Concho Rivers

JOB PROGRESS REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-5-R-17

REGION 1-B FISHERIES STUDIES

Job No. 13 Fisheries Management Recommendations

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SUMMARY

Fisheries surveys were conducted on 17 public bodies of water in Region 1-B. Fish populations were sampled with standard gill nets, seines and trawl. Hydrological, physical, ecological, and water analysis data were collected.

Two changes in the Permian Basin Regulatory District fish harvest regulations were recommended and adopted. Three counties and the fishing regulations in Borden County came under regulatory responsibility this segment.

San Angelo Reservoir received a chemical renovation treatment in August 1969 (for details see completion report number 16-a-59, Project F-14-D-11). Four other reservoirs meet the statistical criteria for chemical treatments but at the present time only one, Valley Creek Lake, can be recommended for treatment.

Supplementary hatchery stocking was done at 11 public lakes and at several locations on 2 major streams.

Aquatic vegetation was not found to be problematic at any of the waters surveyed. Unpredictable events adversely affecting fish population were not encountered during this segment.

JOB PROGRESS REPORT

State of Texas

Project No. F-5-R-17 Name: Region 1-B Fisheries Studies

Job No. 13 Title: Fisheries Management Recommendations

Period Covered: March 1, 1969 to February 28, 1970

Objectives:

To determine the need for, in Region 1-B waters:

1. Changes in fish harvest regulations
2. Population control
3. Stocking
4. Vegetation control
5. Emergency measures needed to correct unpredictable events adversely affecting fish populations.

Procedures:

Fisheries surveys and current fisheries regulations were reviewed and provided the basis for the proposal of fish harvest regulation changes.

Proposed regulations were discussed with concerned department personnel at preliminary meetings for the Edwards Plateau and Permian Basin regulatory districts. Public hearings were held in each of the counties under regulatory responsibility to inform the public of the proposed regulations.

Procedures for objectives 2 through 5 will be merged for expediency and clarity. For the same reasons, the findings and discussion will be reported separately for each concerned body of water.

Surveys were made on all major public waters during this segment with the more important ones receiving 2 or more visits (Table 1). Fish populations were sampled with standard gill nets, seines, and trawl when possible. A standard gill net is 150 feet in length, 8 feet deep, and mesh sizes varying from 1 to 3½ square inches. The number of nets set was determined by the size of the impoundment and water conditions. The size of seines and trawl used is given with each survey results table. A trawling sample unit was a 10-minute drag at approximately 5 mph.

All fish collected in gill nets were counted, weighed, and measured. A sample of fish (usually up to 15 of each game species) was examined to determine sexual development and stomach content. Total numbers, total weights, percentages, average weights, and condition ("K" factor) were tabulated.

Table 1

Waters Surveyed During This Segment

NAME	COUNTY	NUMBER OF VISITS
Oak Creek Reservoir	Coke	2
Valley Creek Reservoir	Runnels	2
Old Winters Lake	Runnels	1
Colorado City Reservoir	Mitchell	2
San Angelo Reservoir	Tom Green	1
Colorado River	Coke, Runnels, Concho	3
E. V. Spence Reservoir	Coke	4
Nasworthy Lake	Tom Green	2
New Winters Lake	Runnels	1
Champion Creek Reservoir	Mitchell	2
J. B. Thomas Reservoir	Borden and Scurry	2
Moss Creek Reservoir	Howard	1
Twin Buttes Reservoir	Tom Green	1
San Saba River	Menard	2
Elm Creek Reservoir	Runnels	1
Mountain Creek Reservoir	Coke	1
Concho River	Tom Green	1

Fish taken in seines and trawl were counted and a length range was recorded. Several specimens of each species were preserved in formalin solution and identifications were confirmed in the laboratory. A comparison of the average coefficient of condition ("K" factors) for all game species collected with gill nets at all the waters surveyed is given in Table 2.

Vegetation checks were made during each survey and records were taken as to the kind and abundance. This information will be discussed only when significant.

Air and water temperatures, turbidity, hydrological records, weather conditions, and other physical data were recorded in each survey. Also, water analysis including oxygen, carbon dioxide, alkalinity, total hardness, chlorides, and pH were conducted at the majority of waters visited. This information will be discussed in the report when necessary.

Statistical data for each body of water were examined to determine which waters would be considered for chemical control measures. The criteria for considering chemical management efforts were populations of undesirable species in excess of 80 per cent by either weight and/or number, lake capacities, and the "cost-benefit ratio" of treatment.

Table 2

Comparison of Average "K" Factors of Game Species

Species

Waters	Blue catfish	Channel catfish	Flathead catfish	White bass	Warmouth	Green sunfish	Bluegill	Longear sunfish	Redear sunfish	Largemouth bass	White crappie	Walleye
Champion Creek Lake	-	1.93	2.09	2.93	4.03	4.40	4.53	-	-	2.17	2.94	-
Colorado City Lake	-	1.85	2.04	2.88	4.20	4.27	4.35	-	3.53	2.88	2.91	-
Colorado River	-	1.98	-	-	-	-	-	-	-	-	3.40	-
Concho River	-	1.99	-	-	-	-	4.28	-	-	2.94	3.21	-
Elm Creek Lake	-	1.78	1.89	-	-	-	-	-	-	-	3.35	-
Moss Creek Lake	-	2.20	1.87	-	-	-	-	-	3.68	-	2.50	-
Mountain Creek Lake	-	2.03	-	-	4.10	-	3.75	-	3.62	2.96	2.62	-
Nasworthy Lake	-	1.90	2.03	2.99	3.50	-	3.96	3.58	3.45	2.68	2.85	-
New Winters Lake	-	1.69	1.93	-	-	-	-	-	-	-	2.75	-
Oak Creek Lake	-	1.82	1.89	3.08	-	-	3.83	-	-	2.93	2.95	-
Old Winters Lake	-	1.69	2.25	-	-	-	-	-	-	-	2.73	-
San Angelo Lake	-	1.80	2.21	3.19	-	-	4.83	-	-	-	2.88	1.61
San Saba River	-	1.78	1.82	-	-	4.88	4.28	-	-	2.52	3.34	-
E. V. Spence Lake	1.83	1.97	1.91	3.39	-	4.31	5.54	5.55	-	3.06	3.89	-
Twin Buttes Lake	-	1.62	1.84	2.79	-	-	4.45	-	-	-	3.03	-
J. B. Thomas Lake	-	1.70	2.12	2.82	-	-	4.16	-	-	2.88	2.95	1.74
Valley Creek Lake	-	2.04	1.87	-	4.14	-	4.36	5.07	4.35	2.96	2.84	-
Average	1.83	1.87	1.96	3.01	3.99	4.47	4.36	4.73	3.73	2.80	3.01	1.68

Most of the public waters surveyed this segment were recommended for supplementary hatchery stocking. The basis for these recommendations were (1) the degree and survival of game fish reproduction, (2) water levels, (3) food availability, (4) fishing pressures, and (5) past production records. Due to abundant hatchery production and when it was necessary for either of the local hatcheries to "move" their fish, the recommended stocking rates of nearby waters were exceeded. Supplementary hatchery stocking for all public waters in Region 1-B during 1969 are presented in Table 3.

Table 3

Public Water Stocking - 1969, Region 1-B

Lakes	Largemouth Bass	No. Released Channel Catfish	White Crappie	Redear Sunfish
Champion Creek		26,400		
Elm Creek	5,000	3,000		
Moss Creek	2,000	2,000		
Mountain Creek		2,000		
Nasworthy	24,000	15,000		
New Winters	2,000	1,800		
Oak Creek		30,000	800	14,000
E. V. Spence	786,000 *	79,650		
San Angelo	25,450 **	107,100		88,000
Towle Park	900	600		500
Valley Creek		5,000		
Concho River				
Ben Ficklin Dam		12,450		
Lone Wolf Dam	16,000 *	20,000		
Bell Street Dam	24,000 *	3,000	1,500	600
Christoval Park		4,000		
San Saba River				
Ft. McKavett		3,000		6,000

* - Fry or advanced fry
** - Advanced fingerlings

Findings:

Objective No. 1

Three Region 1-B counties, Ector, Runnels and Scurry, came under regulatory responsibility during this segment. Also the means and methods of taking fish in Borden County were placed under the Department's regulations. Table 4

presents the location, dates, and number of persons present at the public hearings that concern this project.

Table 4

Regulatory Hearings Concerning Project F-5-R, 1969

County	Location (Town)	Date	Number Present
	Permian Basin Area		
Andrews *	Andrews	6-4-69	0
Borden	Gail	6-2-69	0
Borden	Gail	6-30-69	NR
Cochran *	Morton	6-2-69	0
Coke *	Robert Lee	6-4-69	NR
Crosby **	Crosbyton	6-2-69	0
Dawson *	Lamesa	6-4-69	3
Ector	Odessa	9-16-69	0
Gains *	Seminole	6-4-69	0
Garza **	Post	6-2-69	0
Glasscock	Garden City	6-4-69	2
Howard	Big Spring	6-3-69	4
Irion *	Mertzon	6-5-69	NR
Kent **	Jayton	9-17-69	2
Martin	Stanton	6-3-69	3
Midland	Midland	6-4-69	0
Mitchell	Colorado City	6-3-69	1
Reagan	Big Lake	6-4-69	0
Runnels	Ballinger	6-30-69	NR
Scurry	Snyder	9-16-69	2
Sterling *	Sterling City	6-4-69	NR
Terry *	Brownfield	6-3-69	0
Tom Green *	San Angelo	6-5-69	NR
Upton **	Rankin	9-16-69	5
Yoakum *	Plains	6-3-69	0
	Edwards Plateau Area		
Menard *	Menard	6-3-69	NR
Schleicher *	Eldorado	6-3-69	NR

NR - Official attendance not reported
** - Not in Region 1-B, but hearing attended by F-5-R personnel
* - In Region 1-B but not attended by F-5-R personnel

It was necessary to recommend two changes in the existing fisheries regulation in this Region. The first was to open the season on walleye perch and place on them a daily bag and possession limit of five. This was necessary

to encourage fishermen to fish for walleye and report their catch from the two public waters where this species was previously introduced (Lake J. B. Thomas and San Angelo Reservoir). The second recommended change was the addition of striped bass with a daily bag and possession limit of one. This species was introduced in E. V. Spence Reservoir and any reported catches would be of great value to this study.

Findings and Discussion:

Objectives 2 through 5

Oak Creek Reservoir

Oak Creek Lake is a 2,375-acre municipal water supply owned and operated by the city of Sweetwater. West Texas Utilities also uses water from this impoundment for generator cooling.

Surveys were conducted on this reservoir in March and August 1969, and on both occasions the water level was within 5 feet of normal. Survey results continue to reflect a respectable game fish population, 27 per cent by number and 40 per cent by weight of the netting sample (Table 5). Largemouth and white bass showed increases over past surveys. This clear lake yields an exceptionally large number of lunker size largemouth bass. The catch of flathead catfish was the only important decrease in game fish. The rough or undesirable population was very similar to that found in previous surveys.

Small sunfish and age class 0 largemouth bass dominated the seining sample as shown in Table 5.

Water milfoil (Myriophyllum sp.), coontail (Ceratophyllum sp.) and bushy pondweed (Najas sp.) are abundant in this clear impoundment. They have been problematic on occasions in the past; however, a 3-foot rise in early summer gave some relief from these problematic submerged plants.

Stocking records are given in Table 4.

Valley Creek Lake

Two visits were made to this 185-acre lake which is the water supply for the city of Ballinger. This impoundment has been considered for renovation procedures for the past two segments. Rough fish, as they have for the past several years, continue to dominate the netting sample with 84 per cent number and 81 per cent weight (Table 6). White crappie and channel catfish accounted for the majority of desirable species.

Seining produced satisfactory forage with red shiner and blacktail shiner being abundant.

The possibility of a chemical treatment will be discussed with the controlling authorities. Meanwhile, supplementary stocking will be done in an attempt to increase the desirable fish population.

Table 5

Survey Results of Oak Creek Reservoir, March 20 and August 21, 22, 1969. Results of 18 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	201	50.25	32.75	.16	10.27	
Carp	37	9.25	45.69	1.23	14.33	
River carpsucker	47	11.75	111.05	2.36	34.83	
Black bullhead	7	1.75	1.52	.21	.47	
Channel catfish *	13	3.25	10.04	.77	3.15	1.82
Flathead catfish *	2	.50	15.69	7.84	4.92	1.89
White bass *	32	8.00	57.09	1.78	17.91	3.08
Bluegill *	40	10.00	3.49	.08	1.10	3.83
Largemouth bass *	11	2.75	33.51	3.04	10.51	2.93
White crappie *	10	2.50	8.00	.80	2.51	2.95
Total	400	100.00	318.83		100.00	
Game Fish *	108	27.00	127.82		40.10	
Rough Fish	292	73.00	191.01		59.90	

Seining Results of Oak Creek Reservoir (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	25	6-8
Blacktail shiner	1	2½
Mosquito fish	5	1-2
Redbreast sunfish	7	2-5
Green sunfish	16	2-4
Orangespotted sunfish	2	2½
Bluegill	95	1-4
Longear sunfish	18	2-3
Redear sunfish	14	1-3½
Largemouth bass	155	2-10
Total	338	

Table 6

Survey Results of Valley Creek Lake, April 24 and September 25, 1969. Results of 10 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	25	4.97	120.64	4.82	25.04	
Gizzard shad	230	45.72	30.85	.13	6.40	
Carp	12	2.39	44.48	3.70	9.23	
River carpsucker	131	26.04	175.26	1.33	36.38	
Black bullhead	9	1.79	3.95	.43	.82	
Channel catfish *	16	3.18	39.02	2.43	8.10	2.04
Flathead catfish *	2	.40	18.33	9.16	3.81	1.87
Warmouth *	1	.20	.22	.22	.04	4.14
Bluegill *	10	1.98	.93	.09	.19	4.36
Longear sunfish *	1	.20	.12	.12	.03	5.07
Redear sunfish *	1	.20	.26	.26	.05	4.35
Largemouth bass *	4	.80	15.95	3.98	3.31	2.96
White crappie *	44	8.75	14.46	.32	3.01	2.84
Freshwater drum	17	3.38	17.29	1.01	3.59	
Total	503	100.00	481.76		100.00	
Game Fish *	79	15.71	89.29		18.54	
Rough Fish	424	84.29	392.47		81.46	

Seining Results of Valley Creek Lake (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine and 10' by 4' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	28	3 -7
Golden shiner	1	2
Red shiner	317	1 -2½
Blacktail shiner	345	1½-2½
Bullhead minnow	35	1½-2
River carpsucker	5	3 -4
Black bullhead	1	6
Channel catfish	1	3
Green sunfish	11	3 -4
Orangespotted sunfish	8	2 -3
Bluegill	7	1 -3
Longear sunfish	5	3 -4
Redear sunfish	8	3 -3½
Largemouth bass	15	2 -3½
White crappie	165	3 -5
Logperch	4	3½
Total	956	

Old Winters Lake

A survey was conducted on this 20-acre, old water supply reservoir in April 1969. Gizzard shad accounted for 80 per cent of the total number of fish netted (Table 7). This shallow, turbid lake provides very little fishing in its present condition. Management efforts would almost be useless because of the receding water level each summer which cause most of the desirable species to be lost due to oxygen depletion. The heavy silt deposits on the bottom and high chloride content also constitute a hindrance to game fish production.

Table 7

Survey Results of Old Winters Lake, April 29, 1969. Results of 4 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	207	79.61	36.23	.17	42.80	
Carp	33	12.69	18.28	.55	21.60	
Channel catfish *	7	2.70	1.77	.25	2.09	1.69
Flathead catfish *	2	.76	26.92	13.46	31.80	2.25
White crappie *	11	4.24	1.44	.13	1.71	2.73
Total	260	100.00	84.64		100.00	
Game Fish *	20	7.70	30.13		35.60	
Rough Fish	240	92.30	54.51		64.40	

Seining Results of Old Winters Lake (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	1	3½
Red shiner	104	½-3
Bullhead minnow	38	1½-2½
Mosquitofish	2	1
Green sunfish	2	4
Bluegill	9	½-3
Largemouth bass	1	5
White crappie	9	4 -6
Total	166	

Colorado City Reservoir

Colorado City Lake covers some 1,655 acres on Morgan Creek, 6 miles southwest of Colorado City. The lake is owned and operated by Texas Electric Service Company who uses the water for generator cooling. It is also a

municipal water supply for Colorado City. The water level was down about 7 feet from normal when surveyed in May 1969.

The combined survey results for the May and December samples are given in Table 8. This reservoir has consistently exhibited high game fish production with 42 per cent by number and 54 per cent by weight of the total fish netted. The condition ("K") factor for game species from this reservoir were generally above average (Table 3). The composition of the desirable fish population has experienced very little change. However, the number of gizzard shad was approximately 17 per cent lower than last year, while the number of river carpsucker increased by approximately that amount.

Forage was abundant in the seining samples with blacktail shiner the most numerous. Largemouth bass fry and fingerlings were collected in large numbers indicating that reproduction was more successful this year than in the past 2 years.

San Angelo Reservoir

This U. S. Corps of Engineers lake is located at the northwest limits of San Angelo on North Concho River. After being full (119,000 acre-feet) for a short while in the mid 1950's, it has steadily decreased in volume and in game fish production.

The volume of San Angelo Reservoir was reduced to only 2,800 acre-feet during this segment. Table 9 reflects the continuing drop in the number of game fish present. Based on these findings, along with those of the past 2 years and other criteria needed to meet the requirement for chemical renovation, a treatment was effected on San Angelo Reservoir in August 1969. Details are given in the completion report for Project F-14-D-11, Job 16-a-59.

Restocking of this reclaimed water began in about 10 days with 60 to 70 thousand adult minnows. Shortly thereafter, approximately 107,200 channel catfish fingerlings, 25,450 advanced largemouth bass fingerlings and 88,000 redear sunfish fingerlings were stocked. These large numbers of fish were stocked with the expectance of catching water in the fall. Other game species, such as adult flathead catfish, will be added as time permits.

Colorado River

The Colorado River was checked in May 1969 in Coke County. At this location the river has very little sustained flow and is usually confined to holes of ½ to 1 mile long and 2 to 8 feet deep. The turbidity is usually very high.

Survey results, given in Table 10, show a typical catch for this water. Channel catfish and white crappie were the only game species collected in nets this year; however, flathead catfish is an important sport fish in this area.

Table 8

Survey Results of Colorado City Reservoir, May 8, 9 and December 4, 1969. Results of 17 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	127	25.14	22.57	.17	3.24	
Carp	32	6.34	109.08	3.40	15.71	
River carpsucker	135	26.73	186.17	1.37	26.81	
Channel catfish *	62	12.28	54.84	.88	7.89	1.85
Flathead catfish *	35	6.93	265.13	7.57	38.18	2.04
White bass *	15	2.97	12.51	.83	1.80	2.88
Warmouth *	1	.20	.09	.09	.02	4.20
Green sunfish *	1	.20	.15	.15	.02	4.27
Bluegill *	20	3.96	1.81	.09	.26	4.35
Redear sunfish *	9	1.78	.87	.09	.12	3.53
Largemouth bass *	8	1.58	16.07	2.00	2.32	2.88
White crappie *	60	11.89	25.20	.42	3.63	2.91
Total	505	100.00	694.49		100.00	
Game Fish *	211	41.79	376.67		54.24	
Rough Fish	294	58.21	317.82		45.76	

Seining Results of Colorado City Reservoir (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	126	2 -6
Carp	20	2½-3
Red shiner	97	½-2
Blacktail shiner	2,529	1 -2½
Bullhead minnow	1	1½
Black bullhead	1	4
Channel catfish	2	2½
Mosquito fish	2	1
Warmouth	1	3½
Green sunfish	1	2½
Orangespotted sunfish	5	2 -3
Bluegill	4	1 -3
Longear sunfish	5	2 -3½
Redear sunfish	7	2 -4
Largemouth bass	254	1 -5
White crappie	71	3 -6
Logperch	31	1 -3
Total	3,157	

Table 9

Survey Results of San Angelo Reservoir, May 20 and 21, 1969. Results of 12 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	36	6.08	108.70	3.01	19.65	
Gizzard shad	221	37.33	27.42	.12	4.96	
Carp	14	2.36	22.46	1.60	4.06	
River carpsucker	156	26.35	224.83	1.44	40.66	
Smallmouth buffalo	30	5.07	28.30	.94	5.12	
Channel catfish *	18	3.04	22.19	1.23	4.01	1.80
Flathead catfish *	6	1.02	46.03	7.67	8.33	2.21
White bass *	26	4.39	31.18	1.19	5.63	3.19
Bluegill *	3	.50	.26	.08	.05	4.83
White crappie *	8	1.36	2.74	.34	.50	2.88
Walleye *	1	.16	.87	.87	.15	1.61
Freshwater drum	73	12.34	37.99	.52	6.88	
Total	592	100.00	552.97		100.00	
Game Fish *	62	10.47	103.27		18.67	
Rough Fish	530	89.53	449.70		81.33	

Seining Results of San Angelo Reservoir (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	351	4 -7
Threadfin shad	12	2½-5
Red shiner	508	1 -2½
Bullhead minnow	6	1½-2½
Bluegill	12	2 -2½
Longear sunfish	1	3
Largemouth bass	13	4½-7
Total	903	

Table 10

Survey Results of the Colorado River, May 14, 1969. Results of 3 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	13	33.33	22.57	1.73	28.63	
Gizzard shad	3	7.69	4.07	1.35	5.16	
Carp	4	10.26	11.01	2.75	13.97	
River carpsucker	9	23.07	14.64	1.62	18.58	
Smallmouth buffalo	2	5.13	13.87	6.94	17.59	
Channel catfish *	4	10.26	9.47	2.36	12.02	1.98
White crappie *	1	2.56	.33	.33	.42	3.40
Freshwater drum	3	7.70	2.86	.95	3.63	
Total	39	100.00	78.82		100.00	
Game Fish *	5	12.83	9.80		12.44	
Rough Fish	34	87.17	69.02		87.56	

Seining Results of the Colorado River (20' by 6' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Golden shiner	1	1½
Red shiner	110	½-2
Fathead minnow	1	2
Bullhead minnow	13	1 -2
Mosquitofish	25	½-1
Longear sunfish	3	1½-2½
Redear sunfish	2	3
Total	155	

E. V. Spence Reservoir

Construction on this new 15,000-acre lake was completed this year by the Colorado River Municipal Water District. The reservoir was built to serve as a water supply for Odessa, Big Spring, Snyder, Midland and San Angelo. The first water impounded, other than what was contained in the river, was in May 1969 when about 27,000 acre feet were caught. Since that time the new lake has experienced very little loss or gain. The controlling authorities presently have the reservoir closed to all recreation, but plans have been made to open the lake for fishing and aquatic recreation in early summer 1970.

Several surveys were made on this reservoir in an effort to evaluate the fish population and in turn provide adequate stocking. Table 11 gives the combined survey results. A total of 25 species have been collected in the

Table 11

Survey Results of E. V. Spence Reservoir, March 27, June 10, July 15, 16 and October 24, 1969. Results of 25 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Spotted gar	11	1.44	10.45	.95	1.55	
Longnose gar	85	11.14	94.29	1.10	13.99	
Gizzard shad	152	19.92	94.90	.62	14.09	
Carp	120	15.73	114.32	.95	16.97	
River carpsucker	172	22.54	145.41	.84	21.59	
Smallmouth buffalo	1	.13	6.99	6.99	1.04	
Blue catfish *	4	.52	5.72	1.43	.85	1.83
Black bullhead	31	4.07	6.09	.19	.90	
Channel catfish *	101	13.23	112.57	1.11	16.71	1.97
Flathead catfish *	7	.92	45.96	6.56	6.83	1.91
White bass *	13	1.71	6.54	.50	.97	3.39
Green sunfish *	3	.39	.65	.21	.09	4.31
Bluegill *	19	2.49	3.16	.16	.47	5.54
Longear sunfish *	15	1.96	1.70	.11	.25	5.55
Largemouth bass *	6	.79	6.64	1.10	.99	3.06
White crappie *	4	.52	2.81	.70	.42	3.89
Freshwater drum	19	2.50	15.41	.81	2.29	
Total	763	100.00	673.61		100.00	
Game Fish *	172	22.54	185.75		27.58	
Rough Fish	591	77.46	487.86		72.42	

Seining Results of E. V. Spence Reservoir (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	1,217	1 -5
Carp	32	3 -6
Plains minnow	2	2½
Red shiner	237	1 -2
Sharpnose shiner	1	1½
Bullhead minnow	31	1 -2
River carpsucker	2	3½
Black bullhead	1	4
Channel catfish	1	3½
Mosquitofish	71	1 -2
White bass	27	4 -5½
Striped bass	27	4 -4½
Warmouth	1	3
Green sunfish	7	2½-5
Orangespotted sunfish	32	2 -3
Bluegill	1	2
Longear sunfish	17	3 -4
Largemouth bass	187	2 -8
White crappie	2	2 -3½
Total	1,896	

Table 11 (continued)

Trawling Results of E. V. Spence Reservoir (8' by 15' by 1/2-inch mesh trawl).

Species	Number	Size Range in Inches
Gizzard shad	1	4
Carp	4	8
Blue catfish	1	8
Channel catfish	1	6
Largemouth bass	8	3 -5
Total	15	

new reservoir. Channel catfish were found to be the most numerous game fish of harvestable size. Two hundred and four blue catfish fingerlings were stocked in June 1969, and 4 of these introduced fish were recaptured with gill nets in October. They had grown to an average of 1.43 pounds. The condition or "K" factors of the game species of this new reservoir were among the highest recorded in this region (Table 3) as was expected. The striped bass which were experimentally introduced in E. V. Spence under Project F-21-D, showed good survival and growth. Other releases made in 1969 include 26 adult flathead catfish, 6,000 adult Mississippi silversides and the hatchery fish listed in Table 4.

Lake Nasworthy

Located just south of San Angelo, this 1,600-acre reservoir serves as a city water supply and for recreation. Nasworthy received a chemical renovation in the early 1960's and went completely dry a short time later. About 18 months later it refilled and has provided a better than average fishery.

Surveys were conducted on Lake Nasworthy in June and December of this segment. The combined results are given in Table 12. Channel catfish and white crappie were found to be the most numerous game species in the netting collection. However, largemouth bass continue to be the most sought after sport species according to creel checks. Gizzard shad and carp accounted for over 50 per cent of both total number and weight of the netting collection.

Seining and trawling revealed an adequate amount of forage and young-of-the-year game fish with the exception of largemouth bass. Only 6 fingerlings of this important species were collected, which indicated poor spawning success. About 24,000 fingerling bass were stocked.

Moderate growths of bulrush (Scirpus validus) and cattail (Typha latifolia) are found along the shorelines and on the many small islands. However, these plants are not interfering with access at the present time.

Table 12

Survey Results of Nasworthy Lake, June 25, 26 and December 17, 1969. Results of 18 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Spotted gar	1	.09	2.97	2.97	.61	
Longnose gar	4	.39	8.25	2.06	1.70	
Gizzard shad	437	42.76	124.61	.28	25.68	
Carp	90	8.81	142.61	1.58	29.39	
Golden shiner	1	.10	.15	.15	.03	
River carpsucker	10	.98	26.64	2.66	5.49	
Black bullhead	3	.29	.79	.26	.16	
Channel catfish *	46	4.50	68.17	1.48	14.05	1.90
Flathead catfish *	2	.20	8.20	4.10	1.69	2.03
White bass *	8	.78	13.47	1.68	2.78	2.99
Warmouth *	1	.10	.04	.04	.00	3.50
Bluegill *	123	12.03	10.97	.08	2.26	3.96
Longear sunfish *	1	.10	.08	.08	.02	3.58
Redear sunfish *	8	.78	.70	.08	.14	3.45
Largemouth bass *	4	.39	10.64	2.66	2.20	2.68
White crappie *	258	25.25	48.75	.18	10.04	2.85
Freshwater drum	25	2.45	18.20	.72	3.76	
Total	1,022	100.00	485.24		100.00	
Game Fish *	451	44.13	161.02		33.18	
Rough Fish	571	55.87	324.22		66.82	

Seining Results of Nasworthy Lake (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	231	2 -5
Plains minnow	116	2½-3½
Golden shiner	54	1½-2½
Red shiner	162	1 -2½
Fathead minnow	1	2
Bullhead minnow	22	2 -2½
Redbreast sunfish	1	3
Orangespotted sunfish	15	3 -4
Bluegill	21	3 -4
Longear sunfish	16	3 -4
Redear sunfish	15	2½-3
Largemouth bass	4	1½-2½
White crappie	20	3 -7
Logperch	16	4 -5
Total	694	

Table 12 (continued)

Trawling Results of Nasworthy Lake (8' by 15' by 1/2-inch mesh trawl).

Species	Number	Size Range in Inches
Gizzard shad	382	1 -4
Carp	7	9 -14
Bullhead minnow	9	1 -3
Channel catfish	14	2 -7
White bass	1	5
Warmouth	1	3
Orangespotted sunfish	2	2
Bluegill	52	1½-4
Longear sunfish	6	2 -3½
Redear sunfish	48	3 -4
Largemouth bass	2	2½-8
White crappie	54	2 -4
Freshwater drum	2	1 -2½
Total	580	

New Winters Lake

This 250-acre city water supply is located about 8 miles west of the city. It's fairly shallow, turbid waters remain within a foot or two of normal level most of the year.

Survey results of past years, along with this segment's data (Table 13), indicate a steady decline in game fish production. When considering the utilizable game fish (excluding the stunted white crappie), the netting results would contain only 6 per cent by number and 5 per cent by weight of desirable fish. Due to immediate reinfestation of rough fish from both above and below, no chemical renovation can be recommended at this time.

Stocking with channel catfish and largemouth bass was continued.

Champion Creek Reservoir

This impoundment serves as an auxiliary water supply for the Texas Electric Service Company generating plant located on Colorado City Lake. It was approximately 30 feet low when checked this segment and has never reached its capacity of 1,560 acres since completion in the late 1950's.

Channel catfish, white bass, and bluegill comprise the majority of game population which accounted for 64 per cent by number and 49 per cent by weight of the netting sample (Table 14). Largemouth bass were found to be very common in the creel. Only 1 gizzard shad had been collected from Champion Creek Lake until this survey, when they appeared in large numbers and

Table 13

Survey Results of New Winters Lake, July 2, 1969. Results of 6 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	39	20.63	6.44	.16	5.82	
Carp	14	7.41	28.08	2.00	25.40	
Golden shiner	2	1.06	.36	.18	.33	
River carpsucker	24	12.69	28.08	1.17	25.40	
Smallmouth buffalo	4	2.12	20.59	5.14	18.63	
Black bullhead	6	3.17	1.70	.28	1.54	
Channel catfish *	9	4.77	3.54	.39	3.20	1.69
Flathead catfish *	1	.53	1.98	1.98	1.79	1.93
White crappie *	55	29.10	6.12	.11	5.54	2.75
Freshwater drum	35	18.52	13.65	.39	12.35	
Total	189	100.00	110.54		100.00	
Game Fish *	65	34.40	11.64		10.53	
Rough Fish	124	65.60	98.90		89.47	

Seining Results of New Winters Lake (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	155	2 -3
Carp	6	2 -3
Golden shiner	504	½-5
Red shiner	54	1 -2½
Bullhead minnow	25	1½-2
Black bullhead	257	1 -2
Mosquitofish	103	½-2
Green sunfish	5	2½-3
Orangespotted sunfish	31	1 -2½
Bluegill	26	2 -3½
Longear sunfish	3	3½
Redear sunfish	1	2½
Largemouth bass	177	1 -3
White crappie	179	½-3
Logperch	16	2 -4
Total	1,542	

Trawling Results of New Winters Lake (8' by 15' by 1/2-inch mesh trawl).

Species	Number	Size Range in Inches
Channel catfish	6	½-8
White crappie	6	4 -6
Freshwater drum	12	½-8
Total	24	

Table 14

Survey Results of Champion Creek Reservoir, July 8, 9 and December 3, 1969. Results of 17 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	110	20.40	57.13	.51	11.25	
Carp	41	7.61	185.89	4.53	36.64	
Golden shiner	38	7.05	8.45	.22	1.66	
River carpsucker	4	.74	9.69	2.42	1.91	
Channel catfish *	28	5.20	43.43	1.55	8.56	1.93
Flathead catfish *	1	.18	9.47	9.47	1.87	2.09
White bass *	143	26.53	126.22	.88	24.88	2.93
Warmouth *	2	.37	.44	.22	.08	4.03
Green sunfish *	1	.19	.36	.36	.07	4.40
Bluegill *	134	24.86	50.06	.37	9.87	4.53
Largemouth bass *	10	1.86	11.50	1.15	2.26	2.17
White crappie *	27	5.01	4.77	.17	.95	2.94
Total	539	100.00	507.41		100.00	
Game Fish *	346	64.20	246.25		48.54	
Rough Fish	193	35.80	261.16		51.46	

Seining Results of Champion Creek Reservoir (Bag 26' by 6' by 1/4-inch mesh seine).

Species	Number	Size Range in Inches
Golden shiner	7	1½-2½
Red shiner	24	1½-2½
Blacktail shiner	7	½-2
White bass	6	2 -2½
Green sunfish	8	2 -3
Bluegill	24	½-1
Largemouth bass	11	2 -2½
Logperch	4	2½
Total	91	

comprised 20 per cent of the fish netted. It should be interesting to see if the large number of white bass can control this reputedly problematic intruder.

Seining is difficult in the clear water which supports a moderate growth of bushy pondweed. However, indications are that forage is plentiful.

Channel catfish was the only species stocked.

J. B. Thomas Reservoir

Located on the upper Colorado River near Snyder, this Colorado River Municipal Water District lake is continuing to decrease from its size of 7,820 acres. Municipal use and practically no runoff have diminished this turbid impoundment to one-quarter its size.

For the past two years the game fish have been exceptionally high when compared to old records. Survey results collected during this segment (Table 15) show that game species accounted for 43 per cent by number and 61 per cent by weight of the fish netted. One walleye was collected in gill nets in October which weighed one-third of a pound. This species was experimentally introduced as fry and fingerling in early summer of 1969 under Project F-21-D. The exact number stocked is not known.

A variety of forage species in rather large numbers was collected by seining. Only 3 largemouth bass were taken during both surveys, and creel checks also indicated a low population. It was recommended that this valuable species be stocked, but none was available by the time the recommendation was made.

Moss Creek Reservoir

This 145-acre lake is owned by the city of Big Spring, but the water rights belong to the Colorado River Municipal Water District, who uses it as a storage reservoir. In doing so, the water level fluctuates considerably. This fluctuation is not beneficial to game fish production or harvest.

The survey conducted this segment shows game fish dominating both weight and number of the netting sample. However, white crappie accounted for 39 per cent by number and averaged only .02 pounds each (Table 16). Since their reduction by chemical treatment in 1967 to .62 per cent by number, gizzard shad increased to 17.58 per cent by number in 1968 and 35.52 per cent in collections taken during this segment. The increase of gizzard shad in the seining collection is comparable with netting collections. Obviously, an additional predator species such as the white bass, which has almost disappeared from the lake in the past 3 years, should be stocked. Largemouth bass and channel cat were stocked because of the apparent low reproduction.

Twin Buttes Reservoir

Flood control, irrigation, and municipal water supply were the intended uses of this potential 183,000 acre-foot reservoir when constructed by the Bureau of Reclamation in 1963. Located on the Middle and South Concho Rivers, southwest of San Angelo, it has yet to contain over 15,000 acre-feet and held only about 6,000 acre-feet when checked in September during this segment.

Very little change from previous surveys was found in this collection. Table 17 shows that gizzard shad and river carpsucker dominate the netting number and weight percentage respectively. Flathead catfish showed an increase in weight of the netting collection.

Table 15

Survey Results of J. B. Thomas Reservoir, July 23, 24 and October 30, 1969. Results of 18 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	45	13.11	5.56	.12	1.89	
Carp	14	4.09	6.99	.49	2.39	
River carpsucker	79	23.03	95.53	1.20	32.59	
Channel catfish *	41	11.95	43.17	1.05	14.73	1.70
Flathead catfish *	13	3.79	74.49	5.73	25.41	2.12
White bass *	25	7.29	37.76	1.51	12.89	2.82
Bluegill *	3	.87	.22	.07	.06	4.16
Largemouth bass *	2	.59	5.50	2.75	1.88	2.88
White crappie *	63	18.37	16.50	.26	5.64	2.95
Walleye *	1	.29	.33	.33	.11	1.74
Freshwater drum	57	16.62	7.05	.12	2.41	
Total	343	100.00	293.10		100.00	
Game Fish *	148	43.15	177.97		60.72	
Rough Fish	195	56.85	115.13		39.28	

Seining Results of J. B. Thomas Reservoir (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	76	½-5
Carp	3	1 -3
Golden shiner	4	2 -5
Red shiner	38	1 -2½
Blacktail shiner	23	2 -3
River carpsucker	8	1 -2
Channel catfish	15	2 -4
White bass	21	2 -4½
Green sunfish	3	2 -4
Orangespotted sunfish	3	2½
Bluegill	5	1 -3
Longear sunfish	5	2 -3½
Largemouth bass	1	1½
White crappie	15	½-3½
Logperch	4	2 -3½
Total	224	

Table 16

Survey Results of Moss Creek Reservoir, August 8, 1969. Results of 6 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	27	35.52	7.92	.29	8.11	
Carp	2	2.63	17.89	8.94	18.35	
Channel catfish *	9	11.84	27.30	3.03	27.98	2.20
Flathead catfish *	5	6.58	43.39	8.67	44.49	1.87
Redear sunfish *	3	3.95	.33	.11	.34	3.68
White crappie *	30	39.48	.71	.02	.73	2.50
Total	76	100.00	97.54		100.00	
Game Fish *	47	61.85	71.73		73.54	
Rough Fish	29	38.15	25.81		26.46	

Seining Results of Moss Creek Reservoir (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	456	2 -4
Golden shiner	302	2 -8
Red shiner	12	1½-2
Bullhead minnow	4	1 -2
Black bullhead	11	4 -6
Channel catfish	3	3
Warmouth	5	2 -3
Green sunfish	12	1½-3
Orangespotted sunfish	11	1 -2½
Bluegill	203	1½-3
Longear sunfish	151	1½-3
Redear sunfish	51	2 -3½
Largemouth bass	6	2 -8
White crappie	228	2½-4
Logperch	1	3½
Total	1,456	

Trawling Results of Moss Creek Reservoir (8' by 15' by 1/2-inch mesh trawl).

Species	Number	Size Range in Inches
Gizzard shad	1	3½
Black bullhead	139	3 -5
Warmouth	8	2 -3
Orangespotted sunfish	9	2 -3
Bluegill	69	1½-3½
Redear sunfish	12	2 -3
Largemouth bass	3	4
White crappie	369	2 -4
Total	610	

Table 17

Survey Results of Twin Buttes Reservoir, September 5, 1969. Results of 6 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	2	.69	9.25	4.62	3.72	
Gizzard shad	123	43.01	17.44	.14	7.03	
Carp	12	4.20	14.25	1.18	5.74	
River carpsucker	52	18.18	94.87	1.82	38.21	
Channel catfish *	29	10.14	21.26	.73	8.57	1.62
Flathead catfish *	9	3.15	60.39	6.71	24.33	1.84
White bass *	23	8.04	20.03	.87	8.06	2.79
Bluegill *	4	1.40	.37	.09	.15	4.45
White crappie *	26	9.09	7.08	.27	2.86	3.03
Freshwater drum	6	2.10	3.30	.55	1.33	
Total	286	100.00	248.24		100.00	
Game Fish *	91	31.82	109.13		43.97	
Rough Fish	195	68.18	139.11		56.03	

Seining Results of Twin Buttes Reservoir (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	607	2 -5
Carp	3	5 -6
Golden shiner	16	2½-3
Red shiner	30	1 -2
Blacktail shiner	20	1½-2
Bullhead minnow	38	1 -2
River carpsucker	1	8
Mosquito fish	5	1½
White bass	11	3 -3½
Warmouth	1	2
Green sunfish	33	2½-4
Orangespotted sunfish	6	2 -3
Bluegill	45	2 -3
Longear sunfish	5	2 -3
Redear sunfish	6	2½-3
Largemouth bass	18	2 -4
White crappie	4	2 -3
Logperch	1	3½
Total	850	

Seining produced several species of minnows and an ample number of forage size gizzard shad. A significant decrease was seen in the number of the young-of-the-year largemouth bass.

San Saba River

The San Saba River was checked in two locations in Menard County during this segment. The first site was at the Boy Scouts of America Camp and the other was near the headwater springs near Fort McKavett. Both locations receive substantial fishing pressure.

Survey results, presented in Table 18, are fairly representative of this clear, spring-fed stream. Although game species comprise a minor portion of the netting results, the harvest is surprisingly high. Both channel and flathead catfish are readily taken on trotlines while largemouth bass and sunfish are also regularly found in creels.

Seining yielded a large list of forage species, with blacktail shiner being the most abundant. Several spotted bass were taken in seines and small individuals of this sport species are also found in the creel. Several species of aquatic vegetation are present at most localities along the river but seldom constitute a problem.

Elm Creek Reservoir

A small dam on Elm Creek in Ballinger formed this 55-acre water supply several years ago. For the past 18 years it has been used only for recreation and irrigation.

The game fish population has been almost negligible for the past several years despite heavy supplementary stocking efforts. Table 19 presents the survey data taken in September 1969. Gizzard shad dominate the number of fish netted with 54 per cent. Longnose gar, carp, and river carpsucker join this problematic species to comprise over 78 per cent of the total pounds. White crappie was the only game species taken in noticeable numbers, but the majority of these fish were stunted and un-utilizable.

Supplementary stocking was continued as shown in Table 3. Other management measures are not justifiable at this time.

Mountain Creek Reservoir

The city of Robert Lee owns and operates this 95-acre lake for municipal and recreational purposes.

Game fish production remains at a high level in this clear, deep impoundment. Largemouth bass accounted for over 60 per cent of the total pounds netted. Gizzard shad and river carpsucker were the only rough species taken and comprised 41.17 per cent by number and only 17.37 per cent by weight of the netting sample. This was the only carpsucker taken in the past 4 years.

The seining sample was fairly light because of the cold weather but was representative of the lake and comparable to past collections.

Table 18

Survey Results of the San Saba River, September 11, 12 and October 14, 1969. Results of 8 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	24	8.54	56.10	2.33	9.45	
Gizzard shad	87	30.96	42.77	.49	7.21	
Carp	5	1.78	39.64	7.92	6.68	
River carpsucker	60	21.35	130.65	2.17	22.01	
Smallmouth buffalo	35	12.45	226.09	6.45	38.11	
Gray redhorse sucker	4	1.43	7.26	1.81	1.22	
Channel catfish *	7	2.49	13.89	1.98	2.34	1.78
Flathead catfish *	6	2.13	33.55	5.59	5.65	1.82
Green sunfish *	1	.36	.14	.14	.03	4.88
Bluegill *	10	3.56	.84	.08	.14	4.28
Largemouth bass *	4	1.42	1.09	.27	.18	2.52
White crappie *	28	9.97	8.89	.31	1.50	3.34
Freshwater drum	10	3.56	32.48	3.24	5.48	
Total	281	100.00	593.39		100.00	
Game Fish *	56	19.94	58.40		9.84	
Rough Fish	225	80.06	534.99		90.16	

Seining Results of the San Saba River (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine and 10' by 4' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	1	6
Carp	1	8
Red shiner	10	1½-2
Sand shiner	4	2
Blacktail shiner	2,177	2 -2½
Bullhead minnow	400	1½-2
Channel catfish	17	1 -6
Mosquitofish	26	1 -2
Warmouth	13	2 -3
Redbreast sunfish	15	2½-3½
Green sunfish	7	2 -4
Bluegill	5	2 -2½
Longear sunfish	37	2 -3½
Redear sunfish	11	3 -3½
Spotted bass	27	2 -6
Largemouth bass	24	3 -10
Logperch	2	4
Total	2,777	

Table 19

Survey Results of Elm Creek Reservoir, September 17, 1969. Results of 3 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	9	5.69	19.82	2.20	16.27	
Gizzard shad	86	54.43	29.90	.34	24.54	
Carp	2	1.27	5.50	2.75	4.52	
River carpsucker	12	7.59	25.00	2.08	20.52	
Smallmouth buffalo	5	3.17	20.53	4.10	16.86	
Black bullhead	1	.63	.57	.57	.46	
Channel catfish *	3	1.90	2.64	.88	2.17	1.78
Flathead catfish *	1	.63	6.82	6.82	5.60	1.89
White crappie *	32	20.25	3.88	.12	3.19	3.35
Freshwater drum	7	4.44	7.15	1.02	5.87	
Total	158	100.00	121.81		100.00	
Game Fish *	36	22.78	13.34		10.96	
Rough Fish	122	77.22	108.47		89.04	

Seining Results of Elm Creek Reservoir (Bag 26' by 6' by 1/4-inch mesh seine, 20' by 6' by 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Red shiner	53	1 -2
Bullhead minnow	311	½-2½
Mosquitofish	11	1 -2
Orangespotted sunfish	3	1 -2
Longear sunfish	11	1 -5
Total	389	

Table 20

Survey Results of Mountain Creek Reservoir, December 19, 1969. Results of 4 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	27	39.70	4.73	.17	10.09	
River carpsucker	1	1.47	3.41	3.41	7.28	
Channel catfish *	3	4.41	6.24	2.08	13.33	2.03
Warmouth *	2	2.94	.21	.10	.44	4.10
Bluegill *	14	20.59	1.41	.10	3.01	3.75
Redear sunfish *	12	17.65	2.29	.19	4.89	3.62
Largemouth bass *	7	10.29	28.24	4.03	60.29	2.96
White crappie *	2	2.95	.31	.15	.67	2.62
Total	68	100.00	46.84		100.00	
Game Fish *	40	58.83	38.70		82.63	
Rough Fish	28	41.17	8.14		17.37	

Seining Results of Mountain Creek Reservoir (Bag 26' by 6' by 1/4-inch mesh seine).

Species	Number	Size Range in Inches
Golden shiner	4	3 -3½
Mosquitofish	14	1½-2
Warmouth	1	3
Green sunfish	1	4
Bluegill	7	2 -3½
Redear sunfish	6	2½-3½
Largemouth bass	7	3 -4
Total	40	

Table 21

Survey Results of the Main Concho River, February 5, 1970. Results of 3 Standard Gill Nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Spotted gar	8	4.21	21.03	2.62	5.50	
Longnose gar	28	14.73	88.38	3.15	23.14	
Gizzard shad	52	27.37	21.69	.41	5.68	
River carpsucker	37	19.47	124.17	3.35	32.52	
Smallmouth buffalo	8	4.22	46.75	5.84	12.24	
Black bullhead	6	3.15	6.71	1.11	1.76	
Channel catfish *	13	6.85	49.83	3.83	13.05	1.99
Bluegill *	24	12.63	2.22	.09	.58	4.28
Largemouth bass *	5	2.63	16.73	3.34	4.38	2.94
White crappie *	9	4.74	4.38	.48	1.15	3.21
Total	190	100.00	381.89		100.00	
Game Fish *	51	26.85	73.16		19.16	
Rough Fish	139	73.15	308.73		80.84	

Seining Results of the Main Concho River (Bag 26' by 6' by 1/4-inch mesh seine).

Species	Number	Size Range in Inches
Bullhead minnow	1	2½
Green sunfish	2	1½-5
Bluegill	43	½-5
Longear sunfish	3	2 -3
Logperch	1	4
Total	50	

Channel catfish fingerlings were stocked as shown in Table 3.

Main Concho River

The Concho River was checked during this segment at a point 5 miles east of San Angelo just below the city sewerage plant. At this location the river flows slightly but is retained by a small dam which backs water up about 2 miles. The depth varies to a maximum of 10 feet. The water contains high nitrates, sulfates, and chlorides and sustains a heavy plankton bloom because of the sewer effluent. At this location, partial fish kills or die-offs are common almost every summer. However, the fish population is very dense according to the netting data (Table 21). Three standard gill nets produced 381.89 pounds of fish which was considerably the heaviest catch of all surveys this year. Game species were better represented here than in other collections on the Concho River.

Although no stocking was done at this particular location, the Concho River did receive considerable game fish which were released up river (Table 3).

Conclusions and Recommendations:

The 2 changes recommended in the fishing regulations for the Permian Basin Regulatory District were adopted and became law. The proposal of identifying trotlines was discussed at the preliminary meetings but failed to reach the action stage again this year.

A chemical renovation was effected on San Angelo Reservoir with apparently justifiable results. Chemical control measures are needed at Valley Creek Lake and will be recommended to controlling authorities. Other Region 1-B waters, including both small lakes at Winters and Elm Creek Lake, are in need of chemical treatments. However, at this time other circumstances prevent such measures.

Supplementary hatchery stocking in waters with established fish population will be continued until further information regarding its benefits are revealed.

Aquatic vegetation was not found to be a problem in the concerned waters during this segment.

It is recommended that this job be continued in an effort to provide the public with better fisheries.

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Approved by Marion Toole
Coordinator

Date April 9, 1970

Leo D. Lewis
Inland Fisheries Supervisor

A checklist of scientific names is presented so that common names may be used in this report. These names are specified in "A List of Common and Scientific Names of Fishes from the United States and Canada." Second Edition, American Fisheries Society, Special Publication Number 2, 1960.

Common Names	Scientific Names
Spotted gar	Lepisosteus oculatus
Longnose gar	Lepisosteus osseus
Gizzard shad	Dorosoma cepedianum
Threadfin shad	Dorosoma petenense
Carp	Cyprinus carpio
Plains minnow	Hybognathus placita
Golden shiner	Notemigonus crysoleucas
Red shiner	Notropis lutrensis
Sharpnose shiner	Notropis oxyrhynchus
Sand shiner	Notropis stramineus
Blacktail shiner	Notropis venustus
Fathead minnow	Pimephales promelas
Bullhead minnow	Pimephales vigilax
River carpsucker	Carpiodes carpio
Smallmouth buffalo	Ictiobus bubalus
Gray redhorse sucker	Moxostoma congestum
Blue catfish	Ictalurus furcatus
Black bullhead	Ictalurus melas
Channel catfish	Ictalurus punctatus
Flathead catfish	Pylodictis olivaris
Mosquitofish	Gambusia affinis
White bass	Roccus chrysops
Striped bass	Roccus saxatilis
Warmouth	Chaenobryttus gulosus
Redbreast sunfish	Lepomis auritus
Green sunfish	Lepomis cyanellus
Orangespotted sunfish	Lepomis humilis
Bluegill	Lepomis macrochirus
Longear sunfish	Lepomis megalotis
Redear sunfish	Lepomis microlophus
Spotted bass	Micropterus punctulatus
Largemouth bass	Micropterus salmoides
White crappie	Pomoxis annularis
Walleye	Stizostedion vitreum
Logperch	Percina caprodes
Freshwater drum	Aplodinotus grunniens
Mississippi silverside	Menidia audens