FILE

JOB COMPLETION REPORT

Investigations Project

State of TEXAS

Project No. F2R5 Name: Fisheries Investigations and Surveys of the Waters of Region 6-B.

Job No. B-20 Title: Resurvey of the Waters of Region 6-B.

Period Covered: July 1, 1957 through January 31, 1958

ABSTRACT:

The year 1957 was one of severe flooding on many of the waters of Central Texas. For this reason it was deemed desirable to determine the status of the fish populations of several of the major streams and lakes previously studied under Project F-2-R.

The waters resurveyed were Lakes Inks and Travis and the Lampasas, San Gabriel and San Saba Rivers.

In all cases it was found that flooding had to some degree affected the fish populations of the waters studied. In Lake Inks, young-of-the-year largemouth bass were found to be quite scarce but young white bass and channel catfish appear to be quite abundant. In Lake Travis, young largemouth bass are more abundant than they have been in years, also the result of the flooding.

Stream populations, though undoubtedly affected by flooding, were recovering and expanding fairly rapidly. The dominant species of previous survey work remained the dominant species in the 1957 resurveys.

Some items of interest are the appearance of the banded tetra, Astayanax fasciatus in the Lampasas River, the appearance of the yellowbreast sunfish, Lepomis auritus, in the San Gabriel River (undoubtedly the result of state fish hatchery stocking) and the drastic reduction in the abundance of longear sunfish, Lepomis megalotis, in the San Gabriel River. The gizzard shad, Dorosoma cepedianum, which was quite abundant in the upper San Saba River apparently was adversly affected by turbid flood waters and is now quite scarce.

It is recommended that extensive numbers of largemouth bass fry be stocked in Lake Inks to offset the apparent destruction of the spawn of the species in 1957.

All told, however, the flooding in 1957 of the waters resurveyed by project personnel had no serious detrimental effect on the fish populations contained therein although some habitat destruction due to scouring did occur.

OBJECTIVES:

To determine the present status of waters and fish populations which have been previously surveyed in Project F-2-R.

PROCEDURE:

Collections of fish samples were obtained principally through the use of small meshed seines and standard, experimental type, gill nets. The experimental gill net consists of five sections of mesh sizes ranging from one-inch square mesh to three inches square mesh in one-half inch intervals. Each section of webbing is twenty-five feet long and eight feet deep.

With the exception of the work done on Lake Inks, all seine and net collections were taken at random, from various habitats. Seine and net collections of fish specimens from Lake Inks were obtained from long established collection stations.

Seined specimens were preserved, as usual, in ten percent formalin solution and taken to the regional fishery laboratory for identification and counting.

Gill netted specimens were identified, weighed, measured and examined for stage of sexual development in the field. These data were recorded on standard data sheets and later consolidated.

The waters worked by resurvey crews included Lakes Inks and Travis and the Lampasas, San Gabriel and San Saba Rivers.

DISCUSSIONS AND FINDINGS:

Lake Inks

In August, 1957 a field trip was made to Lake Inks for the purpose of obtaining data on the present status of the fish population, and to inspect the lake for regrowth of submergent and emergent vegetation. Seine and net collections of fish specimens were obtained from the collection stations used during the initial survey.

A second collecting trip was made to Inks Lake during December, 1957 to take seine samples of shoreline species. The results of all of these collections are presented in Tables 1 and 2.

It had been rumored by many people that the severe flooding of Inks Lake during 1957 had not only destroyed almost all of the aquatic vegetation but had also destroyed most of the spawn of the largemouth bass and that the young-of-the-year of this species in Inks Lake were all but non-existent in the fall of 1957. This was considered a possibility since 1,282,000 acre feet of water had flooded through the lake during the months of April and May. In order to check this, seine collections were taken in August and December.

Though the results of the seine collections cannot be considered conclusive, it would appear that young-of-the-year largemouth bass were extremely scarce during the time of the collections. By way of comparison, in August, 1955, 265 seined specimens were collected and of these 17 were largemouth bass fingerlings and yearlings. Similarly, of

the 30 specimens taken from these same stations in August of 1956, 3 were young largemouth bass. However, in August of 1957, only 3 of the 1,122 specimens taken were young largemouth bass. This seems to indicate that the relative abundance of young of this species has declined, possibly as a result of the flood of 1957. For this reason it is considered advisable to stock as many largemouth bass fry as can be obtained from nearby state and/or federal fish hatcheries during the coming fry stocking season. Preferably, it would be desirable to stock these fry at the earliest possible date in order for them to take advantage of the full length of the 1958 growing season.

Net samples of fish taken from Lake Inks during the month of August indicate that either longnose gar and channel catfish were more numerous than they were in 1955 and 1956, or that they were much more active. Out of 520 fish taken in the eight simultaneous net sets, longnose gar accounted for 51, or 9.80 percent of the total, and channel catfish accounted for 92, 17.69 percent of the total. Of the total weight of the netted fish, longnose gar comprised 54.26 percent and channel catfish comprised 15.10 percent.

Reports from camp operators suggest that fishing for catfish and white bass is better than it has been for a number of years in Inks Lake. This probably is due to the apparent increase in their relative abundance and the decrease in the total amount of cover in the lake. This increase in relative abundance is evidenced by the proportion of the total netted fish in the August net sample composed of channel catfish.

Overall it appears as if the ratio of predator fish to forage and rough fish is relatively well balanced at this time. Predators, including gars, catfish, white bass, crappie, sunfishes, and drum comprised approximately 47 percent of the total number of fish netted in the August, 1957 collections. Forage and rough fish combined and including gizzard shad, smallmouth buffalo, river carpsuckers, and carp accounted for the other 53 percent. By weight, the ratio is very much more in favor of the predator species, 77 percent being predators and only 23 percent being forage and rough fish species.

Essentially it can be said that the fish population in Inks Lake at the present time appears to be in excellent condition. The only apparent exception to this assumption seems to be in the scarcity of young largemouth bass. This can probably be overcome with wholesale stocking of bass fry during the 1958 stocking season.

Lake Travis

Lake Travis was subjected to a severe water level fluctuation of some 35 feet during 1957. Heavy spring rains brought the water level from an elevation of 670 feet above sea-level to a record level of 707 feet. The fluctuation occurred during spring and early summer and coincided with the spawning season of many fish species in Lake Travis. Apparently the rising water level was not detrimental to game fish spawn since large numbers of young game fish were taken in specimen collections by Game and Fish Commission personnel during the summer and fall of 1957. In addition, anglers on Lake Travis caught untold numbers of young largemouth black and white bass during the same period.

Twelve seine collections and eighteen gill net collections were made at random during the resurvey. A total of 4,430 individuals were taken in seines and 441 in the net collections. The results of these collections are given in Tables 3 and 4.

The gizzard shad was the most abundant species taken in the seine collections accounting for 84.06 percent of total numbers. The largemouth black bass made up 12.40 percent of the total and was the second most abundant. All other species including sunfish and the Cyprinids or minnows and shiners, accounted for less than 4 percent of the total seine collections.

In the netting collections rough fish dominated the collections, making up 59.26 percent of total netted specimens and 71.64 percent of the total weight.

The white bass was the most abundant game fish taken in the net collections with 19.73 percent of the total number taken and 13.49 percent of the total weight.

Throughout 1956 Lake Travis was clear and relatively infertile. However, during the resurvey period the lake had a desirable bloom of unicellular algae and had changed from a sterile clear color to a rich, fertile green color.

With the increased fertility and excellent 1957 spawn of game fish species, fishing should be above average during 1958.

Lampasas River

Because of flooding conditions during the spring of 1957, it was considered advisable to recheck a number of stations on the Lampasas River to see what effect flood waters had had on the fish population in this stream. For this purpose a field trip was made to four stations on the Lampasas during September. The results of the seining collections are presented in Table 5.

It was found that, regardless of the tremendous amount of flood water which passed through the Lampasas River, the dominant, or rather most abundant, species found in 1953 were again the most abundant species in 1957. However, only 19 of the 32 species found in 1953 were collected in 1957. This is probably accounted for in the fact that the very limited study made in 1957 could not possibly produce the same thorough results obtained in the earlier study but was intended only to discover any drastic changes which might have occurred as a result of the flood.

Perhaps the most interesting discovery resulting from the 1957 study was the appearance of the banded tetra, Astayanax fasciatus, in the Lampasas River. This sub-tropical species has, so far as is known, not been reported from this stream prior to this writing.

Field observations of young channel catfish indicate an increase in this species in the river. Similarly, largemouth bass were seen in greater numbers than they were collected and it appears as if this species as well as the catfish were not too drastically reduced in numbers by the flood waters. It is recommended, however, that substantial numbers of both these species be stocked at various places in the river to help in the rebuilding of good sport fishery in the Lampasas River.

San Gabriel River

The San Gabriel River, like the Lampasas, suffered from extremely heavy flooding during the spring of 1957. Because of this it was felt necessary to determine how seriously the fish population had been affected. For this reason a number of the origina

survey collection stations were revisited and seine collections of fish specimens were obtained. The results of these collections are presented in Table 6.

The stations revisited during the summer of 1957 were primarily in Williamson County, the portion of the stream which was most seriously flooded.

The most significant difference between the earlier collections made in 1953 and those made in 1957 was the drastic reduction in the relative abundance of longear sunfish, Lepomis megalotis. This species dropped from 22 percent of the specimens collected in 1953 to only 0.05 percent of those taken in 1957. This would appear to indicate that the longear sunfish was seriously affected by flooding conditions. Similarly the central stoneroller, Campostoma anomalum, appears to have been drastically reduced in relative abundance. In the 1953 collections they comprised 14 percent of the total specimens whereas they composed only 0.19 percent of the 1957 collection.

Conversely, the yellowbreast sunfish, Lepomis auritus, which was not collected in 1953 comprised 3.55 percent of the specimens taken in 1957. These specimens were undoubtedly planted by state fish hatchery personnel.

A species which one would have expected to have been very seriously affected by flooding conditions is the orangethroat darter, Etheostoma spectabile. However, this fish species remains present in relatively large numbers.

The two dominant notropid species remain, as would be expected, the redhorse shiner, Notropis lutrensis, and the spottail shiner, Notropis venustus.

San Saba River

Five stations on the upper San Saba River in Menard and Schleicher Counties were checked with seines in an effort to determine the effects of severe spring flooding on the fish population. The seine collections were made in November, 1957, at which time the volume of flow was only slightly greater than during the 1956-1957 survey period. (Job B-17, Project F-2-R-4). The results of the seine collection are given in Table 7.

Submerged aquatic vegetation including Chara sp., Myriophyllum sp., and Potomogeton sp. was sparse in the headwaters of the river, evidently reduced appreciably by swift waters and high turbidity.

The most abundant fish species found in the seine collection was the spottail shiner, making up over 63 percent of the total numbers taken. The redhorse shiner and the parrot minnow were second in abundance, each accounting for 11 percent of the total.

Sunfish, including the redear, longear, green, and bluegill comprised 9 percent of the total numbers and were the only game species taken in the collections.

Although too few collections were made for accurate comparison with the previous extended inventory, it appears that the fish population is substantially the same as found during the initial survey.

The only noticeable exception was the absence of gizzard shad in the collections. Although taken in large numbers from every station on the upper San Saba River during

the 1956-57 inventory, this species was not taken in any collection during the resurvey. High turbidity and radical temperature changes as a result of the heavy rains may have caused heavy mortality to this susceptible species.

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Table 1. Lake Inks Seining Results, 1957.

COMMON NAME	SCIENTIFIC NAME	AUG. 19 NUMBER	DEC. 3 NUMBER	TOTAL NUMBER	PER CENT OF NUMBER
Gizzard shad	Dorosoma cepedianum	620	69	689	47.35
River carpsucker	Carpiodes carpio	---	1	1	0.07
Spottail shiner	Notropis venustus	367	207	574	39.45
Redhorse shiner	Notropis lutrensis	38	35	73	5.02
Parrot minnow	Pimephales vigilax	13	--	13	0.89
Blackstripe topminnow	Fundulus notatus	4	--	4	0.27
Common mosquitofish	Gambusia affinis	6	1	7	0.48
Largemouth black bass	Micropterus salmoides	3	--	3	0.21
Redear sunfish	Lepomis microlophus	10	10	20	1.38
Bluegill sunfish	Lepomis macrochirus	51	10	61	4.19
Yellowbelly sunfish	Lepomis auritus	5	--	5	0.34
Logperch	Percina caprodes	5	--	5	0.35
TOTALS		1,122	333	1,455	100.00

Table 2. Lake Inks Netting Results, August 19-20, 1957.

COMMON NAME	NUMBER	PER CENT OF NUMBER	WEIGHT lbs	WEIGHT oz	PER CENT OF WEIGHT
Gar	51	9.80	296	14	54.26
Gizzard shad	234	45.00	26	13	4.90
Smallmouth buffalo	25	4.81	74	04	13.58
River carpsucker	9	1.73	21	07	3.91
Carp	6	1.16	4	14	0.90
Channel catfish	92	17.69	82	10	15.10
Yellow catfish	2	0.38	10	06	1.90
White bass	26	5.00	20	02	3.67
Warmouth	1	0.19		02	0.03
Redear sunfish	3	0.58		05	0.05
Bluegill sunfish	47	9.04	4	06	0.80
White crappie	21	4.04	4	03	0.77
Freshwater drum	3	0.58		11	0.13
TOTALS	520	100.00	547	01	100.00

Table 3. Lake Travis Seining Results, 1957.

COMMON NAME	SCIENTIFIC NAME	BEE CREEK NUMBER	CYPRESS CREEK NUMBER	TOTAL NUMBER	PERCENT OF NUMBER
Gizzard shad	Dorosoma cepedianum	20	3,704	3,724	84.06
River carpsucker	Carpiodes carpio	--	1	1	0.02
Spottail shiner	Notropis venustus	12	14	26	0.59
Redhorse shiner	Notropis lutrensis	--	37	37	0.83
Common Mosquitofish	Gambusia affinis	--	2	2	0.05
White bass	Roccus chrysops	1	5	6	0.13
Texas spotted bass	Micropterus treculi	3	1	4	0.09
Largemouth black bass	Micropterus salmoides	478	71	549	12.40
Redear sunfish	Lepomis microlophus	--	15	15	0.34
Bluegill sunfish	Lepomis macrochirus	8	13	21	0.47
Longear sunfish	Lepomis megalotis	--	17	17	0.38
White crappie	Pomoxis annularis	--	6	6	0.14
Logperch	Percina caprodes	--	20	20	0.45
Rio Grande perch	Cichlasoma cyanoguttatum	2	--	2	0.05
TOTALS		524	3,906	4,430	100.00

Table 4. Lake Travis Netting Results, 1957.

COMMON NAME	HURST CREEK NO.	HURST CREEK WT. LBS.	CYPRESS CREEK NO.	CYPRESS CREEK WT. LBS.	BEE CREEK NO.	BEE CREEK WT. LBS.	TOTAL NO.	TOTAL WT. LBS	PERCENT NO.	PERCENT WT.
Longnose gar	--	--	7	25.06	14	16.25	21	41.31	4.76	7.68
Gizzard shad	8	8.31	12	12.81	44	19.68	64	40.80	14.51	7.59
Smallmouth buffalo	--	--	5	6.93	5	4.31	10	11.30	2.27	2.10
River carpsucker	3	5.93	120	223.50	2	3.37	125	232.80	28.34	43.32
Grey redhorse sucker	1	1.75	4	5.50	2	3.43	7	10.68	1.59	1.98
Carp	3	14.00	14	25.62	--	--	17	39.62	3.85	7.38
Blue catfish	--	--	--	--	1	8.43	1	8.43	0.23	1.56
Channel catfish	8	7.87	13	20.43	20	14.37	41	42.67	9.30	7.94
Yellow catfish	1	4.31	2	5.18	--	--	3	9.49	0.68	1.77
White bass	10	13.00	11	13.31	66	46.18	87	72.49	19.73	13.49
Texas spotted bass	--	--	--	--	3	1.06	3	1.06	0.68	0.19
Largemouth black bass	--	--	1	2.00	20	7.93	21	9.93	4.76	1.85
Green sunfish	--	--	--	--	1	0.12	1	0.12	0.22	0.02
Bluegill sunfish	--	--	1	0.25	9	0.87	10	1.12	2.27	0.21
Longear sunfish	--	--	--	--	1	0.06	1	0.06	0.23	0.01
White crappie	--	--	5	3.81	7	3.25	12	7.06	2.72	1.32
Freshwater drum	1	0.18	6	3.06	6	2.93	13	6.17	2.95	1.14
Rio Grande perch	2	2.00	--	--	2	0.37	4	2.37	0.99	0.45
TOTALS	37	57.35	201	347.46	203	132.67	441	537.48	100.00	100.00

Table 5. Lampasas River Seining Results, 1957.

COMMON NAME	SCIENTIFIC NAME	STATION NO. 9	STATION NO. 12	STATION NO. 15	STATION NO. 17		
		Number	Number	Number	Number	TOTAL NUMBER	PER CENT OF TOTAL
Longnose gar	Lepisosteus osseus	2	--	--	1	3	0.19
Gizzard shad	Dorosoma cepedianum	--	1	--	--	1	0.06
Banded tetra	Astayanax fasciatus	--	--	1	1	2	0.13
River carpsucker	Carpiodes carpio	2	2	--	--	4	0.26
Spottail shiner	Notropis venustus	70	209	170	81	530	34.22
Redhorse shiner	Notropis lutrensis	104	89	21	41	255	16.46
Mimic shiner	Notropis volucellus	--	33	1	--	34	2.19
Parrot minnow	Pimephales vigilax	161	262	121	38	582	37.58
Stoneroller	Campostoma anomalum	1	--	--	--	1	0.06
Channel catfish	Ictalurus punctatus	4	--	2	2	8	0.52
Yellow bullhead	Ictalurus natalis	--	--	1	--	1	0.06
Yellow catfish	Pylodictus olivaris	--	--	--	1	1	0.06
Tadpole madtom	Schilbeodes gyrinus	--	--	1	--	1	0.06
Common mosquitofish	Gambusia affinis	5	16	7	5	33	2.14
Largemouth black bass	Micropterus salmoides	--	1	--	--	1	0.06
Green sunfish	Lepomis cyanellus	--	1	1	--	2	0.13
Yellowbelly sunfish	Lepomis auritus	--	21	--	--	21	1.36
Longear sunfish	Lepomis megalotis	7	--	34	21	62	4.00
Orangethroated darter	Etheostoma spectabile	4	--	2	1	7	0.46
TOTALS		360	635	362	192	1,549	100.00

Table 6. San Gabriel River Seining Results, 1957.

COMMON NAME	SCIENTIFIC NAME	NUMBER	PER CENT OF NUMBER
River carpsucker	Carpiodes carpio	4	0.18
Weed shiner	Notropis roseus	29	1.34
Spottail shiner	Notropis venustus	1,269	58.56
Redhorse shiner	Notropis lutrensis	494	22.79
Parrot minnow	Pimephales vigilax	109	5.03
Stoneroller	Campostoma anomalum	4	0.19
Channel catfish	Ictalurus punctatus	10	0.46
Gambusia	Gambusia affinis	55	2.54
Kentucky spotted bass	Micropterus punctulatus	1	0.04
Green sunfish	Lepomis cyanellus	5	0.24
Bluegill sunfish	Lepomis macrochirus	51	2.35
Yellowbelly sunfish	Lepomis auritus	77	3.55
Longear sunfish	Lepomis megalotis	1	0.05
Orangethroat darter	Etheostoma spectabile	58	2.68
TOTALS		2,167	100.00

Table 7. San Saba River Seining Collection, November 19, 1957.

COMMON NAME	SCIENTIFIC NAME	NUMBER	PER CENT OF NUMBER
River carpsucker	Carpiodes carpio	1	0.35
Golden shiner	Notemigonus crysoleucas	1	0.34
Spottail shiner	Notropis venustus	185	63.57
Redhorse shiner	Notropis lutrensis	34	11.68
Mimic shiner	Notropis volucellus	1	0.35
Texas shiner	Notropis amabilis	2	0.69
Parrot minnow	Pimephales vigilax	34	11.69
Gambusia	Gambusia affinis	1	0.34
Green sunfish	Lepomis cyanellus	4	1.37
Redear sunfish	Lepomis microlophus	1	0.34
Bluegill sunfish	Lepomis macrochirus	7	2.41
Longear sunfish	Lepomis megalotis	15	5.15
Logperch	Percina caprodes	1	0.34
Greenthroat darter	Etheostoma lepidum	4	1.38
TOTALS		291	100.00

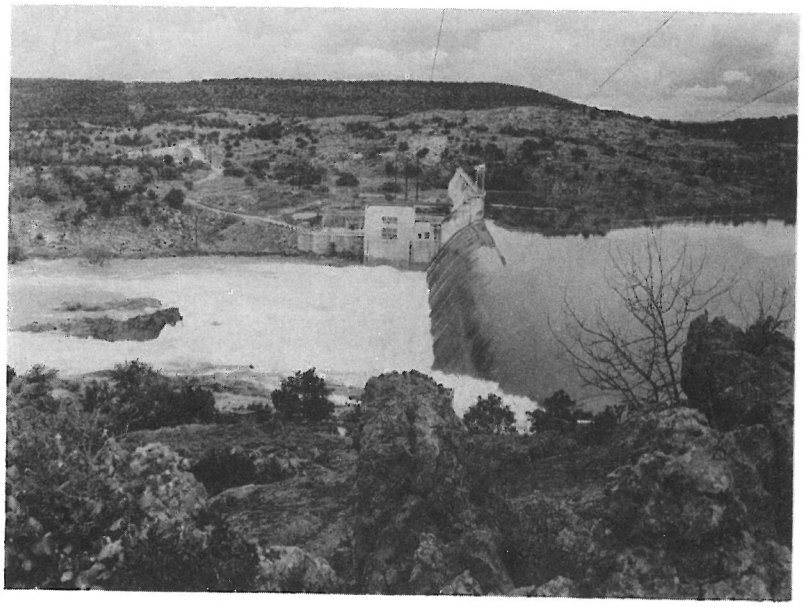

Figure 5. A wall of water at least six feet high surges over Inks Lake Dam, April 26, 1957.

Figure 6. Many of the fish which entered Lake Inks were killed in transit down the rocky Spillway Creek from Buchanan Dam.

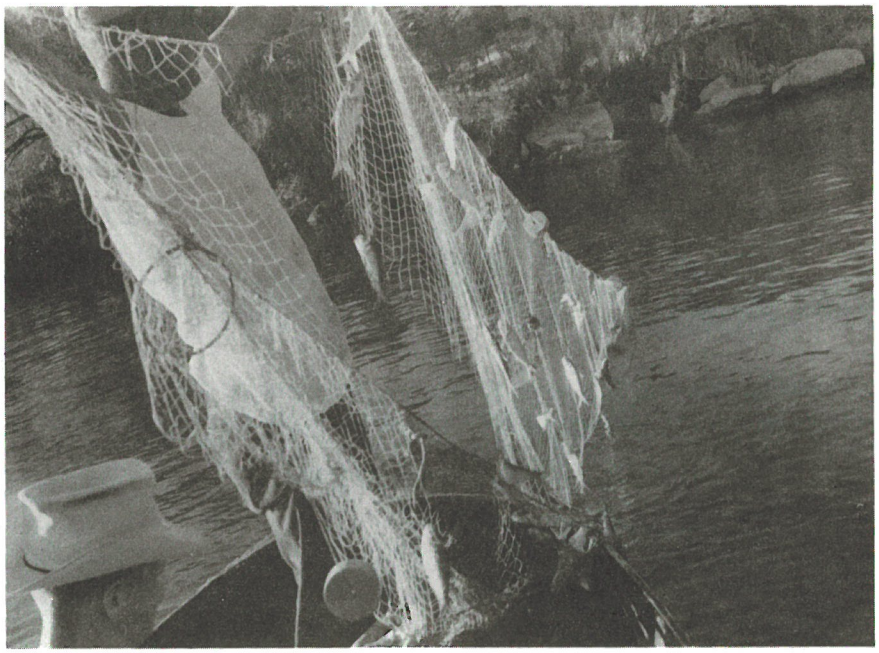

Figure 7. Test net showed large numbers of Gizzard shad had reentered Inks Lake during the height of the flooding.