

PERFORMANCE REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-5-R-21

REGION I-B FISHERIES STUDIES

Objective 13: Fisheries Management Recommendations

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March 24, 1974

Summary

The objective of this study is to recommend management practices for the public waters of Region I-B.

Fisheries surveys were conducted on 16 public lakes and two public streams in Region I-B to determine and recommend management practices. These surveys included fish sampling with gill nets and seines; 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. The existing fishing regulations were considered adequate for the existing fisheries resources and no changes were necessary.

Supplementary hatchery stocking was the most common management activity recommended during this segment. Fifteen public lakes and six public streams received a total of 4,710,000 fry and 1,365,333 fingerlings of seven game fish species. The majority of these fish were supplied by the two San Angelo State Hatcheries.

PERFORMANCE REPORT

State: Texas Project Number: F-5-R-21

Project Title: Region I-B Fisheries Studies

Project Section: Inventory

Study Title: Fisheries Management Recommendations

Contract Period: From March 1, 1973 To February 28, 1974

Program Narrative Objective No.: 13

PS Objectives:

To determine the need for in Region I-B waters,

1. Changes in fish harvest regulations
2. Population control
3. Stocking
4. Vegetation control
5. Updating public access information.

I. Segment Objectives:

One through five above.

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

Fish populations were sampled with standard gill nets and seines. The standard gill net used is 150 feet long and 8 feet deep with mesh sizes varying from 1 to 3½ square inches. Additional large mesh (3- and 3½-square-inch-mesh) gill nets were used to more adequately sample fishes of larger sizes.

The number of nets set was determined by the size of the impoundment, water conditions and time of year. The size of seines used is given with each survey results table.

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 were counted and length ranges were recorded. Several specimens of each species were preserved in formalin 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 analyses, including dissolved oxygen, carbon dioxide, alkalinity, total hardness, chlorides and pH were conducted on most waters. This type of 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 population control measures. The criteria for considering management efforts were population 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.

Several 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.

- III. Significant Deviation: No significant deviation from planned activities were encountered. All public lakes of Region I-B were surveyed during this segment with the exception of two minor lakes that were extremely low.

No major improvements or developments of access and/or facilities were found, therefore, updating of the Statewide Public Access Bulletin was not necessary.

- IV. Conclusions, Evaluations and Recommendations: The existing fish harvest regulations for Region I-B were found to be satisfactory for the present resources and no changes were proposed or adopted.

The public waters of Region I-B surveyed during this segment are listed in Table 1. A comparison of the average coefficients of condition ("K" factors) for all game species collected with gill nets at all waters surveyed is presented in Table 2. The 1973 supplementary hatchery stocking of game fish is found in Table 3.

Table 1. Waters Surveyed During Segment 21

<u>Name</u>	<u>County</u>	<u>Surface Acres Size</u>	<u>Number of Visits</u>
Amistad Reservoir	Val Verde	64,900	2
Ascarate Lake	El Paso	50	1
Balmorhea Reservoir	Reeves	573	1
Diablo I Lake	Hudspeth	84	1
Elm Creek Lake	Runnels	55	1
E. V. Spence Reservoir	Coke	14,950	1
Macho Lake	Hudspeth	40	1
Mountain Creek Lake	Coke	95	1
Nasworthy Lake	Tom Green	1,596	1
North Concho Reservoir	Tom Green	5,440	2
Oak Creek Reservoir	Coke	2,375	2
Red Bluff Reservoir	Reeves	11,700	1
Robert Lee City Lakes	Coke	15	1
Twin Buttes Reservoir	Tom Green	9,080	1
Valley Creek Lake	Runnels	187	1
Winters Lake	Runnels	250	1
Colorado River	Concho		1
San Saba River	Menard		2

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

Waters	Blue catfish	Channel catfish	Flathead catfish	White bass	Striped bass	Warmouth	Redbreast sunfish	Green sunfish	Orangespotted sunfish	Bluegill	Longear sunfish	Redear sunfish	Largemouth bass	White crappie	Black crappie	Walleye
Amistad Reservoir	1.54	1.65	1.97	2.46	3.30	3.36	3.55		3.62	3.64	3.67	2.29	2.54	2.65		
Ascarate Lake	1.70								3.55				2.62	2.89		
Balmorhea Lake	1.66	2.06							3.03		3.40	2.45	2.17	2.48		
Diablo I Lake	1.51								3.79				2.72			
Elm Creek Lake	1.56				3.82									2.73		
E. V. Spence Reservoir	1.66	1.92	1.96	2.99	2.22	3.64			3.39		3.23			2.52		
Macho Lake	1.44								3.02							
Mountain Creek Lake	1.70											2.74				
Nasworthy Lake	1.44	1.78	1.93	2.87					3.51		2.72	2.42	2.55			
North Concho Lake	2.21	2.67	3.33				3.99	5.07	4.24			2.82	2.86			1.79
Oak Creek Reservoir	1.62	2.14	2.90				4.56		3.10	3.53	3.15	2.64	2.56			
Red Bluff Reservoir	1.56			3.04					4.44			3.02				
Robert Lee City Lake	2.16				3.67				3.84			3.16				
Twin Buttes Reservoir	1.75			2.06			3.15	2.94	3.70	3.16		1.90	2.27			
Valley Creek Lake	1.95	2.26							3.02	3.55		2.55	2.44			
Winters Lake	1.73	2.19							4.31				2.44			
Colorado River	1.51	1.17							3.50				3.07			
San Saba River	1.83	1.84			3.35				3.58		3.40					
Average	1.55	1.74	2.02	2.81	2.22	3.56	3.69	3.55	5.07	3.60	3.47	3.26	2.60	2.59	2.67	1.79

Lakes & Streams	Striped Bass		Largemouth Bass		Blue Catfish		Channel Catfish		Flathead Catfish		Walleye		White Crappie		Hybrid Sunfish	
	Rec.	Actual	Rec.	Actual	Rec.	Actual	Rec.	Actual	Rec.	Actual	Rec.	Actual	Rec.	Actual	Rec.	Actual
Concho River				2,400				59,264 10,000*				100,000 1,000,000*				
Dove Creek						3,200										
San Saba River					1,500	21,000										
Spring Creek						9,500						85,000				
El Paso Canal						15,000										
Ballinger(Old)						1,000										
Valley Creek			10,000													
Winters (Old)						1,000										
Winters (New)			2,000		2,000	5,000										

* Fry

The evaluation, discussion, and recommendations for Objectives 2, 3, and 4 will be combined and reported separately for each concerned body of water for expediency. Stocking requests for 1974 have been made but undoubtedly will require several changes because of unpredictable water levels in West Texas.

Lake Amistad

The results of two surveys on Amistad (May and November 1973) are combined in Table 4. The fish population appears stable in all respects, with most species near their long-term averages in netting results for the past three years. The average weight of smallmouth buffalo continues to increase, however, despite the use of the same types of nets since 1968.

The International Boundary and Water Commission and Texas Water Rights Commission have cooperated with the Texas Parks and Wildlife Department each spring in stabilizing the water level during the largemouth bass spawning season (February through April). By allowing undisturbed spawning and encouraging high fry survival, this practice has apparently succeeded in maintaining a substantial crop of harvestable largemouth bass from year to year without supplementary stocking. Age class 0 and 1 fish were common in this segment's surveys.

Lake Amistad has been selected as a potential candidate for striped bass stocking. The great areas of open water, largely unutilized now, could possibly contribute to an open-water predator fishery. However, before any new species are introduced into Amistad, harvest and standing crop data should be gathered intensively for at least one year as base-line data from which the effects of stocking can later be measured.

Recent informal discussions with Mexican officials indicate that cooperative studies and management programs involving fisheries workers of both countries are promising possibilities. This is considered as an important opportunity and should be officially encouraged.

Ascarate and Ascarate Fisherman's Lakes

Results of the single survey of these lakes, made in October 1973, are combined in Table 5 because the two lakes are connected by a short conduit through which water flows from Ascarate to the smaller lake. Both lakes produce few game fish because of heavy fishing pressure and skiing and boating on the larger lake. The populations of carp and gizzard shad are too large, although carp are often sought and utilized by local fishermen.

Threadfin shad were introduced in 1971. Subsequent surveys produced no survivors and the effort was regarded as a failure. However, in October 1973, six threadfins were seined from the smaller lake (Fisherman's). Further surveys will determine if their population will grow

Table 4. Survey Results Amistad Reservoir, May 22, 23, 24, 1973 and November 6, 7, 8, 1973. Results of fifty-nine standard gill nets and twenty-one large-mesh nets.

Species	Number	Per Cent By No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent By Wt.	Average "K"
Spotted gar	3	.18	3.52	1.17	.13	
Longnose gar	39	2.43	84.62	2.16	3.32	
Gizzard shad	457	28.48	204.34	.44	8.01	
Carp	74	4.61	126.84	1.71	4.97	
River carpsucker	83	5.17	132.44	1.59	5.19	
Smallmouth buffalo	535	33.33	1433.00	2.67	56.16	
Gray redbreast	9	.56	11.53	1.28	.45	
Blue catfish *	12	.75	15.81	1.21	.62	1.54
Black bullhead	1	.06	.25	.25	.01	
Channel catfish *	48	2.99	63.50	1.32	2.49	1.65
Flathead catfish *	46	2.87	303.22	6.59	11.89	1.97
White bass *	47	2.93	42.78	.91	1.67	2.46
Warmouth *	6	.37	1.57	.26	.06	3.30
Redbreast sunfish *	5	.31	.49	.09	.02	3.36
Green sunfish *	2	.13	.26	.13	.01	3.55
Bluegill *	101	6.29	12.20	.12	.48	3.62
Longear sunfish *	1	.06	.09	.09	.01	3.64
Redear sunfish *	3	.18	.54	.18	.02	3.67
Largemouth bass *	58	3.62	48.07	.82	1.88	2.29
White crappie *	39	2.43	22.66	.58	.89	2.54
Black crappie *	1	.06	.80	.80	.03	2.65
Freshwater drum	35	2.19	42.98	1.22	1.69	
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Total	1605	100.00	2551.51		100.00	
Game Fish *	369	22.99	511.99		20.07	
Rough Fish	1236	77.01	2039.52		79.93	

Seining results Amistad 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
Golden shiner	1	1-2½
Blacktail shiner	65	1-4
Fathead minnow	4	1½-2
Bullhead minnow	6	1½-2
Mosquitofish	5	½-1
Redbreast sunfish	2	¾-3½
Bluegill	7	2-4
Largemouth bass	2	3-3½
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Total	92	

Table 5. Survey results Ascarate Lake, October 3, 1973.
Results of four standard gill nets and one large-mesh net.

Species	Number	Per Cent By No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent By Wt.	Average "K"
Gizzard shad	31	30.39	21.00	.67	17.90	
Carp	20	19.60	68.00	3.40	57.99	
River carpsucker	3	2.95	4.57	1.52	3.90	
Black bullhead	12	11.76	1.98	.16	1.69	
Channel catfish *	25	24.51	20.37	.81	17.37	1.70
Bluegill *	7	6.86	.49	.07	.42	3.55
White crappie *	1	.98	.42	.42	.36	2.62
Black crappie *	3	2.95	.43	.14	.37	2.89
Total	102	100.00	117.26		100.00	
Game Fish *	36	35.30	21.71		18.52	
Rough Fish	66	64.70	95.55		81.48	

Seining results Ascarate 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	100	2-6
Threadfin shad	6	3-4
Carp	1	10
Golden shiner	66	1 1/2-6
Red shiner	25	1-1 1/2
Bullhead minnow	6	1 1/2
Black bullhead	1	8
Green sunfish	2	3
Bluegill	70	1-4
Longear sunfish	2	2-3
Black crappie	6	6-7
Largemouth bass	14	2-8
Total	299	

partially displace gizzard shad as hoped, and provide more available forage for game fish.

Because of intensive fishing pressure and poor conditions for adequate game fish reproduction, stocking of sub-adult channel catfish and largemouth bass has been done annually for several for several years. This practice should be suspended for a year or more to check recruitment.

Lake Balmorhea

Fifty-seven flathead catfish were stocked in Lake Balmorhea in 1970 to reduce the stunted population of small sunfish. The most recent survey, conducted in September 1973, (Table 6) shows no evidence of either flathead reproduction or a reduction of small sunfish. However, the catfish have survived and are harvested from time to time, and there is no reason to believe that they will not reproduce here.

Lake concessionaires report that Lake Balmorhea continues to yield a satisfactory game fish harvest and is a popular fishing lake in West Texas. It has an abundant and varied supply of small forage fish and should be considered for introduction of an open-water predator species such as white bass, striped bass, or walleye.

Lake Diablo I

According to an October 1973 survey (Table 7), crappie in Lake Diablo I are overpopulated and undersized as in past surveys. A management technique which has been shown effective in other applications, introduction of a new large predator species, was tried here in December 1973. Twenty-seven adult and sub-adult flathead catfish were collected from other regional lakes and transported to Lake Diablo I. Further surveys will be made to evaluate the success of this action and to determine other management needs.

Despite the overabundant crappie and large carp, this lake regularly produces large game fish. A largemouth bass weighing more than 12 pounds was captured in May. This fish was not caught on a hook but jumped into the boat in pursuit of a lure which the fisherman had just retrieved from the water.

Elm Creek Lake

This old impoundment serves very little as a fishery. Sedimentation has reduced its depth and almost destroyed all game fish spawning habitat. Supplementary hatchery stocking has produced little improvement. Only three desirable species were collected with gill nets and accounted for 12% by number and less than 4% by weight of this year's sample (Table 8).

Table 6. Survey results Balmorhea Lake, September 11, 12, 1973.
Results of six 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"
Carp	107	22.62	341.00	3.18	72.41	
Golden shiner	11	2.32	1.84	.16	.39	
River carpsucker	4	.85	20.00	5.00	4.24	
Channel catfish *	37	7.82	38.99	1.05	8.28	1.60
Flathead catfish *	2	.42	31.60	15.80	6.71	2.06
Bluegill *	222	46.94	16.85	.07	3.58	3.03
Redear sunfish *	2	.42	.41	.20	.09	3.40
Largemouth bass *	14	2.96	12.78	.91	2.71	2.45
White crappie *	51	10.78	5.24	.10	1.12	2.17
Black crappie *	23	4.87	2.21	.09	.47	2.48
Total	473	100.00	470.92		100.00	
Game Fish *	351	74.21	108.08		22.96	
Rough Fish	122	25.79	362.84		77.04	

Seining results Balmorhea 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
Mexican tetra	1	3½
Carp	2	4-14
Golden shiner	8	2-7
Fathead minnow	4	2-2½
Variogated cyprinodon	15	½-1
Mosquitofish	3	1
Warmouth	2	1½-2½
Green sunfish	53	½-2
Orangespotted sunfish	3	1
Bluegill	350	½-5
Largemouth bass	21	1-11
White crappie	5	1-6½
Black crappie	2	6-7
Tidewater silversides	1224	½-4
Total	1693	

Table 7. Survey results Diablo I Lake, October 4, 1973.
Results of two standard gill nets, and 1 large-mesh nets.

Species	Number	Per Cent By No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent By Wt.	Average "K"
Carp	12	10.25	46.00	3.83	77.14	
Channel catfish *	3	2.57	5.08	1.69	8.52	1.51
Bluegill *	10	8.54	.75	.07	1.25	3.79
White crappie *	92	78.64	7.80	.08	13.09	2.72
Total	117	100.00	59.63		100.00	
Game Fish *	105	89.75	13.63		22.86	
Rough Fish	12	10.25	46.00		77.14	

Seining results Diablo I 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	57	1/4-4
Mosquitofish	12	1-1 1/2
Green sunfish	1	1
Orangespotted sunfish	1	1
Bluegill	175	1-4
Largemouth bass	15	2 1/2-5
White crappie	156	1-2 1/2
Logperch	2	3-3 1/2
Total	419	

Table 8. Survey results Elm Creek Lake, June 6, 1973.
Results of three standard gill nets, and one large-mesh net.

Species	Number	Per Cent By No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent By Wt.	Average "K"
Longnose gar	1	.63	6.49	6.49	4.39	
Gizzard shad	84	53.16	20.53	.24	13.88	
Carp	9	5.70	38.00	4.22	25.71	
River carpsucker	12	7.59	13.00	1.08	8.80	
Smallmouth buffalo	19	12.02	52.00	2.73	35.17	
Black bullhead	7	4.44	2.24	.32	1.52	
Channel catfish *	4	2.53	4.00	1.00	2.70	1.56
Warmouth *	1	.63	.09	.09	.07	3.82
White crappie *	14	8.86	1.47	.10	.99	2.73
Freshwater drum	7	4.44	10.00	1.42	6.77	
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Total	158	100.00	147.82		100.00	
Game Fish *	19	12.02	5.56		3.76	
Rough Fish	139	87.98	142.26		92.24	

Seining results Elm 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	6	3-6
Red shiner	120	1/2-1 1/2
Bullhead minnow	4	1-2
River carpsucker	5	1/2
Mosquitofish	50	1/2
Green sunfish	1	2
Orangespotted sunfish	3	1-2
Bluegill	2	2
Largemouth bass	21	1/2-2
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Total	212	

E. V. Spence Reservoir

Since its completion in 1969, this 15,000-acre reservoir has impounded only about one-third of its capacity. The water level fluctuates as the Colorado River Municipal Water District makes withdrawals for municipal use by the cities of Odessa, Midland, Big Spring, Snyder and San Angelo.

Standard survey results for the July collection at E. V. Spence (Table 9) reflect the beginning of a stabilization of the fish population. The species composition by per cent number and weight is very similar to last segment's collection. However, largemouth bass were not collected by either nets or seines and this might be considered as a significant factor if it reoccurs next segment.

The experimentally introduced striped bass have become a significant part of this West Texas fishery. Creel surveys, conducted under Job 16 of this project, show that 10% of the fishermen are seeking this large open water predator. A striper evaluation collection (Project F-27-R, Job 6) conducted during cooler months captured 142 striped bass which accounted for 33.09% weight of all fish caught (Table 10). Two stripers weighing more than 14 pounds were taken by fishermen in January 1974.

Gizzard shad, threadfin shad, and tidewater silversides are abundant and provide ample forage for all predator species.

The annual stocking of striped bass fingerlings should be continued since this reservoir is supplying brood fish for the statewide striper program.

Lake Macho

The harvest of channel catfish in Lake Macho is believed to be maintained by annual supplementary stocking. The 1973 stocking of hatchery-reared catfish was evident in the October 1973 survey (Table 11). On the other hand largemouth bass are missing from this survey. This may be due in part to the scarcity of hatchery-reared bass for the past two years; however, past surveys of Macho have characteristically collected only a few large bass. Further surveys will be necessary to determine if their population is declining and whether supplementary bass stocking is necessary.

As before, the carp in Macho appear to be few but large. Carp smaller than 5 pounds are rarely netted here. Bluegill are numerous and stunted as in most other small West Texas lakes. Despite these factors, the game fish harvest from this small but popular lake is reported by the concessionaire to be satisfactory.

Table 9. Survey results E. V. Spence Reservoir, July 4, 5, 1973.
Results of eleven standrad 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	27	5.03	74.00	2.74	15.75	
Gizzard shad	178	33.21	25.00	.14	5.32	
Carp	48	8.96	40.00	.83	8.52	
River carpsucker	61	11.38	76.00	1.24	16.18	
Blue catfish *	1	.18	.52	.52	.11	1.66
Black bullhead	22	4.11	14.92	.67	3.17	
Channel catfish *	21	3.92	38.15	1.81	8.12	1.92
Flathead catfish *	10	1.86	82.15	8.21	17.49	1.96
White bass *	25	4.67	25.12	1.00	5.35	2.99
Striped bass *	4	.74	26.87	6.71	5.72	2.22
Warmouth *	3	.56	.89	.29	.19	3.64
Bluegill *	58	10.82	4.79	.08	1.02	3.39
White crappie *	13	2.43	4.32	.33	.92	2.52
Freshwater drum	65	12.13	57.00	.87	12.14	
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Total	536	100.00	469.73		100.00	
Game Fish *	135	25.18	182.81		38.92	
Rough Fish	401	74.82	286.92		61.08	

Seining results 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
Gizzard shad	1	7
Threadfin shad	3	1-2
Red shiner	5	1-2
Bullhead minnow	1	2
White bass	3	2-3
Tidewater silversides	5	1-2½
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Total	18	

Table 10. Striped bass evaluation netting results, October, November and December, 1973. Nine net units (450' x 3/4"-, 1 1/4"-, and 2"-, square-mesh.

Species	Number	Per Cent By No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent By Wt.
Longnose gar	13	.49	17.84	1.37	2.35
Gizzard shad	2110	80.07	180.24	.08	23.79
Threadfin shad	1	.04	.03	.03	.00
Carp	23	.88	27.12	1.17	3.58
Rivercarpsucker	74	2.80	94.31	1.27	12.45
Blue catfish *	6	.23	4.97	.82	.65
Black bullhead	2	.08	.41	.20	.06
Channel catfish *	58	2.20	57.78	.99	7.62
White bass *	184	6.98	114.54	.62	15.12
Striped bass *	142	5.38	250.74	1.76	33.09
Bluegill *	6	.23	.38	.06	.05
Largemouth bass *	2	.08	1.38	.69	.19
White crappie *	12	.46	7.18	.59	.94
Freshwater drum	2	.08	.76	.38	.11
Total	2635	100.00	757.68		100.00
Game Fish *	410	15.56	436.97		57.66
Rough Fish	2225	84.44	320.71		42.34

Table 11. Survey results Macho Lake, October 4, 1973.
Results of two standard gill nets, and one large-mesh net.

Species	Number	Per Cent By No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent By Wt.	Average "K"
Carp	4	3.01	22.39	5.59	60.36	
Channel catfish *	14	10.52	5.94	.42	16.02	1.44
Bluegill *	111	83.46	8.41	.07	22.67	3.02
Redear sunfish *	4	3.01	.35	.08	.95	3.23
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Total	133	100.00	37.09		100.00	
Game Fish *	129	96.99	14.70		39.64	
Rough Fish	4	3.01	22.39		60.36	

Seining results Macho 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
Red shiner	15	1/2
Mosquitofish	1	1/2
Green sunfish	19	13/4-3 1/2
Bluegill	49	1-4 1/2
Redear sunfish	26	3 1/2
Largemouth bass	23	2-5
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Total	133	

Mountain Creek Lake

This small municipal water supply reservoir at Robert Lee was chemically renovated in 1970 and restocked with desirable game fish. Drought conditions and low fertility apparently have hampered the expansion of the fish population. Only 14 fish were collected with 5 gill nets (Table 12).

No management activities are planned until additional water is impounded and present conditions changed.

Nasworthy Lake

Lake Nasworthy continues to be one of the most heavily used fishing and recreation sites in this area. The primary fish species sought include channel catfish, largemouth bass, and white crappie. Table 13 shows a variety of game fish present, but their numbers have decreased from past surveys. Due to heavy siltation, very little suitable game fish spawning area is available. Therefore supplementary bass and catfish stockings have been recommended annually (Table 3). However, suspension of largemouth bass stockings is recommended to determine the natural reproductive success. White bass x striped bass hybrids are also recommended to add an open-water predator as well as a sport fish.

North Concho Reservoir

This U.S. Corps of Engineers reservoir has failed to receive any significant run-off in the past two years and is less than one-tenth its capacity (this reservoir was dry in 1970). The game fish stocked since 1971 have shown good survival and growth. The hatchery-stocked flathead catfish have increased from fingerling size to over 5 pounds average weight.

Walleye are also a major part of the fish population, accounting for 10.41% by number and 28.67% by weight of the combined netting results (Table 14). Although walleye are present in significant numbers they are rarely taken by fishermen. However, some local fishermen have learned to catch them indicating that an educational campaign might help increase the walleye harvest.

Oak Creek Lake

This deep, clear 2,300-acre reservoir is the municipal water supply for the city of Sweetwater. It also provides public recreation and generator coolant water for West Texas Utilities Company. This segment's survey results (Table 15) show game species well represented, as nine desirable species accounted for about one-third of the netting sample by weight and number. Largemouth bass continues to be the most popular species and many trophy bass are taken regularly.

Table 12. Survey results Mountain Creek Lake, April 5, 1973.
Results of four standard gill nets, and one large-mesh net.

Species	Number	Per Cent By No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent By Wt.	Average "K"
River carpsucker	1	7.14	2.47	2.47	27.97	
Black bullhead	8	57.14	1.07	.13	12.12	
Channel catfish *	3	21.43	3.52	1.17	39.86	1.70
Largemouth bass *	2	14.29	1.77	.88	20.05	2.74
Total	14	100.00	8.83		100.00	
Game Fish *	5	35.72	5.29		59.91	
Rough Fish	9	64.28	3.54		40.09	

Table 13. Survey results Nasworthy Lake, August 23, 24, 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	4	.53	11.72	2.93	3.45	
Gizzard shad	494	66.13	96.00	.19	28.31	
Carp	55	7.36	96.00	1.74	28.31	
River carpsucker	10	1.34	34.00	3.40	10.02	
Blue catfish *	1	.14	.19	.19	.06	1.44
Channel catfish *	42	5.61	63.68	1.51	18.78	1.78
Flathead catfish *	1	.14	2.86	2.86	.84	1.93
White bass *	2	.27	2.64	1.32	.78	2.87
Bluegill *	49	6.56	4.57	.09	1.35	3.51
Redear sunfish *	11	1.47	.88	.08	.26	2.72
Largemouth bass *	3	.40	2.05	.68	.60	2.42
White crappie *	52	6.97	13.84	.26	4.08	2.55
Freshwater drum	23	3.08	10.69	.46	3.16	
Total	747	100.00	339.12		100.00	
Game Fish *	161	21.56	90.71		26.75	
Rough Fish	586	78.44	248.41		73.25	

Seining results Nasworthy 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	1	4 $\frac{1}{2}$
Threadfin shad	2	2 $\frac{1}{2}$ -3
Golden shiner	1	7
Red shiner	2	1 $\frac{1}{2}$ -2
Bullhead minnow	2	1 $\frac{1}{2}$ -2
Mosquitofish	1	1
Bluegill	1	5
Redear sunfish	1	5 $\frac{1}{2}$
Largemouth bass	1	4
Total	12	

Table 14. Survey Results North Concho Lake, March 9, 1973 and June 7, 1973. Results of eleven 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	142	36.04	36.59	.25	11.97	
Carp	66	16.75	17.12	.25	5.60	
River carpsucker	56	14.21	63.55	1.13	20.79	
Smallmouth buffalo	2	.51	1.65	.82	.54	
Black bullhead	31	7.87	6.33	.20	2.07	
Channel catfish *	23	5.83	39.13	1.70	12.80	2.21
Flathead catfish *	8	2.04	41.74	5.21	13.66	2.67
White bass *	3	.76	4.66	1.55	1.53	3.33
Green sunfish *	1	.25	.15	.15	.04	3.99
Orangespotted sunfish*	1	.25	.08	.08	.03	5.07
Bluegill *	13	3.30	1.01	.07	.33	4.24
Largemouth bass *	3	.76	2.48	.82	.81	2.82
White crappie *	2	.51	.23	.11	.08	2.86
Walleye *	41	10.41	87.62	2.13	28.67	1.79
Freshwater drum	2	.51	3.30	1.65	1.08	
Total	394	100.00	305.64		100.00	
Game Fish *	95	24.11	177.10		57.95	
Rough Fish	299	75.89	128.54		42.05	

Seining results North Concho 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	301	1/2-6
Threadfin shad	3	1/2-1
Carp	51	5-7
Red shiner	42	1-2
Mosquitofish	11	1
Green sunfish	4	1-3
Orangespotted sunfish	1	3
Bluegill	24	1/2-5
Longear sunfish	3	2 1/2-3
Redear sunfish	1	2
Largemouth bass	4	1-8
Total	445	

Table 15. Survey results Oak Creek Lake, April 18, 19, 1973 and April 27, 1973. 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"
Gizzard shad	253	36.24	51.45	.20	9.18	
Carp	48	6.88	100.00	2.08	17.85	
River carpsucker	179	25.64	206.00	1.15	36.77	
Black bullhead	2	.29	.82	.41	.14	
Channel catfish *	11	1.58	17.67	1.60	3.16	1.62
Flathead catfish *	5	.71	62.17	12.43	11.09	2.14
White bass *	40	5.73	68.65	1.71	12.26	2.90
Redbreast sunfish *	1	.15	.52	.52	.09	4.56
Green sunfish *	1	.15	.09	.09	.02	3.51
Bluegill *	84	.202	7.16	.08	1.27	3.10
Longear sunfish *	2	.29	.15	.07	.03	3.53
Redear sunfish *	8	1.15	.62	.07	.11	3.15
Largemouth bass *	12	1.72	30.33	2.52	5.42	2.64
White crappie *	52	7.45	14.62	.28	2.61	2.56
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Total	698	100.00	560.25		100.00	
Game Fish *	216	30.95	201.98		36.06	
Rough Fish	482	69.05	358.27		63.94	

Seining results 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
Red shiner	1	2
Blacktail shiner	3	3-3 1/2
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Total	4	

The clear water of this reservoir has permitted heavy growth of submerged vegetation which interferes with boating and fishing. A total chemical treatment is not feasible because it is a municipal water supply. However, spot chemical treatments and mechanical controls are being considered.

Channel catfish fingerlings are stocked annually, and recoveries of marked specimens (under Job 14 of this project) confirm good survival.

Red Bluff Lake

In most years, centrarchid reproduction at Red Bluff is low or non-existent because of the high salinity of the water. However, a large inflow of fresh water in the spring of 1973 allowed a successful largemouth bass spawn, and young-of-the-year bass were seined in the upper end in October. Table 16 summarizes survey results from June and October, 1973.

Interviews with at least 20 fishermen indicate that the harvest rate of largemouth bass and other game fish is low. The abundance of threadfin shad and tidewater silversides in Red Bluff, the general lack of largemouth bass, and the large reservoir size increase the justifications for stocking striped bass or striped x white bass hybrids.

Robert Lee City Lakes

Located near Robert Lee, these small impoundments once provided municipal water for the City. Siltation has greatly reduced their capacities, and they presently serve only as fishing sites. Both were chemically renovated in 1970 and restocked with game species. The larger of the two was checked during this segment (Table 17), and no undesirable species were found. The smaller lake was not netted due to low water; however, it reportedly supports a sizeable largemouth bass population.

Management activities will depend on water impoundment and fisherman utilization.

Twin Buttes Reservoir

The Bureau of Reclamation constructed this impoundment on the Middle and South Concho Rivers approximately 11 years ago. The first significant run-off was received in 1970 as it reached about one-half of the conservation level. Heavy stocking of channel, blue and flathead catfish, largemouth bass and walleye followed shortly. Catfish and walleye stockings have continued annually (Table 3).

This year's survey on Twin Buttes reflects a poor game fish population, particularly walleye, considering the past stockings. Rough fish, mainly gizzard shad, carp and carpsucker, accounted for 82.52% number and 93.38% weight of the netting sample. These figures were considerably higher than in previous years. Channel catfish, white crappie, and largemouth

Table 16. Survey results Red Bluff Reservoir, June 19, 1973 and October 2, 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	63	11.20	155.71	2.47	19.67	
Gizzard shad	146	25.98	28.71	.19	3.63	
Carp	94	16.73	49.97	.53	6.32	
River carpsucker	20	3.56	24.00	1.20	3.03	
Smallmouth buffalo	162	28.82	458.00	2.82	57.88	
Channel catfish *	13	2.32	14.38	1.10	1.82	1.56
White bass *	30	5.34	45.92	1.53	5.80	3.04
Green sunfish *	13	2.32	2.27	.17	.29	3.75
Bluegill *	12	2.12	3.28	.27	.41	4.44
Largemouth bass *	9	1.61	9.04	1.00	1.15	3.02
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Total	562	100.00	791.28		100.00	
Game Fish *	77	13.71	74.89		9.47	
Rough Fish	485	86.29	716.39		90.53	

Seining results Red Bluff 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	188	1-8
Threadfin shad	10	1 1/4-2 1/2
Carp	256	1-2
Golden shiner	1	2 3/4
Red shiner	205	1-3
Fathead minnow	1	1 1/2
Bullhead minnow	3	1 1/2-2
River carpsucker	1	3
Smallmouth buffalo	4	1 1/2-5 1/4
Zebra minnow	2	1 1/2-1 1/2
Mosquitofish	5	1 1/4-1 3/4
Green sunfish	1	1 7/8
Bluegill	1	1 1/2
Largemouth bass	2	3
Tidewater silversides	2869	1-4 1/2
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Total	3549	

Table 17. Survey results Robert Lee Old City Lake, January 31, 1974.
Results of two standard gill nets.

Species	Number	Per Cent By No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent By Wt.	Average "K"
Channel catfish *	2	11.76	8.92	4.46	43.53	2.16
Warmouth *	8	47.06	1.36	.17	6.64	3.67
Bluegill *	1	5.88	.09	.09	.44	3.84
Largemouth bass *	6	35.30	10.12	1.68	49.39	3.16
Total	17	100.00	20.49		100.00	
Game Fish *	17	100.00	20.49		100.00	
Rough Fish						

bass comprise the primary sport fishery at the present time. Walleye have been liberally stocked for the past three years but were not collected during this segment. However, they are occasionally reported by fishermen.

Feasible management practices for this situation appear to be limited at this time.

Valley Creek Lake

Valley Creek Lake provides water for the city of Ballinger. Siltation is becoming a problem in this old reservoir as in many small West Texas impoundments. However the past two annual surveys have indicated an increase in the game fish population. Table 19 shows catfish, white crappie, and largemouth bass well represented in the netting sample for this lake. No management activities are planned at this time.

Winters Lake

The turbidity continues to be very high in this shallow city water supply lake and limits desirable fish production mainly to catfish and white crappie. Table 20 gives the 1973 survey results which are similar to past collections. Gizzard shad, carp, and river carpsucker account for the majority of rough fish. A complete chemical renovation of the fish population of this lake and its small watershed may be feasible in the future as a new city water supply is being planned.

Colorado River

The Colorado River was sampled once with gill nets during this segment in Concho County. There was little sustained flow and no major run-off had occurred in several months. Table 21 is fairly representative of the fish population found in most sections of the upper Colorado. Catfish provide the majority of the sport fishing. Although no seining samples were made, red shiner and blacktail shiners are usually abundant. No management practices are feasible but sampling should be done when possible for future reference.

San Saba River

The San Saba River was surveyed twice this segment in Menard and Schleicher Counties. The combined results are given in Table 22. Channel and flathead catfish and white crappie are the primary game fish present and provide the most fishing in this area. Although none were netted, spotted bass are known to be present and sought after by many anglers in this clear stream.

The stocking of marked hatchery fingerling channel catfish (Job 14 of this project) is yielding data indicating high levels of survival in this area of the river.

Table 18. Survey results Twin Buttes Reservoir, June 8, 1973.
Results of eight standard gill nets.

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	25	4.64	55.00	2.20	8.88	
Gizzard shad	197	36.62	31.00	.15	5.01	
Carp	86	15.98	146.00	1.69	23.60	
River carpsucker	84	15.62	320.00	3.80	51.72	
Gray redhorse sucker	1	.18	1.76	1.76	.29	
Channel catfish *	15	2.79	25.48	1.69	4.12	1.75
White bass *	5	.93	3.07	.61	.49	2.06
Redbreast sunfish *	1	.18	.22	.22	.04	3.15
Green sunfish *	3	.56	.30	.10	.05	2.94
Bluegill *	45	8.37	6.61	.14	1.06	3.70
Longear sunfish *	9	1.67	.75	.08	.13	3.16
Largemouth bass *	6	1.12	2.12	.35	.34	1.90
White crappie *	10	1.86	2.40	.24	.39	2.27
Freshwater drum	51	9.48	24.00	.47	3.88	
Total	538	100.00	618.71		100.00	
Game Fish *	94	17.48	40.95		6.62	
Rough Fish	444	82.52	577.76		93.38	

Seining results Twin Buttes 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	90	7-8
Golden shiner	51	1/2-4
Red shiner	78	1 1/2-3
Blacktail shiner	25	1-3
Bullhead minnow	1	1
Mosquitofish	53	1/2-2
Warmouth	1	6
Green sunfish	4	1-3
Bluegill	55	1/2-1 1/2
Longear sunfish	5	1-4
Redear sunfish	2	4-5
Largemouth bass	7	1/2-8
White crappie	2	1-8
Total	374	

Table 19. Survey results Valley Creek Lake, June 6, 1973.
Results of five 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	9	3.73	36.00	4.00	9.59	
Gizzard shad	77	31.95	8.92	.11	2.38	
Carp	19	7.88	85.00	4.47	22.67	
River carpsucker	59	24.48	76.00	1.28	20.26	
Channel catfish *	6	2.49	13.05	2.17	3.48	1.95
Flathead catfish *	7	2.91	91.71	13.10	24.45	2.26
Bluegill *	34	14.11	3.28	.09	.88	3.02
Longear sunfish *	3	1.24	.19	.06	.05	3.55
Largemouth bass *	4	1.66	12.70	3.17	3.38	2.55
White crappie *	17	7.06	7.20	.42	1.92	2.44
Freshwater drum	6	2.49	41.00	6.83	10.94	
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Total	241	100.00	375.05		100.00	
Game Fish *	71	29.47	128.13		34.16	
Rough Fish	170	70.53	246.92		65.84	

Seining results 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
Gizzard shad	20
Carp	1
Red shiner	10
Blacktail shiner	8
River carpsucker	1
Bluegill	2
White crappie	1
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Total	43

Table 20. Survey results Winters Lake, June 21, 1973.
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	59	26.57	11.00	.18	5.29	
Carp	11	4.96	40.00	3.63	19.24	
River carpsucker	39	17.57	58.00	1.48	27.90	
Smallmouth buffalo	4	1.80	23.00	5.75	11.07	
Black bullhead	4	1.80	1.92	.48	.92	
Channel catfish *	24	10.81	19.06	.79	9.17	1.73
Flathead catfish *	5	2.25	43.55	8.71	20.95	2.19
Bluegill *	3	1.35	.28	.09	.13	4.31
White crappie *	63	28.38	8.53	.13	4.11	2.44
Freshwater drum	10	4.51	2.53	.25	1.22	
Total	222	100.00	207.87		100.00	
Game Fish *	95	42.79	71.42		34.36	
Rough Fish	127	57.21	136.45		65.64	

Seining results 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	70	1-8
Carp	18	3-5
Golden shiner	12	2-2½
Red shiner	140	1-3
Channel catfish	1	10
Mosquitofish	60	1
Bluegill	1	4
Longear sunfish	1	2
Redear sunfish	1	4
Largemouth bass	1	1
White crappie	55	½-8
Logperch	3	2-3
Total	363	

Table 21. Survey results Colorado River, Concho County, February 13, 1974.
Results of two standard gill nets, and one large-mesh net.

Species	Number	Per Cent By No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent By Wt.	Average "K"
Longnose gar	28	28.57	80.50	2.87	41.57	
Gizzard shad	29	29.59	34.00	1.17	17.56	
Carp	2	2.04	12.00	6.00	6.19	
River carpsucker	25	25.51	37.00	1.48	19.11	
Smallmouth buffalo	2	2.04	13.00	6.50	6.71	
Channel catfish *	3	3.05	4.10	1.36	2.12	1.51
Flathead catfish *	1	1.03	6.00	6.00	3.10	1.17
Bluegill *	6	6.11	.56	.09	.29	3.50
White crappie *	1	1.03	.48	.48	.25	3.07
Freshwater drum	1	1.03	6.00	6.00	3.10	
Total	98	100.00	193.64		100.00	
Game Fish *	11	11.22	11.14		5.76	
Rough Fish	87	88.78	182.50		94.24	

Table 22. Survey results San Saba River, June 27, 1973 and October 30, 31, 1973. Results of eleven 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	15	3.61	29.52	1.96	3.22	
Gizzard shad	146	35.09	70.68	.48	7.72	
Carp	6	1.44	45.00	7.50	4.92	
River carpsucker	111	26.68	267.00	2.40	29.16	
Smallmouth buffalo	35	8.42	327.29	9.35	35.75	
Gray redhorse sucker	2	.48	4.12	2.06	.45	
Golden redhorse sucker	1	.24	1.92	1.92	.21	
Channel catfish *	14	3.36	30.94	2.21	3.38	1.83
Flathead catfish *	6	1.44	40.96	6.82	4.47	1.84
Warmouth *	5	1.21	1.48	.29	.17	3.35
Bluegill *	14	3.36	1.25	.08	.13	3 58
Redear sunfish *	2	.48	.57	.28	.06	3.40
White crappie *	44	10.58	14.11	.32	1.55	2.79
Freshwater drum	15	3.61	80.65	5.37	8.81	
Total	416	100.00	915.49		100.00	
Game Fish *	85	20.43	89.31		9.76	
Rough Fish	331	79.57	826.18		90.24	

Seining results San Saba River (20' x 6' x 1/8-inch-mesh seine).

Species	Number	Size Range in Inches
Gizzard shad	50	1-6
Red shiner	10	2½
Sharpnose shiner	75	½-2
Spottail shiner	2500	½-3
Gray redhorse	1	3
Channel catfish	1	2
Mosquitofish	30	1-1½
Redbreast sunfish	25	2-3
Green sunfish	1	3
Bluegill	5	2-3
Spotted bass	50	2-6
Largemouth bass	12	2-3
White crappie	2	2
Total	2762	

It is recommended that this supplementary stocking be continued in the upper portions of the San Saba to provide a better fishery.

General Conclusions, Discussion and Recommendations

Low water conditions and heavy siltation are adversely affecting game fish production in many of the smaller Region I-B lakes. Supplementary stocking has shown improvements in some cases.

Sound fisheries management practices for larger reservoirs are limited in most instances. However, the stocking of large predator species is providing additional fisheries benefits at E.V. Spence and North Concho Lakes. The stocking of striped bass or white-striped bass hybrids should be attempted in the more troublesome West Texas reservoirs. However it is recommended that part-time creel clerks be employed at each of the lakes to be stocked before management introductions are made.

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Date: March 26, 1974 Leo Lewis
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Region I

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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

Spotted gar
Longnose gar
Gizzard shad
Threadfin shad
Mexican tetra
Carp
Golden shiner
Red shiner
Sharpenose shiner
Blacktail shiner
Fathead minnow
Bullhead minnow
River carpsucker
Smallmouth buffalo
Gray redbreast
Golden redbreast
Blue catfish
Black bullhead
Channel catfish
Fathead catfish
Variegated cyprinodon
Zebra minnow
Mosquitofish
White bass
Striped bass
Warmouth
Redbreast sunfish
Green sunfish
Orangespotted sunfish
Bluegill
Longear sunfish
Redear sunfish
Spotted bass
Largemouth bass
White crappie
Black crappie
Walleye
Logperch
Freshwater drum
Tidewater silversides

Scientific Names

Lepisosteus oculatus
Lepisosteus osseus
Dorosoma cepedianum
Dorosoma petenense
Astyanax mexicanus
Cyprinus carpio
Notemigonus crysoleucas
Notropis lutrensis
Notropis oxyrhynchus
Notropis venustus
Pimephales promelas
Pimephales vigilax
Carpiodes carpio
Ictiobus bubalus
Moxostoma congestum
Moxostoma erythrurum
Ictalurus furcatus
Ictalurus melas
Ictalurus punctatus
Pylodictis olivaris
Cyprinodon variegatus
Fundulus zebrinus
Gambusia affinis
Roccus chrysops
Roccus saxatilis
Chaenobryttus gulosus
Lepomis auritus
Lepomis cyanellus
Lepomis humilis
Lepomis macrochirus
Lepomis megalotis
Lepomis microlophus
Micropterus punctulatus
Micropterus salmoides
Pomoxis annularis
Pomoxis nigromaculatus
Stizostedion vitreum
Percina caprodes
Aplodinotus grunniens
Menidia beryllina

