see Job A-3.

Experimental gill nets composed of 5 sections of varying size mesh (1", 1½", 2", 2½" and 3" square mesh) each 25 feet long and 8 feet deep were set at each station each month except when conditions prevented. In the first segment stations 5 and 6 were missed in July and August due to low water and station 7 was missed in August and December due to low water and a rain which blocked the access road. In segment 2, all stations were set each month. A total of 210 experimental gill net collections was made. All nets were sinkers, resting on the bottom and reaching the top of the water only where the depth was less than 9 feet. Galvanized ring weights on the bottom line and plastic floats on the top line kept the nets stretched vertically while 2-quart concrete weights (about 12 pounds) and lines to surface floats or tree limbs kept the nets stretched horizontally. Normally two or three stations were set at one time, about 4 or 5 P. M. and the nets were picked up the next morning between 7 and 9 A. M. Stations 1, 2 and 3 were usually set in the first week of the month, 4, 5 and 6 in the second week, 8 and 9 in the third week and station 7 in the last week.

2. Gill nets with 2" and 3" square mesh were set at various times and places around the lake to try to locate spawning and feeding areas. During the two segments, 4 nets 100' x 8' with 2" mesh, 2 nets 100' by 8' with 3" mesh and 30 nets 300' by 8' with 3" mesh were set. Most of these were set in Beldon Hollow near Station 7 but several were set near Hog Island, in Pernitas Creek, the river channel and one was set in Coffin Bay. The information gathered from these nets was recorded in the same way as that from the experimental nets. Although of little use in locating spawning and feeding areas, these nets did help in getting information on the larger fish of the lake, especially the smallmouth buffalo and blue catfish.

3. Ten 1" square mesh hoop nets seven feet long, four feet wide at the mouth and with two throats were set during the job at various times and places. One of these sets was made near the beach using two 50' x 6' seines with ½" mesh as wings. The others were stretched open by tying them to three poles and baiting with cut fish or cottonseed cake. Data gathered was recorded in the same way as

for the experimental gill nets. Two near shore "heart sets" were made with  $\frac{1}{4}$ " mesh fyke nets 7 feet long with four foot wide mouths and two throats. The fykes were 15 feet long by four feet deep. The fish from these sets were tabulated and recorded as those from seining collections.

4. The fish taken in all gill and hoop nets were brought back to the State Park (except from Station 7) for processing. All fish were laid on a measuring board and the standard and total lengths in millimeters recorded (except in a few cases when large numbers of freshwater drum were caught they were only counted and weighed). Each fish up to 500 grams was weighed on a Hanson platform scale, larger fish were weighed on a Perfecto hanging scale (to 20 lbs.) or on a beam scale (to 200 lbs). Pounds and ounces were converted to grams for recording. When food was found in the stomach of a game or predatory fish, the stomach was removed, tagged and preserved in 10% formaldehyde. Special notes concerning the fish such as worms, stunted, etc., were noted. Scale samples were taken during much of the first segment but study of them in the laboratory proved of no value in determining the age due to the warm winters here and consequent absence of distinct circuli. All fish handling for a catch was done by one field assistant while the other recorded the data called out to him. "K" factors and contents of the stomachs were calculated later in the lab. Table 2 is a typical netting collection record sheet.

#### b. Seining Collections.

1. Nine seining stations were selected around the lake at or near each of the netting stations. Station 1 was on the west shore of the main lake exposed to the north and east but protected from other winds by high willow trees. The beach was gently sloping with a fine sand and silt bottom and small beds of Potamogeton grew in about two feet of water during the summertime. Occasionally water hyacinths drifted onto the beach and furnished more cover for small fish but made seining difficult. Station 2 was well protected from the wind in the north fork of Dennison's Slough. The banks were sharply cut from sandy loam and the bottom was of slippery silt. Water depth was two to four feet and small bunches of hyacinths furnished fish cover. The whole slough was choked with hyacinths a few times which prevented seining. Station 3 was on a gently sloping easterly exposed beach in Perinitas Creek. Many stumps and drifting hyacinths made seining difficult or, at times, impossible. The bottom was silty. Station 4, on the Boy Scout Beach, was moderately sloping with water depths up to four feet and a fine sand to silt bottom. Beds of Potamogeton and floating hyacinths furnished cover. Station 5, just inside the entrance to Coffin Bay, was protected from wind except those from the north. It has a moderately sloping beach of silt with some Potamogeton and hyacinths for cover. There were several submerged stumps in the water up to three feet deep. Station 6, in the upper end of Coffin Bay, had a fine sand beach grading to silt in the deeper water. The slope was gentle and exposure was to the south and east. A bed of Scirpus furnished some cover near the beach. Station 7 usually had relatively clear water up to three feet deep. The bottom was gently sloping and of very soft silt and decaying hyacinth plants. Collections were seldom good or complete due to dead plants clogging the seine and the hyacinths along the edge made it necessary to lift the seine from the water rather than dragging it out on the beach. Station 8 had a sharply cut beach to about 4 feet deep with a few hyacinths and often some green algae along the edge. The bottom was soft silt. Station 9 was in a small secondary channel above Lagarto Bridge. The beach was gently sloping, the bottom of very soft silt. Floating hyacinths furnished some cover but masses of them sometimes prevented seining. The banks of the main channel were too deep and sharply cut to allow seining. Whenever possible, the seining was done with a 30' x 6' bag seine with  $\frac{1}{4}$ " knotted mesh. Where water hyacinths or stumps prevented the use of this seine, a 15' x 4' common sense seine was used. A sample of the fish seined was preserved in one quart fruit jars containing 10% formaldehyde and sorted, identified and counted later in the lab. Excessive numbers of a single spe-

cies or fish too large for the jar were counted, recorded on the fish card and discarded at the time of collection. Seining was usually done in the last week of the month except at stations 7, 8 and 9 where seining was done on the afternoon that the experimental nets were set. Of the 216 seining collections scheduled, 166 were made. Low water conditions prevented access to Station 6 due to shallow, stumpy water in Coffin Bay, water hyacinths sometimes drifted onto some of the beaches in such large masses that seining was impossible and once the water level was so high that seining was prevented during the last part of the month because water was backed up into thick terrestrial weeds and brush on all beaches.

c. Data concerning weather and water conditions and other observations were kept on Fish Cards and Fish Collection Sheets. A description of the lake and its chemical and physical characteristics was given in Job A-3.

## FINDINGS

The seasonal variation of fish activity, as reflected by comparison of the monthly seining and netting catches, may be seen in Tables 3, 4, 6, 7, 9 and 10. Tables 9 and 10 show the average catches of seines and nets for each month of each segment. Above this graph is shown the average temperature of the water at Station 1, just above the dam, and average water level of the lake for each month. There are two apparent peaks of fish activity in Lake Corpus Christi during the year; the most prominent one is in the spring beginning in January or February and reaching a peak in April or May. The second is in the fall from August to November, it is not so distinct as the spring peak and lasts for a shorter period.

Considering the larger fish taken in the experimental nets first: the numbers of fish taken per net in the spring of 1954 began to rise in January and continued to rise to a peak in April, then dropped off in May and June. The water temperature likewise began to rise in January from about 57 degrees Fahrenheit to 74 degrees in April. The temperature dropped in March but seemed to have no effect on the increasing net catch, probably because the deeper water in which the nets were set was not affected by the drop. During this period of increasing net catches the water level of the lake was dropping continuously until mid-April at which time it rose to about 73 feet. The rise dropped off in May but another came in June with a drop in the fish catch during those two months. In the spring of 1955 the net catch again began to rise in January, leveled off in February and March, made a small increase in April, then reached a peak in May. The average temperature at the dam started to rise in February, leveled off at 72 degrees in March and April, then rose to 79 degrees in May. The water level rose about  $1\frac{1}{2}$  feet in February, then dropped until May. Therefore the spring run of fish seems to be correlated primarily with the water temperature and to some extent with the rise of the water level. This increase in fish activity in the spring run is a spawning and feeding run. Tables 16 and 17 show the sexual condition of eight common species taken in gill nets in each of the two segments. Condition 1 indicates that eggs or sperm were flowing, 2, gonads well developed, 3, sexes discernible, 4, sexes not discernible and 5 indicates that the fish had just spawned. In the first segment the number of fish that were ready to spawn or had just spawned increased from 3 in March to 21 in April, dropped to 11 in May and to 13 in June, 10 in July and 1 in August. In the second segment the number of fish ready to spawn or just having spawned began with 32 in February (when the lake level rose but before the main lake temperature had risen), dropped to 10 in March, then rose to 17 in April and 16 in May together with the increasing water level and temperature. By June of 1955 only 3 fish were taken that had already spawned.

The fall run of netted fish in the first segment occurred in August along with a very large rise in water level from 69 feet to 77 feet. In the second segment, there was a small rise in water level in September with a corresponding small increase in catch, another in October with a drop in fish caught and a third rise

in water level in November with a pronounced increase in the number of fish caught. The high summer water temperatures dropped gradually in September and October and then dropped to 63 degrees in November. This fall run is probably mainly a feeding run resulting from a change of water and temperatures but three fish, a spotted gar and a smallmouth buffalo which were ready to spawn and a channel catfish which had just spawned, were taken in November 1954. During both the spring and fall runs many fish were taken with full stomachs.

The seining collections show an apparent increase in the numbers of small fish in the spring but not in the fall. The small fish which live in shallow, near shore water react to temperature changes more definitely than do the larger fish taken in the deeper waters and also, the seining collections are probably more subject to sampling errors than are the netting collections. In segment 1, the average number of fish seined showed an increase in March, apparently the increase in water temperature which occurred in February. The drop in temperature in March caused a corresponding drop in fish seined in April. The rise in temperature which began again in March, together with rising water level caused the small fish population to reach a peak in May. Further rises in temperature and water level in June were accompanied by a decrease in the numbers of small fish taken. In the second segment, the small fish showed a rise in frequency in January despite the fact that water levels and temperatures were still dropping. The catch then dropped off despite rising water and temperature. These may both be cases of sampling error. The main increase in the small fish catch came in June, a month later than the distinct rises in water level and temperature. These small fish taken in seines produce tremendous numbers in a short time and are reduced to small numbers again very quickly.

#### DISCUSSION OF INDIVIDUAL SPECIES

The numbers of each species of fish taken in the different months of the job may be found in tables 3 and 7. The pounds of larger fish taken in the experimental nets is listed in Table 4. The numbers of fish caught at the nine different stations during the job is shown in Tables 5 and 8. The rank of each netted species, by number and weight and minimum, maximum and average standard length, weight and "K" factor is shown in Table 15. Table 16 shows the sexual conditions of the eight most common fish taken in nets during the job and Table 18 summarizes the results of stomach analyses of 191 stomachs examined. Other details of each species will be discussed in the following section.

Lepisosteus spatula - Alligator Gar. Rather common and of a large size, occurring in all parts of the lake, they were frequently taken on trotlines by fishermen. Three taken by a commercial fishermen were examined that weighed a total of 360 pounds. One of these had a freshwater drum in its stomach which was 200 mm. in standard length. One stomach taken during the job contained an unidentified fish. Spawning apparently occurred in April and May as two fingerlings were seined in June and another in July, all from beds of Potamogeton. The adults were usually infected with tape worms in the stomach and intestine and fish lice and small leeches were found about the head of several specimens. Individuals of over 200 pounds were reported caught by commercial fishermen.

Lepisosteus productus - Spotted Gar. The most common gar of the lake, they were found in all areas and were serious pests by stealing trotline baits. From our netting data they did not occur as frequently in the open water of the main lake as elsewhere. Two fingerlings were taken in February and March, 10 in June and 5 in July, all from beds of Potamogeton. Many adults taken had well developed gonads during all months, but only one was taken with eggs flowing, in November 1955. Specimens that had just spawned were taken in April, June and July. Many were found with tape worms in the stomach and intestines. Sex ratio 115 males, 111 females, 33 not discernible.

Lepisosteus osseus - Longnose Gar. Of common occurrence in all parts of the lake except that none was taken in Beldon Hollow. Females that were flowing eggs or had just spawned were taken in April, May, June and July. Three fingerlings were taken in June. As with the spotted gar, these fish seemed to be less abundant in the open water of the main lake and preferred near shore water, creeks and the river channel. Some were infested with tape worms. Sex ratio, 65 males, 24 females, 19 not discernible.

Dorosoma petenensis - Threadfin shad. The most common and probably the most important forage fish in the lake, it was found at all stations apparently favoring shallow beaches with a gradual slope. These fish were very prolific producing very large schools during the summer months. Because they are so prolific and seldom grow to more than four inches in length, they might be useful for stocking as a forage fish in other lakes.

Dorosoma cepedianum - Gizzard Shad. Common at all stations but apparently not so prolific as in clear water lakes in the rest of the State. Only one specimen was taken that was ready to spawn, a male in April 1955. Young were taken in seines most commonly in January, February and March and in June, July and August which probably indicated a winter spawn as well as one in the spring. None was taken at Station 7. Sex ratio, 87 males, 178 females, 117 not discernible.

Astyanax fasciatus - Tetra. Of common occurrence throughout the lake but not in large numbers. They seemed to prefer shallow gently sloping beaches.

Ictiobus bubalus - Smallmouth Buffalo. Very common throughout the lake at all seasons, it ranked second in numbers and first in weight of all fish taken in experimental nets. Commercial fishermen took moderate numbers of them for sale as food and cut bait. Gill nets four feet deep with 7 or 8 inch stretched mesh were hung on tight top lines with no weights on the netting. Spawning apparently occurred from February through May and one ripe female was taken in November 1955. The larger sizes (12 to 25 pounds, sexually mature adults) were seldom taken during the job probably due to the use of mesh sizes that were too small for them (3" square mesh.) Young were taken in seines in February, July and August mostly at Station 9. Table 11 shows their relative abundance at the nine stations during each month of the year. While they decreased in abundance in the winter at the open water stations of the main lake, they increased in abundance at the near shore and river stations during the winter. Sex ratio 385 males, 355 females, 189 not discernible.

Cyprinus carpio - Carp. Uncommon, only three were taken in experimental netting. Commercial fishermen sometimes took them and their reports indicated that previously, when the lake was clear, the carp was very common. Mr. Ollie Cox, commercial fisherman on the lake for many years, believed that extensive netting of the adult carp while they were spawning caused the practical elimination. Considering the fecundity of the carp, it seems more probable that the continued siltation of the lake and the invasion of water hyacinths in many of the sloughs caused their reduction in numbers by limiting the underwater plants on which the carp fed and spawned.

Carassius auratus - Goldfish. Rare, three were taken in the State Park Slough while seining for bait. Several fishermen from the San Angelo region raise goldfish in ponds and bring them to Lake Corpus Christi in barrels for trotline bait. They make very good bait for blue and flathead catfish.

Notemigonus crysoleucas - Golden Shiner. Rare, only 10 were taken in routine seining, all at Stations 2, 4 and 5 where bait released by fishermen could be expected.

Opsopoeodus emiliae - Pugnose minnow. The third most common minnow in the lake,

it was found at all stations during all months of the year. Next to the threadfin shad, it was the most important forage fish in the lake for the smaller game fish.

Notropis roseus - Central Weed Shiner. Rare, only 11 specimens were taken in routine seining, 10 of these were from Station 7, in the relatively clear water of Beldon Hollow.

Notropis lutrensis - Red Shiner. Very common, especially at shallow beaches from January through July. During the spring spawning run in April or May large numbers were taken off Hog Island while seining for bait. Only two were taken at Station 7 perhaps due to difficulties in seining.

Pimephales vigilax - Parrot Minnow. Taken in rather small numbers at all stations except 7, they were most numerous during the winter and early spring.

Ictalurus punctatus - Channel Catfish. Commonly taken at all stations throughout the year. Table 19 shows that 40 percent of those checked had round worms in the viscera but adverse affects were not apparent. Stomach analyses of 35 stomachs show that while they ate almost anything, in the spring and winter they cropped heavily on Mayfly larvae. Many were taken by sportsmen, especially among the thick trees in Coffin Bay. Trotlines were usually stretched very tightly between trees so that the hooks baited with white laundry soap, cut buffalo, beef heart or liver would just touch the top of the water. Often called willow cat by the fishermen the maximum size reported was about 8 pounds. Sex ratio 56 males, 105 females, 172 not discernible.

Ictalurus furcatus - Blue Catfish. Found in all parts of the lake at all seasons, this was the most important game fish in the lake. Largest taken in the job was 16 pounds but twenty and thirty pounders are frequently taken by fishermen and one over 60 pounds was reported. Table 12 shows their frequency at the 9 stations during the months of the year and Table 19 shows the percentage infested with visceral worms. Only 7 specimens were taken that were ready to spawn or had just spawned, in May 1954. Sex ratio, 75 males, 320 females, 392 not discernible.

Ameiurus melas - Black Bullhead. Rare, only one was taken in routine netting at Station 8 and several were taken on a trotline in Beldon Hollow. Both bullheads were sometimes taken by fishermen around weed beds or log drifts. They seemed to prefer the clearer water of bays isolated behind water hyacinth mats from the rest of the lake and the impounded river channel.

Ameiurus natalis - Yellow Bullhead. Uncommon, four were taken in experimental nets, all at station 7 and several were taken at the same place on a trotline. Some were taken by fishermen in the State Park Slough.

Pilodictus olivaris - Flathead Catfish. Although commonly caught on trotlines fished deep with live bait, they were uncommon in netting collections. Seventy pounders were reported and one man's catch that weighed a total of 499 pounds was seen. He fished about 200 hooks baited with live Rio Grande perch for five days near the Dam.

Schilbeodes mollis - Tadpole Madtom. Not common but sometimes encountered during spring and summer while seining protected beaches with cut banks and some water hyacinths, they apparently hid in the roots of these plants. Three were taken from the stomach of a flathead catfish caught in Beldon Hollow.

Anguilla rostrata - American Eel. Never taken during the job, several were reported caught from the lake by fishermen. Many young from 4 to 8 inches long were found below the dam in the early summer of 1953.

Gambusia affinis - Gambusia. Very common at all stations, principally in the warm months. They stayed in very shallow water or around thickly matted water hyacinths.

Mollienisia latipinna - Sailfin molly. Fairly common at all stations but in small numbers. They seemd to prefer shallow beaches with a gently sloping silt bottom.

Menidia berylinna - Tidewater Silversides. Taken in large numbers at all stations, they were apparently most common from February to June. In spite of their availability, none was found in any stomach opened and no fish was caught while using them for bait on several crappie fishing trips.

Micropterus salmoides. Largemouth Black Bass. Not common in spite of the many fry and fingerlings stocked by the Game and Fish Commission prior to 1952. Larger fish were taken in nets at Stations 2, 3 and 7 and fingerlings were taken in seines in February and May through August at Station 7. Crappie fishermen sometimes took bass around brush piles and Scirpus beds. Reports indicated that during the years before the lake silted up badly (prior to 1940) there was good bass fishing, especially in the creeks and bays on the west side of the lake. During this job the water at Station 7 cleared sufficiently for plug fishing only at low water stages and on calm days. The excessive siltation of the lake had apparently reduced the spawning success of bass and sunfish to such a degree that good fishing populations could not be maintained.

Chaenobryttus coronarius - Warmouth. Occurred in all parts of the lake throughout the year but in small numbers.

Lepomis cyanellus - Green Sunfish. Rare, only 9 were taken, all from Stations 8 and 9 from January through March. They were much more common in the rivers feeding the lake.

Lepomis microlophus - Redear Sunfish. Common but in rather small numbers, taken at all stations at all times except in May and April.

Lepomis macrochirus - Bluegill. The most common sunfish in the lake but not numerous enough for good fishing. Taken at all stations throughout the year. Most of the seined specimens were fry or fingerlings.

Lepomis megalotis - Longear Sunfish. Fairly common in small numbers, taken at all stations except 6 in all months except March and June.

Pomoxis annularis - White Crappie. Very common, they were taken at all stations throughout the year. Greatest numbers were taken from February through June at Stations 2 and 4. They were frequently infected with round worms as shown in Table 19. Reports indicated that during 1949 and 1950 many were taken from the State Park docks but no one on the lake now sells minnows and very few fishermen try for crappie. Several brush piles of staked willow limbs were built in the fall of 1954 to try to encourage crappie fishing. Although the fish responded, as shown by net sets around some of the brush piles, very few fishermen have made use of the artificial cover. These fish spawn from February through June. Sex ratio, 213 males, 379 females, 223 not discernible.

Aplodinotus grunniens - Freshwater Drum. The most common fish taken in experimental nets, they were considered rough fish in this lake because of their large numbers and little desirability. Found at all stations at all times of the year, they occurred in least numbers in the clear water of Station 7. They spawn from March through July and netting collections during this period often consisted largely of males. Sex ratio, 476 males, 675 females, 275 not discernible. Many were infested with visceral round worms as shown in Table 19.

Cichlasoma cyanoguttata - Rio Grande Perch. Of common occurrence in rather small numbers throughout the lake. They were apparently most common in July, August and September at Station 2, 7 and 9. Considerable numbers are brought in from the San Antonio River by fishermen and then released when the fishermen leave.

Eleotris pisonis - Spinycheek Sleeper. One specimen was received from a fisherman who took it fishing with dead shrimp "at the head of the lake." Several specimens have been identified from below the dam.

#### AQUATIC INVERTEBRATES

There were several invertebrate species in Lake Corpus Christi, some of which formed important food items for the fish. Probably the most important was the freshwater shrimp (Palaemonetes). Very large numbers of these were taken in seining collections at all stations, especially during the summer months. Although of small size, they undoubtedly were an important food item for small fish. A few were found in the stomachs of seven species of fish. The large prawn, Macrobrachium acanthurus, occurred in the lake. Ninety of them were taken in a hoop net with lead seine which was set for three nights in the State Park Slough. One specimen of Macrobrachium carcinus was taken in a seining collection. These prawns, especially the young, probably were eaten by the catfish. The crawfish was very commonly found principally in water hyacinth roots. Blue catfish fed on them frequently but many fishermen reported that they could never catch any fish while baiting with crawfish on trotlines. The small crawfish were good bait for freshwater drum. Three species of large freshwater mussels were found in large numbers on silt bottoms in three to six feet of water. Channel catfish and blue catfish, especially the smaller ones, often had their stomachs and intestines filled with the shells of small mussels. Although mayflies were seldom seen in large swarms, many catfish stomachs contained nothing but the larvae of these insects. Dragonfly and damselfly larvae were common in the lake and were frequently eaten by catfish and crappie.

#### AQUATIC VERTEBRATES OTHER THAN FISH

Large flocks of ducks and geese winter on the lake, staying mostly in upper Coffin Bay. The parts of the lake in Live Oak and San Patricio Counties were a game refuge. Other common water birds, most common in the winter, were Mexican cormorants, anhingas, coots, great blue herons, American and snowy egrets, green herons, night herons, white and wood ibis, white pelicans, sea gulls and terns. Turtles, although rather common, are seldom seen. Both the soft shell turtle (Amyda ferox) and the slider (Pseudemys scripta) were found. Few frogs were found on the lake; the most common was the tree frog (Hyla cinerea) with some leopard frogs (Rana pipiens) and cricket frogs (Acris crepitans.) No bullfrogs were seen or heard. The shore frog numbers are probably kept in check by the large numbers of raccoons that occur around the lake. Some alligators (Alligator mississippiensis) occur in the lake and a large one was caught by the foot on a trotline just below Lagarto Bridge.

#### PARASITES

Only four kinds of parasites were noticed on the fish of Lake Corpus Christi: fish lice (Argulus), a small brown leech, visceral round worms and tape worms. The fish lice were noticed on almost all the large alligator gars examined, usually around the head and gill covers. The leeches were found on gars and blue catfish, usually attached beneath the mouth of the fish. Tape worms were often found in the stomachs and intestines of all three species of gars and in a few blue catfish. Many fish were infested with apparently encysted round worms or white pinhead-size pustules in the connective tissues of the body cavity. Table 19 shows the percentages of infection and the "K" factors of the four species of fish which most commonly had these worms. The worms not only did no apparent harm to the fish but, according to the data, the "K" factor of the infected fish was greater than those not infected.

The redear sunfish was also quite often infected with these worms.

#### RECOMMENDATIONS

The lake is in very bad condition from most aspects. Its primary use as a water reservoir for Corpus Christi has been reduced to a dangerous minimum by siltation. It now contains only about 30,000 acre feet of water, about one-half its original capacity when it was built in 1934. This siltation is due primarily to the large watershed area as compared to the small size of the lake. From available reports of fishermen, the lake formerly provided good fishing for both black bass and catfish. It is now principally a rough fish lake with many gars, smallmouth buffalo, catfish, crappie and freshwater drum. Water hyacinths have covered many of the bays that were the best fishing areas. Conditions are such that the only way to appreciably increase the game fish population is to build a larger dam to flood this old lake. Plans are now under way by the Lower Nueces River Water Supply District to build a new dam just below the old one which will raise the water level to 94 feet above mean sea level, 20 feet above the old lake. Such a lake should contain clear water for a good many years and provide ecologically suitable water for game fish. A project is now in progress to kill the water hyacinths, and it is hoped that in this way, they will not infest the new lake. When the new dam is completed, it will probably be practical to repeat this study to investigate the changes in fish populations brought about by the flooding of the old lake.

#### SUMMARY

The fish populations of Lake Corpus Christi were investigated by netting and seining monthly at nine stations for the period July 1, 1953 through June 30, 1955. A description of the stations and the methods used is given and the kinds and numbers of fish taken are discussed. The seasonal changes in numbers and percentages of the various species is analyzed and shown in tables. Short notations of each species are given and the common invertebrates, vertebrates and parasites are considered. Stomach analysis, sizes and coefficient of condition are shown in table form.

Map 1. Lake Corpus Christi.

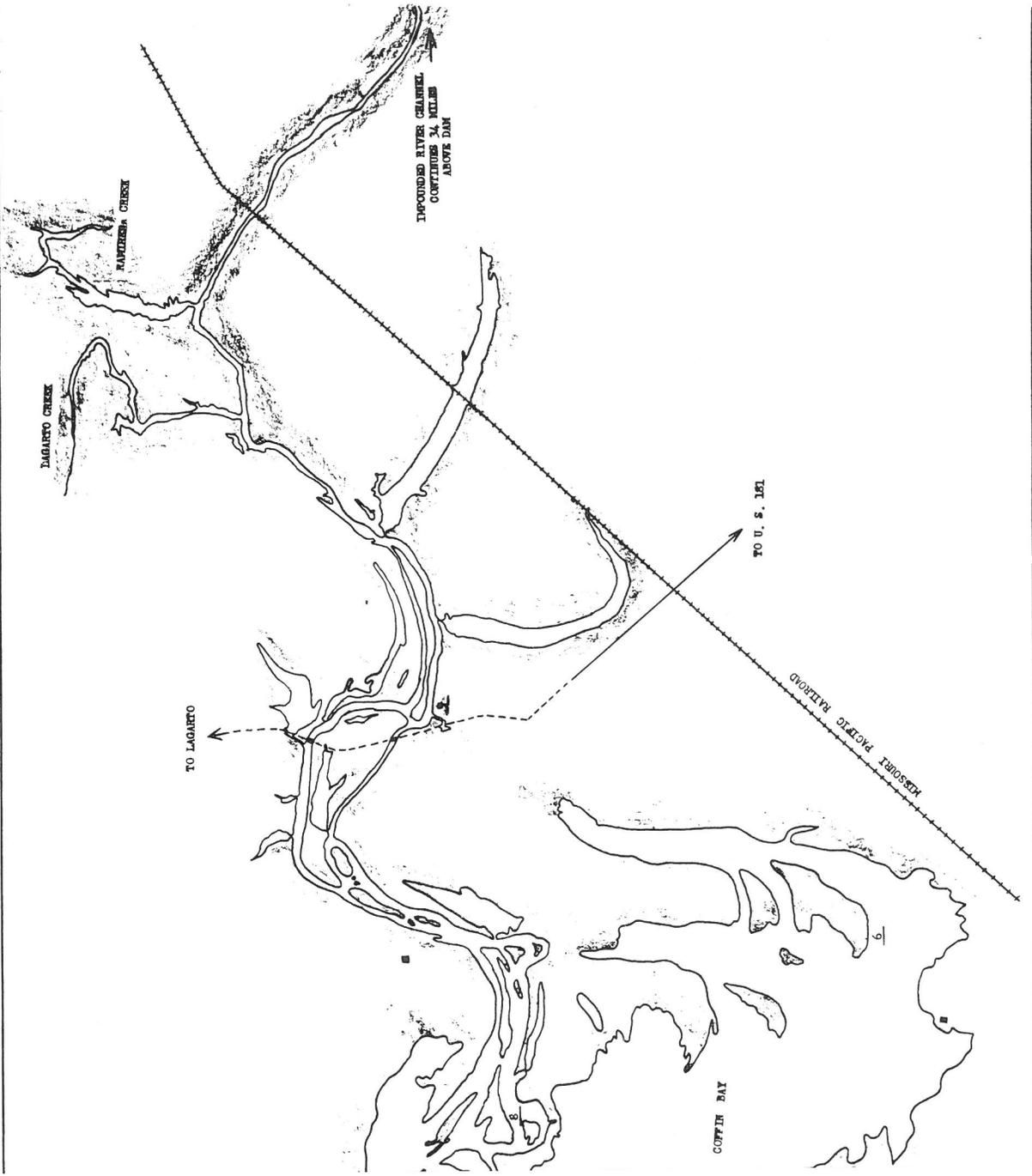




Fig. 1. Station 7, Beldon Hollow.



Fig. 2. Recording data at Station 7.



Fig. 3. Station 8, lower river channel.



Fig. 4. Station 9, upper river channel.

Table 1

## A List of Fish Species Recorded from Lake Corpus Christi

Scientific Name	Common Name	Symbol Used in Following Tables
1. <u>Lepisosteus spatula</u>	Alligator Gar	AG
2. <u>Lepisosteus productus</u>	Spotted Gar	SG
3. <u>Lepisosteus osseus</u>	Longnose Gar	LNG
4. <u>Dorosoma petenensis</u>	Threadfin Shad	TFS
5. <u>Dorosoma cepedianum</u>	Gizzard Shad	GS
6. <u>Astyanax fasciatus</u>	Tetra	TETRA
7. <u>Ictiobus bubalus</u>	Smallmouth Buffalo	SMB
8. <u>Cyprinus carpio</u>	Carp	CARP
9. <u>Carassius auratus</u>	Goldfish	CAR. AUR.
10. <u>Notemigonus crysoleucas</u>	Golden Shiner	NOT. CRY.
11. <u>Opsopoeodus emiliae</u>	Pugnose Minnow	OP. EM.
12. <u>Notropis roseus</u>	Central Weed Shiner	NOT. ROS.
13. <u>Notropis lutrensis</u>	Red Shiner	NOT. LUT.
14. <u>Pimephales vigilax</u>	Parrot Minnow	PIM. VIG.
15. <u>Ictalurus punctatus</u>	Southern Channel Catfish	CC
16. <u>Ictalurus furcatus</u>	Blue Catfish	BC
17. <u>Ameiurus melas</u>	Black Bullhead	BBH
18. <u>Ameiurus natalis</u>	Yellow Bullhead	YBH
19. <u>Pilodictus olivaris</u>	Flathead Catfish	FHC
20. <u>Schilbeodes mollis</u>	Tadpole Madtom	SCH. MOL.
21. <u>Anguilla rostrata</u>	American Eel	EEL
22. <u>Lucania parva</u>	Rainwater Fish	LUC. PAR.
23. <u>Gambusia affinis</u>	Gambusia	GAMB.
24. <u>Mollienisia latipinna</u>	Sailfin Molly	MOLLY
25. <u>Menidia beryllina</u>	Tidewater Silversides	MEN. BER.
26. <u>Micropterus salmoides</u>	Largemouth Black Bass	LMB
27. <u>Chaenobryttus coronarius</u>	Warmouth	WMB
28. <u>Lepomis cyanellus</u>	Green Sunfish	GSF
29. <u>Lepomis microlophus</u>	Redear Sunfish	RES
30. <u>Lepomis macrochirus</u>	Bluegill	BGS
31. <u>Lepomis megalotis</u>	Longear Sunfish	LES
32. <u>Pomoxis annularis</u>	White Crappie	WC
33. <u>Etheostoma gracile</u>	Western Swamp darter	ETHEOST
34. <u>Aplodinotus grunniens</u>	Freshwater Drum	FWD
35. <u>Cichlasoma cyanoguttata</u>	Rio Grande Perch	RGP
36. <u>Electris pisonis</u>	Spinycheek Sleeper	ELEOT.



Table 3. Numbers of Fish Taken in Experimental Gill Nets from Lake Corpus Christi, July 1953 through June 1955

Species	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total	Percent
AG	1	2	2	0	1	0	0	1	2	2	0	1	12	.25
SG	14	26	9	8	12	9	14	16	24	49	45	23	249	5.21
ING	11	12	12	5	7	1	5	3	5	13	11	7	92	1.93
GS	21	27	23	33	16	6	12	22	35	59	22	50	326	6.82
SMB	47	47	40	31	49	69	67	91	71	57	88	62	719	15.05
CARP	1	0	0	0	0	0	0	0	0	0	2	0	3	.06
CC	21	20	33	19	5	18	19	21	22	35	65	42	320	6.70
BC	49	36	40	45	61	49	41	74	63	71	93	78	700	14.65
BBH	0	0	0	0	1	0	0	0	0	0	0	0	1	.02
YBH	0	1	0	0	0	0	0	0	1	1	0	1	4	.08
FHC	1	0	0	1	1	0	1	2	0	0	9	5	20	.42
LMB	2	0	0	0	0	0	1	2	2	0	0	3	12	.25
WMB	1	0	0	0	1	1	1	0	2	0	0	0	14	.29
RES	0	0	5	0	2	0	2	2	5	5	3	1	26	.54
BGS	4	1	2	0	2	0	2	4	5	2	2	3	27	.57
LES	0	0	1	0	0	0	0	0	0	0	0	1	5	.10
WC	37	55	52	38	58	39	49	99	94	79	94	77	771	16.14
FWD	126	112	140	72	71	67	61	77	146	219	246	129	1466	30.68
RGP	1	0	1	0	3	1	0	1	1	0	2	1	11	.23
Total	337	340	361	252	290	260	274	415	484	598	683	484	4778	
Percent	7.05	7.12	7.56	5.27	6.07	5.44	5.73	8.69	10.13	12.51	14.29	10.13		
No. of Nets Set	16	15	18	18	18	17	18	18	18	18	18	18	210	
Avg. No. Fish Per Net	21.1	22.7	20.1	14.0	16.1	15.3	15.2	23.1	26.9	33.2	37.9	26.9	22.8	

Table 4. Pounds of Fish Taken in Experimental Gill Nets from Lake Corpus Christi, July 1953 through June 1955

Species	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total	Percent
AG	4.63	61.32	13.06	0	3.50	0	0	1.88	107.88	19.13	0	2.19	213.56	4.07
SG	32.22	60.28	20.25	15.01	23.76	17.37	25.34	32.15	56.48	104.44	100.80	45.15	523.25	9.97
IMG	33.89	46.16	48.50	23.75	41.18	3.47	14.41	10.56	25.14	44.89	56.45	30.94	379.32	7.23
GS	8.81	9.70	8.43	10.78	10.24	2.94	3.78	11.12	13.86	27.86	8.74	26.72	142.97	2.73
SMB	92.37	98.12	96.13	60.30	96.38	135.49	152.90	191.82	154.68	133.42	229.23	117.10	1,557.94	29.70
CARP	2.19	0	0	0	0	0	0	0	0	0	2.00	0	4.19	.08
CC	12.39	8.43	19.19	11.86	3.85	6.36	6.16	13.56	8.81	29.04	48.48	27.89	196.03	3.74
BC	51.85	43.67	27.98	63.76	118.90	69.64	59.36	95.59	134.08	127.93	161.63	106.57	1,094.29	20.86
BBH	0	0	0	0	4.69	0	0	0	0	0	0	0	4.69	.09
YBH	0	.92	0	0	0	0	0	0	1.19	1.75	0	1.56	5.42	.10
FHC	1.56	0	0	3.19	7.31	0	.65	10.44	0	1.75	0	1.56	71.80	1.37
IMB	1.61	0	.72	0	0	.27	.22	3.20	2.29	0	33.25	15.41	11.83	.23
WMB	.36	0	0	0	.21	0	0	0	1.18	.49	.45	0	2.69	.05
RBS	0	.14	1.03	0	.41	0	.34	50	1.29	.69	.71	.09	5.18	.10
BGS	.38	.07	.16	0	0	0	.41	.47	.39	.20	.18	.29	2.56	.05
LES	0	0	.07	0	0	0	0	0	0	.90	0	.10	1.08	.02
WC	11.35	17.72	19.17	11.12	21.39	13.86	17.88	30.55	28.29	29.56	26.17	25.97	253.03	4.82
FWD	48.88	52.77	67.05	32.29	34.17	35.84	28.96	69.93	81.06	129.15	126.23	68.34	764.82	14.58
RGP	.12	0	.09	0	.44	.13	0	.09	.09	0	.44	.01	1.48	.03
Total	302.59	399.31	355.17	232.06	366.43	285.37	310.40	452.00	616.68	649.45	804.76	471.94	5,246.15	
Percent	5.77	7.61	6.77	4.42	6.98	5.44	5.92	8.62	11.75	12.38	15.34	9.00		

Table 5. Numbers of Fish Taken in Experimental Gill Nets  
At the Nine Stations, July 1953 through June 1955

Species	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6	Station 7	Station 8	Station 9	Total	Percent/ Species
AG	0	2	1	0	2	1	2	2	2	12	.25
SG	1	6	21	21	58	30	19	61	32	249	5.21
IMG	2	1	5	6	22	7	0	29	20	92	1.93
GS	28	22	52	38	40	37	42	33	34	326	6.82
SMB	24	66	100	149	71	85	111	73	40	719	15.05
CARP	0	0	0	0	2	0	1	0	0	3	.06
CC	14	48	49	66	45	9	49	27	13	320	6.70
BC	145	51	124	48	85	90	22	65	70	700	14.65
BBH	0	0	0	0	0	0	0	1	0	1	.02
YBH	0	0	0	0	0	0	4	0	0	4	.08
FHC	0	2	2	6	0	1	5	3	1	20	.42
IMB	0	2	1	0	0	1	8	0	0	12	.25
WMB	0	3	1	1	4	0	3	2	0	14	.29
RES	0	2	2	5	4	4	6	2	0	26	.54
BGS	0	3	5	5	1	1	9	0	1	27	.57
LES	0	1	1	0	0	0	3	0	0	5	.10
WC	51	149	93	180	84	71	47	63	33	771	16.14
FWD	93	55	133	148	326	245	38	263	165	1,466	30.68
RGP	0	5	3	2	0	0	0	1	0	11	.23
Total	358	421	593	675	744	582	369	625	411	4,778	
Percent/ Station	7.49	8.81	12.41	14.13	15.57	12.18	7.72	13.08	8.60		

Table 6. Success of Experimental Gill Netting in Lake Corvus Christi in Terms of Numbers and Pounds of Fish Caught, July 1953 through June 1955

Month	Number of Nets Set	Number of Feet of Nets Set	Number of Fish Caught	Average Number of Fish/Net	Average Number of Fish/Foot of Net	Pounds of Fish Caught	Average Pounds of Fish/Net	Average Pounds of Fish/Foot of Net
July	16	2000	337	21.06	.169	302.59	18.91	.1512
Aug.	15	1875	340	22.67	.181	399.31	26.62	.2129
Sept.	18	2250	361	20.05	.160	355.17	19.73	.1578
Oct.	18	2250	252	14.00	.112	232.06	12.89	.1031
Nov.	18	2250	290	16.11	.128	366.43	20.36	.1624
Dec.	17	2125	260	15.29	.122	285.29	16.78	.1342
Jan.	18	2250	274	15.22	.122	310.40	17.24	.1379
Feb.	18	2250	415	23.06	.184	452.00	25.11	.2008
Mar.	18	2250	484	26.89	.215	616.68	34.26	.2740
Apr.	18	2250	598	33.22	.265	649.45	36.08	.2886
May	18	2250	683	37.94	.304	804.76	44.71	.3576
June	18	2250	484	26.89	.215	471.94	26.22	.2097
Totals	210	26250	4778			5246.15		
Averages	17.50	2187.5	397.83	22.75	.182	437.18	24.98	.1992

Table 7. Fish Taken in Seines from Lake Corpus Christi  
July 1953 through June 1955

Species	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total	Percent
AG	1												3	.01
SG	5												10	.06
LANG								2					2	.01
TFS	3496	2168	261	374	204	7	436	257	2215	347	2060	2244	14069	40.90
GS	562	772	23	22	13	5	109	128	101	42	57	119	1953	5.67
TETRA	65	25	39	20	15	24	14	68	92	6	7	77	452	1.31
SMB	1	3						2					6	.02
NOT. CRY.	1							2					1	.03
OP. EM.	142	208	322	238	259	116	354	381	568	619	333	265	3805	11.03
NOT. ROS.	2			8								1	11	.03
NOT. LUT.	288	80	15	33	49	2	327	230	278	644	420	114	2480	7.19
PIM. VIG.	1	6	27	11	6	42	17	12	23	23		2	170	.50
CC	27	14	4		2	2	12	13	5	2		1	82	.24
BC	11				2	2							18	.05
FHC	1				1	2			4				1	.00
SCH. MOL.	29	42											75	.22
GAMB.	900	348	236	120	17	3	214	293	133	176	55	79	2574	7.48
MOLLY	10	40	18	13			1	3	13	4		2	104	.30
MEN. BER.	377	176	563	362	171	135	1087	600	896	690	1137	217	6411	18.64
IMB	24	4						4			2		40	.12
WMB	57	29	1	2		2	2	16	14	7			130	.38
GST								3	3				9	.03
RES	51	32	26	5	4	12	7	10	15				164	.48
BGS	211	123	163	58	111	29	136	232	189	109	17	64	1442	4.19
LES	2	8	6	6	2	1	3	9	4	7	3		47	.14
WC	40	89	4	4	9	1	2	11	4	1	19	39	223	.65
FWD	21	51					5	10		2			89	.26
RGP	30	12	15		2	4	1	5	4	1	6	8	89	.26
Total	6355	4230	1723	1276	865	387	2730	2293	4558	2688	4118	3256	34479	
Percent	18.43	12.30	5.01	3.71	2.52	1.12	7.97	6.67	13.30	7.72	11.94	9.46		
No. Col.	15	16	9	8	11	7	17	17	18	17	15	16		166
Avg. No. of Fish/Col.	1.423	1.264	1.91	1.59	1.78	1.55	1.60	1.34	2.53	1.58	1.27	1.20		1.20

Table 8. Number of Fish Taken in Seines at the Nine Stations, July 1953 through June 1955.

Species	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6	Station 7	Station 8	Station 9	Total	Percent/ Species
AG					2					2	-
SG	3	1			3	2	1	1	1	8	19
LANG										3	-
TFS	3826	839	297	3792	1207	3488	30	259	331	14069	40.80
GS	800	389	94	261	83	76	-	25	225	1953	5.66
TETRA	60	161	36	91	43	31	2	4	24	452	1.31
SMB	-	1	-	-	-	-	-	-	5	5	6
NOT. CRY.	-	2	-	6	2	-	-	-	-	10	-
OP. EM.	767	537	304	603	507	488	167	124	308	3805	11.03
NOT. ROS.	-	-	1	-	-	-	10	-	-	11	-
NOT. LUT.	291	182	620	753	105	371	2	24	132	2480	7.19
PIM. VIG.	42	36	13	15	14	29	-	14	7	170	.49
CC	-	1	1	7	23	30	2	-	18	82	-
BC	-	-	-	-	17	-	-	-	1	18	-
FHC	-	-	-	1	-	-	-	-	-	1	-
SCH. MOL.	-	32	7	2	-	3	-	3	24	75	-
GAMB.	1	248	139	231	196	919	145	186	264	2574	7.46
MOLLY	246	9	25	22	1	2	13	-	18	104	.30
MEN. BER.	1097	838	842	764	824	1776	146	40	84	6411	18.59
IMB	-	8	-	-	-	-	30	-	2	40	-
WMB	-	7	2	-	3	5	4	18	91	130	.36
RES.	12	31	5	3	28	23	6	3	53	164	.48
BGS	109	108	11	87	242	142	252	113	378	1442	4.18
IES	4	3	2	1	17	-	6	10	4	47	-
GSF	-	-	-	-	-	-	-	3	6	9	-
WC	6	29	-	4	28	10	1	35	45	223	.65
FWD	-	-	-	-	15	1	-	110	28	89	-
RGP	9	29	2	10	8	-	16	1	14	89	-
Total	7287	3491	2401	6653	3371	7396	833	908	2139	34479	
Percent	21.36	10.12	6.96	19.29	9.77	21.45	2.41	2.63	6.20		
Avg. Fish. Coll.	364.35	166.24	150.06	316.81	177.42	410.89	49.12	53.41	125.82		

Table 9. Average number of Fish per Experimental Net and Seining Collection and Average Monthly Water Level and Temperature, July 1953 through June 1954.

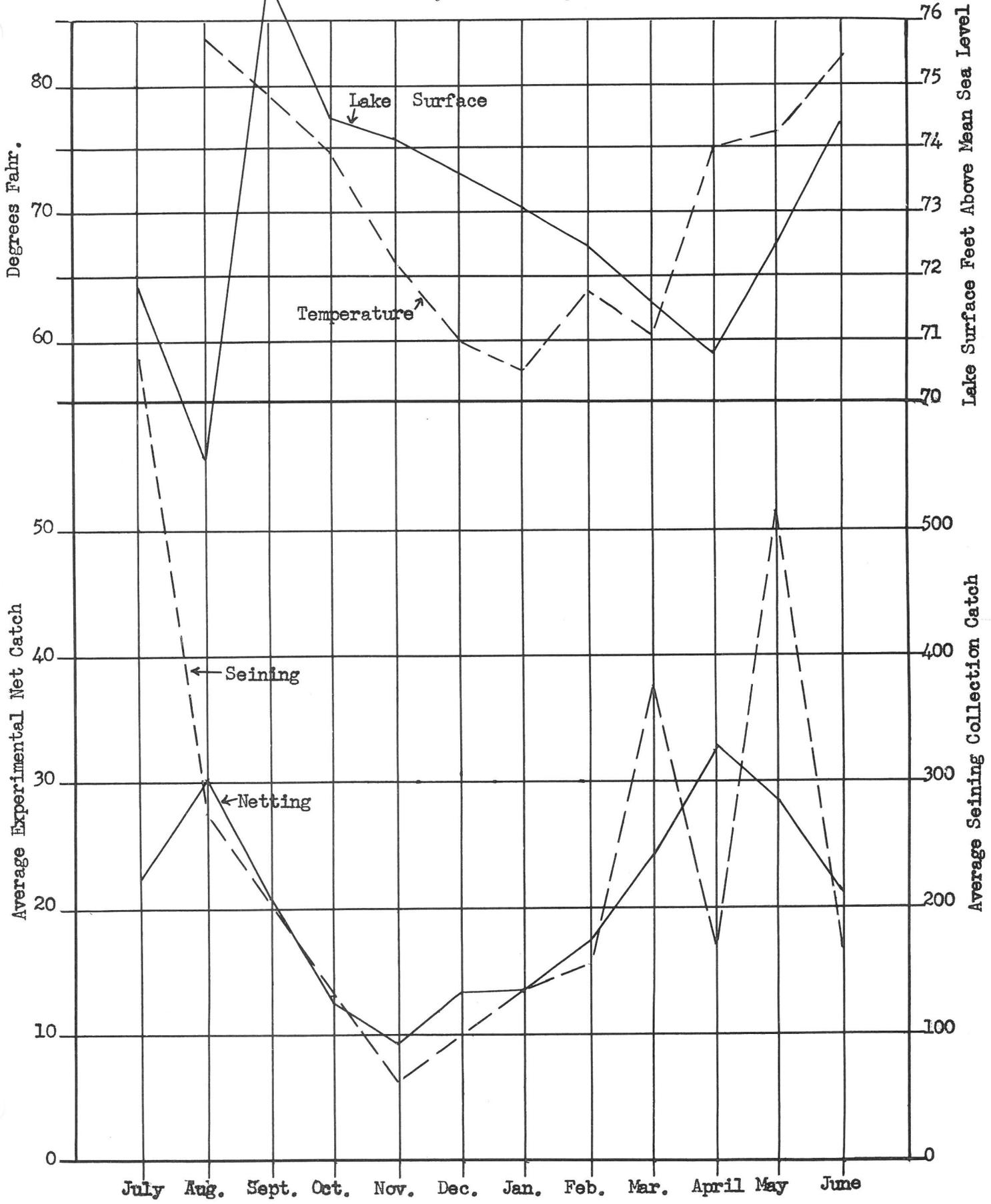


Table 10. Average number of Fish per Experimental Net and Seining Collection and Average Monthly Water Level and Temperature, July 1954 through June 1955.

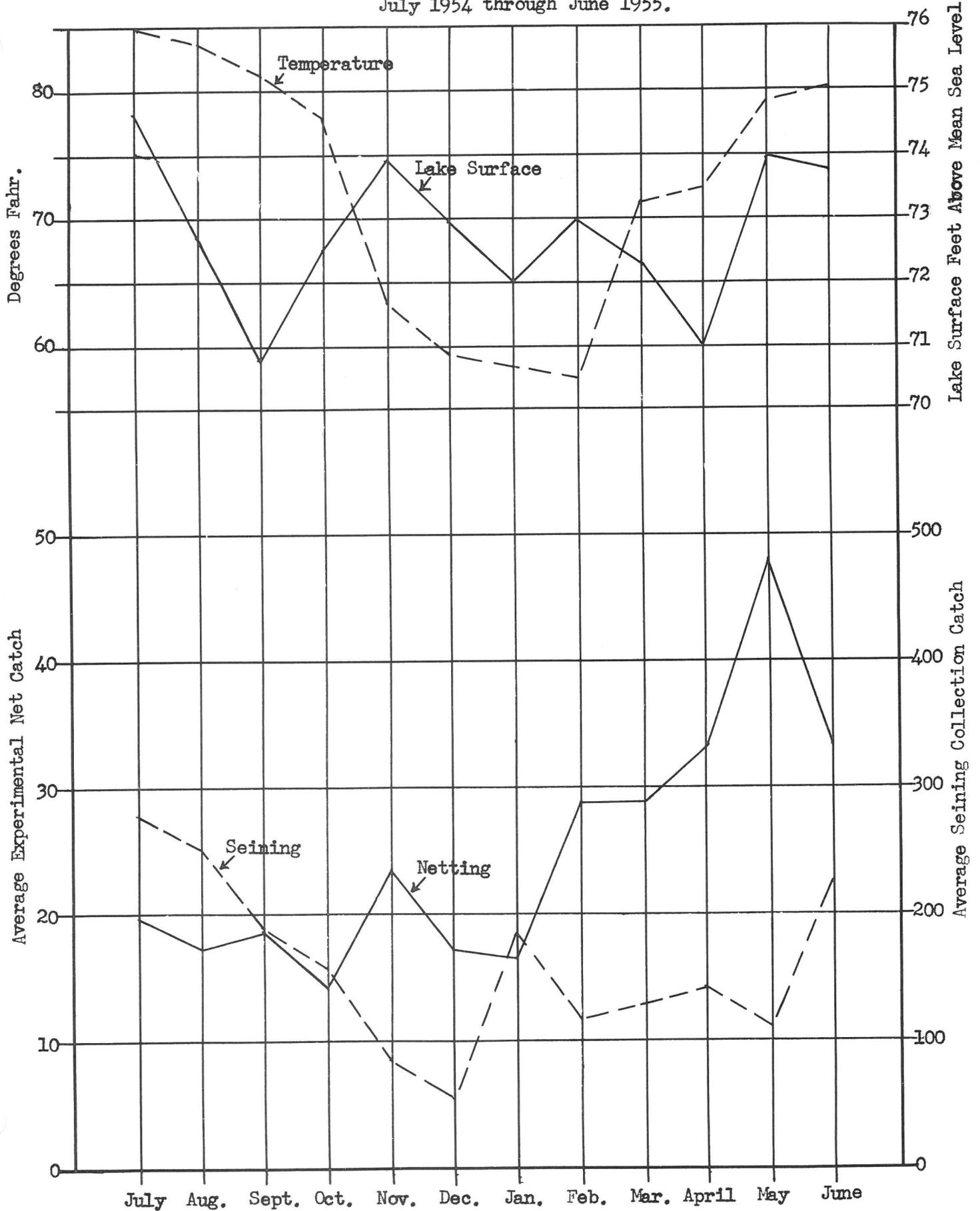


Table 11. Number of Small Mouth Buffalo Taken in Experimental Nets Each Month at Nine Stations, July 1953 through June 1955

Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Marr.	Apr.	May	June	Total	Percent
1	9	3	0	0	0	0	1	1	0	5	2	3	24	3.34
2	7	15	1	1	4	6	8	9	5	2	1	7	66	9.18
3	7	7	5	3	6	18	6	12	10	3	7	16	100	13.91
4	0	6	5	12	21	16	13	27	16	16	14	3	149	20.72
5	2*	1*	0	1	1	7	12	3	8	7	21	8	71	9.88
6	0*	2*	3	2	3	10	8	15	6	11	22	3	85	11.82
7	11	0*	21	7	10	4*	9	10	8	8	10	13	111	15.44
8	8	10	3	3	4	8	7	9	4	3	8	6	73	10.15
9	3	3	2	2	0	0	3	5	14	2	3	3	40	5.56
Total	47	47	40	31	49	69	67	91	71	57	88	62	719	
Percent	6.54	6.54	5.56	4.31	6.82	9.60	9.32	12.66	9.88	7.93	12.24	8.62		

\* - One net only in second segment; others represent one net in each segment.

Table 12. Number of Blue Catfish Taken in Experimental Nets Each Month at Nine Stations, July 1953 through June 1955

State	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total	Percent
1	9	9	10	8	6	4	3	13	12	26	23	22	145	20.71
2	6	7	2	5	7	4	1	2	2	3	8	4	51	7.29
3	10	15	16	13	16	13	12	8	10	4	2	5	124	17.71
4	17	2	2	3	1	2	2	5	4	2	4	4	48	6.86
5	3*	0*	2	1	13	5	0	7	10	10	25	9	85	12.14
6	1*	0*	1	10	4	6	6	18	15	3	12	14	90	12.86
7	1	0*	0	0	2	1*	4	0	4	6	3	1	22	3.14
8	0	2	4	1	9	8	6	8	2	6	4	15	65	9.29
9	2	1	3	4	3	6	7	13	4	11	12	4	70	9.99
Total	49	36	40	45	61	49	41	74	63	71	93	78	700	
Percent	7.00	5.14	5.71	6.43	8.71	7.00	5.86	10.57	9.00	10.14	13.29	11.14		

\* - One net only in second segment; others represent one net in each segment.

Table 13. Number of White Crappie Taken in Experimental Nets Each Month at Nine Stations, July 1953 - June 1955

Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total	Percent
1	3	2	5	2	4	1	1	6	0	10	14	3	51	6.61
2	5	21	15	3	18	4	13	19	26	8	4	13	149	19.33
3	6	10	7	2	5	4	9	8	4	5	18	15	93	12.06
4	7	10	14	6	14	17	10	22	17	18	37	8	180	23.35
5	5*	3*	2	11	0	2	1	16	14	13	8	9	84	10.90
6	0*	3*	3	1	5	6	8	10	18	4	4	4	71	9.21
7	2	0*	3	2	7	5*	3	2	6	9	4	4	47	6.10
8	8	5	1	3	0	0	4	6	6	9	4	17	53	8.17
9	1	1	2	3	5	0	0	10	3	3	1	4	33	4.28
Total	37	55	52	38	58	39	49	99	94	79	94	77	771	
Percent	4.80	7.13	6.74	4.93	7.52	5.06	6.36	12.84	12.19	10.25	12.19	9.99		

\* - One net set only in second segment; others represent one net in each segment.

Table 14. Number of Freshwater Drum Taken in Experimental Nets Each Month at Nine Stations, July 1953 - June 1955

Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total	Percent
1	6	6	7	10	5	2	8	8	11	16	9	5	93	6.34
2	4	4	3	4	6	4	4	6	4	7	2	7	55	3.75
3	10	20	18	7	3	10	4	6	24	6	12	13	133	9.07
4	9	9	16	11	4	10	4	6	9	25	33	12	148	10.10
5	16*	7*	3	6	14	8	9	26	46	45	111	35	326	22.24
6	15*	11*	10	5	13	23	17	9	37	36	38	31	245	16.71
7	2	0*	2	0	0	1*	1	2	4	13	7	6	38	2.60
8	46	42	41	21	12	6	9	5	6	42	22	11	263	17.94
9	18	13	40	8	14	3	5	9	5	29	12	9	165	11.26
Total	126	112	149	72	71	67	61	77	146	219	246	129	1466	
Percent	8.60	7.64	9.55	4.91	4.84	4.57	4.16	5.25	9.96	14.94	16.78	8.80		

\* - One net only in second segment; others represent one net in each segment.

Table 15. Ranks, Lengths, Weights and "K" Factors of the Fish Caught in Gill Nets July 1953 through June 1955

Species	Rank By No.	Wt.	Standard Length		Average	Weight in Grams		Average	"K"-Factor		Average
			Min.	Max.		Min.	Max.		Min.	Max.	
AG	13	6	376	1740	816.57	365	48024	1025.79	.13	1.10	.80
SG	7	4	110	690	502.29	5	2608	1004.84	.25	1.08	.72
IMG	8	5	305	1111	713.59	194	6464	1993.48	.24	.72	.47
GS	5	10	115	363	207.25	15	680	199.75	.21	3.60	1.91
SMB	2	1	110	605	296.90	47	11270	1148.08	1.60	5.90	3.77
CARP	17	13	240	410	301.25	454	1984	971.00	2.90	3.30	3.16
CC	6	8	60	500	237.66	3	2438	297.06	1.10	2.60	1.66
BC	4	2	95	770	333.30	13	7541	877.44	.78	2.95	1.60
BBH	18	15	476	476	476.00	2126	2126	2126.00	2.10	2.10	2.10
YBH	15	12	255	330	293.17	80	6010	688.67	2.50	2.80	2.68
FHC	9	9	170	670	457.20	417	964	2503.43	1.00	2.80	1.93
IMB	12	11	162	413	283.31	100	2126	703.13	2.30	3.20	2.66
WMB	13	16	97	176	125.71	42	205	87.21	2.40	4.90	4.04
RES	10	14	83	168	127.15	26	199	93.27	3.00	5.00	4.11
BGS	11	17	85	168	100.68	25	145	46.28	3.00	5.00	4.32
LES	16	19	89	175	123.80	34	230	97.80	4.00	5.10	4.30
WC	3	7	74	300	164.03	13	737	152.44	1.40	4.50	2.97
FWD	1	3	90	450	191.22	18	3175	259.65	1.20	4.10	2.88
RGP	14	18	91	141	103.64	35	157	61.09	4.00	6.30	5.00

Table 16. Sexual Condition of Eight Common Species of Fish Taken In nets From Lake Corpus Christi, July 1953 - June 1954

Species	July					August					September					October					November					December									
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5					
SG ♂		2	2																																
ING ♂		2	2		1																														
ING ♀		3	3																																
GS ♀				19																															
SMB ♀	1	3	16			1	4	14			3	8	14																						
CC ♀		12	1			1	1				5	5	14			1	2	5																	
BC ♀		1	4								1	1	11			3	3	25																	
WC ♀		5					6				1	1	9			3	1	4																	
FWMD ♀		4					8				3	6	9			4	3	4																	
FWMD ♀		7	23				2	30			1	24	46			4	4	4																	
FWMD ♀		11				5	10				1	26				29																			
Species	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
SG ♂		6	2			2	1				11	1				18	1	2																	
ING ♂	3	4				3	1				13					7	5	3																	
ING ♀	1	1				1	1				16	1				5	3	3																	
GS ♀		4					2				5	3				4	4	4																	
SMB ♀	1	3	7			1	6	18			4	9	9			12	8	7																	
CC ♀	1	1	36			1	14	1			20	9	4			3	3	7																	
BC ♀											1	1				2	7	13																	
WC ♀		18	25			27	20				23	17				1	24	13																	
FWMD ♀	1	3	5			5	13				10	10				5	3	5																	
FWMD ♀	1	2				1	6				32	8				14	10	1																	
FWMD ♀	3	23				6	14				6	30				14	14	16																	

Table 17. Sexual Condition of Eight Common Species of Fish Taken in All Nets  
From Lake Corpus Christi June 1954 through June 1955

Species	July					August					September					October					November					December									
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5					
SG ♂				1	1																														
ING ♀																																			
GS ♀	1																																		
SMB ♀																																			
CC ♀																																			
BC ♀																																			
WC ♀																																			
FWD ♀																																			
SG ♂																																			
ING ♀																																			
GS ♀																																			
SMB ♀																																			
CC ♀																																			
BC ♀																																			
WC ♀																																			
FWD ♀																																			
SG ♂																																			
ING ♀																																			
GS ♀																																			
SMB ♀																																			
CC ♀																																			
BC ♀																																			
WC ♀																																			
FWD ♀																																			
SG ♂																																			
ING ♀																																			
GS ♀																																			
SMB ♀																																			
CC ♀																																			
BC ♀																																			
WC ♀																																			
FWD ♀																																			
SG ♂																																			
ING ♀																																			
GS ♀																																			
SMB ♀																																			
CC ♀																																			
BC ♀																																			
WC ♀																																			
FWD ♀																																			
SG ♂																																			
ING ♀																																			
GS ♀																																			
SMB ♀																																			
CC ♀																																			
BC ♀																																			
WC ♀																																			
FWD ♀																																			
SG ♂																																			
ING ♀																																			
GS ♀																																			
SMB ♀																																			
CC ♀																																			
BC ♀																																			
WC ♀																																			
FWD ♀																																			
SG ♂																																			
ING ♀																																			
GS ♀																																			
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BC ♀																																			
WC ♀																																			
FWD ♀																																			
SG ♂																																			
ING ♀																																			

Table 18. Stomach Analysis Showing Number of Stomachs Containing Various Food Items

Species	Number of Stomachs	Volume in cc	Mayfly Larvae	Dragonfly Larvae	Freshwater Mussels	Freshwater Shrimp	Crayfish	Game Fish	Forage and Unidentified Fish	Miscellaneous
AG	1	12	0	0	0	0	1	0	1	
CC	35	291	20	4	3	1	5	0	4	1-cottonseed cake
BC	112	2170	21	0	19	5	31	5	35	4-birds 3-Orthoptera
BBH	1	15	0	0	0	0	0	0	1	
YBH	1	20	0	0	0	0	1	0	0	
FHC	3	74	1	0	0	1	0	1	2	
IMB	1	3	0	0	0	1	0	0	0	
WMB	2	2	0	0	0	1	0	0	1	
RES	1	1	0	0	1	0	0	0	0	
WC	24	62	3	2	0	8	0	0	21	
FWD	10	14	0	0	0	2	0	0	2	
Total	191	2664	45	6	23	19	38	6	67	

Table 19. Incidence of Visceral Round Worms in Four Fish Species Most Commonly Infected

Species	Number of Fish Examined for Worms	Minimum Standard Length With Worms	Number Without Worms Above 1gth	Number With Worms	Total Number Above Length	Percent Above Length With Worms	Average "K" With Worms	Average "K" Without Worms
CC	294	145	165	113	278	40.65	1.69	1.67
BC	625	129	442	182	624	29.17	1.64	1.57
WC	750	108	500	237	737	32.16	2.96	2.94
FWD	1274	119	803	455	1258	36.17	2.94	2.83