

JOB COMPLETION REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-4-R-9

FISHERIES INVESTIGATIONS AND SURVEYS OF THE WATERS OF REGION 2-A

Job No. B-29 Fisheries Reconnaissance

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ABSTRACT

Six major Lakes of Region 2-A were rechecked during the period November 1, 1961 and October 31, 1962. These impoundments were; Benbrook (Tarrant County), Bridgeport (Wise County), Weatherford (Parker County), Eagle Mountain (Tarrant County), Carter (Montague County) and Worth (Tarrant County).

The most significant change in the makeup of the fish population of these lakes appears to be in the gizzard shad in Lakes Benbrook, Eagle Mountain and Worth. Lake Benbrook showed a rise in the net collection of 14.16 per cent while Eagle Mountain and Lake Worth had a drop of 45.55 and 32.47 per cent respectively.

Lakes Bridgeport, Weatherford and Worth provided an increase in the crappie percentage while Eagle Mountain showed an increase in the white bass catch to correspond with the decrease in gizzard shad.

Lake Carter was quite murky and there were only two species taken. The channel catfish appeared to be average size and in good condition, but the white crappie were small and in poor condition.

JOB COMPLETION REPORT

State of Texas

Project No. F-4-R-9

Name: Fisheries Investigation and Surveys of the Waters of Region 2-A

Job No. B-29

Title: Fisheries Reconnaissance

Period Covered: November 1, 1961 - October 31, 1962

Objectives:

To conduct limited investigations to obtain current information concerning gross changes in fishing conditions and factors influencing fish populations.

Techniques Used:

Certain major lakes in Region 2-A, that had been surveyed in previous segments, were revisited and net collections made. These data collected were recorded for comparison with the results of previous survey work to provide a basis for determining any change that may have occurred. Lakes Benbrook, Bridgeport, Carter, Eagle Mountain, Weatherford and Worth were revisited.

Findings:

Lake Benbrook

Lake Benbrook shows only slight changes in population with the gain being in gizzard shad. This species provided 80.51 per cent of the 1960-1961 net catch but rose to 94.67 per cent in the 1961-62 catch (Tables 1 and 2). There was little change in the average length of the species taken but the number and pounds per hundred feet of net showed a definite drop on the part of the game species together with a sharp rise for the gizzard shad.

A comparison of the "K" factor averages show slight change. Gizzard shad, channel catfish and bluegill sunfish appear to be in slightly better condition while largemouth bass and white crappie have a smaller condition factor than last year. This difference is light and may be the result of an insufficient sample.

Lake Bridgeport

The netting of Lake Bridgeport in 1960-1961 was made with experimental gill nets that had mesh sizes from one inch to three inches while the 1961-1962 netting used only nets with 1½ inch mesh.

There were no significant changes in the population as represented by the gill net catches except for the increase in white crappie and the decrease in white bass (Tables 3 and 4).

The most significant change is to be noted in the number and pounds of fish taken per 100 feet of net and this is believed to be due to the greater efficiency of the 1½ inch mesh net over the graduated mesh size used in the experimental nets.

Lake Carter

The results of the 1961-1962 netting in Lake Carter were far from satisfactory. Weather conditions were not conducive to obtaining a proper sample as winds were extremely high. Only channel catfish and white crappie were taken which made a rather poor sample when compared to the seven species taken in the 1960-1961 (Tables 5 and 6).

Lake Carter has been very murky for about two years and the wave action caused by rather high winds tends to keep the colloidal clay suspension at a high level which results in a condition that should be more favorable to crappie and catfish production than for bass and other sunfish.

Eagle Mountain Lake

The most significant changes in the net catch in Eagle Mountain Lake concerned the drop in gizzard shad from 55.55 per cent in 1960-1961 to 10 per cent in 1961-1962 and the rise of white bass from 6.35 per cent to 26.25 per cent (Tables 7 and 8). This is not an accurate reflection as the shad population has not been depleted to this extent but there is usually a drop in the number of shad taken when the white bass catch increases. The only other significant change in the net catch was the reappearance of smallmouth buffalo, river carpsuckers and carp. These species appear in cycles and periods of scarcity seem to be followed by periods of abundance. Smallmouth buffalo made up 31.88 per cent of the net catch during the 1961-1962 netting after failing to appear during the previous year.

Lake Weatherford

The netting results from Lake Weatherford indicate that gizzard shad and carp are increasing in relative abundance while channel catfish and white crappie show a decrease (Tables 9 and 10). The 1960-1961 netting produced 2.15 per cent gizzard shad and 3.76 per cent crappie but the 1961-1962 netting showed percentages of 29.16 and 13.33 for these species respectively. In the case of the channel catfish and white crappie the percentages were 17.21 and 58.60 for the 1960-1961 netting and 6.67 and 26.67 for the 1961-1962 collections. Other species showed slight changes.

The "K" factor comparison shows that length-weight relationships indicate that all species have enjoyed better growth in 1961-1962 than was observed in 1960-1961. The "K" factor average was considerably higher in each species than in the previous year.

Lake Worth

Net collections from Lake Worth during 1961-1962 were dominated by white crappie with 48.28 per cent of the total (Tables 11 and 12). This represents an increase of 17 per cent over the previous year. Gizzard shad was the most numerous species in 1960-1961 collections with 41.67 per cent but dropped to 9.2 per cent in the 1961-1962 collections. The average length of all species taken in the 1961-1962 netting showed an increase over that of the previous year except longnose gar and largemouth bass. The average "K" factor for channel catfish and white crappie was slightly less

for the 1961-1962 netting but was higher for the other species taken. Smallmouth buffalo, river carpsucker and carp were taken in the 1961-1962 collection but were absent from the previous collection.

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Date: February 5, 1963

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Table 1. Lake Benbrook netting results, 1960-1961

Species	Number	Per Cent	Weight (lbs)	Per Cent of Weight	Average Length (mm)	Number per 100 feet of net	Pounds per 100 feet of net	"K" Range	"K" Average
Gizzard shad*	95	80.51	38.31	80.48	217	23.75	9.58	1.40-1.90	1.61
Spotted sucker*	1	0.85	0.62	1.30	240	0.25	0.16	2.00	2.00
Channel catfish	2	1.69	2.49	5.23	330	0.50	0.62	1.45-1.65	1.55
Largemouth bass	2	1.69	1.46	3.07	225	0.50	0.37	1.85-2.20	2.03
Bluegill sunfish	12	10.17	2.56	5.38	138	3.00	0.64	2.70-4.60	3.75
White crappie	6	5.09	2.16	4.54	198	1.50	0.54	1.75-2.80	2.12
Totals	118	100.00	47.60	100.00	-	29.50	11.91	-	-

* Indicates rough fish species

Table 2. Lake Benbrook netting results, 1961-1962

Species	Number	Per Cent of Number	Weight (lbs)	Per Cent of Weight	Average Length (mm)	Number per 100 feet of net	Pounds per 100 feet of net	"K" Range	"K" Average
Gizzard shad*	213	94.67	83.50	85.48	216	53.25	20.86	1.45-1.85	1.62
River carpsucker*	1	.44	4.49	4.59	410	.25	1.12	2.80-2.80	2.80
Carp*	1	.44	4.74	4.86	430	.25	1.19	2.60-2.60	2.60
Channel catfish	2	.88	1.35	1.38	260	.50	.34	1.50-1.70	1.60
Largemouth bass	1	.44	1.61	1.65	240	.25	.40	2.00-2.00	2.00
Bluegill sunfish	2	.88	.38	.39	130	.50	.09	3.80-4.10	3.95
White crappie	5	2.25	1.61	1.65	188	1.25	.40	0.96-2.60	2.10
Totals	225	100.00	97.68	100.00	-	56.25	24.40	-	-

* Indicates rough fish species

Table 3. Lake Bridgeport netting results, 1960-1961

Species	Per Cent		Average length (mm)	Per Cent		Number per 100 feet of net	Pounds per 100 feet of net		"K" Range	"K" Average
	Number	of Number		Weight (lbs)	of Weight		Number per 100 feet of net	Pounds per 100 feet of net		
Shortnose gar*	4	1.69	7.5	3.48	0.20	0.38	0.61-0.79	0.68		
Longnose gar*	4	1.69	9.5	4.40	0.20	0.47	0.35-0.43	0.41		
Gizzard shad*	43	18.23	19.2	8.91	2.15	0.96	2.00-2.61	2.26		
Smallmouth buffalo*	29	12.28	31.6	14.67	1.45	1.58	2.74-4.00	3.34		
River carpsucker*	13	5.51	14.8	6.86	0.65	0.74	2.21-4.17	2.77		
Carp*	6	2.54	15.9	7.38	0.30	0.80	2.53-2.96	2.70		
Channel catfish	15	6.36	11.9	5.52	0.75	0.60	1.20-1.83	1.57		
Flathead catfish	1	0.42	3.3	1.54	0.05	0.16	1.93-1.93	1.93		
White bass	75	31.78	84.1	39.02	3.75	4.20	2.19-2.90	2.68		
Largemouth bass	3	1.27	1.5	0.70	0.15	0.07	2.15-2.32	2.22		
White crappie	31	13.14	14.6	6.77	1.55	0.73	2.50-3.71	2.98		
Drum	12	5.09	1.6	0.75	0.60	.08	2.45-3.26	2.63		
Totals	236	100.00	215.5	100.00	11.80	10.77	-	-		

*Indicates rough fish species

Table 4. Lake Bridgeport netting results, 1961-1962

Species	Number	Per Cent		Average Length (mm)	Number per 100 feet of net	Pounds per 100 feet of net	"K"	
		of Number	of Weight				Range	Average
Longnose gar*	2	0.76	6.99	710	.33	1.16	0.21-0.38	0.29
Gizzard shad*	40	15.33	21.26	234	6.67	3.54	1.30-1.90	1.65
Smallmouth buffalo*	8	3.06	5.33	219	1.33	.89	2.40-3.45	2.83
River carpsucker*	5	1.92	3.85	252	.83	.64	1.80-2.60	2.40
Carp*	2	0.76	13.17	495	.34	2.20	2.20-2.80	2.50
Channel catfish	10	3.84	4.16	217	1.66	.69	1.25-2.30	1.82
White bass	46	17.62	27.51	233	7.67	4.59	1.60-2.75	2.05
Largemouth bass	11	4.21	9.03	260	1.83	1.50	1.45-2.30	2.05
White crappie	137	52.50	46.68	192	22.83	7.78	1.55-4.40	2.41
Totals	261	100.00	137.98	100.00	43.49	22.99		

*Indicates rough fish species

Table 5. Lake Carter netting results, 1960-1961

Species	Number	Per Cent		Average Length (mm)	Number per 100 feet of net	Pounds per 100 feet of net	"K"	
		of Number	of Weight (lbs)				Range	Average
River carpsucker*	1	0.67	1.4	280	0.05	0.07	2.97-2.97	2.97
Carp*	4	2.68	15.5	402	0.20	0.78	2.37-2.70	2.54
Channel catfish	21	14.09	21.8	297	1.05	1.09	1.30-2.12	1.61
Black bullhead*	8	5.37	1.1	131	0.40	0.05	1.46-2.37	1.93
Largemouth bass	4	2.69	6.4	290	0.20	0.32	1.99-3.29	2.54
Bluegill sunfish	11	7.38	1.3	103	0.55	0.06	3.02-4.20	3.53
White crappie	100	67.12	11.8	141	5.00	0.59	2.28-3.37	2.63
Total	149	100.00	59.3	100.00	7.45	2.96		

*Indicates rough fish species

Table 6. Lake Carter netting results, 1961-1962

Species	Number	Per Cent		Average Length (mm)	Number per 100 feet of net	Pounds per 100 feet of net	"K"	
		of Number	of Weight				Range	Average
Channel catfish	2	3.57	3.99	357	0.25	0.49	1.85-1.90	1.87
White crappie	54	96.43	2.33	93	6.75	0.30	1.50-2.95	2.18
Total	56	100.00	6.32	100.00	7.00	0.79		

*Indicates rough fish species

Table 7. Eagle Mountain Lake netting results, 1960-1961.

Species	Number	Per Cent	Weight (lbs)	Per Cent of Weight	Average Length (mm)	Number per 100 feet of net	Pounds per 100 feet net	"K" Range	"K" Average
Spotted gar*	5	7.94	9.26	21.21	546	1.00	1.84		
Longnose gar*	3	4.76	10.74	24.65	813	0.60	2.15		
Gizzard shad*	35	55.55	14.01	32.16	210	7.00	2.80	1.40-2.60	1.89
Channel catfish	4	6.35	3.84	8.81	293	0.80	0.77	1.35-1.90	1.61
Flathead catfish	1	1.59	0.74	1.70	285	0.20	0.15	1.50-1.50	1.50
Largemouth bass	2	3.17	1.27	2.91	245	0.40	0.25	1.75-2.25	2.00
White bass	4	6.35	1.47	3.37	202	0.80	0.30	1.60-2.70	2.06
Bluegill sunfish	4	6.35	0.81	1.86	126	0.80	0.16	4.30-4.90	4.62
White crappie	5	7.94	1.45	3.33	176	1.00	0.29	2.10-3.30	2.47
Total	63	100.00	43.59	100.00		12.60	8.71		

*Indicates rough fish species

Table 8. Lake Eagle Mountain netting results 1961-1962

Species	Number	Per Cent		Average length (mm)	Number per 100 feet of net	Pounds per 100 feet of net	"K" Range	"K" Average
		of Number	of Weight					
Spotted gar*	3	1.87	4.25	476	0.43	.61		
Longnose gar*	16	10.00	98.59	844	2.29	14.08		
Gizzard shad*	16	10.00	7.17	231	2.29	1.02	1.50-2.00	1.70
Smallmouth buffalo*	51	31.88	101.71	322	7.28	14.53	1.70-3.70	2.82
River carpsucker*	6	3.75	9.24	308	.86	1.32	2.10-2.80	2.38
Carp*	2	1.25	12.48	485	.28	1.78	2.50-2.50	2.50
Channel catfish	9	5.62	9.22	306	1.29	1.32	1.40-1.90	1.63
Largemouth bass	1	0.63	0.70	225	.14	.10	2.90-2.90	2.90
White bass	42	26.25	22.30	230	6.00	3.19	2.00-3.10	2.33
White crappie	14	8.75	6.25	209	2.00	.89	0.66-2.80	2.31
Total	160	100.00	271.91	100.00	22.86	38.84		

*Indicates rough fish species

Table 9. Lake Weatherford netting results, 1960-1961

Species	Number	Per Cent	Weight (lbs)	Per Cent of Weight	Average Length (mm)	Number per 100 feet of net	Pounds per 100 feet of net	"K" Range	"K" Average
Gizzard shad*	4	2.15	1.21	1.34	203	0.44	0.13	1.50-1.90	1.68
River carpsucker*	8	4.30	15.90	17.57	312	0.89	1.77	2.30-3.20	2.70
Carp*	7	3.76	7.48	8.26	276	0.80	0.83	1.80-3.20	2.32
Channel catfish	32	17.21	23.76	26.26	293	3.55	2.64	1.05-2.05	1.40
Black bullhead*	3	1.61	0.37	0.41	159	0.33	0.04	1.50-2.20	1.80
Largemouth bass	2	1.08	1.43	1.58	260	0.22	0.16	1.80-1.80	1.80
Bluegill sunfish	21	11.29	3.68	4.07	80	2.33	0.41	2.50-4.00	3.17
White crappie	109	58.60	36.65	40.51	191	12.11	4.07	1.60-3.00	2.13
Totals	186	100.00	90.48	100.00	-	20.67	10.05		

*Indicates rough fish species

Table 10. Lake Weatherford netting results, 1961-1962

Species	Number	Per Cent		Average Length (mm)	Number per 100 feet of net		"K"	
		of Number	of Weight (lbs)		of Weight	of net	Range	Average
Gizzard shad*	35	29.16	12.16	196	8.75	3.04	1.65-2.80	2.22
River carpsucker*	2	1.67	3.24	285	.50	.81	2.55-3.40	2.97
Carp*	16	13.33	20.92	284	4.00	5.23	2.30-2.90	2.60
Channel catfish	8	6.67	7.27	290	2.00	1.82	1.50-2.05	1.71
Black bullhead*	1	0.84	.23	160	0.25	0.05	2.60-2.60	2.60
Yellow bullhead*	2	1.67	.95	195	0.50	0.24	2.80-3.10	2.95
Largemouth bass	3	2.50	1.92	233	.75	.48	2.25-2.40	2.30
Bluegill sunfish	21	17.50	4.98	133	5.25	1.24	3.70-5.00	4.49
White crappie	32	26.67	15.22	197	8.00	3.81	1.65-3.40	2.73
Totals	120	100.00	66.98	100.00	30.00	16.72		

*Indicates rough fish species

Table 11. Lake Worth netting results, 1960-1961

Species	Number	Per Cent	Weight (lbs)	Per Cent of Weight	Average Length (mm)	Number per 100 feet of net	Pounds per 100 feet of net	"K"	
								Range	Average
Spotted gar*	1	2.08	1.74	7.39	450	0.20	0.34		
Longnose gar*	1	2.08	6.99	29.68	950	0.20	1.40		
Gizzard shad*	20	41.67	6.54	27.77	198	4.00	1.31	1.05-3.00	1.92
Channel catfish	3	6.25	1.35	5.73	236	0.60	0.27	1.35-1.85	1.55
White bass	1	2.08	0.50	2.13	220	0.20	0.10	2.20-2.20	2.20
Largemouth bass	1	2.08	0.66	2.80	250	0.20	0.13	1.95-1.95	1.95
Bluegill sunfish	6	12.50	1.34	5.69	132	1.20	0.27	3.60-4.60	4.23
White crappie	15	31.26	4.43	18.81	172	3.00	0.89	2.10-3.50	2.57
Totals	48	100.00	23.55	100.00		9.60	4.71		

*Indicates rough fish species

Table 12. Lake Worth netting results, 1961-1962

Species	Number	Per Cent		Per Cent of Weight	Average Length (mm)	Number per 100 feet of net	Pounds per 100 feet of net	"K"	
		of Number	(lb)					Range	Average
Spotted gar*	3	3.44	4.74	6.97	511	.50	.79		
Longnose gar*	1	1.15	2.99	4.40	680	.16	.50		
Gizzard shad*	8	9.20	2.89	4.25	203	1.34	.48	1.75-2.20	1.95
Smallmouth buffalo*	2	2.30	6.99	10.29	370	.33	1.16	2.05-3.05	3.12
River carpsucker*	8	9.19	13.86	20.39	323	1.34	2.31	1.70-2.70	2.20
Carp*	2	2.30	2.72	4.00	265	.33	.45	2.70-2.80	2.75
Channel catfish	4	4.60	3.68	5.42	305	.66	.61	1.15-1.80	1.46
White bass	11	12.64	6.64	9.77	225	1.84	1.11	2.10-2.90	2.39
Largemouth bass	3	3.45	2.09	3.07	245	.50	.35	1.90-2.45	2.18
Bluegill sunfish	3	3.45	.90	1.33	141	.50	.15	4.60-5.10	4.80
White crappie	42	48.28	20.46	30.11	208	7.00	3.41	2.00-3.70	2.52
Total	87	100.00	67.96	100.00		14.50	11.32		

* Indicates rough fish species

