

Report of Fisheries Investigations

Basic Survey and Inventory of Species Present in Casa Blanca Lake

by

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JOB COMPLETION REPORT

State of TEXAS

Project No. F6R4 Name: Fisheries Investigations and Surveys of the Waters of Region 8-B.

Job No. B-7 Title: Basic Survey and Inventory of Species Present in Casa Blanca Lake.

Period Covered: July 1, 1956 through June 30, 1957

ABSTRACT:

Casa Blanca Lake near Laredo, Texas is an artificial impoundment of about 665 acres and is owned and operated by Webb County as a public recreational area. Completed in 1950, the lake has furnished good bass and crappie fishing. From July 1956 through June 1957 the project leader with two field assistants made regular monthly trips to the lake and took water samples for chemical analysis and made seining and netting collections for data on the fish population. A map of the lake, charts and tables showing the results of the investigations and discussion is given in the report.

Although bass and crappie fishing remains good, it has apparently fallen off since 1954. Catfishing is non-existent in spite of numerous reports that it was very good in 1952 and 1953. Commercial netting was very productive in 1954 for Smallmouth Buffalo and Carp but in 1955 only small, unmarketable river carpsucker were taken by the commercial netters who then abandoned work on the lake. Our netting results showed a high population of river carpsucker and a moderately high number of gizzard shad. Recommendations are made for the control of these two species.

OBJECTIVES:

To determine the chemical and physical characteristics of the lake and the fish species present and their relative numbers.

TECHNIQUES:

During each month of the period a three day trip to Casa Blanca Lake was made by the project leader and two field assistants. On the first afternoon floating experimental gill nets 125 feet long and 8 feet deep consisting of one 125 foot section each of 1", 1½", 2", 2½" and 3" square mesh were set at netting stations #1 and #2. (See Map 1 for the general layout of the lake and the locations of netting, seining and water sampling stations). Early the following morning the nets were picked up and the fish weighed and measured and the data recorded. Seining collections and water sample collections were then made from seining stations #1 and #2 and water sampling stations #1 and #2. Chemical analysis of the water samples were run immediately but the seining collections were preserved in 10% formalin and the fish tabulated later in

the laboratory. Late in the afternoon the nets were set at netting stations # 3 and #4. Early the morning of the third day the nets were picked up and the fish processed after which we returned to Mathis headquarters. Conferences were held on several of the trips with the local Game Warden, County Engineer. Soil Conservation Service, the County Commissioner in charge of the park and various fishermen who knew the lake. Our trips were usually made between the 5th and 10th of each month.

FINDINGS:

History and Physical Description - Casa Blanca Lake is located approximately five miles east of Laredo, Texas on Arroyo Chacon just north of U. S. Highway 59 leading to Freer. It is just east of the Laredo Air Force Base and is part of a Webb County recreation area. Private owners first bought part of the area and built a Country Club and golf course. The City of Laredo bought the area and flooding easements up to the 447 foot contour were bought on Arroyo Chacon above the dam. A dirt filled dam was completed on April 22, 1949 but an area wide rain of about 18 inches washed out a large section within a week. Repairs and enlargement of the dam was begun immediately and completed in the summer of 1950. The total cost for the lake was over a million dollars. The new dam has a maximum height of 85 feet above the stream bed and 465 feet above mean sea level. It is 5300 feet long and contains an estimated 1,400,000 cubic feet of dirt. Fourteen hundred feet of sheet steel pilings up to 21 feet long were driven into the site of the break. The spillway was graded around some low hills east of the dam to drain the lake at 447 feet above sea level. When full, the lake would have a surface acreage of about 1679 acres, an average depth of about 12 feet and contain about 20,000 acre-feet; there would be about $13\frac{1}{2}$ miles of shoreline. Drainage area is about 117 square miles and Arroyo Chacon drains to the Rio Grande. Map I shows the outline of the lake with the water level at about 436 feet above sea level (11 feet below spillway which was about normal for the period of the investigation). The surface area at 435 feet is 665 and capacity is 5600 acre-feet. Table I shows the levels of the lake from incomplete records in the County Surveyors office. The 1956 and 1957 records are from our trips to the lake.

The lake and the rest of the area is used exclusively for recreational purposes. Free public access is furnished by graded gravel roads to both ends of the dam. At the west end of the dam there is a concession stand with dance floor and a boat dock with a few rent boats. A marked off swimming beach is nearby. Natural boat landings are available on both sides of the lower part of the lake. A pump near the west end of the dam furnishes water for the grass on the golf course; this is the only use of the lake water other than fishing, swimming and boating. A water level guage post at the pump suction shows zero feet at 432 feet above sea level and 15 feet at spillway elevation. About eight private homes are located on the middle and upper parts of the lake, all above the flood easement contour. The general area surrounding Laredo is among the driest areas of the state. The Rio Grande and privately owned small lakes and stock tanks are the only fishing waters; Casa Blanca Lake has supplied a much needed public recreational area for fresh water sports. During our trips fishing pressure appeared to be very light, usually only five or six fishermen being seen each day. Various reports indicated that bass and crappie fishing had fallen off greatly since 1954 and 1955 and formerly good catfishing no longer exists.

Webb County is in the Rio Grande Plains area. The uplands are gently to moderately

rolling with some low range of hills. Soils are gray, sandy to rocky. Vegetation consists of thorny brush and cacti with dense thickets of larger trees in the gullies; mesquite; huisache, black brush, creosote and prickly pear are dominant over much of the area. Of recent years extensive areas of brush have been chained and roller cut to encourage grasses. Cattle ranching and oil production are the most important land uses. Alluvial soils along the Rio Grande support expanding irrigated vegetable farming.

The arroyos (stream beds) between the low hills are almost invariably dry except immediately after heavy rains. Surface water is seldom found except where arroyos have been dammed to farm stock watering tanks; these vary greatly in size from one to over one hundred surface acres when full. During dry years many of the smaller tanks go dry. According to Game Warden C. E. Whitenton, there are fourteen stock tanks on the watershed above Casa Blanca Lake, all of small to moderate size. Any management plans for the lake which include fish kills for population control would have to take these tanks into consideration. Mr. Whitenton treated a small lake and impounded stream channel on Arroyo Chacon that was inundated by Casa Blanca lake just prior to completion of the first dam in 1949. The effectiveness of the treatment was not determined and, at any rate, was eliminated either when the dam broke on the first rains by fish from the Rio Grande coming upstream or fish coming downstream from the tanks.

Fish stocking records from the State Fish Hatchery at Olmito show that 6,000 white crappie, 11,000 channel catfish and 155,000 black bass have been stocked in Casa Blanca Lake since 1951. The Federal Fish Hatchery at Uvalde has not stocked any fish in Casa Blanca Lake.

Population is sparse over most of the area due to the large size of most of the ranches. Of the 1955 estimated population of 61,755, 93% was urban, mostly in Laredo; 85% of the population was Latin-American.

Climatological Data - The U. S. Weather Bureau station for Laredo is located at the Laredo Air Force Base, about two miles west of Casa Blanca Lake. Information received from the Climatologist there indicated that the area may be classified as semi-arid. Normal annual rainfall is recorded as 19.49 inches over the period 1921 through 1949. Rainfall since then is as follows: 1950 - 10.63, 1951 - 15.48, 1952 - 10.54, 1953 - 16.66, 1954 - 13.50, 1955 - 9.61, 1956 - 9.95 and through June 11, 1957 - 10.82. Thus, since the dam was completed, the rainfall has been only 61% of the previous average. The rainfall for 1956 was only 51% of normal but the acre-feet of water carried by the lake during the period of our study was only 28% of maximum capacity.

The wettest months are May with an average of 3.18 and September with 3.16 inches. February is the driest month with an average of .85 inches. Average evaporation (from evaporation pans) for the years 1950 through 1954 was 119.89 inches per year. The prevailing wind is southeast with an average speed of 12.6 miles per hour. Temperatures recorded range from 18 to 115 degrees Fahrenheit. Northers and freezes seldom reach this far south and the average time between first and last frosts is 300 days. The normally clear, dry days with a steady breeze account for the high evaporation rate.

Water Analysis - Water analysis was run on samples taken from each of two stations during each of the monthly visits to the lake. Water sampling station #1 was in the approximate center of the main part of the lake near netting station #1 (see Map 1).

The water was usually fairly clear, about 18 feet deep and subject to wind action and consequent circulation. Three sample bottles each were filled from the surface, 10 foot depth and, when available, the 20 foot depth. Oxygen samples were fixed in the boat and the rest of the analysis was run at the boat landing. Water sampling station #2 was located in the upper part of the lake near what might be called the mouth of the impounded Arroyo Chacon. The water here was shallower, more turbid and more protected from wind action. Many drowned trees and bushes were scattered through the area. The results of chemical analysis during the period may be found in Table II

Water temperatures ranged from 58 to 85 degrees F. with an average of 71.2 degrees at station #1 and 72.6 degrees at station #2. The maximum vertical temperature range was 10 degrees, from 58 at 10 and 20 feet to 68 at the surface at station #1 in December 1956. This appeared to be the short term result of warm air temperatures (75° at the time the sample was taken). Otherwise the greatest vertical range was five degrees at both stations in June, 1957.

Dissolved oxygen varied from 0.8 to 11.4 ppm with an average of 6.6 at station #1 and 6.1 at station #2. As was expected, dissolved oxygen was higher during the winter than during the summer and higher in the clear water than in the turbid water. No evidence was found to indicate a shortage of water suitable for fish in regard to temperature or oxygen content. Carbon dioxide varied from 0 to 8.0 ppm with an average of 1.6 and 2.3 ppm at the two stations. The high of 8.0 ppm was found at 20 feet at station #1 in October, 1956; during the other months the winds were apparently strong enough to circulate the water of the main lake and prevent accumulation of CO₂. Four to seven ppm of dissolved CO₂ were commonly found at station #2.

Methyl orange alkalinity ranged from 100 to 300 ppm with an average of 183 and 177 ppm at the two stations. Jackson turbidimeter readings varied from 25 (or less) to 420 ppm with averages of 44 to 122 ppm at stations # 1 and # 2. All readings over 45 ppm at station # 1 were from the bottom and accidental inclusion of some bottom sediments in the samples probably caused the higher readings. The highest surface reading at station #2 was 107 ppm. The variation in pH was 7.5 to 8.6 averaging 8.2 at station #1 and 8.1 at station #2.

The most significant difference shown by the water analysis between the two stations was in turbidity which influenced the oxygen and carbon dioxide content. Although the upper end of the lake was much less subject to wind agitation than the main lake, it was consistently more turbid. This was probably due to the shallower water requiring less agitation than the deeper water to become muddied. Perhaps the large numbers of river carpsucker in the lake contributed to the turbidity of the upper lake but a higher percentage of this species was taken in the gill nets in the clear water stations. A heavy rain in May, 1957 raised the lake level about three feet and when we visited the lake on June 11 the water in the upper part of the lake was definitely clearer than normal. With normal rainfall and a rise in the surface elevation of the lake by several feet the upper end of the lake would probably clear considerably. Considering the moderately strong and almost continuous winds, it is doubtful that the lake, even if full, would develop thermal stratification. Because of the lack of a good turf cover on the watershed and the typical heavy rains following dry periods, the lake will become more and more silted with the passing years and eventually become too turbid for good production of black bass, white crappie and catfish (if stocked successfully) would then become the chief game fish in the lake, but good black bass fishing should continue for quite a long time.

Fish Collections - Table III is a list of the 26 species of fish recorded from the lake during the period of study. Accounts of the individual species are taken up later in this report.

Experimental gill nets dyed green were set overnight once each month from July 1956 through June 1957 at each of the four netting stations shown on Map 1. Fish collected from the nets were taken to the boat landing and counted, weighed, measured, sexed and these data with other pertinent observations were recorded on Fish Collection Sheets. Scale samples were taken from all black bass and a few of the other fish and stomachs were collected from game species and preserved in 10% formalin if they contained any food matter. Scales and stomachs were studied later in the Mathis laboratory; the findings are discussed later in this report.

Netting station #1 was in the approximate center of the main lake. The site was in open water with no adjacent cover and subject to considerable wind action. The water was about 15 to 20 feet deep and was usually clear to slightly murky. Because the bottom was covered with many drowned shrubs and small trees, all sets were made at the surface to prevent entanglement and loss of nets. A total of 459 fish (30.68% of total catch) was taken at this station. Two of the most common fish recorded, gizzard shad and river carpsucker, preferred this deep, clear water habitat and contributed heavily to the high count. More white crappie and fewer black bass were taken here than at any other station.

Netting station #2 was in a bay on the east shore of the lake about 1/3 the distance from the dam to the head of the lake. The water was fairly clear, about 8 to 10 feet deep in the center of the bay, wind protected and there was considerable cover along the banks in the form of dead trees and brush and, in the summer, dense mats of Potamogeton. The second highest count of fish (411 or 27.45%) was taken here. River carpsucker were common and more bluegill sunfish were taken than at any other station. Black bass, white crappie and freshwater drum were common.

Netting station #3 was about 100 yards off the west shore about midway up the lake. The water was shallow (three to six feet), muddy and subject to wind action; there were many emergent dead trees and shrubs in the area. The hundred and twelve fish were taken (20.83%), gizzard shad being the most common. River carpsucker and bluegill sunfish numbers were definitely lower than in the clear water stations. Black bass and freshwater drum were present in about equal numbers as at station #2. More carp were taken here than at any other station.

Netting station #4 was in a small bay near the head of the lake for the first seven months of the study, then moved about two hundred yards up lake to the channel of the impounded arroyo. The water was 4 to 8 feet deep and muddy except during the last month when it might be call partly murky. The area was protected from the wind and much cover from emergent dead trees and shrubs was present. A total of 314 fish were taken representing 20.96% of the total net catch in the regularly set stations. Gizzard shad and river carpsucker numbers were lower but black bass and freshwater drum numbers were higher than at any other station.

Table IV shows the fourteen species of fish taken in these nets and the percent of the total catch by station and species. Also shown is numbers and percentages of rough and game species taken at the four stations. Actual numbers and percentages show more rough fish were taken at the clear water stations, #1 and #2, than at the more turbid stations up lake. This may indicate actual population differences or perhaps the game fish, being unable to see the nets so well in the muddy waters of stations #3 and #4, may have netted better there.

Table V shows the numbers of fish taken in the experimental gill nets by species during each month of the study. Percentages by species and by the month, are given as well as numbers and percentages of game and rough fish. Total numbers, percent of rough fish and percent of game fish seem to "peak" in July, again in September and October and again in February. The September, October peak is probably correlated with the lowering of summer temperatures rising temperatures together with spawning activities probably accounts for the February peak. Lake conditions were unknown to us prior to the July collections, so that apparent peak is not explainable. The months of June, January and August showed the lowest numbers of fish taken.

Table VI shows the weight in pounds of the fish taken in the experimental gill net sets. The percent by species and a comparison of rough to game fish weights by the month are shown. The over abundance of rough fish compared to game fish is shown more clearly (78.32% to 21.68%) than in the previous table. River carpsucker comprised 51.25% by weight of the fish taken.

Table VII shows the success of experimental gill netting in terms of numbers and pounds of fish taken per net and per foot of net. The average number (31.17) and the average weight (28.78 lbs.) of fish per net is higher than that recorded in Lake/Corpus Christi, perhaps indicating better fish production in the cleared waters of the Casa Blanca Lake.

Table VIII shows the rank by number and weight of the fish caught in the experimental nets and their minimum, maximum and average standard lengths, weights and "K" factors. Table IX shows the numbers of largemouth bass, white crappie and freshwater drum which were infested with visceral round worms. More discussion of these tables is given under the species accounts.

During April, May and June, 1957, an additional experimental gill net was set adjacent to (within 50 to 200 yards) each of the regular green dyed net sets. These extra nets were white and were bleached with Purex after each trip. This was done in order to compare, if possible, the "catchability" differences between white and green nets. Table X shows the results of the test. Contrary to our expectations, the white nets almost invariably caught more fish than the green nets. Net station #4 in May was the only exception. In each pair of nets set, the white nets caught from 45.59% to 78.97% of the two net catch, averaging 70%. At the clear water stations #1 and #2, where we expected the most difference shown by a larger catch in the green nets, the total catch was 75% to 25% in favor of the white nets. In the muddy water stations #3 and #4 less difference was shown, as expected, but still 61.6 to 38.4% in favor of the white nets. Among the six most common species of fish taken, the largemouth bass showed an even number of fish taken in each type of net in clear water and more Rio Grande perch were taken in green than in white nets. Gizzard shad and white crappie differences were so great that they definitely appear to catch better in the white nets. Some of these differences may be due to sampling error or to better locations of the white nets (especially at near shore net stations #2 and #4) but the nets were set as much as possible under the same apparent conditions and, if sampling error alone were involved, we should expect at least a few of the catches to be in favor of the green nets. That the differences were less pronounced in muddy than in clear water may indicate that visibility is at least of some importance in the catchability of the nets. The only possible conclusion

from this test is that white nets, on the whole, catch better in Casa Blanca than do those that are dyed green.

Scale samples were taken from 77 largemouth bass, 11 river carpsucker, 1 white crappie and 1 carp during the period. Table XI gives the sexual condition of the six most common kinds of fish taken in the experimental gill nets and Table XII show the results of stomach analysis of eight largemouth bass and five white crappie stomachs collected. These items are discussed more fully under the species accounts.

Two seining collections were made each month, one at a boat landing near the west end of the dam, the other near the head of the lake (see Map I). A 30 by 6 foot bag seine with one-fourth inch square knotted mesh was used. Seining beach #1 was in clear water and had a gravel, sand and silt bottom. During the summer months dense beds of Potamogeton grew a long the beach and into water about five feet deep. Whenever possible the seine was dragged through part of these weeds. Drags were parallel to the beach, about 50 feet long and covered the area between about one foot to four and one half feet deep. Beach #2 was in muddy water with a soft mud bottom and depths up to three and one half feet deep. The only cover was dead trees and brush which had to be dodged to prevent snagging the seine. Drags were made by starting about 50 feet out from shore and bringing the seine straight into shore. A total of 4572 specimens of 19 species were taken in the 24 seining collections as shown in Tables XIII and XIV. Only 13 percent of the total fish seined were considered to be desirable forage fish.

Annotated Species List

Lepisosteus osseus - Longnose gar. Only one gar was recorded from Casa Blanca Lake during the job. It was taken in the last special white net set near net station #4 at the head of the lake. It was a female with a total length of 750mm., weight of 1446 grams and "K" factor of .52. It seems strange that only one gar was taken because they net very easily when present. It is stranger still, in view of the break in the first dam which presumably allowed many native fish to enter the lake from the Rio Grande, that the other two species of gar (Alligator and Spotted) and the blue catfish known to be common in the river did not enter the lake in considerable numbers. Perhaps the flow of water through the break was too strong to allow fish to come upstream to enter the lake and the native fish now present in the lake (Gizzard shad, smallmouth buffalo, river carpsucker, carp, black bullhead, white crappie, freshwater drum and Rio Grande perch) first ascended from the river into the stock tanks above the lake during runoff rains and, after the dam was built, were washed downstream into the lake. Various stock tanks which have been checked in the general area but in different small watersheds have often been populated by the above fish species, apparently originating from the Rio Grande and entering the stock tanks during runoff rains. Gar are seldom present in these tanks; perhaps they are unable to ascend the wide shallow spillways and get into the tanks.

Dorosoma petenense - Threadfin shad, These small, desirable forage fish were found in small numbers in the lake; 24 were seined from Beach #1 in clear water and 5 from the muddy water of Beach #2. They were taken only when the water was rather cool, in November and from February through May. If a selective kill of gizzard shad is carried out on this lake, it might be profitable to restock threadfin shad after the kill, if they are available.

Dorosoma cepedianum - Gizzard shad. One of the most common fish in the lake, this species represented 31.56% of the fish taken in experimental nets to rank first in number and fourth in weight of the larger fish. In the seining collections, 9.54% of the fish taken were young gizzard shad, ranking them third by number of the smaller fish. Most of the adults were taken in the clear water of the middle and lower portions of the lake but a large majority of the young were from the muddy waters of seining station #2. Among the forage fish, this same distribution was noted in several other species and may be due to heavier cropping by predacious species in the clear water. However, the only four spent adults taken were at station #4 which may indicate that spawning takes place at the head of the lake which would account for more young occurring in the upper area. No ripe shad were taken but from the numbers taken that were almost ripe (sexual condition #2; see Table XI) they apparently spawn in March and April. Although the gizzard shad is not as over abundant in Casa Blanca Lake as in many Central Texas Lakes, a selective kill would almost certainly improve bass and crappie fishing by reducing the amount of forage available to them.

Astyanax fasciatus - Mexican tetra. Only one specimen was recorded from the lake and it was taken from a hook on a broken off fishing line. Tetras are very common in the Rio Grande and are sold for bait to be used in Casa Blanca. The absence of large numbers of tetras seems to indicate that few fish entered the lake from the Rio Grande when the first dam broke. They are known to be good bass and crappie bait minnows and the introduction of a breeding stock in Casa Blanca would probably be beneficial after a gizzard shad selective kill. They would be more desirable than gizzard shad because they are prolific but do not reach a size too large for bass to eat.

Ictiobus bubalus - Smallmouth buffalo. Only five specimens were recorded but they were large, averageing over $5\frac{1}{2}$ lbs. Considerable numbers were reported to have been taken by commercial fishermen in 1954 but in 1955 their catch was almost entirely of river carpsucker and netting was abandoned. The absence of small and medium size buffalo indicated that spawning had been unsuccessful, perhaps due to competition with the large population of river carpsucker or the lack of fresh runoff water. Spawning would apparently occur in early to mid-summer; a ripe male was taken in July and a spent female in June. Although buffalo are not considered desirable in a lake, they are certainly more desirable than carpsucker because they do reach a large enough size to be harvested and controlled to some extent by commercial netting.

Carpionodes carpio - River carpsucker. Ranked second in number and first in weight of fish caught in the experimental gill nets. Average weight was two pounds, maximum weight four pounds, not large enough to be of commercial value. Ripe fish ready to spawn were taken in all months except January and September but the largest number (11 ripe males) was recorded in February. Spawning may depend on the entrance of fresh water into the lake and could possibly occur at any time of the year after heavy rains. Largest spawns would probably occur in late winter if fresh water flowed into the lake. Table XV shows the size range of the river carpsucker taken. From the graph, it seemed that all these fish were in the same year class (probably spawned in the late May rise in 1954) and there have been no successful spawns since then. However, of eleven scale samples taken (5 in September, 1956 and 6 in June, 1957), two were from fish spawned in 1953, three in 1954, four in 1955 and two in 1956. It was obvious from the scales that the greatest growth was in the first year since any annuli visible were crowded at the edge of the scale. From past experience in south Texas, we didn't expect scales to be of any use in determining the age of fish, otherwise, a complete scale collection would

have been made. The large numbers and weight of this species makes it the most serious problem in Casa Blanca Lake. They apparently prefer clear water; 261 (74%) were taken at net stations #1 and #2 and 94 (26%) at stations #3 and #4.

Cyprinus carpio - Carp. Twelve specimens averaging over six pounds were taken at net stations #3 and #4. Four males taken in May were ripe. This species, like the smallmouth buffalo, appeared to have been drastically reduced in numbers by commercial netting and had been unable to spawn successfully.

Notemigonus chrysoleucus - Golden shiner. Only one specimen was taken from the experimental net at station #2 in July. None were recorded seining. The fish was apparently a bait release which had grown considerably. This might be a good forage fish to release in the lake in large numbers after the gizzard shad and river carpsucker are brought under control.

Opsopoeodus emiliae - Pugnose minnow. Thirty-one specimens were seined, all but one from the muddy water of seining beach #2. These fish may have developed from bait releases brought in from the Nueces River where they are common. They have not been recorded in earlier project work on Falcon Reservoir and some small lakes in the Lower Rio Grande Valley.

Notropis lutrensis - Red shiner. One hundred thirty specimens were seined, 93 of them (71%) from the muddy water of seining station #2. This distribution may be due to heavier cropping of this very good forage fish in the clear waters of the lower lake. This species represented only 2.84% of the seined fish, much lower than in most other waters investigated in South Texas.

Hybognathus nuchalis - Silvery minnow. One specimen, probably bait release, was taken at seining beach #2.

Pimephales vigilax - Parrot minnow. One specimen, probably bait release from the Nueces River, was taken at seining station #2. This species has been reported in other project work on the Rio Grande Watershed only from Lake Bentsen near Mission.

Ictalurus punctatus - Channel catfish. Only one specimen was taken, a female with eggs, 2240 grams, "K" factor 2.5-, in a gill net at station #2 in February, 1957. According to reports of several local fishermen, catfishing had been good from 1951 to about 1953 and several 18 to 20 pound "catfish" were caught along with numerous smaller ones. Although fishermen's reports are unreliable for distinguishing between channel catfish and Rio Grande Blue Catfish and between bullheads and flathead catfish, these reported weights almost certainly exclude the channel catfish and bullheads. Apparently Rio Grande Blue Catfish are perhaps some flathead catfish were present in the stock tanks of the watershed and stocked the lake when it filled. No reason was discovered why catfish numbers were reduced from fishable numbers to almost complete absence by 1956. Perhaps lack of suitable nesting sites, overcrowding from low water levels and excessive numbers of rough fish contributed to unsuccessful spawning. Trotlines are not allowed in the lake and the commercial netters were checked thoroughly by the Game Warden and a Free Service Game Warden to be sure they did not remove any game fish (including catfish) from the lake. Stocking records from Olmito State Fish Hatchery show 6,000 channel catfish fingerlings stocked in October, 1954 and 5,000 in November, 1955. These fish

apparently did not survive long enough to establish a sizable population. Perhaps if a good population of large blue and flathead catfish could be developed in the lake through stocking adults from the Rio Grande and provision of twelve to fourteen inch diameter cement drain pipe sections, these larger catfish might form an effective natural check on the overabundant adult and sub-adult carpsuckers which are too large for the bass to prey upon. They would certainly reduce the overabundant sunfish.

Ictalurus melas- Black bullhead. Nine specimens were taken in the experimental gill nets, four at net station #2 and five at #4, indicating the near shore preference of this species. These fish are commonly found in most of the stock tanks of south Texas. They are considered a rough, undesirable fish because they muddy the water, thereby reducing plant and insect growth needed by game fish, and do not attain a very large size.

Cyprinodon variegatus - Sea pupfish. A single specimen was taken at seining station #2 in December. This species is uncommon inland in south Texas but becomes common in brackish waters near the coast. Their value as forage is doubtful.

Gambusia affinis - Mosquito fish. Only twenty-one specimens were recorded of this usually common and prolific minnow. Six were taken at seining station #1 and fifteen at #2, perhaps indicating heavier cropping by game fish in the clear water. None were taken during the months of November through March.

Mollienisia latipinna - Sailfin molly. A single specimen was seined in June from seining station #2. Not usually common in the area but larger numbers than found should be expected.

Menidia beryllina - Tidewater silversides. Except for the bluegill, this was the most common fish taken in seines. A total of 1475 (32.26%) was recorded in approximately equal numbers from the two seining stations. Numbers taken in the different months varied widely but were not apparently seasonal. This species is considered a brackish water form but are common in most of the fresh waters of south Texas far inland. Experience of crappie fishermen in Lake Corpus Christi seems to indicate that they are not very good bait. Their large numbers and even distribution in Casa Blanca Lake might be explained if the game fish do not eat them.

Micropterus salmoides- Largemouth black bass. Present in good numbers and of good size but, from fishermen's reports, the catch had fallen off since 1953 and 1954. A scatter diagram of the bass taken and plotted by standard length and weight and indicating age classes and sex of the fish shows that the annuli are apparently usable and are the result of spawning. The diagram shows relatively low numbers of smaller bass of the year classes from 1954, 1955 and 1956. It was surprising to find fairly clear annuli on the scales collected. One specimen had degenerate gonads and showed no sign of annuli. From its standard length of 370 mm., it probably was a three year old fish. Other fish of the same size and with the same size scales usually showed three annuli. Although bass are hard to take in gill nets, they ranked sixth by number and second by weight of the fish netted; 64 were taken in the 48 regular nets and 15 in the special white nets. A slight peak of activity occurred from July to October and a lesser one from January to March. Most of the adult bass taken in nets were caught in the muddy water of net station #4, the least in the clearest water at station #1. This may show their wariness of nets in that they may not have been able to see the nets so well in the muddy water. Fingerlings and young adults were taken in seining collections during all months of the year by a very slight peak occurred in July to September. A total of 44 was s d,

only 8 of them from seining station #2 in muddy water. This seemed to show that although the adult bass enter the muddy section of the lake freely, spawning takes place in the clear water of the lower lake. Average weight of the bass netted was almost three pounds, average "K" factor was 2.68. Only one specimen was taken that was ready to spawn in May but small numbers almost ready to spawn were taken from November through May. Spawning probably occurs as early as December in warm winters, quite often in the February warm spell that occurs in most years but may be delayed wholly or in part until April or May in late springs. Table IX shows that above 180 mm. in standard length, 84.2% of the bass were infested with visceral round worms. The "K" factor of the fish with worms averaged 2.72 while those without worms averaged 2.39. Table XII shows that of eight bass stomachs collected with food in them, all contained fish only. Four gizzard shad, one sunfish, one large (170mm. standard length) Rio Grande Perch and four unidentified fish were found. Stocking records from the Olmito State Fish Hatchery show the following; February 26, 1951 - 75,000 fry, February 25, 1953 - 40,000 fry, April 22, 1955 - 10,000 fry and March 14, 1957 - 30,000 fry.

Black bass were the principle game fish of Casa Blanca Lake with white crappie running a poor second. Although bass spawning had apparently not been maximum, it had been sufficient to maintain a fair population and the average size and condition of the fish was very good. The excessive numbers of river carpsucker and gizzard shad in the lake together with low water conditions had probably been the cause of limited bass spawns and the removal or control of these rough fish would certainly help in bass production and increase the catch. The introduction and development of good populations of the more desirable forage fish such as Rio Grande Tetras, thread-fin shad, red shiner and perhaps golden shiners would probably help bass production and growth if the carpsucker and gizzard shad were first controlled. Additional stocking of bass would probably not be beneficial or desirable since an adequate brood stock is already present which could produce all the young bass the lake could accommodate if conditions for their survival and growth were better.

Chaenobryttus gullosus - Warmouth bass. Only two specimens were taken in the nets and one specimen was seined; they are usually somewhat more common in the other waters of south Texas except in the Rio Grande drainage.

Lepomis microlophus - Redear sunfish. Thirteen specimens were taken in the regular gill nets and 21 others in seining collections. Although not prolific, this species is generally more common in other south Texas waters than our collections showed in Casa Blanca Lake. Like other sunfish, the redear, even at maximum size, attracts few fishermen.

Lepomis macrochirus - Bluegill sunfish. Very common, 113 (7.56%) were taken in the regular gill nets (ranked fifth) and 2296 (50.22%, rank first) in seines. Numbers seemed to run higher from mid-summer into winter. A slightly greater number were taken in gill nets from the clear water netting stations #1 and #2 but a considerably greater number (mostly young) were taken in seines at the muddy water seining station #2. This distribution could have developed from greater spawning in the muddy water or from greater cropping of the young by game fish in the clear water. The high numbers of small bluegills compared to the low numbers of the more desirable forage species suggested their unpalatability as bass forage and, because they compete with fingerling bass for food and are not sought by the fishermen, we consider them as detrimental and undesirable in this region.

Lepomis megalotis - Longear sunfish. Only one specimen as taken at seining station #1. Not generally common in south Texas.

Pomoxis annularis - White crappie. Common throughout the lake and of fair to good size, they ranked third by number and fifth by weight of the fish taken in the regular gill nets. Slightly greater numbers were taken at net station #1 and in later summer and winter months. Most of the 59 young specimens taken in seines were from the muddy water seining station #2. Only one female was taken ready to spawn in May but fair numbers of almost ripe males and females were taken from January through April and in November. Six thousand white crappie fingerlings were stocked in November, 1955 from the Olmito State Fish Hatchery. Analysis of five stomachs showed their food to consist of young gizzard shad and minnows (unidentified) as well as May Fly nymphs. Of the 207 crappie checked, the 205 above the minimum standard length of 120mm showed a 47.3% infection with visceral round worms. "K" factor was identical, 2.46, in those with and without worms. The single scale sample collected, from a fish weighing 765 grams (maximum recorded), was found to have two clear annuli.

Aplodinotus grunniens - Freshwater drum. Common throughout the lake but more than twice as many were taken at netting station #4 than at any other station; ranked fourth by number and third by weight of fish netted. A ripe female was taken in May and a ripe male in July; apparently spawning takes place in early to mid-summer. No young were taken in the seining collections. This species is generally common in south Texas but not much sought after by fishermen; for this reason and because they compete for minnows directly with bass and crappie, we consider them a rough, undesirable fish. Table IX shows that above the standard length of 194 mm., 56.9% of these fish had visceral round worms with little difference in "K" factor.

Cichlasoma cyanoguttata - Rio Grande Perch. Present in moderate numbers, this species ranked seventh by number and eighth by weight of the fish taken in the regular gill nets. In seining collections only 20 were taken. These fish are undesirable because, when present in large numbers, they prey heavily on the eggs and young of bass.

Miscellaneous Observations

Small numbers of freshwater shrimp (Palaemonetes) were taken in the seining collections, 82% of them from seining station #2. Numbers varied from none to 17 (October) at station #1 and from none to 104 (September) at station #2. Greatest numbers were taken in September and October with the next greatest in March and May. These shrimp are common in the freshwaters of south Texas and undoubtedly form an important item of diet for most game fish.

Approximately 1305 water birds of 24 species were noted on our trips to the lake. Greatest numbers were present in October (331), March (225), April (136) and September (114). Coots were the most common birds (511) followed by Mexican Cormorants (275), both present during most months of the year. Blue Winged Teal, Pintail, Gadwall and Ruddy Ducks were the most common ducks present, all showing fall and spring peaks and absent in summer. White Pelicans, Skimmers, Laughing Gulls and Black Terns, all usually associated with salt water, were seen. Many of the birds seen were fish eaters but it is doubtful if their predations on the fish in the lake were serious enough to be damaging. No hunting is allowed on the lake and, in time, with higher water levels, a good bird sanctuary should be established.

A few "Slider Terrapins" (Pseudemys) and one Softshell Turtle (Amyda) were taken in the gill nets at netting station #4. Although a few other turtles were seen in the upper reaches of the lake, their numbers seemed very low.

Fishing pressure seems to be very light on the lake, no more than ten fishermen were seen on any one day that we worked there. There are almost certainly more fishermen present on weekends, especially during the spring and summer. The fall off of good catches had resulted in less fishing effort, but if fishing could be improved through control measures, the news of some good catches would cause fishing to pick up again. Not only the citizens of Laredo and the Air Force Personnel use the lake, but many tourists enroute to Mexico could be expected to fish there if better fishing were available.

Webb County and the City of Laredo have given some thought to using Casa Blanca Lake as an emergency water supply when the flow of the Rio Grande is insufficient in drought years. Estimates were being made of the cost of pumps and pipelines to move water from the river to the lake and from the lake to the filtration plant. If such a system were established, fishing in the lake would be greatly reduced by the introduction of more rough fish unless a sand and gravel filter was placed between the river and the lake. Such a filter should be large enough to thoroughly strain all the water the pumps could discharge and a back flushing system should be built in so that silt could be removed from the sand before clogging. This would not add very much to the cost of the piping project and, through keeping the lake at a higher level, should benefit the primary purpose of the lake: fishing.

The Rough Fish Problem

Except for the uncontrollable lack of adequate runoff rains to keep Casa Blanca Lake near full, the principle fisheries problem is the control of rough fish. Gizzard shad ranked first by number (31.55%) and fourth by weight (6.45%) of the fish taken in experimental gill nets during the job period. They could be easily controlled by a selective kill with rotenone. This would probably lead to better bass fishing and, possibly because the bass would be heavily cropping any young shad hatched, a more or less permanent control might be effected. Removal of the large numbers of shad might also result in almost complete control of any young river carpsucker that might be hatched.

River carpsucker ranked second by number (23.72%) and first by weight (51.25%) of all fish taken in experimental gill nets. They were by far the most serious fisheries problem in the lake, not only in space requirements but also in indirect food competition with the young bass, crappie and desirable bait minnows. There is little doubt that bass and crappie fishing cannot be greatly improved until the carpsucker are brought under at least partial control. Almost all of the carpsucker we took were adults averaging about two pounds. Only one young, half grown fish of this species was taken and no fingerlings or fry were taken in the seining collections. This suggested that a saturation population of carpsucker had developed from one or two spawns and young of succeeding years were unable to survive. However, inspection of a small series of scale samples showed fish to be present which were born in each of the past four years.

Mr. C. E. Whitenton, the Game and Fish Warden at Laredo, reported that in 1954 two commercial fishermen, each with a crew of one or two men, netted the lake and harvested about 22 tons of smallmouth buffalo and carp. The nets were three inch square mesh, about four feet deep and set with a tight top line and no weights or bottom line. In 1955 they tried again once or twice and found nothing but carpsucker which were too small to

be of commercial value. This seems to demonstrate that netting alone gave good control of buffalo and carp in Casa Blanca Lake since our netting results showed only 1.13% by number and 7.45% by weight to be made up of these two species. Perhaps a selective kill of gizzard shad together with extensive netting of river carpsucker with two inch mesh nets might give a partial control of these species and furnish much improved bass and crappie fish through a better balance of game fish in the lake and subsequent heavier cropping of rough fish young by the game fish.

The carpsucker and sunfish might also be controlled if a population of large Rio Grande Blue Catfish and Flathead Catfish were established through stocking of adults from the Rio Grande and the provision of netting devices for them. These catfish feed on sunfish and the larger sizes of shad and carpsucker which the bass cannot eat. If the above controls were carried out, especially the rotenone treatment, it might be found necessary to stock desirable bait minnows for the bass and crappie.

RECOMMENDATIONS:

Based on the findings of this investigation job, we would recommend that a developmental job be carried out on the lake to include the following items:

1. Selective kill of gizzard shad with rotenone.
2. Extensive netting with two inch square mesh, "veil" type nets to reduce the over population of river carpsucker.
3. Stocking of Rio Grande Blue Catfish and Flathead Catfish adults to be netted from the Rio Grande or Falcon Reservoir. Spawning devices made of cement drain pipes should be provided.
4. Stocking of desirable bait minnows such as Threadfin Shad, Rio Grande Tetras, Red Shiners and others that may be found and seined or trapped in the region.

If water is piped to Casa Blanca Lake from the Rio Grande, a cement box containing sand and gravel for filtering and capable of being back-flushed should be installed to prevent the introduction of more rough fish into the lake.

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Date: May 7, 1958

Table I. Records of Surface Elevation of Casa Blanca Lake.

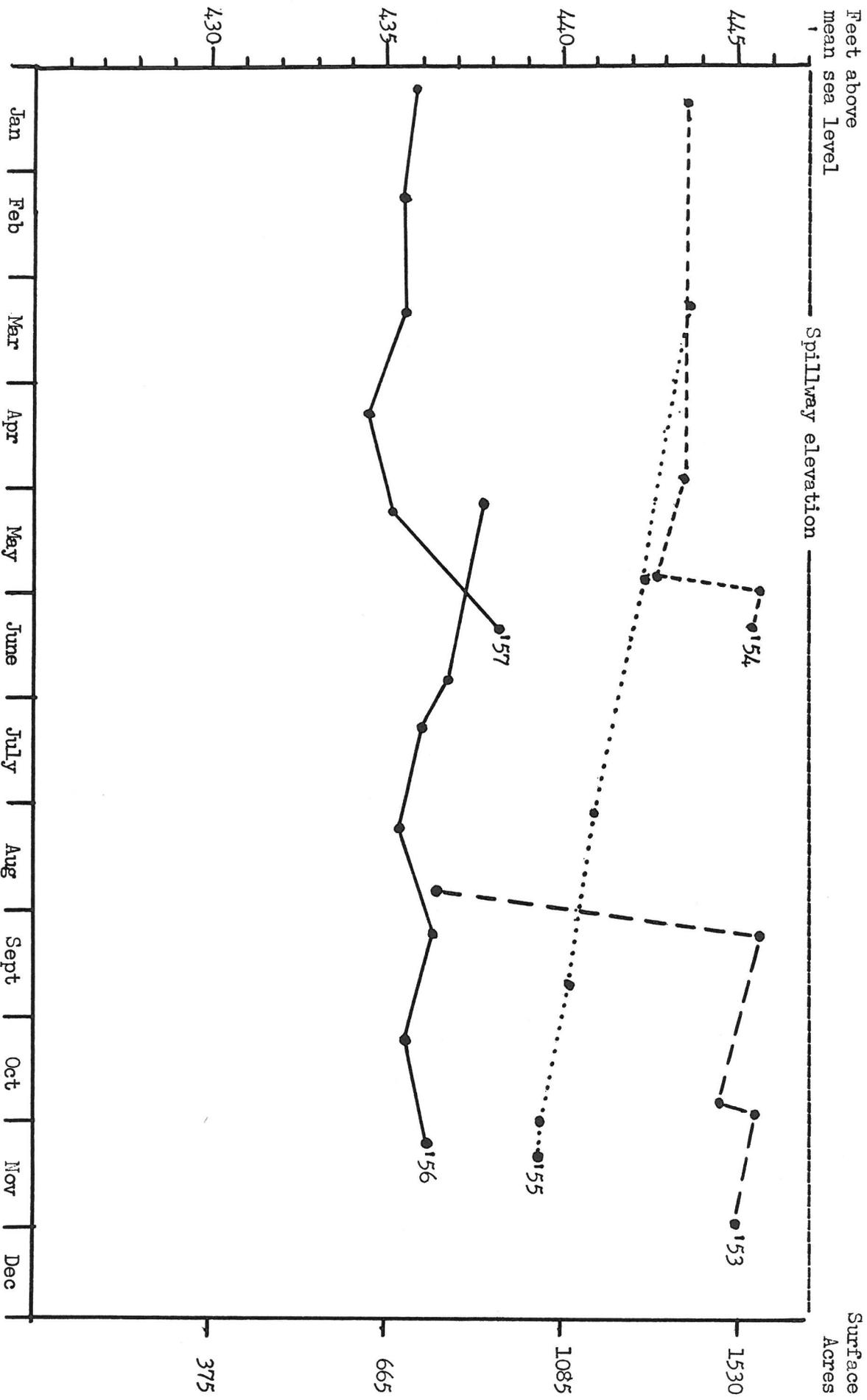


Table II Results of Water Analysis of Casa Blanca Lake
July 1956 through June 1957

Month	Depth	°F	Station #1					Station #2					
			O ₂ ppm	CO ₂ ppm	M. O. Alk.	Jack. Turb.	pH	°F	O ₂ ppm	CO ₂ ppm	M. O. Alk.	Jack. Turb.	pH
July	0	77	4.2	0	158	25	8.4	78	3.6	4.0	194	85	8.0
	10	77	4.2	0	158	30	8.4	78	3.2	5.0	194	120	8.0
	20	79	2.2	0	162	75	8.0	78	3.2	5.0	194	120	8.0
August	0	80	7.4	0	100	25	8.0	80	4.0	0	164	107	8.0
	10	80	7.2	0	100	27	8.2	80	4.0	4.0	182	125	7.8
	20	80	5.8	3.0	100	57	8.2						
Sept.	0	82	8.4	3.5	270	25	8.2	83	4.8	3.0	194	-	8.0
	10	82	8.4	2.9	270	31	8.4	81	2.0	7.0	270	-	7.8
	20	81	1.6	3.5	300	53	8.0						
Oct.	0	78	6.2	0	170	26	8.1	79	6.8	0	164	39	8.2
	10'	77	5.2	2.0	178	32	7.8	77	5.0	4.0	174	130	7.8
	20	76	0.8	8.0	180	55	7.5						
Nov.	0	64	7.0	1.0	190	43	8.0	64	6.2	0	190	95	8.3
	10	64	7.4	0	188	45	8.2	63	4.6	0	190	165	7.9
Dec.	0	68	8.6	1.0	198	27	8.4	62	7.6	0	202	100	8.4
	10'	58	8.6	1.0	214	28	8.2	60	8.2	2.0	192	167	8.2
	20"	58	8.0	1.0	226	85	8.2						
Jan.	0	61	10.0	0	182	37	8.0	64	10.0	5.0	198	100	8.2
	10	61	8.0	0	188	43	8.2						
	20	61	9.2	0	192	59	8.4						
Feb.	0	61	8.0	0	160	30	8.4	69	8.0	0	140	103	8.4
	10'	61	-	0	160	33	8.3	68	9.0	0	210	113	8.4
	20"	65	-	0	194	105	8.2						
March	0	65	10.6	3.0	188	34	8.4	65	10.0	5.0	190	96	8.6
	10	65	7.2	3.0	194	37	8.4						
April	0	67	8.6	4.0	188	33	8.4	66	7.2	2.0	188	106	8.3
	10	67	11.4	3.0	202	30	8.4						
	20	67	9.6	3.0	202	36	8.4						
May	0	72	6.4	5.0	164	40	8.2	71	6.8	4.0	164	111	8.4
	10'	74	6.6	2.0	198	40	8.2	71	6.8	3.0	208	420	8.2
	20"	72	6.6	3.0	188	133	8.2						
June	0	83	8.0	0	154	25	8.1	85	7.2	0	154	56	7.9
	10	80	3.4	0	152	43	7.9	80	3.4	0	150	87	7.6
	20	78	2.0	0	168	40	7.9						
Average		71.2	6.6	1.6	183	44	8.2	72.6	6.1	2.3	177	122	8.1

- Lack reagents, no test. 6 to 9 feet at Station #2. 16 to 19 feet at Station #1.

Table III Species List of Fish Recorded
from Casa Blanca Lake, July 1956 to June 1957

Species	Common Name	Symbol
1. <u>Lepisosteus osseus</u>	Longnose gar	LNG
2. <u>Dorosoma petenense</u>	Threadfin shad	TFS
3. <u>Dorosoma cepedianum</u>	Gizzard shad	GS
4. <u>Astyanax fasciatus</u>	Tetra	Tetra
5. <u>Ictiobus bubalus</u>	Smallmouth buffalo	SMB
6. <u>Carpiodes carpio</u>	River carpsucker	RCS
7. <u>Cyprinus carpio</u>	Carp	CRP or Carp
8. <u>Notemigonus crysoleucas</u>	Golden shiner	GoS
9. <u>Opsopoeodus emiliae</u>	Pugnose minnow	Op. em.
10. <u>Notropis lutrensis</u>	Red shiner	Not. lut.
11. <u>Hybognathus nuchalis</u>	Silvery minnow	Hyb.nuc.
12. <u>Pimephales vigilax</u>	Parrot minnow	Pim.vig.
13. <u>Ictalurus punctatus</u>	Channel catfish	CC
14. <u>Ictalurus melas</u>	Black bullhead	BBH
15. <u>Cyprinodon variegatus</u>	Sea pupfish	Cyp. var.
16. <u>Gambusia affinis</u>	Mosquitofish	Gamb.
17. <u>Mollienisia latipinna</u>	Sailfin molly	Molly
18. <u>Menidia beryllina</u>	Tidewater silversides	Men. ber.
19. <u>Micropterus salmoides</u>	Largemouth black bass	LMB
20. <u>Chaenobryttus gulosus</u>	Warmouth	WMB
21. <u>Lepomis microlophus</u>	Redear sunfish	RES
22. <u>Lepomis macrochirus</u>	Bluegill sunfish	BGS
23. <u>Lepomis megalotis</u>	Longear sunfish	LES
24. <u>Pomoxis annularis</u>	White crappie	WC
25. <u>Aplodionotus grunniens</u>	Freshwater drum	FWD
26. <u>Cichlasoma cyanoguttata</u>	Rio Grande perch	RGP

Table IV. Numbers of Fish Taken in Experimental Gill Nets
at Four Stations, July 1956 through June 1957

Species	Station 1	Station 2	Station 3	Station 4	Total	Percent by Species
* GS	212	99	110	51	472	31.55
* SMB	0	1	2	2	5	.33
* RCS	102	159	61	33	355	23.72
* Carp	0	0	8	4	12	.80
* Gos	0	1	0	0	1	.07
CC	0	0	0	0	0	.07
BBH	0	4	0	5	9	.60
IMB	8	15	16	25	64	4.28
WMB	0	2	0	0	2	.13
RES	0	5	1	7	13	.87
BGS	27	43	20	23	113	7.56
WC	76	34	40	57	207	13.84
* FWD	34	36	40	88	198	13.24
* RGP	0	11	14	19	44	2.94
Total	459	411	312	314	1496	100.00
% by Station	30.68	27.47	20.86	20.99	100.00	
* Rough Fish	348	307	235	197	1087	
%	23.26	20.52	15.70	13.16	72.67	
Game Fish	111	104	77	117	409	
%	7.41	6.95	5.14	7.82	27.33	

Table V Numbers of Fish Taken in Experimental Gill Nets
from Casa Blanca Lake, July 1956 through June 1957

Species	July	August	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	Total	Percent
*GS	37	23	44	43	32	42	31	89	63	47	16	5	472	31.56
*SMB	1	0	1	2	0	0	0	0	0	0	0	1	5	.33
*RCS	16	24	38	33	33	37	26	41	27	22	32	26	355	23.72
*Carp	1	3	1	2	0	1	0	0	0	0	4	0	12	.80
*GOS	1	0	0	0	0	0	0	0	0	0	0	0	1	.07
CC	0	0	0	0	0	0	0	1	0	0	0	0	1	.07
BBH	0	0	0	0	0	0	0	0	0	1	1	0	2	.13
IMB	5	4	9	8	10	3	4	4	5	7	3	0	64	4.28
WMB	0	0	0	1	0	0	0	1	0	0	0	0	2	.13
RES	1	1	0	2	1	1	1	3	4	1	2	0	13	.87
BGS	19	3	12	12	7	4	4	15	12	8	12	7	113	7.56
MC	26	15	28	26	22	11	14	15	12	14	6	18	207	13.84
*FWD	62	20	24	30	1	8	4	14	3	4	15	13	198	13.24
*RGP	2	3	6	6	4	0	3	2	3	2	10	3	44	2.94
Total	171	96	163	165	110	107	87	191	119	106	101	80	1496	100.00
Percent	11.43	6.42	10.90	11.03	7.35	7.15	5.82	12.76	7.95	1.09	6.75	5.35	100.00	100.00
*Rough No.	120	73	114	116	70	88	64	146	96	75	77	48	1087	
Fish %	70.18	76.04	69.94	70.30	63.64	82.24	73.56	76.44	80.67	70.75	76.24	60.00	72.66	
Game No.	51	23	49	49	40	19	23	45	23	31	24	32	409	
Fish %	29.82	23.96	30.06	29.70	36.36	17.76	26.44	23.56	19.33	29.25	23.76	40.00	27.34	

Table VI Pounds of Fish Caught in Experimental Nets in Casa Flanca Lake, July 1956 through June 1957

Species	July	August	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	Total	Percent
*GGS	6.20	4.70	9.98	7.61	5.82	8.43	6.01	15.06	10.78	8.15	4.61	1.78	89.13	6.45
*SMB	5.12	---	5.13	11.19	---	---	---	---	---	---	---	---	28.19	2.04
*FRCS	36.19	37.67	67.49	64.15	61.03	77.62	54.62	84.12	59.17	45.64	61.42	58.13	707.98	51.25
*Carp	3.66	20.03	7.44	13.69	---	8.50	---	---	---	---	21.69	---	75.01	5.50
*Gos	.23	---	---	---	---	---	---	---	---	---	---	---	.23	.01
CC	---	---	---	---	---	---	---	4.94	---	---	---	---	4.94	.35
BBH	---	---	---	---	---	---	---	---	3.92	2.00	1.73	3.53	11.18	.80
IMB	11.02	6.36	26.63	17.28	30.75	9.36	18.56	9.77	17.88	28.91	11.84	.86	189.25	13.69
WMB	---	---	---	.45	---	---	---	.13	---	---	---	---	.58	.04
RES	.29	.29	---	.43	.31	.09	.36	.54	---	.08	.55	---	2.94	.21
BGS	2.00	.55	1.53	1.80	1.00	.36	.79	3.12	.73	.85	1.01	.57	14.31	1.03
WC	5.75	3.34	8.23	8.02	10.13	3.44	8.48	7.21	5.15	8.99	3.26	3.28	76.28	5.52
*FWD	42.06	16.31	16.43	24.37	1.99	8.49	4.59	12.31	3.35	3.49	11.31	11.72	156.42	11.32
*RGP	.87	2.11	2.44	3.74	2.20	---	2.18	1.33	2.08	1.17	5.10	1.73	24.95	1.80
Total	114.11	91.36	145.30	152.73	113.23	116.32	95.59	138.53	104.06	99.29	122.52	88.35	1381.39	100.01
Percent	8.26	6.61	10.52	11.05	8.20	8.42	6.92	10.03	7.53	7.19	8.87	6.40	100.00	
*Rough Fish	95.05	80.82	108.91	124.75	71.04	103.04	57.40	112.82	75.38	58.46	104.13	80.11	1081.91	78.32
lbs	83.29	88.46	74.95	81.68	62.73	88.58	70.50	81.44	72.43	58.87	84.99	90.67		
Game Fish	19.06	10.54	36.39	27.98	42.19	13.28	28.19	25.71	28.68	40.83	18.39	8.24	299.68	21.68
%	16.71	11.54	25.05	18.32	37.27	11.42	29.50	18.56	27.57	41.13	15.01	9.33		

Table VII Success of Experimental Gill Netting in Terms of Numbers and Pounds of Fish Caught July 1956 through June 1957

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	4	500	171	42.75	.342	114.54	28.63	.2290
August	4	500	96	24.00	.192	91.36	22.84	.1827
September	4	500	163	40.76	.326	145.53	33.88	.2910
October	4	500	165	41.25	.330	152.76	38.19	.3055
November	4	500	110	27.50	.220	113.24	28.31	.2264
December	4	500	107	26.50	.214	116.34	29.16	.2327
January	4	500	87	21.75	.174	95.58	23.90	.1911
February	4	500	191	47.75	.382	138.58	34.65	.2771
March	4	500	119	29.75	.238	103.84	25.96	.2077
April	4	500	106	26.50	.212	99.43	24.86	.1989
May	4	500	101	25.25	.202	122.42	30.65	.2448
June	4	500	80	20.00	.160	88.28	22.07	.1766
Total	48	6000	1496	---	---	1381.28	---	---
Average	4	500	124.67	31.17	.247	115.12	28.78	.2303

Table VIII Fish Taken in Experimental Gill Nets from Casa Blanca Lake Showing ranks, Lengths, Weights, and K Factor. July 1956 through June 1957

Species	Rank by No.	by Wt.	Standard Length		Avg.	Weight in Grams		Avg.	Min.	"K" Factor	
			Min.	Max.		Min.	Max.			Max.	Avg.
GS	1	4	120	260	163.88	29	324	86.30	1.07	2.66	1.78
SMB	11	7	410	480	421.00	2325	4082	2556.20	2.71	3.69	3.24
RCS	2	1	198	400	316.79	203	1814	904.91	2.00	3.80	2.70
Carp	9	6	400	530	466.50	1658	3856	2835.00	2.45	3.22	2.77
Gos	13	14	175	175	175.00	104	104	104.00	1.93	1.93	1.93
CC	13	11	448	448	448.00	2240	2240	2240.00	2.50	2.50	2.50
BBH	10	10	200	330	271.56	245	1077	565.33	2.19	2.92	2.52
LMB	6	2	150	460	336.86	70	3005	1346.17	1.90	3.88	2.68
VMB	12	13	120	180	150.00	60	205	134.50	3.42	3.47	3.45
RES	8	12	101	170	139.92	36	165	102.77	2.99	4.51	3.49
BGS	5	9	89	156	112.60	20	155	56.74	2.70	4.46	3.69
WC	3	5	112	305	176.32	34	921	167.09	1.78	3.65	2.45
FWD	4	3	128	415	241.61	55	2126	358.33	1.65	3.45	2.32
RGP	7	8	135	200	168.16	125	410	257.14	4.00	6.76	5.16

Table IX Incidence of Visceral Round Worms in Three Fish Species Most Commonly Infested

Species	No. of Fish Checked for Worms	Minimum Standard Length with Worms	Total No. above minimum length	No. above minimum length with-out worms	No. above minimum length with worms	% above minimum length with worms	Average K factor with worms	Average K factor without worms
LMB	79	180	76	12	64	84.2	2.72	2.39
WC	207	120	205	108	97	47.3	2.46	2.46
FWD	198	194	195	84	111	56.9	2.27	2.25

Table X Comparison of Catch of Green and White Experimental Gill Nets during April, May, and June 1957 in Casa Blanca Lake.

Species	Station 1		Station 2		Station 3		Station 4		Clear Water*		Muddy Water*		Total	
	Green	White	Green	White	Green	White	Green	White	Green	White	Green	White	Green	White
LANG	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GS	36	157	5	65	10	20	17	26	41	222	27	46	68	268
SMB	-	-	-	1	-	1	1	8	-	1	1	9	1	10
RCS	20	21	33	65	10	22	17	8	53	86	27	30	80	116
Carp	-	-	-	1	-	2	4	2	-	1	4	4	4	5
BBH	-	-	4	-	-	-	3	2	4	-	3	2	7	2
LMB	-	-	-	-	-	1	4	9	5	5	7	10	12	15
WMB	2	3	3	2	3	-	4	-	2	1	-	-	3	3
RES	-	-	-	1	-	-	-	-	-	2	-	-	-	1
BGS	7	-	2	2	4	1	1	4	16	25	1	15	27	40
WC	12	9	9	16	5	11	7	4	15	25	23	15	38	121
FWD	5	60	3	18	4	9	18	34	9	78	23	43	32	78
RGP	-	18	4	11	-	13	19	36	6	29	9	8	15	11
Total	82	268	69	185	36	84	100	134	151	453	136	218	287	666
Percent	23.5	76.5	27.2	72.8	30.0	70.0	42.7	57.3	25.0	75.0	38.4	61.6	30.1	69.9
Species by Rank			Clear Water %		Muddy Water %		Total %							
1. GS			Green	White	Green	White	Green	White	Green	White				
2. RCS			15.6	84.4	37.0	63.0	20.3	79.7						
3. WC			38.1	61.9	47.4	52.6	41.8	58.2						
4. FWD			16.1	83.9	34.8	65.2	23.9	76.1						
5. BGS			23.7	76.3	31.9	68.1	29.1	70.9						
6. LMB			39.0	61.0	42.3	57.7	40.3	59.7						
7. RGP			50.0	50.0	41.2	58.8	44.4	55.6						
			66.7	33.3	52.9	47.1	57.7	42.3						
*Stations #1 and #2														
**Stations #3 and #4														

Table XII Stomach Analysis of Largemouth Black Bass and White Crappie
from Casa Blanca Lake July 1956 through June 1957

Largemouth Black Bass							
Stomach No.	Date	Standard Length	Weight in grams	Stomach Contents volume in cc.	Mayfly Nymphs no. %	Fish no. %	Kind
251	11/13/56	273	567	16		2 100 100	1 sunfish & 1 unidentified
252	12/5/56	410	2381	43		2 100 100	GS, (1 with 150 mm. standard length)
253	12/6/56	387	1743	10		1 100 100	Unidentified
254	2/7/57	400	2183	16		1 100 100	Unidentified
255	3/7/57	300	737	23		1 100 100	GS
256	4/11/57	425	2665	220		1 100 100	R&P with 170mm. standard length
257	4/11/57	370	1474	21		1 100 100	GS
258	4/11/57	435	2637	7		1 100 100	Unidentified
White Crappie							
248	7/25/56	155	82	3	50 100		
249	7/25/56	135	65	2.5	30 60	1 40	GS
250	9/7/56	296	765	10		1 100 100	Unidentified
259	4/11/57	284	680	15		3 100 100	Unidentified
260	4/11/57	280	680	19		1 100 100	GS

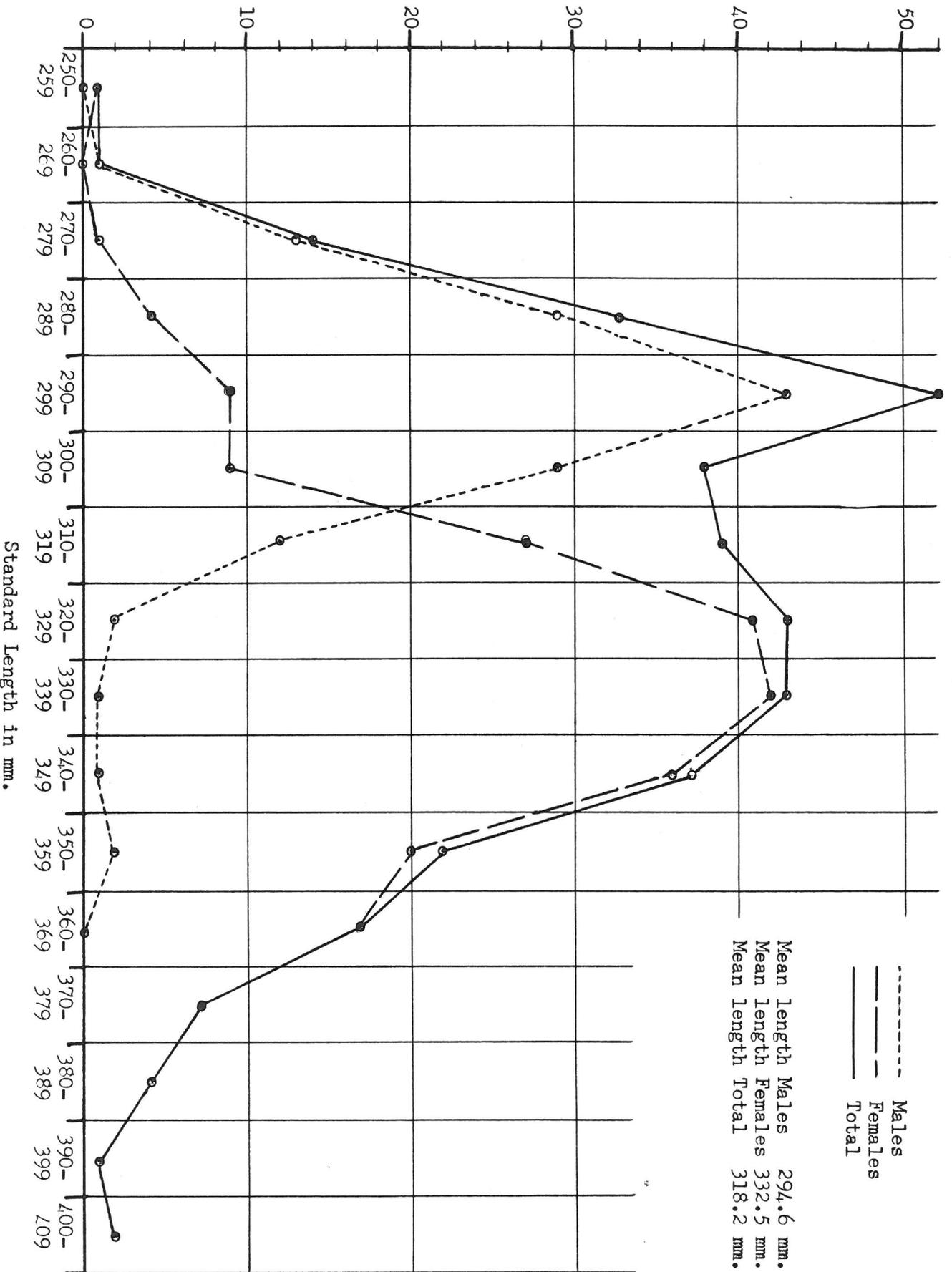
Table XIII Fish Taken in Seines from Lake Casa Blanca July 1956 through June 1957

Species	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	Total	Percent	
TPFS	0	0	0	0	4	0	0	5	1	7	12	0	0	29	0.63
GS	43	14	12	20	0	0	5	10	0	0	21	311	436	9.54	
Tetra	0	0	0	0	0	0	0	0	0	0	1	0	1	0.02	
Not. cry.	0	0	1	0	0	0	0	0	0	0	0	2	3	0.07	
Op. em.	0	0	6	1	0	6	10	0	0	7	1	0	3	0.68	
Not. lut.	5	1	2	0	56	36	2	0	2	12	11	3	130	2.84	
Hyb. nuc.	0	0	0	0	0	0	0	0	1	0	0	0	1	0.02	
Pim. vig.	0	0	0	0	0	0	0	0	0	0	1	0	1	0.02	
Cypr. var.	0	0	0	0	0	1	0	0	0	0	0	0	1	0.02	
Gamb.	1	1	1	10	0	0	0	0	0	1	5	2	21	0.46	
Molly	0	0	0	0	0	0	0	0	0	0	0	1	1	0.02	
Men. ber.	189	27	24	28	123	87	319	15	218	125	61	259	1475	32.26	
WMB	0	1	0	0	0	0	0	0	0	0	0	0	1	0.02	
IMB	6	10	6	4	1	1	3	5	4	1	2	1	44	0.97	
RES	2	2	1	1	0	0	0	2	3	1	1	8	21	0.46	
BGS	254	205	519	331	129	219	242	34	88	173	94	8	2296	50.22	
IES	0	0	0	0	0	0	0	0	0	1	0	0	1	0.02	
WC	10	5	3	3	2	0	3	0	0	0	21	12	59	1.29	
RGP	8	7	5	0	0	0	0	0	0	0	0	0	20	0.44	
Total	518	273	580	398	315	350	584	71	317	328	231	607	4572	100.00	
Percent	11.33	5.97	12.66	8.72	6.88	7.66	12.78	1.55	6.93	7.18	5.05	13.28			
No. Coll.	2	2	2	2	2	2	2	2	2	2	2	2	24		
Avg. no. of Fish/coll.	259	136.5	290	199	157.5	175	242	35.5	158.5	164	115.5	303.5	190.5		

Table XIV Number of Fish Taken in Seines at Two Stations from Casa Blanca Lake July 1956 to June 1957

Species	Station # 1	Station # 2	Total	Percent by Species
TFS	24	5	29	0.63
GS	45	391	436	9.54
Tetra	0	1	1	0.02
Not. chry.	0	3	3	0.07
Op. em.	1	30	31	0.68
Not. lut.	37	93	130	2.84
Hyb. nuc.	0	1	1	0.02
Pim. vig.	0	1	1	0.02
Cypr. var.	0	1	1	0.02
Gamb.	6	15	21	0.46
Molly	0	1	1	0.02
Men. ber.	765	710	1475	32.26
WMB	0	1	1	0.02
LMB	36	8	44	0.97
RES	5	16	21	0.46
BGS	968	1328	2296	50.22
LES	1	0	1	0.02
WC	10	49	59	1.29
RGP	19	1	20	0.44
Total	1917	2655	4572	100.00
Percent	41.92	58.08	100.00	

Table XV. The Range and Frequency of Standard Lengths of the River Carpsucker Netted from Casa Blanca Lake July 1956 through June 1957.



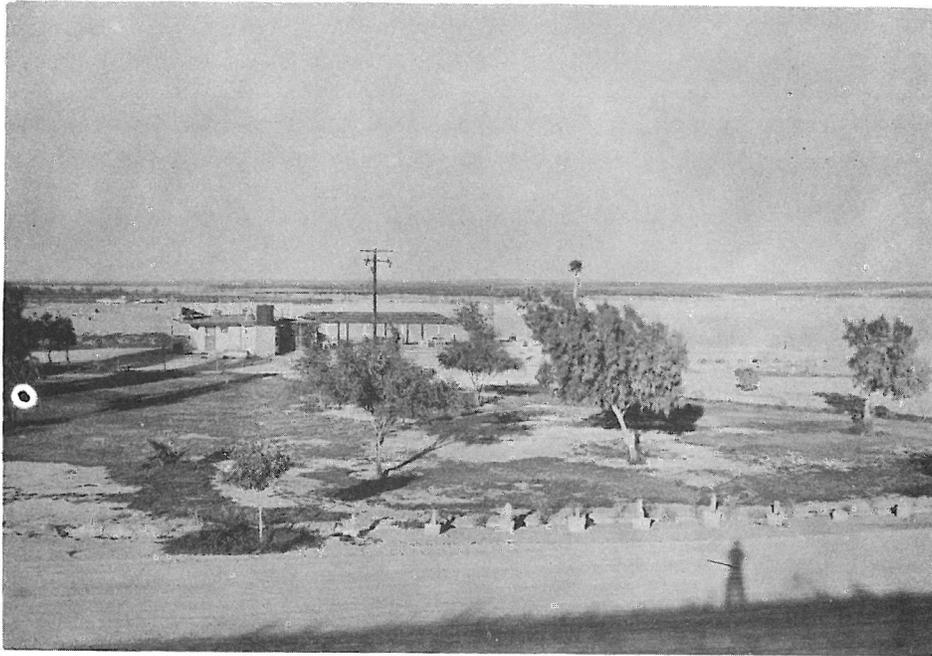


Fig. 1. Looking northeast from dam. Concession stand, swimming area and boat dock. Net Station #1 to right.

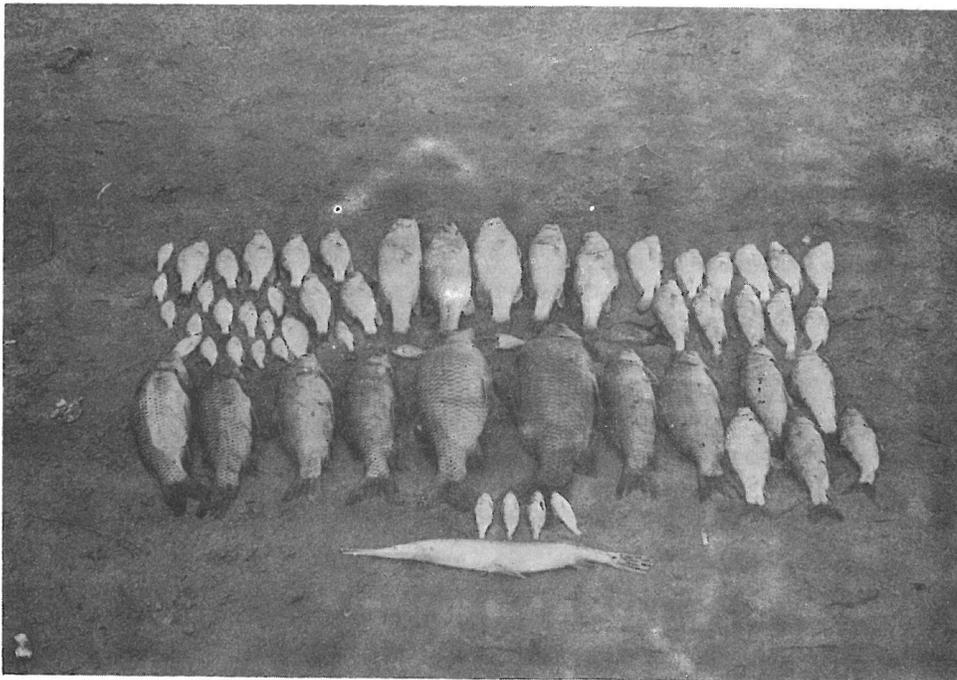


Fig. 2. Overnight catch from single experimental net above Net Station #4, June 12, 1957.



Fig. 3. View of middle part of lake from south shore. Net Station #3 in background, #2 at extreme right.

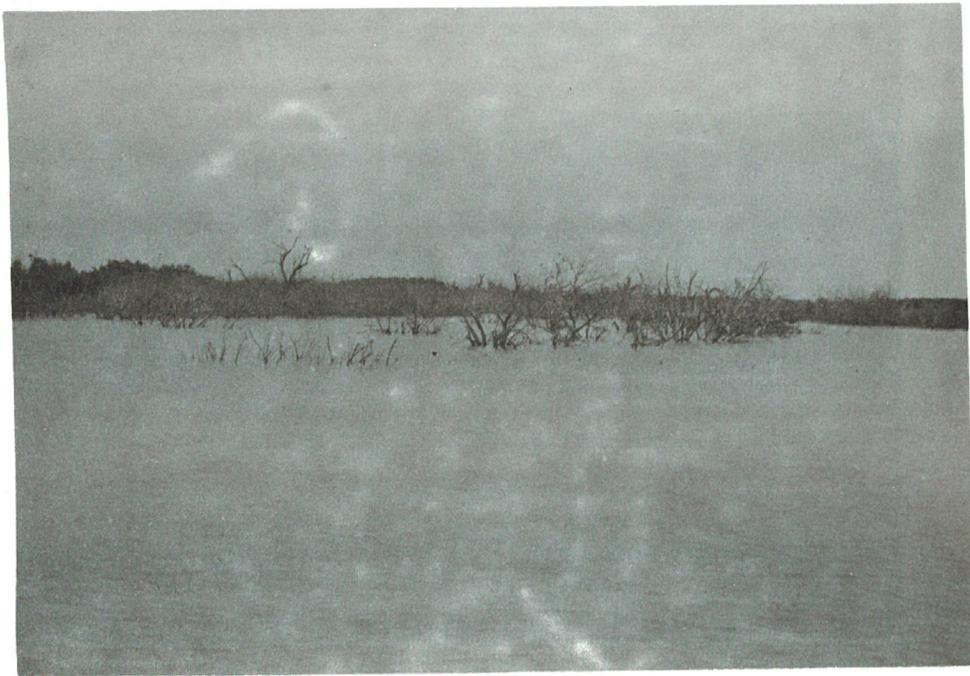


Fig. 4. Net Station #4 near head of lake. Trees and brush were not cleared from lake bed prior to impoundment.

CASA BLANCA LAKE

LAREDO, TEXAS

TRACED FROM AERIAL PHOTO NO. DQM - 10K - 133,

FEB. 2, 1952, U.S. SOIL CONSERVATION SERVICE.

LAKE LEVEL APPROXIMATELY 436 FEET ABOVE SEA LEVEL.

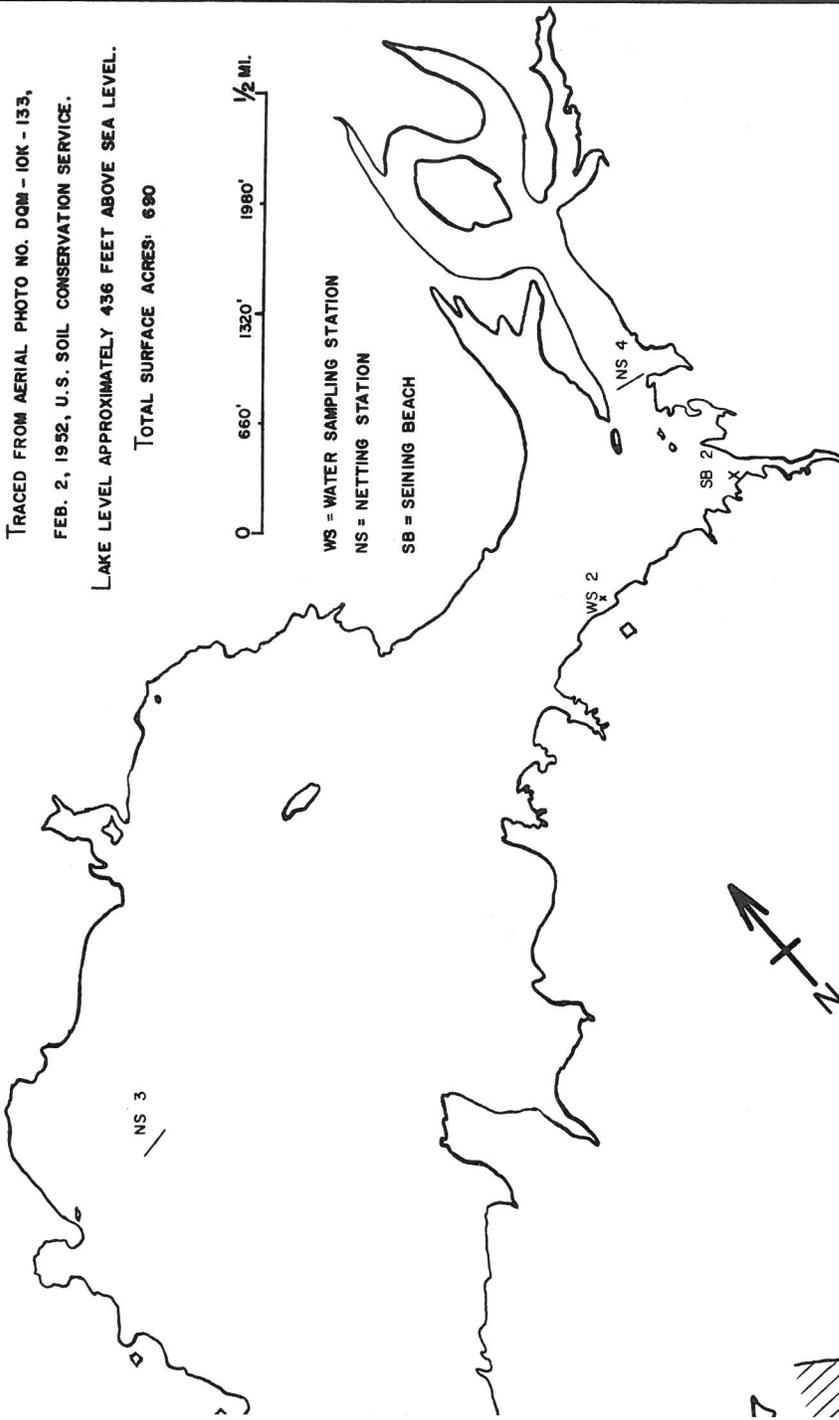
TOTAL SURFACE ACRES: 690



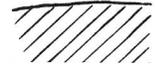
WS = WATER SAMPLING STATION

NS = NETTING STATION

SB = SEINING BEACH



SPILLWAY



CASA BLANCA LAKE

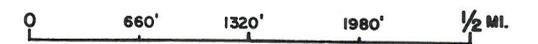
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