

Report of Fisheries Investigations
Resurvey and Appraisal of Several Public Waters
in Region 3-B

by

Lawrence S. Campbell
Project Leader

and

James Wilcox
Assistant Project Leader

Dingell-Johnson Project F-5-R-7, Job B-22
April 16, 1959 - April 1, 1960

H. D. Dodgen - Executive Secretary

Texas Game and Fish Commission
Austin, Texas

Marion Toole
Coordinator

Kenneth C. Jurgens & William H. Brown
Assistant Coordinators

ABSTRACT

Lakes Trammell, Sweetwater, Abilene, and Fort Phantom Hill were resurveyed on the Clear Fork of the Brazos River Watershed. Lakes Brownwood, Scarbrough, Nasworthy, San Angelo, Moss Creek, and J. B. Thomas were resurveyed on the Colorado River Watershed. No resurvey was done on lakes on the Pecos River but netting collections were obtained from the river itself. Altogether, 116 netting and 36 seining collections were obtained. Although all the lakes resurveyed were found to have excessive populations of several undesirable species, the only lakes where management recommendations were deemed applicable and practical were Lakes Scarbrough and Sweetwater. The treatment of Lake Scarbrough was indefinitely postponed as this was the desire of the municipal officials of Coleman, Texas, who control the lake. The complete eradication of fish and a restocking program for Lake Sweetwater is scheduled for the fall of 1960.

Job Completion Report

State of TEXAS

Project No. F-5-R-7

Name: Fisheries Investigations and Surveys of
the Waters of Region 3-B

Job No. B-22

Title: Resurvey and Appraisal of Several Public
Waters in Region 3-B, Texas

Period Covered:

April 16, 1959 - April 1, 1960

OBJECTIVES

A. To study changes in abundance and in the physical condition of the principal fishery populations within the waters previously surveyed and as may occur.

B. To determine the ecological succession of dominance of various species and to evaluate the conditions that influence and/or create such trends.

C. To more accurately determine and define the extent and duration of conditions effecting the dominance and to determine what methods may be employed to bring about conditions favorable to the propagation and harvesting of game species.

D. To maintain an up-to-date knowledge of the various waters so that reliable and accurate data will be available in considering future management plans and recommendations.

PROCEDURE

A total of 116 netting collections and 36 seining collections were obtained from ten lakes and one river location. All nets used were experimental type nylon gill nets, measuring 125 feet in length and eight feet in depth. They were made up in five 25-foot long sections with mesh sizes varying from one-inch square mesh to three-inch square mesh, increasing in $\frac{1}{2}$ -inch intervals in each succeeding section. Various types of seines were employed including a 12-foot commonsense seine; a 30-foot, $\frac{1}{4}$ -inch mesh, bag seine; a 50-foot, $\frac{1}{4}$ -inch mesh, straight seine; and a 100-foot, $\frac{1}{2}$ -inch mesh, straight seine.

An attempt was made to obtain netting and seining samples from the same locations used previously during the initial survey of the waters involved. When feasible to do so, data were collected concerning length, weight, sex, and stage of sexual development either on the complete netting collection obtained from a location, or on a representative sample of the individuals collected.

Physical and chemical conditions which might have a tendency to affect fishery populations, such as water level and fluctuation, turbidity, temperature, pH, and dissolved oxygen and carbon dioxide content were noted. Hydrology data was obtained on those lakes where such data has been periodically recorded by the United States Geological Survey.

FINDINGS

Clear Fork of the Brazos River Watershed

Lake Trammell - Four netting collections and two seining collections were obtained from this lake. The information gleaned from such limited sampling does not afford a substantial basis for a comparison of the fishery populations, as they now appear to be, with the fishery populations as they appeared during the initial inventory. However, in analyzing the data obtained it appears that black bullhead catfish (Ictalurus melas), which were the most abundant species in the initial inventory, are now even more numerous. Approximately 100 small flathead catfish (Pylodictus olivaris), have been stocked in this lake since the initial survey was completed in an effort to help control the vast population of bullheads. These fish have not had time to develop sufficiently for reproduction or to become large enough to consume a significant number of bullheads. More and larger largemouth bass (Micropterus salmoides) were obtained in the netting collections while the number of bluegill sunfish (Lepomis macrochirus), collected by both seine and net decreased considerably. The fact that the resurvey collections were made in cold weather while most of the initial inventory was done in warm weather could account for the difference in the size of the samples obtained of these two species. However, accepting the samples on their face value, the reason for the change in abundance of these species is suggested by an ecological relationship that is known to exist (by analysis of stomach contents). It appears that the largemouth bass have thinned down the numbers of bluegill sunfish during the fall and winter months in the absence of the more preferred gizzard shad (Dorosoma cepedianum), which apparently do not occur in Lake Trammell.

In summary then, the results of these resurvey data indicate a favorable trend as far as largemouth bass and bluegill sunfish are concerned and an unfavorable trend in regards to bullheads. However, the flathead catfish stocked in the lake may eventually help remedy the bullhead problem.

No new species were obtained and no new fisheries problems were observed. The lake is used as a reservoir for municipal water for the City of Sweetwater and water fluctuations have continued to be fairly common although not extremely abrupt. The extent that these fluctuations affect the game fish population is not known. No management effort is recommended for Lake Trammell at this time.

Figure 1. - Results of four nets set for the resurvey of Lake Trammell from April 16, 1959 - April 1, 1960

Species	Number	Percent of number	Total weight		Average weight		Percent of weight	Average "K"
			lbs.	ozs.	lbs.	ozs.		
Golden shiner	44	20.87	7	8	2.72		17.57	2.13
Channel catfish	9	4.26	Channel catfish were released					
Largemouth bass	9	4.26	29	4	3	4.00	68.52	2.76
Black bullheads	144	68.25	5	2		0.57	12.00	2.48
Redear sunfish	1	0.48		2		2.00	0.29	3.67
Bluegill sunfish	2	0.94		5		2.50	0.74	3.62
White crappie	2	0.94		6		3.00	0.88	2.65
Total	211	100.00	42	11			100.00	

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Figure 2. - A comparison of rough and/or forage species to game species in four netting collections for the resurvey of Lake Trammell.

Type of fish	Number	Percent of number
Rough and/or forage species (golden shiners & black bullheads)	188	89.10
Game species (channel catfish, largemouth bass and white crappie)	23	10.90
Totals	211	100.00

Lake Sweetwater - Twenty-one netting collections and eight seining collections were obtained from this lake. The results of these collections indicate that the fisheries problems in Lake Sweetwater are basically the same as they were during the inventory period. At the end of the initial inventory it was concluded that, if the trend towards extreme overdominance by undesirable fish continued, management work would be necessary. In resurvey data, the percentage of gizzard shad was not quite as high as in the initial inventory, but that condition can probably be attributed to water and temperature variables which produced different conditions during the two periods. River carpsucker (Carpiodes carpio), and carp (Cyprinus carpio), however, were found to have a higher percentage by number in the netting sample. Since the lake is much lower than it was during the inventory period and since the City of Sweetwater is willing to fully cooperate in any management effort, it is recommended that the fish populations of this lake and the watershed above be completely eradicated and restocked with fish from state fish hatcheries. This recommendation has already been submitted and the jobs have been approved under the Statewide Rough Fish Control Project, F-14-D-4. (Job number 16a-23 and 18a-11).

Figure 3. - Results of twenty-one nets set for the resurvey of Lake Sweetwater during the period from April 16, 1959 through April 1, 1960

Species	Number	Percent of number	Total weight lbs.	Weight ozs.	Average weight lbs.	Weight ozs.	Percent of weight	Average "K"
Gizzard shad	261	41.82	48	14	3	12.61	1.47	
River carpsucker	76	12.18	102	2	1	26.37	2.20	
Carp	43	6.89	34	5	12.8	8.85	2.68	
Channel catfish	144	23.08	158	5	1	40.87	2.67	
Black bullheads	10	1.60	3	6	5.4	0.87	1.96	
Largemouth bass	20	3.21	21	12	1	5.62	1.47	
Bluegill sunfish	7	1.12		13	1.9	0.21	3.26	
White crappie	63	10.10	17	13	4.52	4.60	2.38	
Totals	624	100.00	387	6		100.00		

Figure 4. - A comparison of rough and/or forage species to game species obtained in twenty-one nets set for the resurvey of Lake Sweetwater

Type of fish	Number	Percent of number	Total weight		Percent of weight
			lbs.	ozs.	
Rough and/or forage species (gizzard shad, river carp- suckers, carp and black bullheads)	390	62.50	188	11	48.71
Game species (channel catfish, large- mouth bass, bluegill sunfish and white crappie)	234	37.50	198	11	51.29
Totals	624	100.00	387	6	100.00

Lake Abilene - Four netting collections and two seining collections were obtained from this lake. The outstanding difference in the limited resurvey netting sample was that river carpsuckers had increased from less than 5 percent of the initial sample to over 35 percent of the resurvey sample, and that gizzard shad had increased from less than 4 percent by number to nearly 11 percent. The average size of white crappie (Pomoxis annularis) taken in the netting collections had decreased to slightly over three ounces. The seining sample further substantiated this trend. No management recommendation is made at this time because the populations of rough fish have not as yet reached the critical stage, because fishing is still relatively good in Lake Abilene, and because a high level of water has been maintained in the lake and management work at this time would be relatively expensive. However, the fishery trends, as indicated by the inadequate fish collections made during the resurvey, are towards dominance by undesirable species and the lake should continue to be checked periodically as some management work could become necessary in the near future.

Figure 5. - Results of four nets set for the resurvey of Lake Abilene during the period from April 16, 1959 through April 1, 1960

Species	Number	Percent of Number	Total weight lbs.	Average weight ozs.	Average weight lbs.	Average weight ozs.	Percent of weight	Average "K"
Gizzard shad	6	10.71		8		1.33	2.15	1.58
River carpsucker	20	35.72	16	-		12.80	69.00	1.92
Golden shiner	2	3.57		4		2.00	1.08	1.41
Black bullhead	3	5.36		10		3.33	2.70	2.10
Channel catfish	11	19.64	2	13		4.09	12.13	1.54
Bluegill sunfish	1	1.79		4		4.00	1.08	3.25
White crappie	13	23.21	2	12		3.38	11.86	2.21
Total	56	100.00	23	3			100.00	

Figure 6. - A comparison of rough and/or forage species to game species obtained in four nets set for the resurvey of Lake Abilene

Type of fish	Number	Percent of number	Total weight		Percent of weight
			lbs.	ozs.	
Rough and/or forage species (gizzard shad, river carp- sucker, golden shiner and black bullhead)	31	55.36	17	6	74.93
Game species (channel catfish, bluegill sunfish and white crappie)	25	44.64	5	13	25.07
Totals	56	100.00	23	3	100.00

Lake Fort Phantom Hill - Six netting collections and two seining collections were obtained from this lake. The limited samples obtained indicated no drastic changes in the fish populations have occurred since the initial inventory. The lake still has an abundance of gizzard shad, river carpsucker, smallmouth buffalo (Ictiobus bubalus), carp and stunted white crappie, and the dominant game fish still appear to be white bass (Roccus chrysops), and channel catfish (Ictalurus punctatus). The lake level has remained relatively high and some good fishing is still reported from the lake. No management measures are planned at this time, but this lake should be kept under resurvey during the coming segments as the fishery populations appear to be slowly becoming dominated by rough fish each year.

Figure 7. - Results of six nets set for the resurvey of Fort Phantom Hill Lake during the period from April 16, 1959 through April 1, 1960

Species	Number	Percent of number	Total weight lbs.	Average weight lbs.	Percent of weight
Gizzard shad	38	11.87	5	2	1.78
Smallmouth buffalo	37	11.56	99	2	34.42
River carpsucker	10	3.13	10	1	3.78
Carp	8	2.50	14	1	5.00
Channel catfish	125	39.06	134	1	46.71
White bass	10	3.13	5	8	1.74
Largemouth bass	2	0.62	6	3	2.41
Bluegill sunfish	15	4.69	2	9	0.90
White crappie	74	23.12	8	13	3.07
Freshwater drum	1	0.32		9	0.19
Totals	320	100.00	287	10	100.00

Figure 8. - A comparison of rough and/or forage species to game species obtained in six nets set for the resurvey of Fort Phantom Hill Lake

Type of fish	Number	Percent of number	Total weight		Percent of weight
			lbs.	ozs.	
Rough and/or forage species (gizzard shad, smallmouth buffalo, river carpsucker, carp, and freshwater drum)	94	29.38	129	15	45.18
Game species (channel catfish, white bass, largemouth bass, bluegill sunfish, and white crappie)	226	70.62	157	11	54.82
Totals	320	100.00	287	10	100.00

Colorado River Watershed

Lake Brownwood - Ten netting collections and three seining collections were obtained from this lake. Missing from the netting sample was the river carpsucker. This is not particularly indicative that this species has reduced in numbers in Lake Brownwood, but is more likely a sampling error. In general, the netting collections indicated relatively stable fish populations. Gizzard shad were still the dominant rough and/or forage fish and white bass continued to be the primary game fish. The average white crappie in Lake Brownwood appear to be fairly small but not nearly as small as could be expected for a lake of its age and these fish still support a relatively good fishery. The principal ecological change in the fish population reflected itself in the seining results. Redhorse shiners (Notropis lutrensis), no longer appear to be the dominant minnow in the lake, but a species not previously reported from the lake has taken this distinction. This new species is the tidewater silverside (Menidia beryllina). None of these silversides were found in the stomachs of any of the game fish examined. However, not a large enough sample of game fish was obtained to examine enough stomachs to make any definite statements concerning the inter-relationships of the tidewater silverside and the other fish in the lake.

Figure 9. - Results of ten nets set for the resurvey of Lake Brownwood during the period from April 16, 1959 through April 1, 1960

Species	Number	Percent of number	Total weight lbs.	Weight in ozs.	Average weight lbs.	Average weight in ozs.	Percent of weight	Average "K"
Longnose gar	6	2.95	29	2	4	13.66	19.28	.40
Gizzard shad	83	40.89	36	6		7.01	24.07	1.83
Smallmouth buffalo	7	3.45	14	10	2	1.43	9.69	3.00
Channel catfish	18	8.86	18	14	1	0.77	12.49	1.48
White bass	41	20.20	33	13		13.19	22.38	2.46
Largemouth bass	6	2.95	1	12		4.66	1.16	2.01
Sunfish	3	1.47		15		5.00	0.62	2.84
White crappie	39	19.23	15	9		6.38	10.31	2.42
Totals	203	100.00	151	1			100.00	

Figure 10. - A comparison of rough and/or forage species to game species obtained in ten nets set of the resurvey of Lake Brownwood

Type of fish	Number	Percent of number	Total weight		Percent of weight
			lbs.	ozs.	
Rough and/or forage species (longnose gar, gizzard shad, and smallmouth buffalo)	96	47.29	80	2	53.04
Game species (channel catfish, white bass, largemouth bass, sunfish, and white crappie)	107	52.71	70	15	46.96
Totals	203	100.00	151	1	100.00

Lake Scarbrough - Twenty netting collections were obtained but no seining collections were made due to the absence of seining beaches and the steep shoreline of the lake which make effective seining virtually impossible. White crappie continued to be the dominant game fish in the lake according to the resurvey sample but these fish were, for the most part, not considered to be highly desirable due to the small size of the majority of the individuals collected. Gizzard shad were still indicated as the principal undesirable species with freshwater drum (Aplodinotus grunniens), in second position. A fairly high percentage of drum in a netting collection from West Texas waters is rare and actually only 3.22 percent of the fish netted during the resurvey were of this species. During the initial survey, drum accounted for over 45 percent of the fish collected and Lake Scarbrough is still believed to have a very high population of this species. One drum obtained in the resurvey sample weighed 18 pounds. Out of the same net this large drum came from, a smallmouth buffalo was captured that weighed 29 pounds. Both fish had several pounds of ripe eggs in them when examined and were caught in water not over 5 feet deep during the month of November. Although the rough fish populations as reflected in the netting data are not exceedingly large, the lake does not produce many channel catfish. Most of the crappie caught are small and the abundance of forage in the lake apparently keeps the largemouth (Micropterus salmoides), from hitting the fishermen's baits. For these reasons and the fact that the lake would be relatively inexpensive to treat, a complete fish eradication and restocking program was recommended to the City of Coleman, which has control over the lake, but after much deliberation city officials decided that they preferred to not have the eradication conducted at that time. Another fisheries resurvey and subsequent discussion of the findings with the city officials and people of Coleman and surrounding area will be undertaken at sometime in the future when conditions for future management are considered to be more favorable.

Figure 11. - Results of twenty nets set for the resurvey of Lake Scarborough during the period from April 16, 1959 through April 1, 1960

Species	Number	Percent of number	Total weight lbs.	Weight ozs.	Average weight lbs.	Average weight ozs.	Percent of weight	Average "K"
Gizzard shad	115	24.67	27	11		3.85	11.44	1.64
Smallmouth buffalo	1	0.22	29		29		11.99	--
River carpsucker	5	1.07	16	5	3	4.02	6.75	2.70
Carp	1	0.22	8	10	8	10	3.56	2.22
Channel catfish	24	5.15	45		1	14	18.61	1.67
Flathead catfish	1	0.22	5	5	5	5	2.06	2.05
Largemouth bass	13	2.78	18	1	1	6.23	7.48	1.23
Redear sunfish	2	0.43		10		5	0.26	4.70
Bluegill sunfish	49	10.51	8	14		2.90	3.67	4.18
White crappie	240	51.51	60	3		4.01	24.88	2.59
Freshwater drum	15	3.22	22	8	1	8.46	9.30	2.31
Totals	466	100.00	242	3			100.00	

Figure 12. - A comparison of rough and/or forage species to game species obtained in twenty nets set for the resurvey of Lake Scarbrough

Type of fish	Number	Percent by number	Total weight		Percent by weight
			lbs.	ozs.	
Rough and/or forage species (gizzard shad, smallmouth buffalo, river carpsucker, carp, and freshwater drum)	137	29.40	104	2	42.99
Game species (channel catfish, largemouth bass, redear sunfish, bluegill sunfish, and white crappie)	329	70.60	138	1	57.01
Totals	466	100.00	242	3	100.00

Lake Nasworthy - Ten netting collections and four seining collections were obtained from this lake. Sampling is regarded as adequate to establish its basic purposes of (1) establishing the relative changes in the populations since the last sampling was done and, (2) to ascertain a normal, or relatively normal, distribution of the species in the spring and winter months, or under what may be deemed normal conditions. It was found that the bulk of the fish captured were found in depths of less than 15 feet. Apparently there has been a numerical increase in gizzard shad from 39.0 percent to 53.79 percent and a reduction of the sub-dominance of river carpsuckers from 26.90 percent to about 16.02 percent. This latter species continues to dominate the collections by weight by being 38.27 percent of the current total as compared to 42.20 percent of the previous inventory collections. Other ratio changes are regarded as being of a lesser importance with the possible exception of the increase in largemouth bass. These populations changes are believed to be the result of the more stable hydrological conditions that occurred during the past 18 months and these findings are regarded as a further indication of the aptitude of river carpsuckers to dominate a fishery population under extremely fluctuating conditions or during the "drough" cycle in Region 3-B. These findings are also regarded as possible supplementary evidence that the previously expressed concept that these suckers were not used as food was erroneous, and that the basic idea of utilizable size may be nearer to the actual circumstance than the previously expressed condemnation of the species. Approximately 1,000 blue catfish were introduced into this reservoir as part of the experimental introduction program described under Job E-2.

Figure 13. - Results of ten nets set for the resurvey of Lake Nasworthy during the period from April 16, 1959 through April 1, 1960

Species	Number	Percent by number	Total weight lbs.	Weight ozs.	Average weight lbs.	Average weight ozs.	Percent by weight	Average "K"
Longnose gar	59	8.44	21	1	5.7	4.57	0.47	
Gizzard shad	376	53.78	83	12	3.6	18.17	2.18	
River carpsucker	112	16.02	176	6	9.2	38.27	2.90	
Carp	36	5.15	49	3	5.8	10.68	2.73	
Channel catfish	34	4.86	26	5	12.4	5.71	1.63	
Flathead catfish	7	1.01	46	13	6	11.0	2.34	
White bass	22	3.14	30	10	1	6.3	2.93	
Largemouth bass	2	0.29	1	13	14.5	0.40	2.58	
Sunfishes	17	2.43	2	2	2.0	0.46	4.06	
White crappie	31	4.44	18	14	9.7	4.09	3.72	
Freshwater drum	3	0.44	3	14	4.7	0.85	2.43	
Totals	699	100.00	460	13		100.00		

Figure 14. - A comparison of rough and/or forage species to game species obtained in ten nets set for the resurvey of Lake Nasworthy

Type of fish	Number	Percent of number	Total weight		Percent of weight
			lbs.	ozs.	
Rough and/or forage species (longnose gar, gizzard shad, river carpsucker, carp, and freshwater drum)	586	83.84	334	4	72.53
Game species (channel catfish, flathead catfish, white bass, large- mouth bass, sunfishes, and white crappie)	113	16.16	126	9	27.47
Totals	699	100.00	460	13	100.00

San Angelo Reservoir - Twelve netting collections and five seining collections were obtained from this lake. Gizzard shad have increased from 20.36 percent of the netting sample during the initial survey ending in 1956 to 59.04 percent of the resurvey netting sample. River carpsuckers did not constitute as high a percentage of the fish in the netting sample as they had previously, but the decrease was not great enough to be highly significant as a sampling error could easily account for a variation of the magnitude encountered. White bass and white crappie still account for the bulk of the game fish procured in the netting collection, but the average crappie has diminished in size until these fish are no longer desirable in San Angelo Reservoir. Channel catfish are still abundant and provide one of the chief fisheries resources in the lake. Recently a 49 pound catfish was caught by a local angler. It is hoped that this fishery will continue to develop. The seining sample indicates a change in dominance from redhorse shiners to spottail shiners (Notropis venustus). However, redhorse shiners apparently are still abundant and both types of minnows are desirable forage species. No management procedure would be practical at this time on this large body of water in the opinion of the Region 3-B aquatic biologists. However, in case of a drouth and subsequent substantial decrease in water volume, a management effort might be advisable.

Figure 15. - Results of twelve nets set for the resurvey of the San Angelo Reservoir during the period from April 16, 1959 through April 1, 1960

Species	Number	Percent of number	Total weight lbs.	ozs.	Average weight lbs.	ozs.	Percent of weight	Average "K"
Longnose gar	1	0.16	1	2	1	2	0.31	0.03
Gizzard shad	369	59.04	71	14		3.2	20.33	1.38
River carpsucker	77	12.32	139	9	1	13	39.46	2.54
Carp	8	1.28		12		1.5	0.22	2.32
Channel catfish	33	5.28	55	11	1	11	15.74	2.17
Black bullheads	1	0.16		7		7	0.13	2.23
White bass	66	10.56	71	3	1	1.3	20.13	2.46
Sunfish	4	0.64		9		2.25	0.16	2.82
White crappie	59	9.44	9	13		2.7	2.77	1.81
Freshwater drum	7	1.12	2	10		6	0.75	1.66
Totals	625	100.00	353	10			100.00	

Figure 16. - A comparison of rough and/or forage species to game species obtained in twelve nets set for the resurvey of San Angelo Reservoir

Type of fish	Number	Percent of number	Total weight		Percent of weight
			lbs.	ozs.	
Rough and/or forage species (longnose gar, gizzard shad, river carpsucker, carp, black bullheads, and fresh- water drum)	463	74.08	216	6	61.19
Game species (channel catfish, white bass, sunfish, and white crappie)	162	25.92	137	4	38.81
Totals	625	100.00	353	10	100.00

Moss Creek Lake - Fourteen netting collections and four seining collections were obtained from this lake. On March 24 of 1959, during the initial survey period, a selective kill of gizzard shad was performed. A tremendous number of shad were killed. However, very few shad were observed dying or dead that weighed over 7 ounces and the netting collections collected before the kill had indicated that no shad over a weight of $7\frac{1}{2}$ ounces were present in the lake. The result of five netting collections made a few days after the selective kill produced no shad.

On May 12, 1959, $1\frac{1}{2}$ months after the shad kill, 14 shad were obtained from six nets and all of these shad weighed between 9 and 14 ounces.

On October 1, 1959, five months later, three nets were set and 69 shad were captured. This sample of shad was made up of two sizes. One size had an average weight of about six ounces and the other size had an average weight of approximately 1 pound and 12 ounces. These fish were probably from the same age group shad that had weighed 7 ounces at the time of the shad kill and between 9 and 14 ounces one and a half months later. The small shad were probably their progeny.

On January 14, 1960, five nets were set that produced 24 shad ranging in size from $2\frac{1}{2}$ ounces to 2 pounds and 1 ounce. The largest size shad that had weighed 1 pound 12 ounces months earlier, had apparently grown to approximately 2 pounds and during the January netting there were at least three age groups and more likely four age groups of shad in the lake.

Fishing was improved for a short time after the management effort, but a noticeable improvement in fishing for an extended time did not occur. The only conclusions that can be drawn are that the selective kill did eradicate a great many shad but that a few were left and that the management technique was in effect responsible for raising the average size of the shad in Moss Creek Lake from 3.34 ounces to 8.23 ounces without helping the fisherman catch a great many more fish and without raising the average size of game fish.

Other rough fish besides gizzard shad and black bullheads are still very scarce and not considered a fisheries problem in Moss Creek Lake. The populations of game fish apparently remained relatively stable and the seining indicated that there were a great number of fingerling largemouth bass in the lake.

White crappie are even smaller than they were in the initial survey, averaging only 2.48 ounces even though redhorse shiners were successfully reestablished in the lake by the lake patrolman after they had become rare during the last few years. It was hoped that the redhorse shiners would provide ample food for the white crappie and help the crappie increase their average size.

All types of sunfish including the redear sunfish (Lepomis microlophus), appear to be stunted, although the redear is still the largest species of sunfish in the lake. No further management effort is recommended at this time.

Figure 17. - Results of fourteen nets set for the resurvey of Moss Creek Lake during the period from April 16, 1959 through April 1, 1960

Species	Number	Percent of number	Total weight lbs.	Average weight ozs.	Average weight lbs.	Percent of weight	Average "K"
Gizzard shad	107	39.48	55	1	8.23	25.64	2.29
Carp	1	0.37	1	13	13	0.83	2.75
Golden shiner	1	0.37		2	2	0.05	1.58
Channel catfish	79	29.15	118	5	7.96	54.93	1.69
Black bullhead	24	8.85	9	15	6.63	4.61	1.56
White bass	4	1.48	6	8	10	3.01	2.72
Largemouth bass	12	4.43	16	15	6.60	7.85	2.45
Warmouth bass	1	0.37		1	1	0.03	3.00
Green sunfish	1	0.37		2	2	0.05	3.35
Orangespotted sunfish	1	0.37		2	2	0.05	1.96
Redear sunfish	12	4.43	2	12	3.67	1.27	3.39
Bluegill sunfish	18	6.64	2	1	1.83	0.95	3.24
White crappie	10	3.69	1	9	2.50	0.73	2.62
Totals	271	100.00	215	6		100.00	

Figure 18. - A comparison of rough and/or forage species to game species obtained in fourteen nets set for the resurvey of Moss Creek Lake

Type of fish	Number	Percent of number	Total weight		Percent of weight
			lbs.	ozs.	
Rough and/or forage species (gizzard shad, carp, golden shiner, and black bullheads)	133	49.08	66	15	31.08
Game species (channel catfish, white bass, largemouth bass, warmouth bass, sunfish, and white crappie)	138	50.92	148	7	68.92
Totals	271	100.00	215	6	100.00

Lake J. B. Thomas - Ten netting collections and six seining collections were obtained from this lake. The data obtained from ten nets set does not give a totally representative picture of the true abundance of the different fish populations occurring in Lake Thomas in the opinion of the aquatic biologists for Region 3-B. It is felt that the results of previous resurveys made on this lake give a more accurate depiction of the rough fish populations.

For instance, in 1958, river carpsucker composed nearly 15 percent of the total fish caught in the 48 netting collections obtained, and in the present resurvey river carpsucker accounts for only 6.23 percent. Gizzard shad, river carpsucker and to a lesser extent carp, still constitute a major fishery problem in this lake in the opinion of these observers. Largemouth bass are conspicuous by their absence in the netting and seining samples. The fluctuation of the lake level and possibly to some extent the competition with white bass and general overcrowded condition of the lake created by large populations of rough fish are the most probable reasons for the sparseness of this species. On the other hand, the white bass in this lake have provided a great deal of recreation for sportsmen from all over West Texas. Channel catfish and flathead catfish also support a substantial fishery.

An experimental introduction of 4,500 blue catfish (Ictalurus furcatus), was accomplished in the fall of 1959. These fish were 6- to 10-inches long at that time. It is hoped that this added species will help create better fishing for more people and that if they do adapt to the ecological conditions found in Lake Thomas that they will serve as an added partial control on undesirable species as flathead catfish and channel catfish sometimes appear to do. Resurvey will be continued on this lake during the coming segments in order to keep informed on the status of these fish and in order to make management recommendations at the earliest possible date that a management technique would be applicable and practical.

Figure 19. - Results of ten nets set for the resurvey of Lake Thomas during the period from April 16, 1959 through April 1, 1960 *

Species	Number	Percent of number
Gizzard shad	94	32.52
River carpsucker	18	6.23
Carp	6	2.08
Channel catfish	72	24.91
White bass	67	23.18
Bluegill sunfish	2	0.69
White crappie	30	10.39
Totals	289	100.00

* No weights or measurements were obtained on these fish

Figure 20. - A comparison of rough and/or forage species to game species obtained in ten nets set for the resurvey of Lake J. B. Thomas

Type of fish	Number	Percent of number
Rough and/or forage species (gizzard shad, river carp- sucker, and carp)	118	40.83
Game species (channel catfish, white bass, bluegill sunfish, and white crappie)	171	59.17
Totals	289	100.00

Pecos River Watershed

The Mouth of the Pecos River on King Ranch - Five netting collections were obtained from the Pecos River itself primarily in an attempt to procure Rio Grande blue catfish (Ictalurus furcatus), for Job E-2. However, the data gathered from the setting of these nets is the only data obtained for the Pecos River or its watershed as no lakes on its drainage were resurveyed during the segment and is therefore included. Three species of gar and gizzard shad appear to constitute the primary rough and/or forage species for the area netted while blue catfish is the principal game species. Four small largemouth bass were captured. These were all the same size fish and are believed to be part of a transplant of this species to this area from the state fish hatchery that occurred a few months prior to the netting. If so, this stocking appears to have been a success as the bass apparently had grown very fast and were in good condition. The middle and upper areas of the Pecos River and Lake Imperial and Red Bluff Reservoir will be resurveyed during the coming segment in order to keep informed on the current status of the fishery populations and to find out the degree of success or failure of recent introductions of marine species in those areas.

Prepared by Lawrence S. Campbell
Project Leader

Approved by

Marion Toole
Director Inland Fisheries Division

James Wilcox
Assistant Project Leader

Date August 5, 1960

Figure 21. - Results of five nets set for the resurvey of the Pecos River during the period from April 16, 1959 through April 1, 1960 *

Species	Number	Percent of number
Alligator gar	5	4.71
Spotted gar	1	0.95
Longnose gar	32	30.18
Gizzard shad	42	39.63
Blue sucker	2	1.88
Smallmouth buffalo	1	0.95
River carpsucker	1	0.95
Carp	1	0.95
Blue catfish	14	13.21
Flathead catfish	1	0.95
White bass	2	1.88
Largemouth bass	4	3.76
Totals	106	100.00

* No weights or measurements were obtained on these fish

Figure 22. - A comparison of rough and/or forage species to game species obtained in five nets set for the resurvey of the Pecos River.

Type of fish	Number	Percent of number
Rough and/or forage species (gars, gizzard shad, blue suckers, smallmouth buffalo, river carpsucker, and carp)	85	80.19
Game species (blue catfish, flathead catfish, white bass, and largemouth bass)	21	19.81
Totals	106	100.00

