

Lake Worth

JOB PROGRESS REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-4-R-16

REGION 2-A FISHERIES STUDY

Job No. B-37: Fishery Management Recommendations

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February 11, 1970

JOB PROGRAMS REPORT

## SUMMARY

During this segment, 15 major public lakes in North Central Texas were checked on a quarterly basis. From 5 to 15 netting collections were made on each lake.

Length and weight data were recorded for the specimens taken in the netting collections, and notes were made on those specimens taken in the seining collections. Notes were made on aquatic vegetation.

Game fish species comprised 50% or more of the total number of fish taken in 9 lakes. But, by weight, rough fish species were dominant in 13 of the 15 lakes. In 5 lakes, rough fish species comprised more than 80% of the total weight of all fish taken. Some consideration should be given to controlling the rough fish in those lakes.

Aquatic vegetation control work should be done at Lake Weatherford to prevent the spread of noxious vegetation. More good fishing areas will become inaccessible if the vegetation is not controlled.

This job should be continued so that we may be able to keep abreast of changes in the fish populations. This information will be valuable in managing the fishery resources of this area.

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## Job Progress Report

State of Texas

Project No. F-4-R-16

Name: Region 2-A Fisheries Studies

Job No. B-37

Title: Fishery Management Recommendations

Period Covered: January 1, 1969 to December 31, 1969

### Background:

The first group of major public lakes in this region, 15 in all, were checked quarterly during the preceding segment. The second group of major lakes were checked quarterly during this segment. Thus, all of the major public lakes in Region 2-A have been checked at least four times during the past two years. Even though these data are limited, they should be useful in making stocking recommendations, population control recommendations, and recommendations pertaining to the need for a contract fisherman.

### Objectives:

To determine the need for changes in fish harvest regulations, stocking, population control, vegetation control, and contract fishing in Region 2-A waters.

### Procedures:

Proposed fishing regulations for the Possum Kingdom Regulatory Area were discussed at a Game Management Officer-Biologist meeting prior to being presented at public hearings in each county under Regulatory power. The fishing laws were then presented to the Commissioners of the Texas Parks and Wildlife Department. The regulations which set seasons, bag and possession limits, and means and methods of harvest, were based upon results and findings of surveys and work done in this region.

Fifteen major public lakes in the region were divided into 3 groups: less than 5,000 acres, 5,000 to 10,000 acres, and more than 10,000 acres. From 5 to 15 nets, based on the size of the lake, were set overnight in each lake during each quarter.

Experimental gill nets, 150 feet long with varying mesh sizes from 1 to 3½ inches, and a 20-foot seine were used to make the fish collections. The game fish species were weighed and measured individually. A representative sample of rough fish species were weighed and measured and the remainder of rough fish were counted and bulk weighed.

Seining collections were made and the number of game fish and the forage fish species taken was recorded.

Stocking recommendations were based on seining collection data.

Gill netting data were used in considering whether or not a contract fisherman might be beneficial to a lake.

Notes were made on the types of aquatic vegetation present and whether or not it interfered with access or fishability of an area.

Table 1 is a checklist of all fish taken in the netting and seining collections during the segment. Only common names are used in the report.

#### Findings:

##### Garza-Little Elm Reservoir

Gill Netting: Rough fish species (spotted and longnose gar, threadfin and gizzard shad, smallmouth buffalo, river carpsucker, carp and freshwater drum) comprised 66.86 percent of the total number and 84.03 percent of the total weight of all fish taken in the 59 netting collections made on this Denton County lake in 1969. One net was stolen; thus only 59 collections were made. Smallmouth buffalo and river carpsucker were the most frequently taken rough fish species, as they comprised 52.31 percent of the total number and 70.09 percent of the total weight of all fish taken in the netting collections (Table 2).

Eight species of game fish were taken in the collections. White bass and white crappie comprised 27.37 percent of the total number and 13.79 percent of the total weight of all fish taken during the year. The white bass weighed an average of three-quarters of a pound. The "K" factors of all game fish species revealed the fish to be in good condition.

Seining Collections: Nine seining collections were made in conjunction with the netting trips. Each collection consisted of from three to 10 hauls, and each haul was from 20 to 40 feet in length.

Threadfin shad were taken in large numbers in the June and December collections. Only a few of them were taken in the September collections. In one haul in December, 178 specimens were counted. Gizzard shad were also found in good numbers. Brook silversides were common in nearly all the collections.

Several largemouth bass and white crappie fry were picked up in late June, and larger bass, from 2- to 5-inches in length, were found in the September collections. Red and blacktail shiners, fathead minnows, golden shiners, bluegill, longear sunfish, logperch, mosquitofish, and one river carpsucker were taken in the seining collections during the year.

Vegetation: Aquatic vegetation is not a problem in this lake. Several patches of pondweed, Potamogeton, were seen, but it is not considered to be a problem.

Table 2

## Garza-Little Elm Reservoir Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Spotted gar*	25	1.90	42.75	1.79
Longnose gar*	19	1.44	79.33	3.33
Threadfin shad*	6	0.45	0.26	0.01
Gizzard shad*	79	5.99	74.81	3.14
Smallmouth buffalo*	363	27.52	943.69	39.57
River carpsucker*	327	24.79	727.71	30.52
Carp*	47	3.56	124.35	5.21
Channel catfish	15	1.14	22.02	0.92
Flathead catfish	3	0.23	11.89	0.50
White bass	223	16.91	227.65	9.55
Largemouth bass	23	1.74	13.22	0.55
Warmouth	1	0.08	0.13	0.01
Redear sunfish	1	0.08	0.10	0.01
Bluegill	33	2.50	4.53	0.19
White crappie	138	10.46	101.16	4.24
Freshwater drum*	16	1.21	11.01	0.46
Totals	1,319	100.00	2,384.61	100.00
Rough Fish	882	66.86	2,003.91	84.03
Game Fish	437	33.14	380.70	15.97

\* Indicates rough fish species

Table 1

Checklist of Fish Species

<u>Common Name</u>	<u>Scientific Name</u>
Shortnose gar	<u>Lepisosteus platostomus</u>
Spotted gar	<u>L. oculatus</u>
Longnose gar	<u>L. osseus</u>
Threadfin shad	<u>Dorosoma petenense</u>
Gizzard shad	<u>D. cepedianum</u>
Bigmouth buffalo	<u>Ictiobus cyprinellus</u>
Smallmouth buffalo	<u>I. bubalus</u>
River carpsucker	<u>Carpiodes carpio</u>
Gray redhorse	<u>Moxostoma congestum</u>
Spotted sucker	<u>Minytrema melanops</u>
Carp	<u>Cyprinus carpio</u>
Golden shiner	<u>Notemigonus crysoleucas</u>
Blacktail shiner	<u>Notropis venustus</u>
Red shiner	<u>N. lutrensis</u>
Fathead minnow	<u>Pimephales promelas</u>
Channel catfish	<u>Ictalurus punctatus</u>
Blue catfish	<u>I. furcatus</u>
Black bullhead	<u>I. melas</u>
Yellow bullhead	<u>I. natalis</u>
Flathead catfish	<u>Pylodictis olivaris</u>
Blackstripe topminnow	<u>Fundulus notatus</u>
Mosquitofish	<u>Gambusia affinis</u>
Brook silverside	<u>Labidesthes sicculus</u>
White bass	<u>Roccus chrysops</u>
Spotted bass	<u>Micropterus punctulatus</u>
Largemouth bass	<u>M. salmoides</u>
Warmouth	<u>Chaenobryttus gulosus</u>
Green sunfish	<u>Lepomis cyanellus</u>
Redear sunfish	<u>L. microlophus</u>
Bluegill	<u>L. macrochirus</u>
Orangespotted sunfish	<u>L. humilis</u>
Redbreast sunfish	<u>L. auritus</u>
Longear sunfish	<u>L. megalotis</u>
White crappie	<u>Pomoxis annularis</u>
Logperch	<u>Percina caprodes</u>
Freshwater drum	<u>Aplodinotus grunniens</u>

### Eagle Mountain Lake

Gill Netting: The netting results are summarized in Table 3. In all, 990 fish of 18 species were taken in the 40 netting collections made on this Tarrant County lake in 1969. Smallmouth buffalo and river carpsucker, in that order, ranked first and second in total number and total weight of all fish taken during the year. Together, they comprised 52.43 percent of the total number and 77.88 percent of the total weight of all fish taken in the netting collections.

White crappie and white bass, in that order, were the most frequently taken game fish species. They comprised 19.30 percent of the total number and 5.15 percent of the total weight. Largemouth bass comprised less than 5 percent of the total number of fish taken in the nets and slightly more than 2 percent of the total weight.

All game fish species were considered to be in good condition, as shown by their "K" factors.

Seining Collections: Brook silversides, red shiners, and blacktail shiners were the most frequently taken fish in the seining collections. Several small (1- to 3-inches) largemouth bass were taken in the July collections, and several larger (up to 8 inches) bass were taken in the October collections. Fathead minnows, threadfin and gizzard shad, bluegill, and logperch were also taken in the collections, but they were less common.

Vegetation: Aquatic vegetation is not a problem in this lake. However, it should be noted that there are approximately 200 acres of common cattails, 300 acres of bulrushes, 20 acres of American lotus, and 25 acres of pondweeds, in the lake at this time.

### Lake Arrowhead

Gill Netting: Rough fish species (shortnose, spotted and longnose gar, gizzard shad, bigmouth buffalo, smallmouth buffalo, river carpsucker, carp, and freshwater drum) comprised 53.33 percent of the total number and 79.18 percent of the total weight of all fish taken in this lake which is in Archer and Clay Counties. Carp were the most frequently taken rough fish species; they comprised 32.82 percent of the total number, and 29.84 percent of the total weight (Table 4).

White crappie were the most frequently taken game fish species. In all, 65 specimens were taken in the netting collections. It seems that white crappie are well established in this turbid lake. Even though only 4 channel catfish were taken in the netting collections, several fishermen reported that they had taken many catfish.

Seining Collections: Gizzard shad were the most abundant fish taken in the seining collections. Red shiners were the second most frequently taken fish. Other species, such as golden shiners, mosquitofish, bluegill, and longear sunfish were taken less frequently. No bass, catfish or crappie were taken in any of the seining collections.

Table 3

## Eagle Mountain Lake Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Shortnose gar*	1	0.10	2.06	0.11
Spotted gar*	6	0.60	8.51	0.43
Longnose gar*	21	2.12	130.49	6.65
Threadfin shad*	1	0.10	0.03	0.00**
Gizzard shad*	88	8.88	35.08	1.80
Smallmouth buffalo*	301	30.40	1,068.91	54.55
River carpsucker*	218	22.03	457.12	23.33
Carp*	15	1.52	63.05	3.22
Golden shiner*	2	0.20	0.39	0.02
Channel catfish	13	1.31	23.01	1.18
White bass	90	9.09	49.80	2.54
Largemouth bass	48	4.85	41.74	2.13
Green sunfish	2	0.20	0.66	0.03
Redear sunfish	4	0.40	0.87	0.04
Bluegill	67	6.77	13.92	0.71
Longear sunfish	6	0.61	0.55	0.03
White crappie	101	10.21	51.14	2.61
Freshwater drum*	6	0.61	12.22	0.62
Totals	990	100.00	1,959.55	100.00
Rough Fish	659	66.56	1,777.86	90.73
Game Fish	331	33.44	181.69	9.27

\* Indicates rough fish species

\*\* Indicates "trace" or less than 0.01%

Table 4

Lake Arrowhead Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Shortnose gar*	2	1.03	4.99	3.68
Spotted gar*	1	0.51	1.12	0.83
Longnose gar*	5	2.56	13.66	10.08
Gizzard shad*	11	5.64	6.51	4.80
Bigmouth buffalo*	8	4.10	22.84	16.86
Smallmouth buffalo*	6	3.08	9.93	7.32
River carpsucker*	3	1.54	7.67	5.66
Carp*	64	32.82	40.46	29.84
Channel catfish	4	2.05	9.03	6.66
Black bullhead	1	0.51	0.23	0.17
Yellow bullhead	9	4.62	4.35	3.21
Flathead catfish	1	0.51	0.37	0.27
Largemouth bass	3	1.54	4.61	3.40
Warmouth	1	0.51	0.24	0.18
Bluegill	7	3.59	0.47	0.34
White crappie	65	33.34	8.94	6.59
Freshwater drum*	4	2.05	0.16	0.11
Totals	195	100.00	135.58	100.00
Rough Fish	104	53.33	107.34	79.18
Game Fish	91	46.67	28.24	20.82

\* Indicates rough fish species

In the September collections freshwater shrimp (Palaemonetes) were taken at two stations on the east side of the lake. From 50 to 75 shrimp were taken in each haul.

Vegetation: In general, aquatic vegetation is not a problem in this very turbid lake. But some algae was seen along the east side of the lake.

#### Lake Granbury

Gill Netting: Only three quarterly checks were made on this newly built lake in Hood County. The dam was completed in the summer of 1969, and the flood gates were closed in September, 1969. The first check was made in May, the second one in August, and the third one in November. The first quarterly check was not made since there was not enough water in the lake. Shortly after the gates were closed, however, heavy rains on the watershed filled it rapidly.

In all, 25 experimental gill nets were set in the lake. All told, 385 fish of 17 species were taken. Rough fish species (spotted and longnose gar, gizzard shad, smallmouth buffalo, river carpsucker, carp, golden shiners, and freshwater drum) comprised 77.41 percent of the total number and 91.59 percent of the total weight of all fish taken (see Table 5). Longnose gar, smallmouth buffalo, gizzard shad, and river carpsucker, in that order, were the most frequently taken rough fish species.

Channel catfish and white crappie comprised nearly 15 percent of the total number of fish taken in the netting collections.

Seining Collections: Blacktail and red shiners were the most frequently taken fish in the seining collections. Brook silversides were also common. A few gizzard shad and mosquitofish were also taken. No game fish species were taken in the seining collections.

Vegetation: Aquatic vegetation is not a problem in this lake at this time.

#### Hubbard Creek Lake

Gill Netting: Game fish species (channel and blue catfish, black bullhead, yellow bullhead, flathead catfish, largemouth bass, warmouth, green sunfish, redear sunfish, bluegill, redbreast sunfish, longear sunfish and white crappie) comprised more than 51 percent of the total number of fish taken in the netting collections, but only 30.52 percent of the total weight (Table 6). Bluegill, white crappie, largemouth bass, and channel catfish, in that order, were the most frequently taken game fish species in this Stephens County lake. The average weight of the largemouth bass was nearly two pounds, and the average weight of the white crappie was slightly more than one-half pound. The largest bass weighed 6 pounds, 5 ounces; several more of them weighed in excess of 5 pounds. Hubbard Creek consistently produced large numbers of big bass during the late winter, spring, and summer of 1969. For that reason this lake is considered by many anglers to be one of the best bass lakes in the state. Also, it has a sizable catfish population, both channel and blue catfish. The smallest blue catfish weighed 260 grams (9 ounces), and the largest one weighed 12 pounds, 4 ounces.

Table 5

## Lake Granbury Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Spotted gar*	2	0.52	0.58	0.08
Longnose gar*	79	20.51	191.61	25.00
Gizzard shad*	57	14.81	45.26	5.91
Smallmouth buffalo*	77	20.00	329.57	43.00
River carpsucker*	53	13.77	66.34	8.66
Carp*	22	5.72	65.22	8.51
Golden shiner*	2	0.52	0.27	0.04
Channel catfish	31	8.05	49.50	6.46
Black bullhead	1	0.26	0.59	0.08
Flathead catfish	3	0.77	4.41	0.57
White bass	7	1.82	3.70	0.48
Largemouth bass	5	1.30	2.71	0.35
Green sunfish	1	0.26	0.10	0.01
Bluegill	14	3.64	1.15	0.15
Longear sunfish	1	0.26	0.07	0.01
White crappie	24	6.23	2.37	0.30
Freshwater drum*	6	1.56	2.99	0.39
Totals	385	100.00	766.44	100.00
Rough Fish	298	77.41	701.84	91.59
Game Fish	87	22.59	64.60	8.41

\* Indicates rough fish species

Table 6

## Lake Hubbard Creek Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Spotted gar*	1	0.06	7.86	0.32
Longnose gar*	43	2.63	175.79	7.05
Gizzard shad*	220	13.43	28.81	1.16
Smallmouth buffalo*	218	13.31	835.32	33.52
River carpsucker*	95	5.80	140.96	5.66
Carp*	207	12.64	519.73	20.86
Golden shiner*	2	0.12	0.26	0.01
Channel catfish	111	6.78	145.86	5.85
Blue catfish	6	0.37	45.34	1.82
Black bullhead	2	0.12	0.46	0.02
Yellow bullhead	11	0.67	3.77	0.15
Flathead catfish	15	0.92	82.16	3.30
Largemouth bass	176	10.74	348.70	13.99
Warmouth	2	0.12	0.37	0.01
Green sunfish	1	0.06	0.08	0.00**
Redear sunfish	1	0.06	0.18	0.01
Bluegill	322	19.65	27.71	1.11
Redbreast sunfish	1	0.06	0.09	0.00**
Longear sunfish	2	0.12	0.20	0.01
White crappie	187	11.42	105.99	4.25
Freshwater drum*	15	0.92	22.45	0.90
Totals	1,638	100.00	2,492.09	100.00
Rough Fish	801	48.91	1,731.18	69.48
Game Fish	837	51.09	760.91	30.52

\* Indicates rough fish species

\*\* Indicates "trace" or less than 0.01%

Gizzard shad, smallmouth buffalo, and carp, in that order, were the most frequently taken rough fish species. Smallmouth buffalo alone comprised 33.52 percent of the weight of all fish taken in the netting collections, and carp accounted for 20.86 percent of the total weight.

Seining Collections: Several seining collections were made in conjunction with the netting trips. Blacktail shiners were the most frequently taken fish. Red shiners, one river carpsucker, and 13 white crappie fry were also taken.

Vegetation: Aquatic vegetation is not a problem in this lake at this time.

#### Moss Lake

(Fish Creek Reservoir)

Gill Netting: Twenty netting collections were made on this Cooke County lake in 1969. Game fish species were dominant both in numbers and in weight (Table 7). However, black bullheads, which were classified as "game fish", accounted for 30.96 percent of the total number and 10.59 percent of the total weight of all fish taken in the netting collections. Good numbers of channel catfish, largemouth bass, and white crappie were taken in the netting collections. The average weight of the channel catfish was more than four pounds; the largest one weighed 9 pounds, 5 ounces. The average weight of the bass was nearly 1 pound; the largest one weighed 4 pounds, 12 ounces. White crappie also averaged nearly 1 pound in weight, and the largest one weighed 1 pound, 7 ounces.

Gizzard shad, and river carpsucker were the most frequently taken rough fish species. Together, they comprised more than 10 percent of all fish taken in the collections.

Seining Collections: Brook silversides, red shiners, and blue gills were the most frequently taken fish in the seining collections. In addition, a few golden shiners, and blackstripe topminnows were also taken. One specimen of largemouth bass (4 inches in length) was taken in the November collections as well as one yellow bullhead and one mosquitofish.

Vegetation: Aquatic vegetation is not yet a problem in this relatively new lake. Some pondweed was seen in the shallow water along the shoreline, however.

#### Lake Amon G. Carter

Gill Netting: Game fish species (channel catfish, largemouth bass, warmouth, bluegill, longear sunfish, and white crappie) comprised 97.44 percent of the total number and 81.14 percent of the total weight of all fish taken in the netting collections (Table 8). White crappie were the most frequently taken fish; 129 specimens were taken during the year. However, their average weight was less than 2 ounces. Only 6 channel catfish and 3 largemouth bass were taken in the 20 netting collections made on this Montague County lake.

Only 4 rough fish, 1 carp and 3 golden shiners, were taken during the year. By far, this seems to be the least productive lake in Region 2-A.

Table 7

## Moss Lake Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Longnose gar*	2	0.34	4.05	1.30
Threadfin shad*	1	0.17	0.13	0.04
Gizzard shad*	39	6.78	16.24	5.23
River carpsucker*	20	3.48	44.29	14.26
Carp*	5	0.87	25.46	8.20
Golden shiner*	9	1.57	2.76	0.89
Channel catfish	22	3.83	78.06	25.13
Black bullhead	178	30.96	32.88	10.59
Yellow bullhead	50	8.70	11.92	3.84
Largemouth bass	63	10.96	38.46	12.38
Warmouth	7	1.22	1.97	0.64
Green sunfish	16	2.78	3.02	0.97
Bluegill	127	22.09	23.07	7.43
Longear sunfish	10	1.74	1.16	0.37
White crappie	24	4.17	22.80	7.34
Freshwater drum*	2	0.34	4.30	1.39
Totals	575	100.00	310.57	100.00
Rough Fish	78	13.55	97.23	31.31
Game Fish	497	86.45	213.34	68.69

\* Indicates rough fish species

Table 8

## Lake Amon G. Carter Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Carp*	1	0.64	5.93	16.67
Golden shiner*	3	1.92	0.78	2.19
Channel catfish	6	3.85	4.22	11.85
Largemouth bass	3	1.92	11.10	31.19
Warmouth	1	0.64	0.18	0.51
Bluegill	10	6.41	0.81	2.28
Longear sunfish	3	1.92	0.23	0.64
White crappie	129	82.70	12.34	34.67
Totals	156	100.00	35.59	100.00
Rough Fish	4	2.56	6.71	18.86
Game Fish	152	97.44	28.88	81.14

\* Indicates rough fish species

Seining Collections: Brook silversides, red shiners, fathead minnows, blacktail shiners, and bluegill were commonly taken in the collections. A few logperch, and white crappie were also taken. The crappie ranged from 2- to 4-inches in length.

Vegetation: Aquatic vegetation is not a problem in this lake. No submerged vegetation was seen, however, we estimate that there are approximately 100 acres of cattails along the shoreline. No doubt the high turbidity prevents the development of submerged vegetation. This is probably the reason for the low fertility of the lake.

#### Lake Arlington

Gill Netting: River carpsucker ranked first both in percent of total weight and percent of total number of all fish taken in this Tarrant County lake. Game fish species (channel catfish, yellow bullhead, flathead catfish, warmouth, largemouth bass, white bass, green sunfish, redear sunfish, bluegill, and white crappie) comprised 57.95 percent of the total number of fish taken in the collections, but only 22.96 percent of the total weight (Table 9). Channel catfish, white bass, largemouth bass, and white crappie were taken in good numbers, and they were in relatively good shape. Aside from the river carpsucker, no other rough fish species appears to be a problem. No smallmouth buffalo were taken in any of the netting collections.

Seining Collections: Brook silversides, blacktail shiners, fathead minnows, red shiners, and bluegill were the most frequently taken fish in the seining collections. In addition, a few threadfin shad, gizzard shad, and river carpsucker were taken. No bass, catfish, or crappie were taken.

Vegetation: Generally, aquatic vegetation is not a problem in this lake. Several patches of pondweeds and a few cattails were seen, however.

#### Lake Palo Pinto

Gill Netting: White crappie were the most frequently taken fish in this Palo Pinto County lake. In all, 204 white crappie were taken, and they comprised 42.24 percent of the total number of fish taken in the netting collections (Table 10). The largest crappie weighed in excess of 2 pounds, and the smallest one weighed less than 1 ounce.

Channel catfish and largemouth bass were taken in good numbers. Together, they comprised more than 10 percent of the total number and more than 11 percent of the total weight of all fish taken in the netting collections. The largest catfish weighed more than 5½ pounds, and the largest bass weighed more than 5 pounds.

Smallmouth buffalo, gizzard shad, carp, and river carpsucker, in that order, were the most frequently taken rough fish species. Together, they comprised more than 33 percent of all fish taken in the netting collections during the year.

Seining Collections: Gizzard shad and red shiners were the most frequently taken fish in the seining collections. Smallmouth buffalo, fathead minnows, blacktail shiners, and mosquitofish were taken less frequently. One largemouth bass, 5 inches in length, and one logperch, 8 inches in length, were also taken in the October, 1969, collections.

Table 9

Lake Arlington Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Threadfin shad*	17	2.81	2.03	0.24
Gizzard shad*	19	3.15	4.15	0.49
River carpsucker*	175	28.97	517.27	60.69
Carp*	31	5.13	131.54	15.43
Golden shiner*	12	1.99	1.66	0.19
Channel catfish	32	5.30	28.29	3.32
Yellow bullhead	1	0.17	0.24	0.03
Flathead catfish	4	0.66	21.16	2.48
White bass	50	8.28	45.72	5.36
Largemouth bass	62	10.27	42.64	5.00
Warmouth	4	0.66	0.96	0.11
Green sunfish	4	0.66	0.75	0.09
Redear sunfish	7	1.16	1.42	0.17
Bluegill	119	19.70	15.22	1.79
White crappie	67	11.09	39.30	4.61
<b>Totals</b>	<b>604</b>	<b>100.00</b>	<b>852.35</b>	<b>100.00</b>
<b>Rough Fish</b>	<b>254</b>	<b>42.05</b>	<b>656.65</b>	<b>77.04</b>
<b>Game Fish</b>	<b>350</b>	<b>57.95</b>	<b>195.70</b>	<b>22.96</b>

\* Indicates rough fish species

Table 10

## Lake Palo Pinto Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Longnose gar*	17	3.52	69.66	14.54
Threadfin shad*	12	2.48	0.97	0.20
Gizzard shad*	37	7.66	5.99	1.25
Smallmouth buffalo*	78	16.15	154.30	32.21
River carpsucker*	20	4.14	30.05	6.27
Carp*	28	5.80	48.94	10.22
Channel catfish	29	6.00	28.78	6.01
Yellow bullhead	1	0.21	0.62	0.13
Flathead catfish	6	1.24	38.70	8.08
Largemouth bass	22	4.56	26.16	5.46
Green sunfish	1	0.21	0.11	0.02
Bluegill	9	1.86	0.66	0.14
Longear sunfish	1	0.21	0.07	0.01
White crappie	204	42.24	68.06	14.21
Freshwater drum*	18	3.72	6.02	1.25
<b>Totals</b>	<b>483</b>	<b>100.00</b>	<b>479.09</b>	<b>100.00</b>
<b>Rough Fish</b>	<b>210</b>	<b>43.47</b>	<b>315.93</b>	<b>65.94</b>
<b>Game Fish</b>	<b>273</b>	<b>56.53</b>	<b>163.16</b>	<b>34.06</b>

\* Indicates rough fish species

Vegetation: Aquatic vegetation is not a problem in this lake at this time. Several scattered patches of pondweeds were noted along the northern and southern shorelines. Also, a few cattails were seen along the shoreline, but they are not of any importance at this time.

#### Lake Worth

Gill Netting: White crappie and white bass, in that order, were the most frequently taken fish in this Tarrant County lake. Together, they comprised more than 40 percent of all fish taken in the netting collections (Table 11). Overall, game fish species comprised 57.07 percent of the total number, but only 13.68 percent of the total weight of all fish taken in the collections.

Smallmouth buffalo alone comprised 42.21 percent of the total weight of all fish, and longnose gar comprised 23.98 percent. Other rough fish species included spotted gar, gizzard shad, river carpsucker, spotted sucker, and carp.

Seining Collections: Brook silversides were the most abundant fish taken in the seining collections. Threadfin shad, fathead minnows, red shiners, blacktail shiners, bluegill, and longear sunfish were taken frequently in the collections. Several small largemouth bass, from 3- to 6-inches, were also taken as well as several logperch. The bass no doubt represented successful reproduction.

Vegetation: Aquatic vegetation is becoming a problem in this relatively shallow lake. Cattails are very abundant along the shoreline. Several small patches of pondweeds were also seen.

#### Lake Kickapoo

Gill Netting: River carpsucker ranked first in percent of total number (24.87), and smallmouth buffalo ranked first in percent of total weight (30.01) of all fish taken in this Archer County lake. Overall, however, game fish species comprised 50.97 percent of the total number of all fish taken, but only 38.57 percent of the total weight (Table 12).

White crappie were the most frequently taken game fish species. Channel catfish, white bass, and largemouth bass, in that order, were the next most frequently taken game fish species.

For some reason, this usually turbid lake cleared in the early part of 1969. No specific cause was established, but one theory was that heavy rains on the watershed washed considerable quantities of fertilizer into the lake, which caused an obvious "bloom". When the nutrients had been consumed, the "bloom" disappeared and the water resumed its muddy (turbid) condition.

Seining Collections: Threadfin shad, gizzard shad, brook silversides, red shiners, fathead minnows, redbreast sunfish, and bluegill were commonly taken in the seining collections. Several small largemouth bass were also taken in the collections. The bass ranged from 2- to 5-inches in length. No catfish or crappie were taken in the seining collections.

Table 11

## Lake Worth Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Spotted gar*	4	0.89	4.55	0.59
Longnose gar*	58	12.83	183.34	23.98
Gizzard shad*	38	8.41	12.70	1.66
Smallmouth buffalo*	56	12.39	322.74	42.21
River carpsucker*	14	3.10	39.19	5.13
Spotted sucker*	6	1.33	6.80	0.89
Carp*	18	3.98	90.71	11.86
Channel catfish	13	2.87	25.34	3.31
Black bullhead	1	0.22	0.36	0.05
Fathead catfish	1	0.22	5.37	0.70
White bass	71	15.71	17.56	2.30
Largemouth bass	16	3.54	7.42	0.97
Green sunfish	1	0.22	0.12	0.02
Redear sunfish	2	0.44	0.26	0.03
Bluegill	42	9.29	8.51	1.11
White crappie	111	24.56	39.66	5.19
Totals	452	100.00	764.63	100.00
Rough Fish	194	42.93	660.03	86.32
Game Fish	258	57.07	104.60	13.68

\* Indicates rough fish species

Table 12

## Lake Kickapoo Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Shortnose gar*	1	0.18	1.87	0.26
Spotted gar*	5	0.88	17.40	2.40
Longnose gar*	2	0.35	13.92	1.92
Gizzard shad*	31	5.47	5.72	0.79
Bigmouth buffalo*	4	0.70	25.23	3.47
Smallmouth buffalo*	66	11.64	218.06	30.01
River carpsucker*	141	24.87	102.98	14.17
Carp*	20	3.53	45.62	6.28
Golden shiner*	1	0.18	0.17	0.02
Channel catfish	54	9.52	33.03	4.55
Flathead catfish	9	1.59	29.67	4.08
White bass	41	7.23	60.30	8.30
Largemouth bass	38	6.70	55.16	7.59
Green sunfish	1	0.18	0.10	0.01
Bluegill	19	3.35	1.85	0.26
Longear sunfish	3	0.53	0.18	0.02
White crappie	124	21.87	99.98	13.76
Freshwater drum*	7	1.23	15.36	2.11
Totals	567	100.00	726.60	100.00
Rough Fish	278	49.03	446.33	61.43
Game Fish	289	50.97	280.27	38.57

\* Indicates rough fish species

Vegetation: A few cattails and some pondweeds were noted in the still, back-water areas of the lake. Normally, the turbid water prevents the development of submerged vegetation.

#### Hords Creek Reservoir

Gill Netting: Gizzard shad, white crappie, and bluegill, in that order, were the most frequently taken species of fish from this Coleman County lake. Four species of fish were classified as "rough"; gizzard shad, river carpsucker, carp, and golden shiners. Together, they comprised 47.80 percent of the total number, and 61.93 percent of the total weight of all fish taken. Carp and river carpsucker alone accounted for more than 55 percent of the total weight of all fish taken during the year (Table 13).

White crappie and bluegill were the most abundant game fish species in the collections. The average weight of the crappie was 3½ ounces. It appears that the crappie population is definitely stunted. This condition might correct itself in a few years. If it does not, this would be a good lake on which to apply some crappie reduction techniques.

Seining Collections: Several small (3-inch) largemouth bass were taken in the seining collections. Apparently these fish represent natural reproduction. Blacktail shiners, mosquitofish, logperch, redear sunfish, and bluegill were also taken in the seining collections.

Vegetation: Aquatic vegetation is not a problem in this lake. Several patches of pondweeds were noted, but it is not considered to be a problem at this time.

#### Coleman City Lake

Gill Netting: Rough fish species (longnose gar, gizzard shad, smallmouth buffalo, river carpsucker, carp, and freshwater drum) were dominant in the netting collections made on this Coleman County lake. Altogether, they comprised 55.85 percent of the total number and 52.10 percent of the total weight (Table 14). Smallmouth buffalo, gizzard shad, and river carpsucker, in that order, were the most abundant rough fish species taken.

Bluegill, channel catfish, white crappie, and largemouth bass, in that order, were the most frequently taken game fish species. The channel catfish, the largemouth bass, and the white crappie appeared to be in relatively good shape.

Seining Collections: Blacktail shiners were the most abundant fish in the seining collections. Red shiners, bluegill, and logperch were also taken in lesser numbers. Only one largemouth bass was taken in the collections.

Vegetation: Aquatic vegetation is not a problem in this lake at this time. This is due in part to the fact that this is a relatively new lake; it was built in 1966.

Table 13

## Hords Creek Reservoir Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Gizzard shad*	212	31.27	34.14	5.80
River carpsucker*	25	3.69	100.02	16.98
Carp*	77	11.36	228.61	38.82
Golden shiner*	10	1.48	1.95	0.33
Channel catfish	13	1.92	24.52	4.17
Flathead catfish	17	2.51	121.74	20.67
Largemouth bass	22	3.24	33.35	5.66
Warmouth	2	0.30	0.23	0.04
Green sunfish	1	0.15	0.12	0.02
Redear sunfish	11	1.62	1.02	0.17
Bluegill	111	16.37	12.35	2.10
Redbreast sunfish	1	0.14	0.08	0.01
White crappie	176	25.95	30.79	5.23
Totals	678	100.00	588.92	100.00
Rough Fish	324	47.80	364.72	61.93
Game Fish	354	52.20	224.20	38.07

\* Indicates rough fish species

Table 14

## Coleman City Lake Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Longnose gar*	1	0.20	2.62	0.62
Gizzard shad*	72	14.78	15.34	3.62
Smallmouth buffalo*	112	23.00	63.04	14.89
River carpsucker*	45	9.24	82.23	19.42
Carp*	33	6.78	34.21	8.08
Channel catfish	48	9.86	56.42	13.33
Black bullhead	1	0.20	0.44	0.10
Flathead catfish	9	1.85	47.67	11.26
Largemouth bass	33	6.78	77.85	18.39
Green sunfish	13	2.67	1.44	0.34
Redear sunfish	1	0.20	0.07	0.01
Bluegill	69	14.17	8.04	1.90
Longear sunfish	3	0.62	0.21	0.04
White crappie	38	7.80	10.69	2.53
Freshwater drum*	9	1.85	23.15	5.47
Totals	487	100.00	423.42	100.00
Rough Fish	272	55.85	220.59	52.10
Game Fish	215	44.15	202.83	47.90

\* Indicates rough fish species

### Lake Weatherford

Gill Netting: Channel catfish, largemouth bass, and white crappie comprised 37.00 percent of all fish taken in the netting collections made on this Parker County lake. Collectively, the game fish species comprised 52.29 percent of all fish taken, but only 30.26 percent of the total weight of all fish taken in the netting collections (Table 15).

Rough fish species (gizzard shad, river carpsucker, and carp) comprised 47.71 percent of the total number and 69.74 percent of the total weight of all fish taken in the nets. Carp and river carpsucker, in that order, were the most frequently taken rough fish species.

The city of Weatherford, owner of the lake, had a contract netter working on the lake during 1969. He was trying to remove as many rough fish as possible. But no record of his catch is available.

Seining Collections: Blacktail shiners and red shiners were the most frequently taken species in the seining collections. In addition, gizzard shad, golden shiners, fathead minnows, bluegills, and largemouth bass were taken in the collections. The bass ranged from 1- to 3-inches in length, and represented successful reproduction.

Vegetation: Aquatic vegetation, both emerged and submerged, is a real problem in this lake. Pondweeds are the most abundant plants along with musk grass, cattails, and bulrushes. Also, a number of acres in the west end are covered with American lotus.

A number of private citizens who own property around the lake have taken steps to control the vegetation in front of their places. Only manual controls have been used up to this time, but its success has been very limited.

### Lake Whitney

Gill Netting: Rough fish species (spotted and longnose gar, gizzard shad, smallmouth buffalo, river carpsucker, gray redhorse, carp, and freshwater drum) comprised 65.41 percent of the total number, and 87.01 percent of the total weight of all fish taken in the netting collections (Table 16). Gizzard shad, smallmouth buffalo, and river carpsucker, in that order, were the most frequently taken rough fish species. Collectively, they comprised half of the total number of fish taken in the netting collections. Smallmouth buffalo accounted for 46.84 percent of the total weight of all fish taken.

White crappie were the most frequently taken game fish species (10.77 percent by number). The crappie do not seem to be stunted. The largest one weighed 1 pound, 9 ounces; the average weight was nearly  $\frac{1}{2}$  pound. In addition to the crappie, a good number of white bass and channel catfish were taken.

Seining Collections: Brook silversides were the most frequently taken fish in the seining collections. As many as 250 specimens were taken in a seining collection. Gizzard shad were also taken in large numbers. Several small largemouth bass and white bass were taken, which indicates successful reproduction.

Table 15

## Lake Weatherford Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Gizzard shad*	21	5.36	5.16	0.90
Kiver carpsucker*	76	19.39	182.62	31.96
Carp*	90	22.96	210.75	36.88
Channel catfish	27	6.89	41.98	7.35
Yellow bullhead	1	0.25	0.11	0.02
Flathead catfish	1	0.25	4.18	0.73
White bass	1	0.25	2.12	0.37
Largemouth bass	37	9.44	77.64	13.59
Green sunfish	4	1.02	0.82	0.14
Redear sunfish	1	0.25	0.09	0.02
Bluegill	50	12.76	5.19	0.91
Redbreast sunfish	2	0.51	0.13	0.02
White crappie	81	20.67	40.62	7.11
Totals	392	100.00	571.41	100.00
Rough Fish	187	47.71	398.53	69.74
Game Fish	205	52.29	172.88	30.26

\* Indicates rough fish species

Table 16

Lake Whitney Netting Results - 1969

<u>Species</u>	<u>Total Number</u>	<u>Percent of Total Number</u>	<u>Total Weight (Pounds)</u>	<u>Percent of Weight</u>
Spotted gar*	2	0.22	2.36	0.13
Longnose gar*	60	6.53	135.68	7.46
Gizzard shad*	196	21.33	134.72	7.41
Smallmouth buffalo*	154	16.76	852.00	46.84
River carpsucker*	113	12.30	272.44	14.98
Gray redbhorse*	7	0.76	6.92	0.38
Carp*	50	5.44	163.71	9.00
Channel catfish	36	3.92	67.54	3.71
Flathead catfish	5	0.54	37.07	2.04
White bass	75	8.16	45.52	2.50
Spotted bass	2	0.22	2.20	0.12
Largemouth bass	18	1.96	24.95	1.37
Green sunfish	2	0.22	0.24	0.01
Redear sunfish	3	0.32	0.68	0.04
Bluegill	77	8.38	13.20	0.72
Redbreast sunfish	1	0.10	0.11	0.01
White crappie	99	10.77	44.86	2.47
Freshwater drum*	19	2.07	14.84	0.81
<b>Totals</b>	<b>919</b>	<b>100.00</b>	<b>1,819.04</b>	<b>100.00</b>
<b>Rough Fish</b>	<b>601</b>	<b>65.41</b>	<b>1,582.67</b>	<b>87.01</b>
<b>Game Fish</b>	<b>318</b>	<b>34.59</b>	<b>236.37</b>	<b>12.99</b>

\* Indicates rough fish species

Vegetation: Aquatic vegetation is not a problem in this lake at this time. The water level fluctuated as much as 9 feet during the year. This condition is probably responsible for the control of the vegetation.

#### Stocking Records

On the basis of our findings, the following lakes were stocked with largemouth bass (LMB) and channel catfish (CC). The total number of fish is also given.

<u>Lake</u>	<u>Number (LMB)</u>	<u>Number (CC)</u>
Graham	10,000	-0-
Worth	200,000	-0-
Eagle Mountain	300,000	-0-
Bendbrook	90,000	-0-
Garza-Little Elm	604,375	177,600
Whitney	350,000	-0-
Grapesvine	450,000	25,000
Brownwood	10,000	16,000

All of the fish were supplied by the state fish hatcheries at Eagle Mountain, Lewisville, and Possum Kingdom.

#### Fish Harvest Regulations

A meeting of all concerned Game Management Officers and Biologists in the Possum Kingdom Regulatory Authority Area was held in Mineral Wells to discuss the proposed regulations. Three changes in the fishing regulations were proposed. First, to put a daily bag and possession limit on walleye (5 fish); second, to put a daily bag and possession limit on striped bass (1 fish); and third, to permit the use of a wire loop or gig for taking rough fish.

Public hearings were attended in 30 counties in the Possum Kingdom Area in June, 1969. The proposed regulations were adopted by the Parks and Wildlife Commission.

#### Discussion and Recommendations:

Game fish species comprised 50 percent or more of the total number of fish taken in 9 lakes which were checked during the year. But rough fish species, by weight, were dominant in 13 of the 15 lakes checked during 1969.

In Lakes Worth, Eagle Mountain, Garza-Little Elm, Granbury, and Whitney the rough fish species comprised more than 80 percent of the total weight of all fish taken in the nets. Some consideration should be given to population control in these lakes.

Aquatic vegetation control work should be done at Lake Weatherford to prevent the "loss" of prime fishing waters.

This job should be continued, checking the lakes which were checked in 1968, so that current information on the status of the fish population will be known. These data will be useful in managing the fishery resources of this area.

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