

FILE

JOB COMPLETION REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-5-R-12

FISHERIES INVESTIGATIONS AND SURVEYS OF THE WATERS OF REGION 1-B

Job No. B-28 Fish Harvest Regulations

Project Leader: James Wilcox

J. Weldon Watson
Executive Director
Parks and Wildlife Department
Austin, Texas

Marion Toole
D-J Coordinator

Eugene Walker
Assistant Director, Wildlife

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ABSTRACT

Current regulations for the Possum Kingdom and Edwards Plateau regulatory areas were reviewed. A summary of the fishery resources and biological findings for each county in Region I-B was presented.

A warden-biologist meeting and public hearings in each of the regulatory counties was attended during the segment to insure practicality, enforceability and public acceptance of the proposed regulations.

Present regulations were found to be uniform, practical and reasonable for the existing game fish supply. However, basic research is needed to determine the effects of specific fishing devices and fishing pressures on game fish populations.

Some means is needed, such as the use of metal or plastic tags, to identify the ownership of trotlines so they will not be abandoned in public lakes.

JOB COMPLETION REPORT

State of Texas

Project No. F-5-R-12

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

Job No. B-28

Title: Fish Harvest Regulations

Period Covered: March 1, 1964 - February 28, 1965

Objective:

To recommend biologically sound and practical fish harvest regulations to the Texas Parks and Wildlife Department.

Procedures:

Fish populations were sampled with standard gill nets and seines, in accordance with job description schedules, except in those special instances noted in the findings. Food habits and indications of reproductive success were recorded for all game fish captured. Water quality data and estimates of fishing pressure were obtained when available. Weather and water conditions were recorded for days when gill nets were used.

A warden-biologist meeting was attended at Kerrville, Texas on May 4, 1964, by Co-Leader Wilcox to discuss the practicality and enforceability of proposed regulations. Public hearings were attended for all regulatory counties in Region I-B by biologists on June 8-10, 1964. Proposed regulations and their justifications were explained to the sparse gatherings present. These transactions were tape-recorded and presented to the Texas Parks and Wildlife Commissioners for their consideration in enacting laws.

Findings:

Region I-B contains a segment of two regulatory areas. Reagan, Midland, Coke, Mitchell, Nolan and Taylor Counties are in the Possum Kingdom regulatory area; Crockett, Schleicher, Menard, Sutton, Val Verde and Edwards Counties are a part of the Edwards Plateau regulatory area.

Fishing regulations for 1964-1965 were as follows:

Possum Kingdom (Proclamation Number G-17)

1.04 Finding of fact.

"After having conducted continuous research and investigations of the supply, environment and other factors of the wildlife resources of the Possum Kingdom Regulatory District, it is found that a sufficiently ample supply of wildlife resources exists in said district to allow such resources to be taken in accordance with the regulations herein set forth."

1.10 Rough fish contracts and management practices.

"The taking or attempting to take any fish or game in the above named counties by any means other than as hereinafter set forth shall be unlawful

except under fish management contracts with the Parks and Wildlife Department for removal of rough fish, as provided in Article 4050c, V.C.S. However, none of this proclamation shall apply to the Parks and Wildlife Department of Texas, its agents or employees when in the course, acts or procedures of conservation, removal of rough fish or other practices deemed by said department to be in the best interest of game and fish culture and the preservation of the sport of hunting and fishing."

7.01 Fish.

"It shall be unlawful to take or possess any fish in greater numbers or at any other time than as permitted in Part 7 of this proclamation. Except on State or Federal wildlife sanctuaries, there is no closed season on fishing."

7.02 Bag and possession limits:

"(a) It shall be unlawful to take more largemouth, smallmouth or spotted black bass of any species in one day than fifteen (15), or to possess more than thirty (30).

"(b) The bag limit on channel, blue and flathead catfish is twenty-five (25) per day and the possession limit is fifty (50). There is no possession limit in Borden, Mitchell, Nolan, Coke, Reagan, Midland and Taylor Counties.

"(c) There is no possession limit on minnows, bream and perch.

"(d) There are no bag or possession limits on white bass or crappie, except that in Borden County the daily bag limit is twenty-five (25) each.

"(e) There are no bag or possession limits on other species of fish."

7.03 Rough fish.

"The following are rough fish: carp, suckers, buffalo, gar, shad, Rio Grande perch and drum (gaspergou)."

7.04 Means and methods.

"Except in Borden County (which is governed by a special law), it is unlawful to take any fish by any means or method except as specifically allowed in this section. Only the following means or methods of taking fish may be used:

"(a) Not more than one hundred (100) hooks altogether which may be used in any combination of the following: Pole and line, rod and reel, artificial and natural baits, hand line, set line or throw line and not more than two (2) trotlines with not more than fifty (50) hooks each; hooks on throw lines and trotlines must be spaced not less than three (3) horizontal feet apart.

"(b) Minnow seines not more than twenty (20) feet in length for taking only minnows, bream, perch or rough fish."
Exception: (not applicable to counties under consideration in this report)

"(c) A common fruit-jar type trap or its metallic counterpart not longer than twenty-four (24) inches with throat no larger than one (1) inch in diameter, dip nets, cast nets or umbrella nets, constructed of non-metallic materials for taking only minnows, bream or perch and rough fish. All other fish must be immediately released in the water from which taken.

"(d) A spear gun and spear or bow and arrows for taking only rough fish, but it shall be unlawful to possess any fish other than a rough fish when using a spear gun and spear or bow and arrow."

Edwards Plateau (proclamation Number A-16)

Parts 1.04, 1.10, 7.01 and 7.03 are the same as the Possum Kingdom Proclamation.

"7.02 Bag and possession limits:

(a) It shall be unlawful to take more largemouth, smallmouth or spotted black bass of any species in any one day than fifteen (15) but there is no possession limit.

(b) The bag limit on channel, blue and flathead catfish is twenty-five (25) and there is no possession limit.

(c) The possession limit on minnows, bream and perch is 200 each, except that there are no limits on minnows taken from Burnet, Menard, Llano and Crockett Counties or from minnow hatcheries."

(d) (not applicable to counties under consideration in this report)

"(e) There are no bag or possession limits on other species of fish.

7.04 Means and methods.

It is unlawful to take any fish by any means or methods except as specifically allowed in this Section. Only the following means or methods of taking fish may be used:

(a) Not more than one hundred (100) hooks altogether which may be used in any combination of the following: pole and line, rod and reel, artificial and natural baits, non-metallic hand line, set line or throw line and not more than two (2) non-metallic trotlines with not more than fifty (50) hooks each; hooks on throw lines and trotlines must be spaced not less than three (3) horizontal feet apart. No trotline may be placed or set in the vicinity of any boat dock, or bathing pier, or bathing beach, or any place commonly used as a swimming or bathing area.

Exception (i):" (not applicable to counties under consideration in this report)

Exception (ii): In the Pecos River in Crockett County there are no restrictions on the number of total hooks which may be employed in total or on any device.

(b) Minnow seines not more than twenty (20) feet in length for taking only minnows, bream, perch or rough fish.

Exception: ' (not applicable)

"(c) A common fruit jar type trap or its metallic counterpart no longer than twenty-four (24) inches with throat no larger than one (1) inch in diameter, dip nets, cast nets or umbrella nets, constructed of non-metallic materials for taking only minnows, bream or perch and rough fish (all other fish must be immediately released in the water from which taken).

(d) A spear gun and spear or bow and arrows for taking only rough fish, but it shall be unlawful to possess any fish other than a rough fish when using a

spear gun and spear or bow and arrow.

(e) A wire loop for taking rough fish, but when using a wire loop, one may not possess any crappie, bass or catfish."

(f) (not applicable)

A summary of the biological findings for each of the 12 regulatory counties is presented below. Only general comments, instead of factual records, were available concerning the degree of utilization of fishery resources. Limited water quality data exists and those data examined did not appear to contain any adverse or unusual situations except in the case of the Pecos River in Crockett County. This special situation is discussed in the biological findings for that county. Since a summation of available water quality data for the entire region is presented in Job D-2 for this segment, no records are included in this report.

No definite indications of reproductive deficiency were encountered, and since ample hatchery fish are usually available to meet any suspected deficiencies, the voluminous sexual maturity records obtained under this job are not included.

Common food items, such as shad, minnows and insects were found in the stomachs of the game fish opened. Since these data do not appear to have any special bearing on the formation or evaluation of fishing regulations they are omitted.

Field records on sexual development and stomach contents will be retained for future reference.

Reagan County-The only public water is Big Lake, which was dry during the first part of the year. In September 1964, the lake filled up. While full, the deepest water was only 4 feet. Large populations of copepodan and malacostracan crustaceans were soon established. Since no fish were captured in 6 netting and 3 seining collections, the lake was stocked with largemouth bass fingerlings. However, by the end of the segment the lake was again very low.

Because Big Lake is very unstable and no other public fishing waters exist, fishing regulations for Reagan County should continue to be the same as the rest of the regulatory district.

Midland County-No public waters exist in this county. The practical policy for Midland County is to make the fishing regulations conform to the regulatory counties near it. If all restrictions were lifted a special case would result which might lead to confusion and law enforcement difficulties in nearby counties.

Coke County-The Colorado River, Mountain Creek Reservoir, Oak Creek Reservoir and Old Robert Lee Lake are the public waters existing in Coke County. No time was spent sampling the Old Robert Lee Lake because it is small, has light fishing pressure and would not be important enough to influence regulations for the entire county even if an unusual fishery situation were discovered. The data shown in Tables 1,2,3 and 4 were gathered during the year under this job and Job D-2 as a basis for altering or supporting existing regulations.

Table 1. Results of Three Standard Nets Set in the Colorado River in Coke County on August 21, 1964.

Water temperature	79°F.	Precipitation	.12
General turbidity	3 inches	Relative humidity	20%-63%
Air temperature	79°-104°F.	Barometric pressure	27.69-27.81 inches
Wind speed & direction	13.9 mph., S.S.West	Moon phase	first $\frac{1}{2}$ + 7 days
Cloud cover	80%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	12	12.37	23.87	1.99	23.54	.42
Gizzard shad	19	19.58	17.07	.90	16.85	1.89
Carp	1	1.03	6.50	6.50	6.41	2.43
River carpsucker	34	35.06	18.37	.54	18.12	2.07
Channel catfish	17	17.52	8.60	.50	8.49	1.52
Flathead catfish	7	7.22	25.00	3.57	24.66	1.85
Bluegill	1	1.03	.20	.20	.20	3.77
Longear sunfish	5	5.15	.38	.08	.37	3.84
Freshwater drum	1	1.04	1.37	1.37	1.36	2.70
Totals	97	100.00	101.36		100.00	

Table 2. Results of Eight Seining Collections From the Colorado River in Coke County on August 20, 1964.
 (One collection with a 100-foot straight seine, 10 feet deep with 1-inch mesh) (seven collections with a 10-foot common seine, 4 feet deep with 1/8-inch mesh)

Species	Number	Size Range in Inches
Longnose gar	17	16-28
Gizzard shad	30	2-14
Stoneroller	96	$\frac{1}{2}$ -2 $\frac{1}{2}$
Red shiner	91	$\frac{1}{2}$ -1 $\frac{1}{2}$
River carpsucker	58	2-11
Channel catfish	12	1 $\frac{1}{2}$ -8
Mosquitofish	11	$\frac{1}{2}$ -1
Bluegill	3	2-3
Longear sunfish	33	1-4
Total	351	

Table 3. Results of 11 Standard Nets Set in Mountain Creek Reservoir on July 9 and September 17, 1964.

July 9, 1964

Water temperature	73%	Precipitation	None
General turbidity	36 inches	Relative humidity	15%-64%
Air temperature	77°-103°F.	Barometric pressure	29.80-29.98 inches
Wind speed & direction	8mph. S.S.West	Moon phase	New
Cloud cover	15%		

September 17, 1964

Water temperature	73°F.	Precipitation	.23 inches
General turbidity	24 inches	Relative humidity	29%-87%
Air temperature	63°-87°F.	Barometric pressure	27.92-28.05 inches
Wind speed & direction	2.2 mph, S.S.East	Moon phase	First $\frac{1}{4}$ + 4 days
Cloud cover	90%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Golden shiner	3	.83	.59	.20	1.17	2.00
Black bullhead	2	.55	1.62	.81	3.22	2.46
Warmouth	8	2.22	1.63	.20	3.25	3.87
Green sunfish	4	1.11	.73	.18	1.45	2.96
Orangespotted sunfish	4	1.10	.31	.08	.62	3.50
Bluegill	258	71.47	25.51	.10	50.77	3.47
Redear sunfish	1	.28	.68	.68	1.36	4.10
Largemouth bass	6	1.66	7.87	1.31	15.66	2.50
White crappie	75	20.78	11.30	.15	22.50	2.26
Totals	361	100.00	50.24		100.00	

Table 4. Results of 19 Standard Nets Set in Oak Creek Reservoir on March 27 and September 16, 1964.

March 27, 1964

Water temperature	57°F.	Precipitation	None
General turbidity	18 inches	Relative humidity	11%-59%
Air temperature	53°-81°F.	Barometric pressure	27.80-27.91 inches
Wind speed & direction	10 mph., N.N.East	Moon phase	Full
Cloud cover	80%		

September 16, 1964

Water temperature	74°F.	Precipitation	None
General turbidity	18 inches	Relative humidity	42%-84%
Air temperature	68°-93°F.	Barometric pressure	27.83-28.02 inches
Wind speed & direction	10.2 mph., North	Moon phase	First $\frac{1}{4}$ + 3 days
Cloud cover	70%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	337	52.00	63.93	.19	11.98	1.76
Carp	141	21.76	209.55	1.49	39.27	2.83
Golden shiner	1	.15	.19	.19	.04	1.76
River carpsucker	62	9.57	67.62	1.09	12.67	2.51
Black bullhead	3	.47	1.85	.62	.35	2.30
Channel catfish	11	1.69	18.55	1.69	3.47	1.71
Flathead catfish	19	2.94	114.12	6.01	21.39	2.20
White bass	1	.15	1.00	1.00	.19	3.18
Warmouth	3	.46	.90	.30	.17	3.50
Green sunfish	1	.16	.15	.15	.03	4.78
Bluegill	16	2.47	2.88	.18	.54	3.59
Largemouth bass	17	2.62	24.74	1.46	4.63	2.47
White crappie	36	5.56	28.08	.78	5.27	2.88
Totals	648	100.00	533.56		100.00	

In view of the foregoing findings the bag limit on largemouth bass and channel catfish seems reasonable and biologically justified. The 100-hook limit on trotlines provides the fisherman ample opportunity to capture his bag limit and at the same time prevents an excessive "lacing" of the lakes with trotlines which might be obstructive to other fishing activities. Certainly no limit on sunfish, crappie or white bass is needed in this area where excessive numbers of these fish usually occur.

Mitchell County-Lake Colorado City and Champion Creek Reservoir are both highly utilized public fishing waters in Mitchell County. The following fish population data were obtained from these lakes (Tables 5, 6 and 7).

Table 5. Results of 18 Standard Nets Set in Lake Colorado City on May 28 and September 23, 1964.

May 28, 1964

Water temperature	73°F.	Precipitation	None
General turbidity	28 inches	Relative humidity	34%-84%
Air temperature	66°F.-95°F.	Barometric pressure	27.82-28.03 inches
Wind speed & direction	11.2 mph., North	Moon phase	Full + 2 days
Cloud cover	80%		

September 23, 1964

Water temperature	72°F.	Precipitation	.23 inches
General turbidity	24 inches	Relative humidity	74%-90%
Air temperature	68°-79°F.	Barometric pressure	28.00-28.09 inches
Wind speed & direction	4.5 mph., North	Moon phase	Full + 2 days
Cloud cover	100%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	34	12.78	5.20	.16	1.27	1.52
Carp	17	6.39	47.29	2.78	11.63	2.30
River carpsucker	84	31.58	106.79	1.27	26.26	2.33
Channel catfish	47	17.67	59.03	1.26	14.51	1.45
Flathead catfish	21	7.89	126.32	6.02	31.06	1.98
White bass	5	1.88	7.03	1.41	1.73	3.04
Bluegill	2	.75	.16	.08	.04	3.58
Redear sunfish	1	.38	.06	.06	.02	2.90
Largemouth bass	31	11.65	38.86	1.25	9.55	2.45
White crappie	24	9.03	15.96	.67	3.93	2.61
Totals	266	100.00	406.70		100.00	

Table 6. Results of Eight Seining Collections from Lake Colorado City on May 29, 1964.
(two collections with a 200-foot straight seine, 10 feet deep with 1-inch mesh)
(six collections with a 30-foot straight seine, 6 feet deep with 1/8-inch mesh)

Species	Number	Size Range in Inches
Gizzard shad	115	5-9
Carp	2	12
Red shiner	4	2-3
Blacktail shiner	51	2-4
Bullhead minnow	3	2-3
River carpsucker	2	10-12
Channel catfish	56	2-20
Bluegill	87	2-4
Redear sunfish	4	4-6
Largemouth bass	4	2-10
White crappie	3	1-7
Logperch	1	3
Total	332	

Table 7. Results of 12 Standard Nets Set in Champion Creek Reservoir on March 25 and September 10, 1964.

March 25, 1964

Water temperature	63°F.	Precipitation	None
General turbidity	50 inches	Relative humidity	17%-80%
Air temperature	46°-73°F.	Barometric pressure	27.71-28.10 inches
Wind speed & direction	11 mph., North	Moon phase	First $\frac{1}{4}$ + 5 days
Cloud cover	0%		

September 10, 1964

Water temperature	72°F.	Precipitation	None
General turbidity	12 feet	Relative humidity	30%-71%
Air temperature	74°-98°F.	Barometric pressure	27.88-28.00 inches
Wind speed & direction	6.9 mph., South	Moon phase	New + 5 days
Cloud cover	20%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Carp	1	.21	3.37	3.37	1.36	2.48
Golden shiner	251	54.93	41.24	.16	16.68	1.97
Black bullhead	79	17.28	115.93	1.47	46.89	2.54
Channel catfish	7	1.54	26.25	3.75	10.62	1.85
White bass	1	.21	1.25	1.25	.50	3.12
Warmouth	2	.44	.70	.35	.28	3.98
Green sunfish	17	3.72	4.64	.27	1.88	3.27
Bluegill	31	6.79	7.43	.24	3.01	4.01
Largemouth bass	28	6.12	33.75	1.21	13.65	2.32
White crappie	40	8.76	12.68	.32	5.13	2.61
Totals	457	100.00	247.24		100.00	

The Colorado River also runs through Mitchell County, but public access is limited (Table 8).

Table 8. Results of Six Seining Collections from the Colorado River in Mitchell County on August 21, 1964.
(three collections with a 30-foot straight seine, 6 feet deep with $\frac{1}{4}$ -inch mesh)
(three collections with a 10-foot common sense seine, 4 feet deep with $\frac{1}{8}$ -inch mesh)

Species	Number	Size Range in Inches
Red shiner	3,921	$1\frac{1}{2}$ -3
River carpsucker	2	3
Longear sunfish	4	2-3
Total	3,927	

Large populations of largemouth bass have been maintained in both major lakes under the present regulations. The fact that flathead catfish are numerous in Lake Colorado City could be partially responsible for the lake not being taken over by rough fish and stunted game fish as is often the case with older lakes. However, a daily bag limit of 25 catfish is apparently adequate.

Commercial exploitation of the minnow resources in the Colorado River, even with a 20-foot minnow seine, would be possible if more access were available. However, since landowners actually control the extent to which these minnows are utilized, rather than the restrictions imposed by regulatory laws, the regulations should be left as they are, conforming to nearby counties.

Nolan County-Lakes Sweetwater and Trammell are open to the public. Santa Fe Club Lake is also available for all fishermen at 25 cents per day. However, it was dry during most of the year (Tables 9, 10 and 11).

Table 9. Results of 16 Standard Nets Set in Lake Sweetwater on May 7, July 10 and September 11, 1964.

May 7, 1964

Water temperature	69°F.	Precipitation	None
General turbidity	24 inches	Relative humidity	36%-76%
Air temperature	74°-96°F.	Barometric pressure	27.70-27.90 inches
Wind speed & direction	18.8mph., N.N.East	Moon phase	Last $\frac{1}{4}$ + 3 days
Cloud cover	90%		

July 10, 1964

Water temperature	73°F.	Precipitation	None
General turbidity	36 inches	Relative humidity	15%-64%
Air temperature	75°-105°F.	Barometric pressure	27.90-28.01 inches
Wind speed & direction	10.6 mph., South	Moon phase	New + 1 day
Cloud cover	10%		

September 11, 1964

Water temperature	71°F.	Precipitation	None
General turbidity	28 inches	Relative humidity	35%-66%
Air temperature	72°-95°F.	Barometric pressure	27.94-28.05 inches
Wind speed & direction	8.1 mph., North	Moon phase	New + 6 days
Cloud cover	50%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Golden shiner	11	.80	3.20	.29	.55	2.11
River carpsucker	1	.08	1.87	1.87	.33	2.81
Black bullhead	195	14.32	149.62	.77	26.08	2.66
Channel catfish	67	4.93	254.34	3.80	44.32	2.05
Flathead catfish	7	.51	31.95	4.56	5.57	1.68
Warmouth	2	.15	.38	.19	.07	3.40
Green sunfish	1	.07	.21	.21	.03	4.98
Bluegill	972	71.42	92.17	.09	16.07	3.56
Longear sunfish	4	.29	.37	.09	.06	4.62
Redear sunfish	1	.08	.10	.10	.02	3.42
Largemouth bass	9	.66	22.14	2.46	3.86	2.22
White crappie	91	6.69	17.42	.19	3.04	2.46
Totals	1,361	100.00	573.77		100.00	

Table 10. Results of Six Standard Nets Set in Lake Trammell on September 15, 1964.

Water temperature	74°F.	Precipitation	None
General turbidity	20 inches	Relative humidity	52%-78%
Air temperature	65°-87°F.	Barometric pressure	27.83-27.94 inches
Wind speed & direction	9.9 mph. South	Moon phase	First $\frac{1}{4}$ + 2 days
Cloud cover	80%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
River carpsucker	4	3.03	8.62	2.15	6.99	2.50
Black bullhead	29	21.97	20.17	.70	16.38	2.35
Channel catfish	9	6.81	18.84	2.09	15.30	1.71
Flathead catfish	7	5.31	25.56	3.65	20.75	1.82
Bluegill	23	17.42	2.09	.09	1.69	3.83
Redear sunfish	17	12.88	3.51	.21	21.85	3.83
Largemouth bass	17	12.88	40.53	2.38	32.91	2.82
White crappie	26	19.70	3.85	.15	3.13	2.63
Totals	132	100.00	123.17		100.00	

Table 11. Results of Two Seining Collections from Lake Trammell on September 15, 1964.

(two collections with a 30-foot straight seine, 6 feet deep with $\frac{1}{2}$ -inch mesh)

Species	Number	Size Range in Inches
Red shiner	3	2
Bluegill	450	$\frac{1}{2}$ -5
Redear sunfish	51	4-7
Largemouth bass	1	6
Logperch	3	3-5
Total	508	

The city of Sweetwater prohibits the use of trotlines by municipal ordinance. This restriction might be partially responsible for the high percentage of catfish in these lakes. However, this resource could probably be reasonably conserved and at the same time more heavily utilized. The continuance of the more lenient State regulations might eventually influence the city to liberalize its hook limit policy.

These lakes are examples of waters which need heavier fishing pressure on their sunfish and crappie populations. The no-possession-limit regulation on these species is appropriate.

Taylor County-Lakes Abilene and Kirby are owned by the city of Abilene and are open to the public. Lake Kirby was not sampled as planned in the job description for this segment. Lake personnel opposed the use of nets while their fishermen were fishing. Since the State laws are supplemented by municipal ordinance at this lake it was decided the work was not vital enough to reschedule. The results of netting and seining at Lake Abilene are presented below.

Table 12. Results of 12 Standard Nets Set in Lake Abilene on May 21 and September 18, 1964.

May 21, 1964

Water temperature	72°F.	Precipitation	None
Water temperature	8 inches	Relative humidity	44%-81%
Air temperature	63°-86°F.	Barometric pressure	28.01-28.14 inches
Wind speed & direction	8.7 mph., S.East	Moon phase	First $\frac{1}{4}$ + 3 days
Cloud cover	60%		

September 18, 1964

Water temperature	74°F.	Precipitation	None
General turbidity	8 inches	Relative humidity	21%-87%
Air temperature	69°-95°F.	Barometric pressure	27.83-27.96 inches
Wind speed & direction	9.7 mph., S.S.West	Moon phase	First $\frac{1}{4}$ + 5 days
Cloud cover	30%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	25	4.96	3.70	.15	.71	1.90
Carp	192	38.09	239.45	1.25	46.22	2.35
River carpsucker	124	24.60	179.77	1.45	34.70	2.58
Channel catfish	59	11.71	65.75	1.11	12.69	1.62
Flathead catfish	1	.20	3.18	3.18	.62	2.08
Warmouth	1	.20	.11	.11	.02	3.12
Green sunfish	1	.20	.11	.11	.02	3.50
Bluegill	27	5.35	1.62	.06	.31	3.47
Longear sunfish	1	.20	.05	.05	.01	3.42
Largemouth bass	26	5.16	19.14	.74	3.70	2.32
White crappie	47	9.33	5.17	.11	1.00	2.26
Totals	504	100.00	518.05		100.00	

Table 13. Results of Eight Seining Collections from Lake Abilene on May 22 and September 18, 1964.
 (three collections with a 200-foot straight seine, 10 feet deep with 1-inch mesh)
 (one collection with a 100-foot straight seine, 8 feet deep with $\frac{1}{2}$ -inch mesh)
 (four collections with a 30-foot straight seine, 6 feet deep with $\frac{1}{4}$ -inch mesh)

Species	Number	Size Range in Inches
Gizzard shad	352	1-10
Carp	7	10-12
Golden shiner	2	3
Red shiner	9	1-2
Bullhead minnow	1	2
Mosquitofish	1	2 $\frac{1}{2}$
Bluegill	28	3/4-4
Longear sunfish	7	1-3
Redear sunfish	11	2-3
Largemouth bass	9	1-16
White crappie	34	2-6
Logperch	1	3
<hr/>		
Total	462	

Present regulations seem adequate for the existing fishery resources. A heavy harvest of sunfish and crappie should be encouraged.

Crockett County-The Pecos River is the only public water in the county. Public access is limited (Table 14).

Table 14. Results of Two Standard Nets Set in the Pecos River in Crockett County on November 10, 1964.

Water temperature	64°F.	Precipitation	None
General turbidity	28 inches	Relative humidity	46%-92%
Air temperature	58°-81°F.	Barometric pressure	27.85-28.01 inches
Wind speed & direction	13.3 mph., South	Moon phase	New + 6 days
Cloud cover	40%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gizzard shad	22	68.75	26.30	1.20	64.17	2.21
Carp	1	3.12	3.62	3.62	8.84	2.41
River carpsucker	5	15.63	4.26	.85	10.39	2.25
Blue sucker	1	3.12	5.25	5.25	12.81	1.55
Gray redhorse	1	3.13	1.12	1.12	2.74	1.98
Channel catfish	1	3.12	.35	.35	.85	1.52
Bluegill	1	3.13	.08	.08	.20	3.40
Totals	32	100.00	40.98		100.00	

There appears to be few desirable sport fish to protect in this area of the Pecos River. Water quality is probably responsible. Chlorides have been known to range above 7,000 ppm at the Girvin sampling station, some 25 miles above the area where the netting collections were obtained. Seining was prohibited by heavy growths of aquatic vegetation so that smaller fish were not sampled.

Exception (ii) under part 7.04 of the proclamation, which sets out a no-hook limit, exists so that the Pecos River will not be split down the middle by conflicting regulations. This leniency is not believed responsible for the lack of game fish, but as discussed, poor water quality is probably more to blame.

Regulations should be left to conform to adjoining counties along the river, such as Pecos and Terrell, in order to prevent confusion and misinterpretation of the laws.

Schleicher County-The San Saba River is the only public water in the county. Seining was attempted but no fish were captured because of profuse aquatic vegetation.

The 200 possession limit on "minnows, bream and perch" may be desirable in this county where only the spring-fed headwaters of the stream exist. Darters and red-breast sunfish are known to inhabit these areas. These species are not bait fish and should not be used as such.

Menard County-The San Saba River is also the only public water in Menard County. However, the stream bed is wider and the water is less intermittent than in Schleicher County (Tables 15 and 16).

Table 15. Results of Eight Standard Nets Set in the San Saba River in Menard County on November 25, 1964.

Water temperature	53°F.	Precipitation	None
General turbidity	14 inches	Relative humidity	22%-76%
Air temperature	34°-75°F.	Barometric pressure	27.75-28.00 inches
Wind speed & direction	8.8 mph., S.West	Moon phase	full + 6 days
Cloud cover	00%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	94	24.93	234.50	2.49	37.22	.41
Gizzard shad	116	30.77	56.84	.49	9.03	1.91
River carpsucker	92	24.40	166.62	1.81	26.45	2.60
Smallmouth buffalo	28	7.43	127.75	4.56	20.28	3.17
Gray redhorse	4	1.06	5.76	1.44	.92	2.32
Channel catfish	4	1.06	10.06	2.52	1.59	1.72
Flathead catfish	2	.53	5.18	2.59	.83	1.82
Warmouth	1	.27	.09	.09	.01	3.16
Bluegill	3	.79	.26	.09	.04	3.38
White crappie	31	8.22	17.20	.55	2.73	2.83
Freshwater drum	2	.54	5.62	2.81	.90	2.61
Totals	377	100.00	629.88		100.00	

Table 16. Results of Six Seining Collections from the San Saba River in Menard County on November 24-25, 1964.
 (two collections with a 30-foot straight seine, 6 feet deep with 1/4-inch mesh)
 (four collections with a 10-foot common sense seine, 4 feet deep with 1/8-inch mesh)

Species	Number	Size Range in Inches
Blacktail shiner	101	1½-2½
Mosquitofish	6	1½-2
Redbreast sunfish	2	3-5
Green sunfish	2	3-4
Bluegill	8	2-4
Largemouth bass	2	5-8
White crappie	1	5
Greenthroat darter	1	2
Total	123	

No possession limit on minnows is needed in Menard County where the river is wider and less apt to be affected by the use of a 20-foot minnow seine. The taking of "bream and perch" in this area should be encouraged since bluegill and green sunfish are prevalent.

Sutton County-The upper reaches of the North Llano River and the Devil's River occur in this county. These streams are usually dry or intermittent and provide little public usage. No fish population sampling was done in this county. The regulations should be left as they are in order to conform to nearby regulatory counties.

Val Verde County-Lake Walk, Devil's Lake, and the Devil's, Pecos and Rio Grande Rivers are all public waters within Val Verde County. No exceptions or special restrictions on bag or possession limits or means and methods are imposed. Because the laws on all these waters are uniform, the fisherman is not as apt to violate the regulations through ignorance and is encouraged to utilize the resources.

Eighteen netting collections, rather than twenty-four as specified in the job description, were obtained from Lake Walk and Devils Lake. Netting samples of 681 fish and 905 fish, respectively, were considered adequate (Tables 17, 18, 19, 20 and 21).

Table 17. Results of 18 Standard Nets Set in Lake Walk on May 1 and October 14, 1964.

May 1, 1964

Water temperature	73°F.	Precipitation	None
General turbidity	60 inches	Relative humidity	11%-93%
Air temperature	62°-88°F.	Barometric pressure	27.68-27.77 inches
Wind speed & direction	11.7 mph., W.N.West	Moon phase	Full + 5 days
Cloud cover	30%		

October 14, 1964

Water temperature	67°F.	Precipitation	None
General turbidity	50 inches	Relative humidity	27%-80%
Air temperature	45°-79°F.	Barometric pressure	28.05-28.18 inches
Wind speed & direction	1.2 mph., S.S.West	Moon phase	First $\frac{1}{4}$ + 1 day
Cloud cover	00%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Spotted gar	3	.44	1.55	.52	.16	.55
Longnose gar	32	4.69	58.71	1.83	6.17	.39
Gizzard shad	144	21.15	78.73	.55	8.28	2.25
Carp	19	2.79	195.81	10.30	20.60	2.48
River carpsucker	137	20.12	283.62	2.07	29.82	2.69
Gray redhorse	4	.58	6.42	1.60	.68	2.10
Channel catfish	46	6.76	50.80	1.10	5.34	1.79
Flathead catfish	16	2.35	61.14	3.82	6.43	1.93
White bass	35	5.14	29.01	.83	3.05	2.66
Warmouth	3	.44	.32	.10	.04	3.31
Redbreast sunfish	2	.29	.50	.25	.05	3.52
Bluegill	21	3.09	3.29	.16	.35	3.76
Redear sunfish	2	.29	.87	.43	.09	3.70
Largemouth bass	4	.59	1.03	.26	.11	2.16
White crappie	32	4.70	14.58	.46	1.53	2.59
Freshwater drum	179	26.28	163.16	.91	17.16	2.57
Rio Grande perch	2	.30	1.30	.65	.14	4.74
Totals	681	100.00	950.84		100.00	

Table 18. Results of 18 Standard Nets Set in Devils Lake on April 28 and October 16, 1964.

April 28, 1964

Water temperature	73°F.	Precipitation	None
General turbidity	18 inches	Relative humidity	20%-71%
Air temperature	53°-79°F.	Barometric pressure	27.73-27.99 inches
Wind speed & direction	9.7 mph., N.East	Moon phase	Full + 2 days
Cloud cover	30%		

October 16, 1964

Water temperature	71°F.	Precipitation	None
General turbidity	16 inches	Relative humidity	27%-74%
Air temperature	52°-88°F.	Barometric pressure	27.85-27.98 inches
Wind speed & direction	7.6 mph., S.S.West	Moon phase	First $\frac{1}{4}$ + 3 days
Cloud cover	00%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Spotted gar	16	1.76	11.19	.70	1.04	2.54
Longnose gar	24	2.65	26.46	1.10	2.46	3.33
Gizzard shad	192	21.22	71.75	.37	6.67	1.89
Carp	13	1.44	150.69	11.59	14.01	2.72
River carpsucker	152	16.79	161.66	1.06	15.04	2.59
Gray redhorse	25	2.76	30.07	1.20	2.79	1.98
Channel catfish	31	3.43	34.14	1.10	3.18	1.83
Flathead catfish	11	1.22	47.57	4.32	4.42	2.00
White bass	7	.77	6.95	.99	.65	2.55
Warmouth	8	.88	1.73	.22	.16	3.33
Redbreast sunfish	12	1.33	4.07	.34	.38	3.37
Bluegill	31	3.42	5.91	.19	.55	3.72
Redear sunfish	5	.56	1.79	.36	.17	3.62
Largemouth bass	10	1.10	4.07	.41	.37	1.93
White crappie	40	4.42	12.03	.30	1.12	2.53
Freshwater drum	323	35.69	502.74	1.56	46.76	2.94
Rio Grande perch	5	.56	2.44	.49	.23	4.71
Totals	905	100.00	1,075.26		100.00	

Table 19. Results of Eight Seining Collections from Devil's Lake on April 29, 1965.
 (one collection with a 200-foot straight seine, 10 feet deep with 1-inch mesh)
 (one collection with a 100-foot straight seine, 8 feet deep with ½-inch mesh)
 (four collections with a 30-foot straight seine, 6 feet deep with ¼-inch mesh)
 (two collections with a 10-foot common sense seine, 4 feet deep with 1/8-inch mesh)

Species	Number	Size Range in Inches
Gizzard shad	17	6-10
Roundnose minnow	2	2½-3
Sand shiner	11	1½-2
Blacktail shiner	21	1-3
Bullhead minnow	2	3
River carpsucker	13	4-8
Channel catfish	1	12
White bass	9	1
Redbreast sunfish	17	3-10
Bluegill	19	1-7
Longear sunfish	3	6
Largemouth bass	8	1-11
White crappie	1	5
Freshwater drum	2	12
Rio Grande perch	6	7-11
Total	132	

Table 20. Results of Seven Standard Nets Set in the Devil's River in Val Verde County on July 15, 1964.

Water temperature	78°F.	Precipitation	None
General turbidity	36 inches	Relative humidity	21%-69%
Air temperature	76°-100°F.	Barometric pressure	27.88-28.01 inches
Wind speed & direction	12 mph., South	Moon phase	New + 6 days
Cloud cover	0 %		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	29	19.86	33.17	1.14	14.06	.27
Gizzard shad	31	21.23	50.82	1.64	21.55	2.04
River carpsucker	46	31.51	86.59	1.88	36.72	2.55
Gray redhorse	8	5.48	13.81	1.72	5.86	1.84
Channel catfish	20	13.70	29.62	1.48	12.56	1.62
Flathead catfish	5	3.42	19.25	3.85	8.16	1.73
Warmouth	2	1.37	.46	.23	.20	3.22
Redbreast sunfish	1	.69	.91	.91	.38	4.10
Bluegill	3	2.05	.68	.23	.29	3.70
Rio Grande perch	1	.69	.50	.50	.22	5.10
Totals	146	100.00	235.81		100.00	

Table 21. Results of Six Seining Collections from the Devil's River in Val Verde County on July 16, 1964.

(six collections with a 20-foot straight seine, 6 feet deep with ¼-inch mesh)

Species	Number	Size Range in Inches
Mexican tetra	820	2-3
Blacktail shiner	415	1½-2½
River carpsucker	32	2-12
Gray redhorse	24	3½-9
Channel catfish	5	7
Pupfish	522	1-2
Redbreast sunfish	10	4-6
Bluegill	7	2-4
Largemouth bass	57	3-5
Total	1,892	

The Pecos and Rio Grande River data were combined because part of the nets were set in the confluence of the two streams and the fish populations interchange. Swiftly flowing water, covering much of the shoreline vegetation, made seining impossible during the time these rivers were netted. (Table 22).

Table 22. Results of 11 Standard Nets Set in the confluence of the Pecos and Rio Grande Rivers in Val Verde County on November 11-13, 1964.

November 11, 1964.

Water temperature	61°F.	Precipitation	None
General turbidity	16 inches	Relative humidity	39%-87%
Air temperature	62°-80°F.	Barometric pressure	27.73-27.89 inches
Wind speed & direction	12.1 mph., South	Moon phase	New + 7 days
Cloud cover	60%		

November 12, 1964

Water temperature	60°F.	Precipitation	None
General turbidity	18 inches	Relative humidity	15%-78%
Air temperature	45°-76°F.	Barometric pressure	27.92-28.00 inches
Wind speed & direction	3.7 mph., W.N.West	Moon phase	First $\frac{1}{4}$
Cloud cover	00%		

November 13, 1964

Water temperature	60°F.	Precipitation	None
General turbidity	18 inches	Relative humidity	27%-81%
Air temperature	42°-83°F.	Barometric pressure	27.88-28.03 inches
Wind speed & direction	9.7 mph. South	Moon phase	First $\frac{1}{4}$ + 1 day
Cloud cover	00%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	83	40.09	111.42	1.34	19.56	.38
Alligator gar	2	.97	46.18	23.09	8.15	.82
Gizzard shad	26	12.56	25.46	.98	4.49	2.32
River carpsucker	10	4.83	15.48	1.55	2.74	2.78
Blue sucker	4	1.93	17.00	4.25	3.00	1.50
Smallmouth buffalo	26	12.56	221.68	8.53	39.12	3.17
Gray redhorse	3	1.45	5.12	1.71	.90	2.21
Blue catfish	8	3.87	51.62	6.45	9.11	1.83
Channel catfish	3	1.45	4.31	1.44	.77	1.86
Flathead catfish	4	1.93	27.06	6.76	4.77	1.92
Bluegill	10	4.83	1.39	.14	.25	3.05
Largemouth bass	4	1.93	2.10	.53	.37	2.33
Freshwater drum	23	11.11	37.48	1.63	6.61	2.58
Rio Grande perch	1	.49	.30	.30	.06	4.75
Totals	207	100.00	566.60		100.00	

The diversity of the fish populations and the varied aquatic habitats in Val Verde County creates a need for lenient fishing regulations. The non-restrictive regulations now in effect seem to complement the fishery, therefore, no changes are recommended.

Edwards County-The South Llano River and East and West Nueces Rivers are the only public waters. Since seining was difficult in the South Llano, netting was substituted (Tables 23, 24, 25, 26 & 27).

Table 23. Results of Ten Standard Nets Set in the South Llano River in Edwards County on June 8 and July 19-20, 1964.

June 8, 1964

Water temperature	79°F.	Precipitation	None
General turbidity	20 inches	Relative humidity	24%-74%
Air temperature	74°-102°F.	Barometric pressure	27.59-27.70 inches
Wind speed & direction	19.5 mph., S.S.East	Moon phase	Last ¼ + 5 days
Cloud cover	0 %		

July 19, 1964

Water temperature	85°F.	Precipitation	None
General turbidity	28 inches	Relative humidity	31%-74%
Air temperature	70°-97°F.	Barometric pressure	27.96-28.09 inches
Wind speed & direction	8.2 mph., S.S.East	Moon phase	First ¼ + 3 days
Cloud cover	50%		

July 20, 1964

Water temperature	85°F.	Precipitation	None
General turbidity	28 inches	Relative humidity	34%-76%
Air temperature	72°-97°F.	Barometric pressure	27.93-28.06 inches
Wind speed & direction	9.2 mph., South	Moon phase	First ¼ + 4 days
Cloud cover	60%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Longnose gar	2	.80	4.06	2.03	1.52	.43
Gizzard shad	64	25.92	22.85	.36	8.60	1.62
Carp	7	2.83	27.56	3.94	10.38	2.08
River carpsucker	128	51.82	141.73	1.11	53.35	2.08
Gray redhorse	17	6.88	26.03	1.53	9.80	2.29
Channel catfish	7	2.84	12.74	1.82	4.80	1.60
Flathead catfish	1	.40	10.00	10.00	3.76	1.53
Bluegill	12	4.86	.85	.07	.32	3.30
Longear sunfish	1	.41	.09	.09	.03	3.40
Largemouth bass	4	1.62	2.82	.71	1.07	2.29
Freshwater drum	4	1.62	16.92	4.23	6.37	2.41
Totals	247	100.00	265.65		100.00	

Table 24. Results of One Standard Net Set in the East Nueces River in Edwards County on June 11, 1964.

Water temperature	78°F.	Precipitation	.01 inche
General turbidity	40 inches	Relative humidity	39%-82%
Air temperature	73°-93°F.	Barometric pressure	27.70-27.95 inches
Wind speed & direction	15.4 mph., S.S.East	Moon phase	New + 2 days
Cloud cover	100%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gray redborse	2	16.66	4.87	2.43	74.92	1.71
Yellow bullhead	4	33.34	.63	.16	9.69	1.87
Bluegill	2	16.66	.12	.06	1.84	2.77
Longear sunfish	2	16.67	.16	.08	2.46	2.67
Largemouth bass	2	16.67	.72	.36	11.07	1.70
Totals	12	100.00	6.50		100.00	

Table 25. Results of Two Seining Collections from the East Nueces River in Edwards County on June 9, 1964.

(two collections with a 30-foot straight seine, 6 feet deep with ¼-inch mesh)

Species	Number	Size Range in Inches
Mexican tetra	5	2-3
Roundnose minnow	35	1½-2½
Texas shiner	36	1½-2½
Channel catfish	1	17
Mosquitofish	6	1-1½
Bluegill	3	3-5
Total	86	

Table 26. Results of Four Standard Nets Set in the West Nueces River in Edwards County on June 11-12, 1964.

June 11, 1964 - weather data given on Table 23.

June 12, 1964

Water temperature	79°F.	Precipitation	None
General turbidity	34 inches	Relative humidity	34%-79%
Air temperature	75°-96°F.	Barometric pressure	27.81-27.94 inches
Wind speed & direction	13.8 mph., S.S. East	Moon phase	New + 3 days
Cloud cover	80%		

Species	Number	Per Cent by No.	Total Wt. Pounds	Avg. Wt. Pounds	Per Cent by Wt.	Average "K"
Gray redhorse	20	35.71	30.03	1.50	47.26	1.73
Yellow bullhead	21	37.50	9.08	.43	14.29	1.93
Channel catfish	5	8.93	15.00	3.00	23.60	1.52
Green sunfish	3	5.36	.79	.26	1.25	2.90
Bluegill	1	1.78	.07	.07	.11	2.68
Largemouth bass	6	10.72	8.57	1.43	13.49	1.85
Totals	56	100.00	63.54		100.00	

Table 27. Results of Six Seining Collections from the West Nueces River in Edwards County on June 12, 1964.
 (two collections with a 30-foot straight seine, 6 feet deep with 1/2-inch mesh)
 (four collections with a 10-foot common sense seine, 4 feet with 1/8-inch mesh)

Species	Number	Size Range in Inches
Mexican tetra	31	1-3
Roundnose minnow	151	1-2½
Texas shiner	295	1-2½
Blacktail shiner	127	2-4
Channel catfish	1	9
Mosquitofish	68	1-2
Bluegill	49	2-5
Longear sunfish	5	3-5
Largemouth bass	28	1-14
Guadalupe bass	5	6-8
Orangethroat darter	2	1½-2
Rio Grande perch	31	4-11
Total	793	

A two-hook limit on the East Fork of the Nueces River was removed recently. This makes the fishing regulations for all Edwards County waters uniform. The beds of these streams are narrow and 100 hooks might be excessive and obstructive if public utilization was great. Since access is limited, the leniency of this regulation is probably feasible. No changes are currently recommended.

Conclusions and Recommendations:

Ideal fishing regulations permit as many fish to be caught in as many ways as possible, without materially depleting the supply. Fortunately, most warm water fishes are prolific and can withstand heavy fishing pressures. The regulations currently in effect in the Possum Kingdom and Edwards Plateau Areas are simple to understand, not cluttered with exceptions and special cases, and allow a great deal of fishing freedom.

As many counties should be brought under regulatory responsibility as possible so that large blocks of the State will have the same fishing laws. Special fishery situations, which are uncommon, could be regulated by municipal or lake authority ordinance.

Basically, the effects of fishing pressure on fish populations is unknown. Research designed to measure the effects of a heavy harvest on various game species is needed. The removal of large numbers of catfish may be detrimental to the supply, while harvesting large numbers of sunfish and crappie may enhance the resource by producing more large, "keeper" size fish.

In situations where rough fish populations are high, the possibility of commercial utilization is sometimes mentioned by interested parties. Often the use of commercial nets and seines would be obstructive to access and a hazard to fishermen and boaters. It could also damage the small populations of game species by net injuries and resultant fungus infection in some instances commercial netting would be difficult to regulate.

A common complaint concerns unattended trotlines. Weekend or once-a-season trotliners often set their lines in desirable locations and then forget about them. After several months a small, heavily utilized lake becomes "laced" with moss-covered, rusty-hooked lines at all levels. These are dangerous and obstructive. A regulation is needed whereby trotlines would have to be tagged with the owner's name and address and unattended lines could be legally removed.

In the future, field data should be collected under jobs stating the need for specific information. Current fishing regulations are adequate, and until basic research dealing with specific aspects of the effects of fishing devices and fishing pressures is done, general investigations similar to this one will not be fruitful enough to justify the time and cost involved.

Prepared by James F. Wilcox
Project Leader
Date September 15, 1965

Approved by Marion Toole
Leo D. Lewis
Regional Supervisor

Table 28. A Checklist of Common and Scientific Names Used in This Report. (as listed in the American Fisheries Societies' special publication Number 2).

Spotted gar	<u>Lepisosteus oculatus</u>
Longnose gar	<u>Lepisosteus osseus</u>
Alligator gar	<u>Lepisosteus spatula</u>
Gizzard shad	<u>Dorosoma cepedianum</u>
Mexican tetra	<u>Astyanax mexicanus</u>
Stoneroller	<u>Campostoma anomalum</u>
Carp	<u>Cyprinus carpio</u>
Roundnose minnow	<u>Dionda episcopa</u>
Golden shiner	<u>Notemigonus crysoleucas</u>
Texas shiner	<u>Notropis amabilis</u>
Red shiner	<u>Notropis lutrensis</u>
Sand shiner	<u>Notropis stramineus</u>
Blacktail shiner	<u>Notropis venustus</u>
Bullhead minnow	<u>Pimephales vigilax</u>
River carpsucker	<u>Carpionodes carpio</u>
Blue sucker	<u>Cycleptus elongatus</u>
Smallmouth buffalo	<u>Ictiobus bubalus</u>
Gray redhorse	<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>
Pupfish	<u>Cyprinodon sp.</u>
Mosquitofish	<u>Gambusia affinis</u>
White bass	<u>Roccus chrysops</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>
Greenthroat darter	<u>Etheostoma lepidum</u>
Orangethroat darter	<u>Etheostoma spectabile</u>
Logperch	<u>Percina caprodes</u>
Freshwater drum	<u>Aplodinotus grunniens</u>
Rio Grande perch	<u>Cichlasoma cyanoguttatum</u>