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JOB PROGRESS REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-5-R-19

Region 1-B Fisheries Studies

Job No. 13 Fisheries Management Recommendations

Project Leader: Billy J. Follis

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May 18, 1972

Abstract

One or more fisheries surveys were conducted on 17 public waters in Region 1-B to determine and recommend management practices. Surveys included fish sampling with gill nets, seines and trawl; collection of physical, hydrological and ecological data; aquatic vegetation checks, and water analysis.

Preliminary meetings and public hearings were attended for the Permian Basin and Edwards Plateau Regulatory Districts. Two major fishing regulation changes were made: (1) identification tags on trotlines and (2) an 11-inch size limit on catfish.

Several Region 1-B lakes met the criteria for renovation from the fish population standpoint but other circumstances prevented such measures at this time. One small park pond was renovated and restocked with desirable fish.

Seventeen public lakes and portions of 3 streams received supplementary hatchery stocking. These waters received 840,000 fry, 496,894 fingerlings, and 22,849 yearling fish of 7 species from state and federal hatcheries.

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JOB PROGRESS REPORT

State of Texas

Name: Region 1-B Fisheries Studies

Project No.: F-5-R-19

Title: Fisheries Management
Recommendations

Job No.: 13

Period Covered: March 1, 1971 to February 29, 1972

PS 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
6. Updating public access bulletin

Segment Objectives:

One through six above.

Procedures:

Proposed fishing regulations were concluded from current fishery survey data, existing fisheries regulations, and applicable developments in fisheries management from other projects. Preliminary meetings were attended in the Edwards Plateau and Permian Basin Regulatory Districts where the proposed regulations were discussed with concerned Department personnel. The resulting proposals were presented to the public through public hearings in each of the counties under regulatory responsibility.

Procedures for Objectives 2 through 5 will be merged for expediency and clarity. The findings and discussions will be reported separately for each concerned body of water for the same reasons.

Fish populations were sampled with standard gill nets, seines and trawl when possible. The standard gill net used is 150 feet long and 8 feet deep with mesh size varying from 1 to 3½ square inches. Additional large mesh gill nets were used to adequately sample some fish populations and will be shown on each netting table concerned.

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 miles per hour.

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, percentage composition, average weights and condition ("K" factor) were tabulated. 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 returned to the laboratory where identifications were confirmed.

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

Air and water temperatures, hydrological records, turbidity, weather conditions and other physical data were recorded in each survey. Also, water analysis--including dissolved oxygen, carbon dioxide, alkalinity, total hardness, chlorides and pH--were conducted. This information will be discussed in this report only when pertinent.

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 a treatment.

Many of the public waters surveyed during this segment were recommended for supplementary hatchery stocking of fingerling game fish for one or more of the following reasons: (1) the degree and survival of game fish reproduction, (2) reservoir capacities, (3) food abundance, (4) fishing pressure and, (5) past production records.

No significant improvements or new developments of access and/or facilities on Region 1-B waters were discovered this segment. Therefore, no additions or updating of the Statewide Public Access Bulletin (now in distribution to the public) were necessary.

Findings and Discussion:

All major public waters were surveyed during this segment (Table 1). The more important ones received 2 or more visits and the minor or small impoundments were checked once. On some occasions where drought had greatly reduced the water level, complete surveys could not be made.

A comparison of the average coefficient of condition ("K" factor) for all game species collected with gill nets at all waters surveyed is given in Table 2.

Table 1
Waters Surveyed During This Segment

<u>Name</u>	<u>County</u>	<u>Number of Visits</u>
Champion Creek Reservoir	Mitchell	2
Colorado City Reservoir	Mitchell	2
Colorado River	Concho	1
Concho River	Tom Green	2
Cosden Lake	Howard	1
Elm Creek Reservoir	Runnels	1
E. V. Spence Reservoir	Coke	2
J. B. Thomas Reservoir	Borden & Scurry	2
Moss Creek Reservoir	Howard	1
Nasworthy Lake	Tom Green	2
Oak Creek Lake	Coke	2
San Angelo Reservoir	Tom Green	1
San Saba River	Menard & Schleicher	2
Towle Park Lake	Scurry	1
Twin Buttes Reservoir	Tom Green	2
Valley Creek Lake	Runnels	1
Winters Lake, New	Runnels	1

Table 3 presents the 1971 supplementary stocking for Region 1-B public waters.

Objective No. 1

The only recommended change in the fishing regulations from this project was approved by the Department and became a statewide regulation in September 1971. This long sought-after regulation requires all trotlines to be permanently tagged with the name and address of the fisherman and the date set. This was primarily proposed to assist in elimination of abandoned trotlines in public waters. An 11-inch size limit was placed on catfish throughout most of the state and included all Region 1-B counties.

The last non-regulatory county of Fisheries Region 1-B, Concho County, came under the Department's regulatory responsibility in September 1971. The existing Permian Basin Regulations will apply. Table 4 presents the locations, dates and number of persons present at regulatory public hearings that concerned this project.

Objectives 2 through 5

Champion Creek Reservoir

The Texas Electric Service Company continued water withdrawals from this auxiliary water supply and by late summer reduced it to about 800 acre-feet. Since its completion in the late 1950's it has never reached its conservation size of 1,560 acres. Fall rains relieved this critically low water situation somewhat as it impounded about 10,000 acre-feet of runoff.

Table 2
Comparison of Average "K" Factors of Game Species

Waters	<u>Species</u>												
	Channel Catfish	Flathead Catfish	White Bass	Striped Bass	Warmouth	Green Sunfish	Bluegill	Longear Sunfish	Redear Sunfish	Largemouth Bass	White Crappie	Walleye	
Champion Creek Lake	1.94	2.14	2.73		3.63		4.34			2.84	3.05		
Colorado City Lake	1.76	2.18	3.09				3.53	4.29	3.60	2.76	2.92		
Colorado River	1.59	1.93									3.17		
Concho River	1.87	2.15	2.56		4.27	4.04	4.14	4.83	4.74	3.05	2.87	1.99	
Cosden Lake	1.61						5.17				3.29		
Elm Creek Lake	1.85	1.92			4.50		4.78			3.10	3.60		
E. V. Spence Lake	1.79	1.84	3.53	2.71	4.75	4.12	4.51	4.80	3.78	3.15	3.45		
J. B. Thomas Lake	1.96	2.30	3.24							3.21	2.93	1.76	
Moss Creek Lake	1.98					3.27	4.12			3.21	2.93		
Nasworthy Lake	1.89	1.92	2.89				4.12			3.10	3.60		
Oak Creek Lake	1.81	2.17	2.92				3.70	4.20	3.39	2.91	2.66		
San Angelo Lake	1.94*					4.30	3.86	4.93		3.11	2.70		
San Saba River	1.96	1.95			3.90		4.23		3.89	2.64	3.19	1.86	
Towle Park Lake							3.99		4.22		3.72		
Twin Buttes Lake	2.01	2.13	2.90				4.61	4.96		3.36	3.05	1.79	
Valley Creek Lake	2.03	2.14			3.68		4.22			3.08	2.99		
Winters Lake, New	1.82	2.39				3.49	4.41		3.60		2.78		
Average	1.86	2.09	2.98	2.71	4.12	3.84	4.26	4.67	3.89	3.02	3.08	1.85	

* Some specimens deformed.

Table 3
Public Water Stocking - 1971, Region 1-B

<u>Lakes</u>	<u>Largemouth Bass</u>	<u>Channel Catfish</u>	<u>Blue Catfish</u>	<u>Flathead Catfish</u>	<u>Redear Sunfish</u>	<u>Striped Bass</u>	<u>Walleye</u>
Andrews	157*	50*					
Champion Creek	5,194	33,755					
Colorado City							
Cosden							
Elm Creek		3,000					
E. V. Spence		34,200	30,325	1,825	70,000	44,700	2,246*
J. B. Thomas							
Kinarum	300						
Moss Creek	1,000	1,200					
Mountain Creek	3,000				5,000		
Nasworthy		10,000					
Oak Creek		3,000*					
Robert Lee (old)	2,000	29,150					
San Angelo	10,000	10,000	1,500	4,200	17,040		740,000**
Twin Buttes		5,500*	11,000				100,000**
Valley Creek		91,105					
Winters (new)	1,100	11,896*					
<u>Colorado River</u>		3,000					
Concho & Coke Co.		27,000					
<u>Concho River</u>							
Tom Green Co.	2,500	10,400			13,500		
<u>San Saba River</u>							
Menard Co.		17,000	900				

All fingerling stocking except where noted, * yearlings, ** fry.

Table 4
Regulatory Hearings Concerning Project F-5-R, 1971

<u>County</u>	(Town) <u>Location</u>	<u>Date</u>	<u>Number Present</u>
Permian Basin Area			
Andrews*	Andrews	5-5-71	0
Borden	Gail	5-4-71	0
Cochran*	Morton	5-3-71	11
Coke*	Robert Lee	5-5-71	0
Concho	Paint Rock	9-14-71	5
Crosby**	Crosbyton	5-3-71	0
Dawson*	Lamesa	5-5-71	0
Ector*	Odessa	5-6-71	1
Gaines*	Seminole	5-5-71	0
Garza**	Post	5-3-71	0
Glasscock	Garden City	5-6-71	0
Howard	Big Spring	5-5-71	0
Irion*	Mertzon	5-6-71	4
Kent**	Jayton	5-3-71	1
Martin	Stanton	5-5-71	0
Midland	Midland	5-5-71	0
Mitchell	Colorado City	5-4-71	0
Reagan	Big Lake	5-6-71	0
Runnels*	Ballinger	5-6-71	0
Scurry	Snyder	5-4-71	0
Sterling*	Sterling City	5-5-71	0
Terry*	Brownfield	5-4-71	0
Tom Green*	San Angelo	5-6-71	0
Yoakum*	Plains	5-4-71	0
Edwards Plateau Area			
Menard*	Menard	5-4-71	NR
Schleicher*	Eldorado	5-4-71	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

As found in last year's surveys, the gizzard shad population is continuing to expand. This segment's netting (Table 5) shows this problematic species accounting for almost 66 per cent by number and 44 per cent by weight of all fish netted. Other changes in the fish population as reflected in the netting data is an increase in white bass and a reduction in all centrachids. Fishing pressure and harvest also declined as the water level dropped during the summer months.

Small gizzard shad were very abundant in the seining collection. The usual moderate-to-heavy growths of bushy pondweed (Najas sp.) were greatly reduced by lowering of the water level. Channel catfish fingerlings were stocked shortly after the fall runoff.

Colorado City Reservoir

The water level of this 1,655-acre lake was maintained within about 12 to 14 feet of spillway level with the pumping from Champion Creek Lake. The Texas Electric Service Company owns and operates this reservoir for steam generator cooling. A large, previously-restricted area on the west side is now being developed for a state park and will provide modern facilities and increased access in the near future.

Flathead catfish dominate the weight of this year's sample, accounting for 60.40 per cent (Table 6). This has been the trend for this lake for the past several years, although the fishing pressure and harvest is very high for this popular species. The fish population as a whole appears to be fairly stable with only slight decreases in white bass and white crappie.

Forage was very abundant with small gizzard shad, red shiners, blacktail shiners and bullhead minnows dominating the seining collections.

Colorado River

The Colorado River was surveyed once this segment in Concho County. There was little sustained flow and only small amounts of runoff water this year. The water was down to shallow turbid holes 1/8 to 1/2 miles in length. As usual, the fish population was comprised of an abundance of undesirable species (Table 7). Channel and flathead catfish were present in the collection and these 2 species provide most of the fishery in this area. The fishing success for catfish in this area is surprisingly high during the warmer months. Red shiners are quite abundant and are probably exploited commercially.

Concho River

The 2 surveys of the Concho River in Tom Green County produced a large variety of species. Table 8 includes 20 species collected with gill nets alone. The usual dominance of rough fish was comprised mainly

Table 5

Survey results from Champion Creek Reservoir, May 26 and November 23, 1971. Results of 12 standard gill nets and 4 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	224	65.88	143.00	.63	43.54	
Carp	11	3.23	100.00	9.09	30.45	
Golden shiner	1	.30	.14	.14	.05	
River carpsucker	2	.58	3.91	1.95	1.19	
Black bullhead	1	.30	.19	.19	.06	
Channel catfish*	19	5.59	37.56	1.97	11.43	1.94
Flathead catfish*	1	.30	9.25	9.25	2.82	2.14
White bass*	56	16.46	26.09	.46	7.95	2.73
Warmouth*	1	.30	.10	.10	.03	3.63
Bluegill*	14	4.11	3.73	.26	1.13	4.34
Largemouth bass*	1	.30	.35	.35	.11	2.84
White crappie*	9	2.65	4.06	.45	1.24	3.05
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Total	340	100.00	328.38		100.00	
Game Fish*	101	29.71	81.14		24.71	
Rough Fish	239	70.29	247.24		75.29	

Seining results from Champion Creek Reservoir (Bag 26' x 6' x 1/4-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	1553	2-6
Plains minnow	2	3
Red shiner	8	1½-2½
Blacktail shiner	295	1½-3½
Warmouth	1	6
Bluegill	7	2-3
Largemouth bass	18	1-10
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Total	1974	

Table 6
 Survey results from Colorado City Reservoir, May 19, 20, and August 3, 1971. Results of 18 standard gill nets and 6 large nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	229	39.89	32.82	.14	3.73	
Goldfish	1	.17	1.87	1.87	.21	
Carp	34	5.93	69.70	2.05	7.93	
River carpsucker	110	19.16	161.00	1.46	18.33	
Channel catfish*	53	9.24	26.12	.49	2.97	1.76
Flathead catfish*	81	14.11	530.77	6.55	60.40	2.18
White bass*	19	3.31	26.04	1.37	2.97	3.09
Bluegill*	5	.87	.27	.05	.03	3.53
Longear sunfish*	1	.17	.04	.04	.00	4.29
Redear sunfish*	5	.87	.44	.08	.05	3.60
Largemouth bass*	13	2.27	22.59	1.73	2.57	2.76
White crappie*	23	4.01	7.06	.30	.81	2.92
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Total	574	100.00	878.72		100.00	
Game Fish*	200	34.85	613.33		69.80	
Rough Fish	374	65.15	265.39		30.20	

Seining results from Colorado City Reservoir (Bag 26' x 6' x 1/4-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	2058	1/2-6
Carp	7	1-1 1/2
Red shiner	2537	1/2-2 1/2
Blacktail shiner	2513	1/2-4
Bullhead minnow	1000	1/2-2
River carpsucker	23	1-3
Mosquitofish	59	1/2-1 1/2
Orangespotted sunfish	1	1 1/2
Bluegill	153	1-2
Longear sunfish	7	1-2 1/2
Redear sunfish	16	3-5
Largemouth bass	2	1
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Total	8376	

Table 7

Survey results from the Colorado River, October 8-9, 1971. Results of 6 standard gill nets and 2 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	26	16.99	41.16	1.58	10.23	
Gizzard shad	10	6.53	8.09	.80	2.02	
Carp	8	5.23	34.00	4.25	8.45	
River carpsucker	66	43.14	98.00	1.48	24.38	
Smallmouth buffalo	30	19.61	201.00	6.70	50.00	
Gray redhorse sucker	1	.65	.90	.90	.23	
Channel catfish*	5	3.27	6.11	1.22	1.52	1.59
Flathead catfish*	2	1.31	7.02	3.51	1.74	1.93
White crappie*	3	1.96	1.72	.57	.43	3.17
Freshwater drum	2	1.31	4.00	2.00	1.00	
Total	153	100.00	402.00		100.00	
Game Fish*	10	6.54	14.85		3.69	
Rough Fish	143	93.46	387.15		96.31	

Seining results from the Colorado River (Bag 26' x 6' x ¼-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Longnose gar	2	18
Gizzard shad	54	½-7
Red shiner	5010	½-2½
Bullhead minnow	32	½-1½
River carpsucker	1	2½
Mosquitofish	18	½-2
Bluegill	3	½-1
Redear sunfish	1	1
Total	5121	

Table 8

Survey results from the Concho River, March 5 and August 19, 1971.
Results of 13 standard gill nets and 3 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	10	2.13	38.00	3.80	5.12	
Gizzard shad	227	48.50	125.00	.55	16.88	
Threadfin shad	1	.22	.05	.05	.01	
Carp	26	5.56	154.00	5.92	20.79	
Golden shiner	1	.22	.15	.15	.02	
River carpsucker	76	16.23	227.00	2.98	30.64	
Smallmouth buffalo	3	.64	41.68	13.89	5.63	
Gray redhorse sucker	32	6.83	37.00	1.15	4.99	
Yellow bullhead	1	.22	.30	.30	.04	
Channel catfish*	15	3.21	36.47	2.43	4.92	1.87
Flathead catfish*	4	.85	34.64	8.66	4.68	2.15
White bass*	2	.43	1.38	.69	.19	2.56
Warmouth*	4	.85	.97	.24	.13	4.27
Green sunfish*	1	.22	.20	.20	.03	4.04
Bluegill*	14	2.98	1.52	.10	.20	4.14
Longear sunfish*	2	.43	.20	.10	.03	4.83
Largemouth bass*	6	1.29	26.54	4.42	3.58	3.05
White crappie*	40	8.54	10.21	.25	1.38	2.87
Walleye*	2	.43	4.95	2.47	.67	1.99
Freshwater drum	1	.22	.51	.51	.07	
Total	468	100.00	740.77		100.00	
Game Fish*	90	19.23	117.08		15.81	
Rough Fish	378	80.77	623.69		84.19	

of gizzard shad, carp and river carpsucker. However, there is some utilization of carp as a sport fish in this area. Channel catfish, largemouth bass and white crappie were taken in minimal numbers. Walleye appeared in the netting collection for the second year. This fish was an accidental introduction through 1968 and 1969 hatching operations on local hatcheries. Reported catches of these exotics were quite common throughout 1971.

Cosden Lake

The City of Big Spring controls this 35-acre lake in the southern limits of town. Until January 1971 it was used only by the Cosden Country Club. Since being opened to the public for recreation, the fishing pressure has increased considerably. Very little past data on this clear, spring fed impoundment are available.

The survey results (Table 9) indicate a respectable game fish population. However, the white crappie which accounted for 75 per cent by number and 51 per cent by weight of the fish netting sample were not of a utilizable size. Black bullheads appear to be the most troublesome species present at this time. Attempts will be made to stock large predator species as a biological control.

Elm Creek Reservoir

This old impoundment was originally the water supply for the City of Ballinger. For the past 20 years it has served only for limited irrigation and recreation. Sedimentation through the years has greatly reduced its capacity and altered fish habitat.

Longnose gar, gizzard shad, and river carpsucker dominate both number and weight of the sample (Table 10). Very little difference has been seen in the fish population for the past several years although annual stockings of fingerling game fish have been made. Because of the low fishing success and poor access, Elm Creek Lake provides limited fishing.

E. V. Spence Reservoir

The Colorado River Municipal Water District constructed this 15,000-acre reservoir on the upper Colorado River in the late 1960's. It serves as a water supply for several surrounding cities as well as for recreation. A small amount of water was first impounded in the spring of 1969 but withdrawals and evaporation soon reduced it to the old river bed and excavation pits. The first significant runoff was received in the early summer of 1971 and again in September of the same year. The water level has dropped about 2 feet since that time and is about one-third its conservation level.

A total of 11 game species accounted for 36.88 per cent by number and 52.86 per cent by weight of this year's netting samples (Table 11). Channel catfish, white bass, and striped bass comprised the majority of desirable game fish. The average "K" factor of game species (Table 2) was among the highest recorded in the region as could be expected from a new impoundment. The experimentally introduced striped bass was surpassed in the weight percentage only by the river carpsucker. The stripers have shown exceptionally good growth since the influx of water in May of 1971. A recent survey (February 1972) conducted under another job of this project collected 34 of the 1969 stocked stripers which had an average weight of 4.94 pounds and 2 individual fish weighing over 6 pounds. These large predators are beginning to be taken by sportsmen.

A large seining sample yielded a variety of forage available including threadfin shad. This desirable forage fish was introduced under this job early in 1971. This segment's stocking of Spence Lake included several species as shown in Table 3.

Table 9
 Survey results from Cosden Lake, September 29, 1971. Results of 4
 standard gill nets and 1 large mesh net.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Golden shiner	5	3.47	.77	.15	3.34	
Black bullhead	31	21.52	6.00	.19	26.09	
Channel catfish*	7	4.87	2.67	.38	11.61	1.61
Bluegill*	7	4.87	1.31	.18	5.68	5.17
Redear sunfish*	1	.69	.24	.24	1.05	4.74
Hybrid sunfish*	1	.69	.24	.24	1.05	4.15
White crappie*	92	63.89	11.77	.12	51.18	3.29
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Total	144	100.00	23.00		100.00	
Game Fish*	108	75.01	16.23		70.57	
Rough Fish	36	24.99	6.77		29.43	

Seining results from Cosden Lake (Bag 26' x 6' x 1/4-inch mesh seine and
 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Golden shiner	456	1-10
Red shiner	2	2
Fathead minnow	8	1 1/2-3
Bullhead minnow	51	1-2 1/2
Black bullhead	1	6
Mosquitofish	32	1-1 1/2
Bluegill	7	1-5
Redear sunfish	1	7
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Total	558	

Table 10

Survey results from Elm Creek Reservoir, August 26, 1971. Results of 3 standard gill nets and 1 large mesh net.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by wt.	Average "K"
Longnose gar	18	16.51	56.00	3.11	30.66	
Gizzard shad	38	34.86	11.00	.28	6.03	
Carp	1	.92	10.00	10.00	5.48	
River carpsucker	19	17.43	38.00	2.00	20.81	
Smallmouth buffalo	8	7.34	50.00	6.25	27.38	
Channel catfish*	2	1.83	1.40	.70	.77	1.85
Flathead catfish*	1	.92	6.93	6.93	3.79	1.92
Warmouth*	1	.92	.09	.09	.05	4.50
Bluegill*	4	3.67	.39	.09	.22	4.78
Largemouth bass*	4	3.67	1.03	.25	.56	3.10
White crappie*	10	9.17	3.75	.37	2.05	3.60
Freshwater drum	3	2.76	4.00	1.33	2.20	
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Total	109	100.00	182.59		100.00	
Game Fish*	22	20.18	13.59		7.44	
Rough Fish	87	79.82	169.00		92.56	

Seining results from Elm Creek Reservoir (Bag 26' x 6' x 1/4-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	1525	1-14
Red shiner	2008	1/2-2
Bullhead minnow	1	1/2
Channel catfish	1	2 1/2
Mosquitofish	27	1-1 1/2
Green sunfish	3	2
Orangespotted sunfish	1	1 1/2
Bluegill	13	1-4
Longear sunfish	1	4
White crappie	6	5-8
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Total	3586	

Table 11

Survey results from E. V. Spence Reservoir, July 21-22 and October 27-28, 1971. Results of 16 standard gill nets and 8 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	10	1.26	25.46	2.54	4.45	
Gizzard shad	299	37.90	56.64	.18	9.91	
Carp	76	9.63	80.50	1.05	14.08	
River carpsucker	97	12.29	92.00	.94	16.10	
Black bullhead	8	1.02	1.97	.24	.34	
Channel catfish*	96	12.17	88.21	.91	15.43	1.79
Flathead catfish*	3	.38	21.47	7.15	3.76	1.84
White bass*	58	7.35	66.35	1.14	11.61	3.53
Striped bass*	34	4.30	90.56	2.66	15.84	2.71
Warmouth*	1	.13	.59	.59	.10	4.75
Green sunfish*	1	.13	.25	.25	.05	4.12
Bluegill*	46	5.82	5.94	.12	1.04	4.51
Longear sunfish*	8	1.02	.75	.09	.13	4.80
Redear sunfish*	1	.13	.09	.09	.01	3.78
Largemouth bass*	6	.76	9.49	1.58	1.66	3.15
White crappie*	37	4.69	18.47	.49	3.23	3.45
Freshwater drum	8	1.02	12.87	1.60	2.26	
Total	789	100.00	571.61		100.00	
Game Fish*	291	36.88	302.17		52.86	
Rough Fish	498	63.12	269.44		47.14	

Seining results from E. V. Spence Reservoir (Bag 26' x 6' x ¼-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Longnose gar	8	3-3½
Gizzard shad	2012	2-6
Threadfin shad	8	½-1
Carp	101	½-3
Red shiner	310	2
Blacktail shiner	7	2-4
Fathead minnow	1	1½
Bullhead minnow	151	1-2
River carpsucker	24	1½-2
Channel catfish	7	1½-3
Red River pupfish	1	1
Mosquitofish	55	1-2
White bass	29	2-3

Table 11

Species	Number	Size Range in Inches
(Continued)		
Striped bass	8	4
Green sunfish	12	1-4
Orangespotted sunfish	1	2
Bluegill	258	½-4
Longear sunfish	24	1-3
Redear sunfish	2	3-5
Largemouth bass	305	1-3½
Freshwater drum	6	2
Total	3,330	

Trawling results from E. V. Spence Reservoir (8' x 15' x ½ inch-mesh trawl).

Species	Number	Size Range in Inches
Gizzard shad	5	3-8
Carp	25	8-14
Plains minnow	1	2
Red shiner	1	1½
River carpsucker	11	4-10
Black bullhead	4	3-4
Channel catfish	33	2-8
Warmouth	10	1½-2
Orangespotted sunfish	22	1-3
Bluegill	91	1-3
White crappie	69	3-6
Total	272	

J. B. Thomas Reservoir

Lack of rainfall and municipal withdrawals over the past few years reduced this 7,820-acre impoundment to one-tenth of its size. The Colorado River Municipal Water District operates this shallow turbid lake in Borden and Scurry Counties as a water supply and secondly for

recreation. Some runoff from fall rains was impounded and slightly relieved the low water situation.

The fish population has not followed the expected trend in receding water situations as the game species have increased in per cent by number and weight of each netting survey for the past 4 years. Desirable fish dominated this segment's netting collections as shown in Table 12. Flathead catfish were the second most numerous fish netted and accounted for 65 per cent of the total weight. Four walleyes were collected during this segment and showed a mean weight of 2.10 pounds. This predator fish was stocked as fry and fingerlings for the past 3 years.

Shoreline seining produced several species of small fish with gizzard shad being the dominate forage available.

Moss Creek Reservoir

The City of Big Spring controls the recreation of this 145-acre lake in Howard County. The Colorado River Municipal Water District regulates the water usage and constantly pumps water in and out. The weekly water level fluctuation is 3 to 6 feet.

This segment's survey results indicate a decreasing game fish population. Over the past 2 years the per cent by number has declined from 43 to 20 and the weight percentage dropped from 61 to 8 per cent. Furthermore, the majority of game fish collected were stunted white crappie averaging only 0.08 pounds. As shown on Table 13, gizzard shad and carp were the dominating undesirable species.

Fingerling largemouth bass and channel catfish were stocked but other predator species are needed. In years past, Moss Creek Lake provided a fair fishery for the area but usage is declining because of the low fishing success.

Nasworthy Lake

Located near the city limit of San Angelo, this 1,600-acre impoundment receives heavy fishing pressure throughout most of the year. The water should be fairly constant for the next few years through releases from the Twin Buttes Reservoir upstream.

The fish population appears to be fairly stable when surveys of the past 3 years are compared. Catfish, both channel and flathead, along with largemouth bass, sunfish and white crappie were the most significant game species found. Gizzard shad comprise most of the total number and total weight of this year's sample as shown in Table 14. This high shad population has changed very little in the past few years. Spot creel checks indicate that fishing success is slightly better than average in this old, shallow lake.

Table 12

Survey results from J. B. Thomas Reservoir, June 9-10, and November 11, 1971. Results of 19 standard gill nets and 6 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	85	17.45	11.33	.13	1.15	
Carp	45	9.24	44.00	.97	4.49	
River carpsucker	78	16.02	78.00	1.00	7.95	
Channel catfish*	35	7.18	47.95	1.37	4.89	1.96
Flathead catfish*	86	17.66	637.57	7.41	65.00	2.30
White bass*	23	4.72	48.12	2.09	4.90	3.24
Largemouth bass*	18	3.70	69.11	3.83	7.05	3.21
White crappie*	91	18.69	33.96	.37	3.46	2.93
Walleye*	4	.82	8.41	2.10	.86	1.76
Freshwater drum	22	4.52	2.42	.11	.25	
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Total	487	100.00	980.87		100.00	
Game Fish*	257	52.77	845.12		86.16	
Rough Fish	230	47.23	135.75		13.84	

Seining results from J. B. Thomas Reservoir (Bag 26' x 6' x 1/4-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	705	1-10
Carp	11	8-12
Golden shiner	2	2-4
Red shiner	27	1-2 1/2
Blacktail shiner	17	1-3
Bullhead minnow	1	2
River carpsucker	1	3
Channel catfish	2	2-6
Mosquitofish	1	1
White bass	2	4
Orangespotted sunfish	5	1 1/2-2
Bluegill	1	2
Largemouth bass	2	14
White crappie	225	4-14
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Total	1002	

Table 13

Survey results from Moss Creek Reservoir, July 14-15, 1971. Results of 9 standard gill nets and 5 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	228	58.16	32.00	.14	10.36	
Carp	58	14.79	243.00	4.18	78.70	
River carpsucker	1	.26	1.10	1.10	.35	
Black bullhead	27	6.89	8.03	.29	2.60	
Channel catfish*	20	5.10	19.58	.97	6.34	1.98
Green sunfish*	1	.26	.09	.09	.03	3.27
Bluegill*	3	.76	.35	.11	.12	4.12
White crappie*	54	13.78	4.63	.08	1.50	2.86
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Total	392	100.00	308.78		100.00	
Game Fish*	78	19.90	24.65		7.99	
Rough Fish	314	80.10	284.13		92.01	

Seining results from Moss Creek Reservoir (Bag 26' x 6' x 1/4-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	200	3-8
Golden shiner	50	2-3
Red shiner	5	2½
Black bullhead	150	1½-2
Bluegill	11	1½-4
Longear sunfish	1	6
Largemouth bass	355	2-4
White crappie	15	1-6
Logperch	1	3
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Total	788	

Table 14

Survey results from Nasworthy Reservoir, July 7-8 and December 7, 1971.
Results of 18 standard gill nets and 6 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	2	.20	4.83	2.41	.99	
Gizzard shad	506	52.33	153.00	.30	31.61	
Carp	80	8.26	130.00	1.62	26.85	
Golden shiner	1	.11	.13	.13	.03	
River carpsucker	5	.52	17.31	3.46	3.58	
Channel catfish*	58	6.00	60.97	1.05	12.59	1.89
Flathead catfish*	5	.52	41.10	8.22	8.49	1.92
White bass*	19	1.96	20.79	1.09	4.30	2.89
Bluegill*	112	11.58	10.88	.09	2.24	3.70
Longear sunfish*	1	.11	.07	.07	.02	4.20
Redear sunfish*	8	.82	.71	.08	.14	3.39
Largemouth bass*	5	.52	13.46	2.69	2.78	2.91
White crappie*	148	15.31	22.76	.15	4.71	2.66
Freshwater drum	17	1.76	8.08	.47	1.67	
Total	967	100.00	484.09		100.00	
Game Fish*	356	36.82	170.74		35.27	
Rough Fish	611	63.18	313.35		64.73	

Seining results from Nasworthy Reservoir (Bag 26' x 6' x 1/4-inch mesh seine, 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	23	1½-6
Threadfin shad	1	1½
Red shiner	10	1½-2½
Bullhead minnow	8	1-1½
Orangespotted sunfish	1	2
Bluegill	9	½-4½
Longear sunfish	4	2-4
Redear sunfish	1	5
Largemouth bass	2	2-2½
Total	59	

Table 14
(Continued)

Trawling results from Nasworthy Reservoir (8' x 15' x ½-inch mesh trawl).

Species	Number	Size Range in Inches
Gizzard shad	15	3-7
Threadfin shad	33	1-3
Carp	4	1½-12
Bullhead minnow	5	1½-3
Channel catfish	55	3-10
Warmouth	3	2
Orangespotted sunfish	3	3-4
Bluegill	129	2-4
Longear sunfish	13	2-5
Redear sunfish	9	4-6
White crappie	38	1½-6
Drum	1	10
Total	308	

Threadfin shad were introduced in Lake Nasworthy in 1969 and now are appearing in seining and trawling collections (Table 14). Also, these small forage fish were found in the majority of the game fish stomachs. Supplementary hatchery stocking was needed due to the heavy fishing pressure.

Oak Creek Lake

Oak Creek Lake is the municipal water supply for the city of Sweetwater. West Texas Utilities also uses the reservoir for steam generator cooling. This deep clear 2,375-acre impoundment receives heavy fishing pressure annually. The water level fluctuates much less than most of the West Texas lakes. The existing fish population is very similar to that found the past few years. Largemouth bass is the most sought after game fish as many lunker bass are taken regularly. Channel and flathead catfish, sunfish, and white crappie are also represented in both netting data and creel checks. River carpsuckers continue to dominate the weight of the netting sample (Table 15), accounting for almost 60 per cent of the total catch. Channel catfish fingerlings were stocked, as natural reproduction of this species is usually low in this clear lake.

Table 15

Survey results from Oak Creek Lake, March 10-11 and August 18, 1971.
Results of 20 standard gill nets and 7 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	259	43.89	52.00	.20	5.50	
Carp	53	8.99	80.00	1.50	8.47	
Golden shiner	2	.34	.30	.15	.03	
River carpsucker	146	24.74	565.00	3.86	59.82	
Channel catfish*	19	3.22	21.08	1.10	2.23	1.81
Flathead catfish*	10	1.70	121.32	12.13	12.84	2.17
White bass*	25	4.23	38.77	1.55	4.11	2.92
Bluegill*	29	4.92	2.59	.08	.27	3.86
Longear sunfish*	1	.17	.07	.07	.01	4.93
Largemouth bass*	19	3.22	50.22	2.64	5.32	3.11
White crappie*	27	4.58	13.20	.48	1.40	2.70
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Total	590	100.00	944.55		100.00	
Game Fish*	130	22.04	247.25		26.18	
Rough Fish	460	77.96	697.30		73.82	

Seining results from Oak Creek Lake (Bag 26' x 6' x 1/4-inch mesh seine
and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	24	1-7
Golden shiner	2	2½-3½
Red shiner	10	1-1½
Mosquitofish	5	1-1½
Warmouth	1	1
Redbreasted sunfish	4	3-6
Green sunfish	1	4½
Bluegill	10	1-2½
Redear sunfish	3	1½-4
Largemouth bass	7	2-3
White crappie	1	2
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Total	68	

Moderate to heavy growths of submerged vegetation are found extensively over the lake. However, chemical treatment is not feasible because of the large volume of water and its domestic use.

San Angelo Reservoir

The U. S. Corps of Engineers lake was constructed in the early 1950's on the North Concho River at the northwest limits of San Angelo. It filled once to its 119,000-acre feet capacity but steadily decreased in size and finally was completely dry in late 1970. During this segment, spring and summer rains brought in about 10,000-acre feet of water. The first stocking of the new water was done shortly after impoundment when several thousand adult minnows were released. Several thousand walleye fry were also placed in the new water in April 1971. Other game species (Table 3) were released through the stocking season. Undesirable fish were introduced from upstream sources. However, the game fish appear to have a respectable start in this new water situation as they accounted for 48.98 per cent by number and 62.69 per cent by weight of the netting sample (Table 16).

San Saba River

Two surveys were conducted on the San Saba River in Menard County during this segment. The combined results (Table 17) show the usual dominance of rough fish. However, there is some utilization by fishermen of the carp and smallmouth buffalo. Channel and flathead catfish are the most sought-after species in this portion of the river. Largemouth bass and sunfish also provide seasonal fishing in this clear springfed stream. Channel catfish fingerling are stocked annually because of the heavy fishing pressure. The stocking of mass-marked fingerling catfish (conducted under Job 14 of this project) is yielding data indicating high levels of survival of these hatchery-produced fish.

Towle Park Lake

A very small sample of fish was collected in this 4-acre county park pond in Snyder. Channel catfish and largemouth bass are common although neither species were represented in the netting (Table 18). This small children's fishery usually requires annual stocking of hatchery fish. The return benefits from this small park lake are significant.

Twin Buttes Reservoir

This 183,000 acre-foot reservoir was constructed on the Middle and South Concho Rivers in 1963 for flood control, irrigation, and municipal use. The first appreciable runoff was received this segment when over one-half the normal capacity was impounded. Most of the approximately 100,000 acre-feet of water was caught in late summer.

Table 16

Survey results from San Angelo Reservoir, November 19, 1971. 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	17	17.35	5.94	.34	11.30	
Carp	27	27.55	6.60	.24	12.56	
River carpsucker	2	2.04	.25	.12	.47	
Smallmouth buffalo	1	1.02	4.73	4.73	9.00	
Black bullhead	3	3.06	2.09	.69	3.98	
Channel catfish*	19	19.39	12.17	.64	23.16	1.94
Green sunfish*	2	2.04	.19	.09	.36	4.30
Walleye*	27	27.55	20.58	.76	39.17	1.86
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Total	98	100.00	52.55		100.00	
Game Fish*	48	48.98	32.94		62.69	
Rough Fish	50	51.02	19.61		37.31	

Seining results from San Angelo Reservoir (Bag 26' x 6' x ¼-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Red shiner	18	1½-2½
Mosquitofish	5	1½-2½
Bluegill	1	3
Redear sunfish	2	6
Largemouth bass	3	4-6
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Total	29	

Table 16
(Continued)

Trawling results from San Angelo Reservoir (8' x 15' x ½-inch mesh trawl)

Species	Number	Size Range in Inches
Carp	50	4-12
Black bullhead	2	5
Channel catfish	2	5-10
Green sunfish	2	1
Total	56	

Heavy stocking of channel catfish, including some yearling catfish from a federal hatchery, was done after the increase of water. Complete stocking records are given in Table 3.

Two collections were made on Twin Buttes this year, one before and one after the influx of water. The combined results are given in Table 19. Channel and flathead catfish, white bass and white crappie were the most prominent game fish netted.

Observations and the mid-winter seining collection revealed that natural spawning of several species occurred in September when the new water was impounded. Largemouth bass were included in this late spawning as evidenced by the large numbers of fry and fingerlings found.

Valley Creek Lake

The city of Ballinger constructed this 185-acre lake for municipal use several years ago. The water level has remained fairly stable since the construction of several soil conservation impoundments on the immediate water shed 3 years ago. The fish population and harvest have undergone undesirable changes since that time. This year's netting survey (Table 20) shows game species accounting for 23.84 per cent number and only 12.17 per cent weight. Furthermore, the majority of game fish collected were white crappie (14.24 per cent number) of a non-utilizable size. Gizzard shad, carp, and river carpsucker were the most problematic species present. Consideration has been given to chemical control but circumstances are such that it is not feasible at this time.

Table 17

Survey results from San Saba River, June 17-18 and September 22-23, 1971. Results of 12 standard gill nets and 4 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	17	4.88	39.59	2.32	7.19	
Gizzard shad	151	43.39	65.00	.43	11.82	
Carp	6	1.72	60.00	10.00	10.90	
River carpsucker	68	19.54	198.00	2.91	35.99	
Smallmouth buffalo	8	2.30	69.04	8.63	12.55	
Gray redhorse sucker	5	1.44	12.51	2.50	2.28	
Black bullhead	1	.29	.35	.35	.06	
Channel catfish*	12	3.45	16.57	1.38	3.01	1.96
Flathead catfish*	8	2.30	29.18	3.64	5.31	1.95
Warmouth*	2	.57	.24	.12	.04	3.90
Bluegill*	9	2.59	.82	.09	.15	4.23
Redear sunfish*	2	.57	.51	.25	.09	3.89
Largemouth bass*	3	.86	12.99	4.33	2.36	2.64
White crappie*	47	13.51	14.84	.31	2.70	3.19
Freshwater drum	9	2.59	30.50	3.38	5.55	
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Total	348	100.00	550.14		100.00	
Game Fish*	83	23.85	75.15		13.66	
Rough Fish	265	76.15	474.99		86.34	

Seining results from San Saba River (Bag 26' x 6' x ¼-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Longnose gar	1	18
Gizzard shad	24	1-9
Carp	1	20
Golden shiner	6	2
Red shiner	296	½-1½
Sand shiner	3	2
Blacktail shiner	235	1-3
Bullhead minnow	1	1½
River carpsucker	1	1½
Gray redhorse sucker	5	1½-2½
Channel catfish	1	1½
Red River pupfish	3	¼-1

Table 17
(Continued)

Seining results from San Saba River (Bag 26' x 6' x 1/4-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
(Continued)		
Mosquitofish	15	1/2-1 1/2
Bluegill	6	1-3
Longear sunfish	2	2
Guadalupe bass	2	2
Largemouth bass	27	2-2 1/2
White crappie	10	1 1/2
Total	639	

Table 18

Survey results from Towle Park Lake, August 13, 1971. Results of 3 standard gill nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Bluegill*	3	60.00	.17	.05	47.22	3.99
Redear sunfish*	1	20.00	.07	.07	19.44	4.22
White crappie*	1	20.00	.12	.12	33.34	3.72
Total	5	100.00	.36		100.00	
Game Fish*	5	100.00	.36		100.00	
Rough Fish	0	000.00	.00		000.00	

Table 18
(Continued)

Seining results from Towle Park Lake (Bag 26' x 6' x 1/4-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Golden shiner	4	2
Orangespotted sunfish	12	1/2-3
Bluegill	50	1/2
Redear sunfish	45	1/2-5
Largemouth bass	50	1-8
White crappie	4	4
Total	165	

Table 19

Survey results from Twin Buttes Reservoir, July 7-8, 1971 and January 13, 1972. Results of 18 standard gill nets and 6 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	5	.45	13.60	2.72	1.41	
Gizzard shad	570	50.66	134.00	.23	13.90	
Carp	69	6.13	97.00	1.40	10.06	
River carpsucker	229	20.35	453.50	1.98	47.04	
Blue catfish*	1	.09	10.00	10.00	1.04	2.23
Black bullhead	5	.45	.99	.19	.10	
Channel catfish*	76	6.75	61.17	.80	6.35	2.01
Flathead catfish*	18	1.60	123.39	6.85	12.79	2.13
White bass*	34	3.03	35.41	1.04	3.68	2.90
Bluegill*	7	.62	.68	.09	.07	4.61
Longear sunfish*	2	.18	.28	.14	.03	4.96
Largemouth bass*	4	.35	8.83	2.20	.91	3.36
White crappie*	84	7.47	18.84	.22	1.96	3.05
Walleye*	2	.18	1.39	.69	.14	1.79
Freshwater drum	19	1.69	4.95	.26	.52	
Total	1125	100.00	964.03		100.00	
Game Fish*	228	20.27	259.99		26.97	
Rough Fish	897	79.73	704.04		73.03	

Table 19
(Continued)

Seining results from Twin Buttes Reservoir (Bag 26' x 6' x ¼-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	10,524	½-7
Stoneroller	2	2½
Carp	305	½-5½
Golden shiner	10	1-3½
Red shiner	311	½-3
Blacktail shiner	2	2½-3
Bullhead minnow	160	½-3
River carpsucker	6	2-3
Mosquitofish	25	½-2
White bass	20	2-3
Green sunfish	122	½-4½
Orangespotted sunfish	5	2
Bluegill	32	½-5
Longear sunfish	5	1½-5
Redear sunfish	2	2½-3½
Largemouth bass	1,316	½-5
White crappie	31	1-2½
Logperch	5	2-2½
Total	12,883	

Table 20

Survey results from Valley Creek Lake, July 29, 1971. Results of 6 standard gill nets and 2 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	7	2.16	25.00	3.57	9.00	
Gizzard shad	109	33.75	14.50	.13	5.22	
Carp	18	5.57	107.00	5.94	38.54	
River carpsucker	57	17.65	65.00	1.14	23.40	
Black bullhead	2	.62	1.37	.68	.50	
Channel catfish*	10	3.09	13.78	1.37	4.96	2.03
Flathead catfish*	1	.31	2.86	2.86	1.03	2.14
Warmouth*	1	.31	.12	.12	.04	3.68
Bluegill*	17	5.27	1.75	.10	.63	4.22

Table 20
(Continued)

Survey results from Valley Creek Lake, July 29, 1971. Results of 6 standard gill nets and 2 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
(Continued)						
Largemouth bass*	2	.62	7.57	3.78	2.73	3.08
White crappie*	46	14.24	7.72	.16	2.78	2.99
Freshwater drum	53	16.41	31.00	.58	11.17	
Total	323	100.00	277.67		100.00	
Game Fish*	77	23.84	33.80		12.17	
Rough Fish	246	76.16	243.87		87.83	

Seining results from Valley Creek Lake (Bag 26' x 6' x 1/4-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	55	1-10
Carp	1	24
Golden shiner	1	3
Red shiner	22	1-3
Blacktail shiner	1	2 1/2
Redbreasted sunfish	2	3 1/2
Orangespotted sunfish	2	3
Bluegill	14	1/2-5
Longear sunfish	8	1 1/2-3
Largemouth bass	16	1 1/2-2
White crappie	22	3-6
Total	144	

Table 20
(Continued)

Trawling results from Valley Creek Lake (8' x 15' x 1/2-inch mesh trawl)

Species	Number	Size Range in Inches
Gizzard shad	23	6-8
White crappie	296	1-4
Freshwater drum	2	2
Total	321	

New Winters Lake

This 250-acre reservoir was constructed for municipal use by the city of Winters in 1950. The water level of this shallow turbid lake remains fairly constant.

Table 21 (1971 survey results) shows channel and flathead catfish and white crappie as the most important game fish present and receives moderate to heavy fishing pressure. Spot creel checks showed that channels were readily taken by trotlines. Seining samples reveal adequate forage available. Annual stockings of largemouth bass fingerlings have failed to produce a significant increase in this species.

Table 21

Survey results from New Winters Lake, August 4-5, 1971. Results of 6 standard gill nets and 3 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	246	51.14	45.00	.18	17.15	
Carp	11	2.29	34.00	3.09	12.97	
River carpsucker	43	8.94	45.00	1.04	17.16	
Smallmouth buffalo	4	.83	29.26	7.31	11.16	
Black bullhead	2	.41	.37	.18	.14	
Channel catfish*	76	15.80	54.10	.71	20.63	1.82
Flathead catfish*	6	1.25	37.35	6.22	14.24	2.39
Green sunfish*	1	.21	.09	.09	.04	3.49
Bluegill*	1	.21	.08	.08	.03	4.41
Redear sunfish*	1	.21	.07	.07	.02	3.60
White crappie*	82	17.04	15.61	.19	5.96	2.78
Freshwater drum	8	1.67	1.31	.16	.50	

Table 21
(Continued)

Survey results from New Winters Lake, August 4-5, 1971. Results of 6 standard gill nets and 3 large mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
(Continued)						
Total	481	100.00	262.24		100.00	
Game Fish*	167	34.72	107.30		40.92	
Rough Fish	314	65.28	154.94		59.08	

Seining results from New Winters Lake (Bag 26' x 6' x 1/4-inch mesh seine and 20' x 6' x 1/8-inch mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	532	2-3
Carp	1	8
Golden shiner	1	6
Red shiner	55	1/2-2
Bullhead minnow	26	1/2-2
River carpsucker	5	1 1/2-2
Mosquitofish	17	2
Green sunfish	1	4
Orangespotted sunfish	2	1-1 1/2
Bluegill	2	1
Largemouth bass	4	3-8
White crappie	36	1-8
Total	682	

Trawling results from New Winters Lake (8' x 15' x 1/2-inch mesh trawl).

Species	Number	Size Range in Inches
White crappie	4	1-4
Total	4	

Table 21
(Continued)
Rotenone results from New Winters Lake ($\frac{1}{2}$ -surface-acre cove).

Species	Number	Size Range in Inches
Gizzard shad	3000	1-8
Carp	6	2-14
Golden shiner	15	3-4
Red shiner	500	$\frac{1}{2}$ -2 $\frac{1}{2}$
Bullhead minnow	500	$\frac{1}{2}$ -3
Flathead catfish	1	9
Mosquitofish	200	2 $\frac{1}{2}$
Warmouth	10	2-4
Green sunfish	10	3-4
Orangespotted sunfish	5	1-3
Bluegill	200	1-4
Redear sunfish	2	4-5
Largemouth bass	9	1-10
White crappie	1500	3-6
Freshwater drum	50	3-8
Total	6008	

Conclusions and Recommendations:

A few Region 1-B lakes were found to have very undesirable fish populations and contribute little to the fisheries of the region. In each instance, however, various circumstances prohibit and control measures or other feasible management efforts.

Other small impoundments received management efforts but did not warrant netting surveys. The 4-acre Andrews Park Lake (Andrews County) was renovated through joint efforts with the city of Andrews. Restocking with desirable game fish was completed.

The old Winters City Lake and 2 small city lakes at Robert Lee were not sampled because of low water levels.

Supplementary hatchery stocking in waters with established fish populations will be continued as the fish are available and until further information regarding its benefits received are revealed through Job 14 of this project.

Chemical control of problematic aquatic vegetation was not recommended in Region 1-B this segment.

It is recommended that this job be continued in an effort to improve the public water fisheries of Region 1-B.

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Project Leader

Approved by Fred H. Lowman
Branch Head, Inland Fisheries

Date May 18, 1972

Leo D. Lewis
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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	<u>Lepisosteus oculatus</u>
Longnose gar	<u>Lepisosteus osseus</u>
Gizzard shad	<u>Dorosoma cepedianum</u>
Threadfin shad	<u>Dorosoma petenense</u>
Stoneroller	<u>Campostoma anamalum</u>
Goldfish	<u>Carassius auratus</u>
Carp	<u>Cyprinus carpio</u>
Plains minnow	<u>Hybognathus placita</u>
Golden shiner	<u>Notemigonus crysoleucas</u>
Red shiner	<u>Notropis lutrensis</u>
Blacktail shiner	<u>Notropis venustus</u>
Fathead minnow	<u>Pimephales promelas</u>
Bullhead minnow	<u>Pimephales vigilax</u>
River carpsucker	<u>Carpionodes carpio</u>
Smallmouth buffalo	<u>Ictiobus bubalus</u>
Gray redhorse sucker	<u>Moxostoma congestum</u>
Blue catfish	<u>Ictalurus furcatus</u>
Black bullhead	<u>Ictalurus melas</u>
Yellow bullhead	<u>Ictalurus natalis</u>
Channel catfish	<u>Ictalurus punctatus</u>
Flathead catfish	<u>Pylodictis olivaris</u>
Red River pupfish	<u>Cyprinodon rubrofluviatilis</u>
Mosquitofish	<u>Gambusia affinis</u>
White bass	<u>Morone chrysops</u>
Striped bass	<u>Morone saxatilis</u>
Warmouth	<u>Chaenobryttus gulosus</u>
Redbreast sunfish	<u>Lepomis auritus</u>
Green sunfish	<u>Lepomis cyanellus</u>
Orangespotted sunfish	<u>Lepomis humilis</u>
Bluegill	<u>Lepomis macrochirus</u>
Longear sunfish	<u>Lepomis megalotis</u>
Redear sunfish	<u>Lepomis microlophus</u>
Largemouth bass	<u>Micropterus salmoides</u>
Guadalupe bass	<u>Micropterus treculi</u>
White crappie	<u>Pomoxis annularis</u>
Walleye	<u>Stizostedion vitreum</u>
Logperch	<u>Percina caprodes</u>
Freshwater drum	<u>Aplodinotus grunniens</u>

