

JOB PROGRESS REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-5-R-20

Region 1-B Fisheries Studies

Job No. 13 Fisheries Management Recommendations

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## SUMMARY

The major public waters of Region 1-B were surveyed to determine and recommend management practices. Surveys included fish sampling with gill nets, seines and trawls; collection of physical, hydrological and ecological data; aquatic vegetation checks and water analysis.

Existing fisheries regulations and proposed changes were discussed at preliminary meetings. Public hearings were attended in all regulatory counties and the proposed changes were presented to the public. Changes in fishing regulations for this region included the removal of the 11-inch size limit on catfish, the reduction in daily bag limit of bass to 10 and possession limit to 20 and placing a minimum size limit of 10 inches on bass.

Survey data indicated that a few of the lakes in Region 1-B met the criteria for renovation; however, various circumstances prevented remedial treatments during this segment.

Aquatic vegetation was found to be troublesome at one reservoir but municipal usage of the water prevented any chemical control. Other control measures were discussed with the controlling authorities.

Many public lakes and streams of this region received supplementary hatchery stocking. These waters received 1,415,870 fry and 660,335 fingerling fish of 8 species from State hatcheries.

JOB PROGRESS REPORT

State of Texas Name: Region 1-B Fisheries Studies  
Project No.: F-5-R-20 Title: Fisheries Management  
Job No.: 13 Recommendations  
Period Covered: March 1, 1972 to February 28, 1973

P.S. 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. updating public access bulletin.

Segment Objectives:

One through five above.

Procedures:

Current fisheries survey data, existing fisheries regulations, and applicable developments in fisheries management elsewhere provided the basis for proposed fish harvest regulations. Proposed regulations were discussed with concerned Department personnel at preliminary meetings in the Edwards Plateau and Permian Basin Regulatory Districts. The resulting proposals were presented to the public at public hearings in each of the counties under regulatory responsibility.

Procedures for Objectives 2, 3 and 4 will be combined for expediency. 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 trawls 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 more adequately sample fishes of larger sizes and will be shown on each netting table concerned.

The number of nets set was determined by the size of the impoundment, water conditions, and time of year. The size of seines and trawls 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 and weighed. A sample of fish, usually up to 15 of each game species was measured and examined for sexual development and stomach content. Total numbers, total weights, percentage composition, average weights and condition factors ("K") were tabulated. Fish taken in seines and trawl were counted and length ranges were recorded. Several specimens of each species were preserved in formalin solution and returned to the laboratory where identifications were confirmed.

Vegetation observations 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 data, turbidity, weather conditions, and other physical data were recorded in each survey. Water analysis, including dissolved oxygen, carbon dioxide, alkalinity, total hardness, chlorides, and pH, was also conducted. This information will be discussed in this report only when pertinent.

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 weight and/or number, lake capacities, water usage, and the "cost-benefit ratio" of a treatment.

Many of the public waters surveyed during the 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.

Significant improvements and developments of access and/or facilities were investigated and data recorded at E. V. Spence Reservoir (Coke County) and Valley Creek Lake (Runnels County). These data will be furnished to the Information and Education Division of our Department for updating of the Statewide Public Access Bulletin.

#### Findings and Discussion:

The major public waters of Region 1-B were surveyed during this segment (Table 1). Complete surveys were not necessary on some waters because of extremely low water levels.

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 3 presents the 1972 supplementary hatchery stocking for Region 1-B public waters.

#### Objective No. 1

Changes in the fishing regulations for Region 1-B included the removal of the 11-inch size limit on channel, blue and flathead catfish.

Table 1  
Waters Surveyed During This Segment

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

Table 2

Comparison of Average "K" Factors of Game Species

Waters	Species												
	Blue catfish	Channel catfish	Flathead catfish	White bass	Striped bass	Warmouth	Green sunfish	Bluegill	Longear sunfish	Redear sunfish	Largemouth bass	White crappie	Walleye
Champion Creek Reservoir													
Colorado City Reservoir		1.74	1.80	2.93		3.37	3.90			2.72	2.54		
E. V. Spence Reservoir	1.45	1.69	2.05	3.17	2.37	3.87	3.87	4.18	3.76	2.48	2.91		
J. B. Thomas Reservoir		1.90	2.15	3.33		3.19	4.14	5.53		2.91	2.98		
Moss Creek Reservoir		1.78	2.47	2.69		3.81	4.55	4.30	4.36	3.05	2.70		
Mountain Creek Lake		2.01	2.40	2.86		4.25	4.38	3.19		3.05	2.97		
Nasworthy Reservoir		1.71	1.90	3.21			3.94		4.44	2.66	2.74		
Oak Creek Lake		2.13	2.11	2.68			3.57			2.54	2.42		
San Angelo Reservoir		1.81	2.04			4.24	4.61	4.93		2.48	2.80	1.95	
Twin Buttes Reservoir	2.00	2.16	2.14	2.53		3.46	4.23	4.48		2.45	2.51	1.69	
Valley Creek Lake		1.92	2.00				3.42						
Winters Lake, New		1.70	2.40				4.63				2.52		
Average	1.73	1.88	2.13	2.93	2.37	3.83	3.68	4.11	4.44	3.85	2.66	2.71	1.82

Table 3

## Public Water Stocking - 1972, Region 1-B

<u>Lakes &amp; Streams</u>	<u>Species</u>							
	<u>Largemouth Bass</u>	<u>Blue Catfish</u>	<u>Channel Catfish</u>	<u>Flathead Catfish</u>	<u>White Crappie</u>	<u>Redear Sunfish</u>	<u>Striped Bass</u>	<u>Walleye</u>
Colorado City	50,000*	-	7,000	-	-	-	-	-
E. V. Spence	7,700	-	10,000	2,700	-	-	51,835	-
Moss Creek	2,000	-	2,000	1,000	-	-	-	-
Mountain Creek	3,000	-	2,300	300	-	-	-	-
Nasworthy	68,700*	-	20,425	-	16,000	-	-	-
Oak Creek	-	-	10,000	-	-	-	-	-
San Angelo	6,000	-	-	-	12,000	-	-	30,000
Twin Buttes	-	1,400	-	7,200	53,000	3,000	-	332,300
Winters (New)	2,000	-	2,000	-	-	-	-	-
Concho Rivers (Tom Green Co.)	3,800	1,300	14,250	25	20,800	26,000	-	1,359,000*
San Saba River (Menard Co.)	-	-	9,000	-	-	-	-	-

All fingerling stocking except above noted, \*fry.

The daily bag and possession limit on largemouth, smallmouth and spotted black bass was reduced to 10 and 20, respectively. Also, a minimum size limit of 10 inches was placed on these species of bass. The remaining fishing regulations remained unchanged.

#### Objectives 2 through 5

##### Champion Creek Reservoir

Champion Creek Reservoir serves as an auxiliary water supply for the Texas Electric Service Company generating plant located on the nearby Colorado City Lake. Water withdrawals and below-average rainfall have prevented Champion Creek from approaching its conservation size of 1,560 acres. It covered only about 500 acres throughout this segment.

White bass dominated this year's netting collection, accounting for one-third of all fish netted and 37 per cent of the total weight (Table 4). Channel and flathead catfish were also important game species found. The once dominant centrarchid population has been drastically reduced, presumably by water level fluctuations. Gizzard shad and river carp-sucker were the most numerous rough fish found. Seining collections were hampered by clear water and brushy shorelines. Fishing pressure as well as harvest has declined as the water level remains low.

##### Colorado City Reservoir

This 1,655-acre impoundment on Morgan Creek, 6 miles southwest of Colorado City, is owned and operated by Texas Electric Service Company and is used for generator cooling. The water level is maintained usually within 10 feet of conservation level. A large portion of the west side of the lake is now a State park with plans for major recreational improvements.

Survey results (Table 5) show a continuing high level of game fish present. Flathead catfish comprised 34.66 per cent weight of the netting sample. Channel catfish, white bass and white crappie are also present in good numbers and are very popular in the creel.

Forage species, including gizzard shad, red shiner and blacktail shiner, were taken in good numbers by shoreline seining. Natural reproduction of game fish was sufficient and no supplementary stocking was needed.

##### E. V. Spence Reservoir

This municipal water supply reservoir began impoundment in 1969 and is slightly over one-third of its 15,000-acre capacity. However, the water level is expected to fluctuate as the Colorado River Municipal Water District makes withdrawals for city use. Construction of recreation facilities by the District is progressing satisfactorily.

Table 4

Survey results Champion Creek Reservoir, October 26, 1972.  
Results of six standard gill nets and two large-mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	65	34.94	26.00	.40	12.71	
Carp	5	2.69	18.00	3.60	8.80	
Golden shiner	7	3.76	1.43	.20	.70	
River carpsucker	20	10.76	27.00	1.35	13.20	
Channel catfish*	8	4.30	10.63	1.33	5.19	1.74
Flathead catfish*	5	2.68	43.06	8.61	21.06	1.80
White bass*	62	33.34	75.66	1.22	36.99	2.93
Bluegill*	4	2.15	.51	.13	.24	3.90
Largemouth bass*	1	.54	.93	.93	.46	2.72
White crappie*	9	4.83	1.32	.15	.65	2.54
<b>Total</b>	<b>186</b>	<b>100.00</b>	<b>204.54</b>		<b>100.00</b>	
Game Fish*	89	47.84	132.11		64.58	
Rough Fish*	97	52.16	72.43		35.42	

Seining results Champion Creek Reservoir (Bag 26' x 6' x ¼-inch-mesh seine).

Species	Number	Size Range In Inches
Gizzard shad	2	12
Blacktail shiner	75	1-3½
Redear sunfish	1	5
Largemouth bass	3	6
<b>Total</b>	<b>81</b>	

Table 5

Survey results Colorado City Reservoir, June 8, 9, 1972.  
Results of twelve standard gill nets and six large-mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	178	33.96	21.82	.12	4.51	
Carp	11	2.10	40.20	3.65	8.32	
Blacktail shiner	1	.19	.04	.04	.01	
River carpsucker	116	22.14	141.00	1.22	29.18	
Black bullhead	2	.38	.48	.24	.09	
Channel catfish*	55	10.50	24.89	.45	5.16	1.69
Flathead catfish*	20	3.82	167.51	8.38	34.66	2.05
White bass*	51	9.73	63.70	1.25	13.18	3.17
Warmouth*	1	.19	.16	.16	.03	3.37
Bluegill*	21	4.01	1.57	.07	.33	3.87
Redear sunfish*	4	.76	.35	.09	.07	3.76
Largemouth bass*	6	1.15	5.01	.83	1.04	2.48
White crappie*	58	11.07	16.51	.28	3.42	2.91
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Total	524	100.00	483.24		100.00	
Game Fish*	216	41.22	279.70		57.88	
Rough Fish	308	58.78	203.54		42.12	

Seining results Colorado City Reservoir (Bag 26' x 6' x 1/2"  
mesh seine and 20' x 6' x 1/8" mesh seine).

Species	Number	Size Range In Inches
Gizzard shad	512	1/2-7
Golden shiner	20	2-3
Red shiner	201	1/2-2 1/2
Blacktail shiner	154	1-3
Fathead minnow	50	1-2
Bullhead minnow	5	1-2 1/2
Mosquitofish	134	1/2-3
Green sunfish	4	1-3 1/2
Orangespotted sunfish	6	1-2
Bluegill	33	1/2-4
Longear sunfish	4	2-3
Redear sunfish	12	2-3
Largemouth bass	8	3
Logperch	8	2-3
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Total	1,151	

This segment's survey (Table 6) was conducted in July and is not considered a representative sample of the fish population of this new impoundment. The number of game species collected (including channel catfish, striped bass, largemouth bass and white crappie) is considerably lower than that of collections made under other jobs and previous data. The average "K" factor of game species (Table 2) was among the highest in the region.

The experimentally introduced striped bass have shown exceptional survival and growth. Several of the 1969 stocked stripers taken in January and February 1973 weighed eleven to twelve pounds. Spot creel checks show that most of the striped bass are taken by trolling in deep water.

Shoreline seining produced a variety of forage species--including a large population of threadfin shad and tidewater silversides.

#### J. B. Thomas Reservoir

The Colorado River Municipal Water District owns and operates this shallow, turbid lake in Borden and Scurry Counties for city usage and recreation. Presently it covers about one-half of its 7,820-acre maximum area. However, this is a considerable increase over the past few years.

The game fish population remains at a respectable level in this older reservoir. Catfish, both channel and flathead, and white bass comprise the majority of desirable species while gizzard shad, carp and river carpsucker dominate the rough fish present. Flathead catfish alone accounted for over 50 per cent of the total weight of fish netted (Table 7). This large predator has dominated the weight percentage of surveys for the past 3 years and is also the primary target for most fishermen at this West Texas lake. No walleye were collected this segment although some have been reported being caught by sports fishermen during the past year. This predator was stocked as fry and fingerling during the past few years.

Small gizzard shad and red shiners were plentiful in the seining collection.

#### Moss Creek Lake

Moss Creek Lake was recently enlarged when the Colorado River Municipal Water District, which controls the water rights, raised the dam and overflow outlet about 10 feet. This increased the size from 145 acres to approximately 225 acres. However, regular water exchanges still cause several feet of fluctuation.

This year's survey found an increased number of gizzard shad, which has been numerous for the past four years. This problematic species, now accounting for 61.72 per cent by number, has not been controlled by the native predator fish present or with the annual stocking

Table 6

Survey results E. V. Spence Reservoir, July 6, 7, 1972. Results of twelve standard gill nets and four large-mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	16	3.14	42.00	2.63	12.86	
Gizzard shad	233	45.77	32.00	.14	9.81	
Carp	25	4.92	40.43	1.62	12.39	
River carpsucker	49	9.62	51.00	1.04	15.62	
Blue catfish*	19	3.74	4.42	.23	1.36	1.45
Black bullhead	7	1.37	1.09	.16	.33	
Channel catfish*	27	5.31	31.84	1.18	9.76	1.90
Flathead catfish*	7	1.37	38.32	5.47	11.74	2.15
White bass*	40	7.86	38.76	.97	11.87	3.33
Striped bass*	3	.59	13.93	4.64	4.27	2.37
Warmouth	3	.59	.62	.21	.19	3.87
Green sunfish*	1	.19	.10	.10	.03	3.19
Bluegill*	36	7.08	3.58	.10	1.10	4.14
Longear sunfish*	2	.39	.16	.08	.05	4.18
Largemouth bass*	5	.98	5.70	1.14	1.74	2.91
White crappie*	5	.98	2.43	.49	.75	2.98
Freshwater drum	31	6.10	20.00	.65	6.13	
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Total	509	100.00	326.38		100.00	
Game Fish*	148	29.08	139.86		42.85	
Rough Fish	361	70.92	186.52		57.15	

Seining results E. V. Spence Reservoir, (Bag 26' x 6' x ¼" mesh seine and 20' x 6' x 1/8" mesh seine and 200' x 10' x ½" mesh seine).

Species	Number	Size Range In Inches
Gizzard shad	10,000	1-8
Threadfin shad	25	½-2½
Carp	1	10
Red shiner	14	½-3
Blacktail shiner	7	2-4
White bass	1	8
Striped bass	15	2-4
Bluegill	13	2-4
Redear sunfish	1	3
Longear sunfish	10	2-4
White crappie	1	10
Tidewater silverside	2	1½-2½
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Total	10,090	

Table 7

Survey results J. B. Thomas Reservoir, April 7, 1972 and June 15, 16, 1972. Results of thirteen standard gill nets and five large-mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	183	43.05	39.16	.21	10.47	
Carp	67	15.77	56.63	.85	15.15	
River carpsucker	47	11.06	53.00	1.13	14.17	
Black bullhead	1	.23	.18	.18	.05	
Channel catfish*	28	6.59	15.80	.56	4.23	1.78
Flathead catfish*	20	4.71	190.35	9.52	50.91	2.47
White bass*	12	2.82	9.74	.81	2.61	2.69
Green sunfish*	4	.94	.29	.10	.10	3.81
Bluegill*	12	2.82	.80	.07	.22	4.55
Longear sunfish*	3	.71	.21	.07	.05	5.53
White crappie*	43	10.12	6.80	.16	1.82	2.70
Freshwater drum	5	1.18	.80	.16	.22	
<b>Total</b>	<b>425</b>	<b>100.00</b>	<b>373.86</b>		<b>100.00</b>	
Game Fish*	122	28.71	224.09		59.94	
Rough Fish	303	71.29	149.77		40.06	

Seining results J. B. Thomas Reservoir (Bag 26' x 6' x ¼" mesh seine and 20' x 6' x 1/8" mesh seine).

Species	Number	Size Range In Inches
Gizzard shad	256	½-6
Red shiner	359	2
Sharpnose shiner	1	1½
Blacktail shiner	15	1-2½
Bullhead minnow	11	1-2½
Mosquitofish	24	½-1½
White bass	179	1-2
Green sunfish	4	2½-3½
Bluegill	17	1-3
Longear sunfish	10	3-4
Redear sunfish	1	2½
White crappie	30	1½-3
<b>Total</b>	<b>907</b>	

of fingerling largemouth bass and catfish. Although these two game fish thrive and provide the major part of this fishery, the introduction of other species such as white bass, walleye or white bass X striped bass hybrids is recommended.

The seining collection (Table 8) found an abundance of forage available. These included gizzard shad, golden shiner, red shiner and small sunfish. Moss Creek Lake received supplementary stocking as shown in Table 3.

#### Mountain Creek Reservoir

This small city-owned impoundment is located in the eastern limits of Robert Lee. It was reduced by drought in 1970 from its normal 95 acres to about 12 acres and was chemically renovated. Restocking included channel catfish, largemouth bass and sunfish. However, continued low water hampered both growth and survival of these fish. Late summer rains during this segment finally provided for the impoundment of about 40 acres of water. A small survey was conducted in August with very limited success and cannot be considered as an adequate sample (Table 9).

#### Nasworthy Lake

Being located within minutes of San Angelo, Lake Nasworthy receives heavy fishing pressure throughout most of the year. The water level is now maintained fairly constant with releases from Twin Buttes Reservoir.

Considering the heavy fishing pressure mentioned above, the game fish population continues to hold up very well. Desirable species accounted for more than 50 per cent by number and 40 per cent by weight of this segment's netting (Table 10).

Threadfin shad were introduced in 1969 to increase the available forage. Since that time the average "K" factor for all game species, except flathead catfish, has increased. This is even more evident in the winter sample taken this segment. The condition of game species in Nasworthy is now among the highest found in Region 1-B (Table 2). Also noted in spot creel checks was an increase in the number of utilize-size crappie. This species has been overpopulated and stunted for several years. The stocking of crappie noted on Table 3 was not recommended by this project.

#### New Winters Lake

This shallow municipal water supply reservoir was several feet low during this past segment. The water remains very turbid and limits the fishing to mostly catfish and white crappie.

Table 11 shows the 1972 survey results. Very little change in the fish population has been indicated during the past 4 or 5 years. Gizzard shad dominate the per cent by number, while carp and river carpsucker

Table 8

Survey results Moss Creek Lake, June 22, 1972. Results of four standard gill nets and two large-mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	129	61.72	20.00	.15	12.72	
Carp	4	1.91	22.00	5.50	14.00	
Golden shiner	5	2.39	.88	.18	.56	
Black bullhead	10	4.79	4.35	.44	2.77	
Channel catfish*	17	8.13	37.38	2.20	23.79	2.01
Flathead catfish*	4	1.92	60.00	15.00	38.19	2.40
White bass*	2	.95	2.13	1.06	1.35	2.86
Bluegill*	24	11.49	2.55	.11	1.63	4.38
Longear sunfish*	5	2.39	.42	.08	.26	4.30
Redear sunfish*	5	2.39	1.59	.32	1.01	4.36
Largemouth bass*	2	.96	5.22	2.61	3.33	3.05
White crappie*	2	.96	.61	.30	.39	2.97
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Total	209	100.00	157.13		100.00	
Game Fish*	61	29.19	109.90		69.94	
Rough Fish	148	70.81	47.23		30.05	

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

Species	Number	Size Range In In.
Gizzard shad	60	1-2
Golden shiner	35	3-6
Red shiner	25	1-3
Mosquitofish	10	1/2
Warmouth	1	2
Green sunfish	3	3-4
Orangespotted sunfish	22	1-5
Bluegill	25	1-5
Longear sunfish	1	3
Redear sunfish	4	3
Largemouth bass	10	2-5
Logperch	2	3
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Total	198	

Table 9

Survey results Mountain Creek Lake, August 3, 1972.  
Results of three standard gill nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Black bullhead	11	55.00	2.14	.19	31.98	
Channel catfish*	6	30.00	4.29	.71	64.13	1.71
Warmouth*	2	10.00	.20	.10	2.99	4.25
Longear sunfish*	1	5.00	.06	.06	.90	3.19
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Total	20	100.00	6.69		100.00	
Game Fish*	9	45.00	2.14		31.99	
Rough Fish	11	55.00	4.55		68.01	

Seining results Mountain Creek Lake (Bag 26' x 6' x 1/4"  
mesh seine).

Species	Number	Size Range in Inches
Golden shiner	200	1-3
Mosquitofish	200	1/2-1 1/2
Warmouth	25	1/2-3 1/2
Green sunfish	20	1/2-3
Bluegill	15	1/2-2 1/2

Table 10

Survey results Nasworthy Reservoir, January 16, 1973.  
Results of twelve standard gill nets and four large-mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	1	.18	.55	.55	.12	
Gizzard shad	200	36.76	56.00	.28	12.68	
Goldfish	1	.19	2.91	2.91	.66	
Carp	30	5.51	59.00	1.97	13.36	
Golden shiner	3	.55	.45	.15	.11	
River carpsucker	31	5.70	140.00	4.52	31.70	
Channel catfish*	81	14.89	105.75	1.31	23.96	2.13
Flathead catfish*	1	.19	4.40	4.40	.99	1.90
White bass*	16	2.94	20.33	1.27	4.61	3.21
Bluegill*	21	3.86	1.60	.08	.36	3.94
Redear sunfish*	15	2.75	1.32	.09	.30	3.44
Largemouth bass*	9	1.66	14.64	1.63	3.31	2.66
White crappie*	133	24.45	31.61	.24	7.61	2.74
Freshwater drum	2	.37	2.97	1.48	.68	
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Total	544	100.00	441.53		100.00	
Game Fish*	276	50.74	179.65		40.69	
Rough Fish	268	49.26	261.88		59.31	

Seine results Nasworthy Reservoir (Bag 26' x 6' x 1/4" mesh  
seine and 20' x 6' x 1/8" mesh seine).

Species	Number	Size Range in Inches
Red shiner	6	1-2
Bullhead minnow	2	1 1/2
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Total	8	

Trawling results Nasworthy Reservoir (8' x 15' x 1/2" mesh trawl).

Species	Number	Size Range in Inches
Threadfin shad	1	2
Carp	1	20
Channel catfish	9	2-24
Bluegill	2	2-3
Redear sunfish	28	3-5
White crappie	5	2-3
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Total	46	

Table 11

Survey results New Winters Lake, May 11, 1972. Results of six standard gill nets and two large-mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	144	46.00	33.00	.23	12.26	
Carp	27	8.63	99.00	3.67	36.81	
River carpsucker	34	10.86	55.00	1.62	20.44	
Smallmouth buffalo	1	.32	4.00	4.00	1.49	
Black bullhead	6	1.92	2.20	.37	.82	
Channel catfish*	20	6.39	30.78	1.54	11.44	1.97
Flathead catfish*	7	2.23	36.89	5.27	13.71	2.40
Bluegill*	2	.64	.19	.09	.07	4.63
White crappie*	56	17.89	5.69	.10	2.12	2.52
Freshwater drum	16	5.12	2.25	.14	.84	
<b>Total</b>	<b>313</b>	<b>100.00</b>	<b>269.00</b>		<b>100.00</b>	
Game Fish*	85	27.16	73.55		27.34	
Rough Fish	228	72.84	195.45		72.66	

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

Species	Number	Size Range in Inches
Gizzard shad	33	1/2-8
Golden shiner	15	3-6
Red shiner	75	1-2
Fathead minnow	20	1-2
Mosquitofish	6	1/2-2
Bluegill	9	2-3
<b>Total</b>	<b>158</b>	

comprise the majority of the total weight. Flathead and channel catfish are the most prominent game fish by weight. Although largemouth bass have been stocked annually for the past 3 years, very little benefit has been realized. Shoreline seining yielded mostly gizzard shad, golden shiner and red shiner.

#### Oak Creek Reservoir

This deep, clear 2,375-acre impoundment is the municipal water supply for the city of Sweetwater. West Texas Utilities also uses the reservoir for steam generator cooling. The water level fluctuates less than most West Texas reservoirs.

The 1972 survey results (Table 12) indicate a decline in the largemouth bass population. Oak Creek has been one of the outstanding bass-producing lakes in the area for several years. The remaining fish population is very similar to those of preceding years.

The clear water of this reservoir has always permitted moderate to heavy growths of submerged vegetation. However, it has become more intense and now interferes with fisherman access. Since this is a municipal water supply, a chemical treatment is not permitted. Mechanical control methods are being discussed with concerned lake personnel.

Supplementary stocking of channel catfish fingerling is being done with the survival and growth being monitored under Job 14 of this project. Creel checks show that several small marked catfish are caught regularly by anglers.

#### San Angelo Reservoir

This U. S. Corps of Engineers reservoir, located on the North Concho River, still remains at only one-tenth of its 119,000 acre-foot capacity. It was stocked with several species of game fish in 1971 just after the first water impoundment since being completely dry in 1970. Several of these desirable species have shown good survival and growth, especially channel catfish and walleye (Table 13). The introduction of undesirable fish came unpreventably from upstream. Access and desirable fishing sites have been limited because of low water levels.

The shoreline seining collection found an abundance of small gizzard shad and red shiner. San Angelo Reservoir received stocking of walleye fingerlings for the second year. Also, a few largemouth bass were stocked (Table 3).

#### Twin Buttes Reservoir

The Bureau of Reclamation built this 183,000 acre-foot reservoir in 1963 on the Middle and South Concho Rivers. Flood control, irrigation and municipal water supplies were the intended uses. The first

Table 12

Survey results Oak Creek Lake, July 21, 1972. Results of six standard gill nets and two large-mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	82	38.86	9.91	.12	6.16	
Carp	22	10.42	32.00	1.45	19.89	
River carpsucker	22	10.43	66.00	3.00	41.03	
Black bullhead	1	.47	.21	.21	.13	
Channel catfish*	16	7.59	11.55	.72	7.18	1.81
Flathead catfish*	3	1.42	28.61	9.54	17.79	2.11
White bass*	3	1.42	4.51	1.50	2.80	2.68
Bluegill*	34	16.11	3.15	.09	1.96	3.57
Largemouth bass*	1	.48	.74	.74	.46	2.54
White crappie*	27	12.79	4.17	.15	2.60	2.42
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Total	211	100.00	160.85		100.00	
Game Fish*	84	39.81	52.73		32.78	
Rough Fish	127	60.19	108.12		67.22	

Seining results Oak Creek Lake (Bag 26' x 6' x ¼" mesh seine and 20' x 6' x 1/8" mesh seine).

Species	Number	Size Range in Inches
Redbreasted sunfish	1	3½
Green sunfish	2	½-2
Largemouth bass	8	1-2
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Total	11	

Table 13

Survey results San Angelo Reservoir, May 19, 1972. Results of six standard gill nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	22	12.94	11.72	.53	18.34	
Carp	80	47.05	16.74	.21	26.21	
River carpsucker	4	2.36	2.14	.53	3.35	
Smallmouth buffalo	1	.59	.55	.55	.86	
Black bullhead	13	7.64	2.47	.19	3.86	
Channel catfish*	14	8.24	17.32	1.24	27.12	2.16
Flathead catfish*	1	.59	.70	.70	1.09	2.04
Green sunfish*	19	11.17	1.82	.10	2.85	4.24
Bluegill*	9	5.30	.76	.08	1.19	4.61
Longear sunfish*	1	.59	.07	.07	.11	4.93
Walleye*	6	3.53	9.59	1.60	15.02	1.95
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Total	170	100.00	63.88		100.00	
Game Fish*	50	29.41	30.26		47.37	
Rough Fish	120	70.59	33.62		52.63	

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

Species	Number	Size Range in Inches
Gizzard shad	280	½-2½
Carp	11	4-6
Red shiner	255	½-2½
Mosquitofish	2	1-1½
Green sunfish	1	2
Bluegill	6	1-3½
Largemouth bass	4	1½-2
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Total	559	

substantial runoff was received in 1971 as approximately 100,000 acre-feet of water was impounded. It has decreased some since that time because of municipal use and irrigation.

This segment's survey results (Table 14) indicate a respectable population of game fish. Channel and flathead catfish and white crappie comprise the majority of game species netted. However, largemouth bass and white bass are prominent in the creel. Occasionally there are reports of walleye being caught. These predator fish have been stocked annually for the past three years. The seining collections were dominated by golden and red shiners.

#### Valley Creek Lake

This 185-acre city water supply reservoir is located near Ballinger in Runnels County. It has remained within a few feet of its normal level for several years. The game fish population, which has generally been poor for the past few years, may be increasing. This year's netting data (Table 15) indicates an increase in channel catfish and largemouth bass. Gizzard shad, carp, and river carpsucker continue to be the dominant problematic species.

Valley Creek Lake has been considered for renovation for the past several years; however, unchangeable circumstances have prevented such measures.

#### Conclusions and Recommendations:

Colorado City, E. V. Spence, J. B. Thomas, Nasworthy, Oak Creek, and Twin Buttes Reservoirs are providing the majority of the fishing in Region 1-B. Other smaller impoundments were found to have undesirable fish populations and contribute little to the fishing resources in this area; however, control measures or other needed management efforts are prohibited for various reasons.

Several of the smaller lakes and the streams of Region 1-B were not surveyed this segment because about one-third of the total man-days of Project F-5-R were incorporated in Project F-27-R (Statewide Striped Bass Study). Such waters will be surveyed in the future as time permits.

Supplementary hatchery stocking will be continued when deemed necessary and as the fish are available.

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

Table 14

Survey results Twin Buttes Reservoir, November 8, 1972.  
Results of 15 standard gill nets and six large-mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg.Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	10	1.24	31.00	3.10	4.06	
Gizzard shad	342	42.70	53.00	.15	6.95	
Carp	49	6.12	94.00	1.92	12.33	
River carpsucker	128	15.98	277.00	2.16	36.33	
Blue catfish*	2	.25	.94	.47	.12	2.00
Black bullhead	1	.12	.38	.38	.05	
Channel catfish*	75	9.37	143.08	1.91	18.76	1.92
Flathead catfish*	14	1.74	94.67	6.76	12.42	2.14
White bass*	25	3.12	8.10	.32	1.06	2.53
Green sunfish*	2	.25	.23	.11	.03	3.46
Bluegill*	20	2.50	3.14	.16	.41	4.23
Longear sunfish*	5	.62	.57	.11	.08	4.48
Largemouth bass*	12	1.50	4.53	.38	.59	2.48
White crappie*	91	11.36	28.87	.32	3.79	2.80
Walleye*	6	.75	6.00	1.00	.79	1.69
Freshwater drum	19	2.38	17.00	.89	2.23	
<b>Total</b>	<b>801</b>	<b>100.00</b>	<b>762.51</b>		<b>100.00</b>	
Game Fish*	252	31.46	290.13		38.05	
Rough Fish	549	68.54	472.38		61.95	

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

Species	Number	Size Range in Inches
Gizzard shad	17	3-6
Threadfin shad	6	1½-3
Golden shiner	204	1½-3½
Red shiner	176	¼-2½
Blacktail shiner	30	1-2½
Bullhead minnow	3	2
River carpsucker	4	1½-2
Mosquitofish	6	½-2
Green sunfish	2	3-6
Bluegill	8	½-1½
Longear sunfish	3	1½-3
Largemouth bass	2	4-10
Logperch	1	3
<b>Total</b>	<b>462</b>	

Table 15

Survey results Valley Creek Lake, July 19, 1972. Results of six standard gill nets and two large-mesh nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	2	.75	15.00	7.50	5.56	
Gizzard shad	100	37.74	15.00	.15	5.56	
Carp	20	7.54	52.00	2.60	19.27	
River carpsucker	58	21.89	71.00	1.22	26.32	
Black bullhead	2	.75	.31	.15	.11	
Channel catfish*	15	5.66	23.37	1.56	8.66	1.70
Flathead catfish*	8	3.02	65.47	8.18	24.26	2.00
Bluegill*	10	3.77	.81	.08	.30	3.42
Largemouth bass*	3	1.13	5.51	1.84	2.05	2.45
White crappie*	21	7.93	6.37	.30	2.36	2.51
Freshwater drum	26	9.82	15.00	.58	5.56	
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Total	265	100.00	269.84		100.00	
Game Fish*	57	21.51	101.53		37.63	
Rough Fish	208	78.49	168.31		62.37	

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

Species	Number	Size Range in Inches
Gizzard shad	15	2-6
Red shiner	76	1/2
Orangespotted sunfish	1	2
Bluegill	6	1-4
Longear sunfish	1	3
Largemouth bass	1	2
White crappie	8	4-6
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Total	108	

Prepared by Billy J. Follis  
Project Leader

Date July 26, 1973

Approved by David L. Pritchard  
Chief, Inland Fisheries

Leo D. Lewis  
Director for Inland Fisheries,  
Region 1

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

Longnose gar  
Gizzard shad  
Threadfin shad  
Carp  
Golden shiner  
Red shiner  
Sharpnose shiner  
Blacktail shiner  
Fathead minnow  
Bullhead minnow  
River carpsucker  
Smallmouth buffalo  
Blue catfish  
Black bullhead  
Channel catfish  
Flathead catfish  
Mosquitofish  
White bass  
Striped bass  
Warmouth  
Redbreast sunfish  
Green sunfish  
Orangespotted sunfish  
Bluegill  
Longear sunfish  
Redear sunfish  
Largemouth bass  
White crappie  
Walleye  
Logperch  
Freshwater drum  
Tidewater silverside

Scientific Names

Lepisosteus osseus  
Dorosoma cepedianum  
Dorosoma petenense  
Cyprinus carpio  
Notemigonus crysoleucas  
Notropis lutrensis  
Notropis oxyrhynchus  
Notropis venustus  
Pimephales promelas  
Pimephales vigilax  
Carpiodes carpio  
Ictiobus bubalus  
Ictalurus furcatus  
Ictalurus melas  
Ictalurus punctatus  
Pylodictis olivaris  
Gambusia affinis  
Roccus chrysops  
Morone saxatilis  
Chaenobryttus gulosus  
Lepomis auritus  
Lepomis cyanellus  
Lepomis humilis  
Lepomis macrochirus  
Lepomis megalotis  
Lepomis microlophus  
Micropterus salmoides  
Pomoxis annularis  
Stizostedion vitreum  
Percina caprodes  
Aplodinotus grunniens  
Menidia beryllina