Rio Grande River

SEGMENT COMPLETION REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-9-R-12

FISHERIES INVESTIGATIONS AND SURVEYS OF THE WATERS OF REGION 5-A

Job No. B-22 Fisheries Reconnaissance

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ABSTRACT

Seining collections from the Rio Grande River yielded 22 species of fish. Shiner minnows were the most numerous species taken. Gill netting collections on this stream yielded a relatively small number of game fish; slightly over 5 per cent of the total number taken.

Gill netting data from Falcon Reservoir show the continued increase in the incidence of rough fish. Gizzard shad continue to be the most numerous species taken by this method. All game species, except blue catfish, showed a slight decrease percentage wise from last year's collections.

Collection data from the channel impoundments on the Nueces River, except Lake Nueces and Holland Lake, show a relatively low incidence of game fish species. Lake Nueces, which is a new impoundment, and Holland Lake have a good game fish population and are providing much needed fisheries in their respective areas.

Collections from the Frio River show a good population of largemouth bass and sunfish species. These are providing a good fisheries for the shoreline and wade fishermen.

Diversion Lake apparently still has a very sparse fish population as indicated by netting collections on this lake.

The three impoundments in the San Antonio area, namely Elmendorf, Woodlawn and Davis Lakes, continue to provide much needed recreation for persons unable to fish outside the City of San Antonio.

The relatively small streams of the Atascosa River and Cibolo Creek are greatly affected by irrigation practices throughout the region. These practices greatly reduce the fish habitat and population.

SEGMENT COMPLETION REPORT

State of Texas

Name: Fisheries Investigations and Surveys of the Waters of Region 5-A

Project No. F-9-R-12

Title: Fisheries Reconnaissance

Job No. B-22

Period Covered: December 1, 1963 through November 30, 1964

Objectives:

To conduct limited investigations to obtain current information concerning gross changes in fishing conditions and factors influencing fish populations.

Introduction:

During this study period, reconnaissance surveys were conducted on the Rio Grande River in Kinney, Maverick, Webb and Zapata Counties, as well as Falcon Reservoir in Zapata County; the Nueces River and its lakes in Uvalde, Zavala, Dimmit and La Salle Counties; the Frio River in Uvalde County; Diversion Lake in Medina County; Elmendorf, Woodlawn and Davis Lakes in Bexar County; the Atascosa River in Atascosa County; and Cibolo Creek in Bexar and Wilson Counties. A checklist of all fish species collected is given in Table 1.

Techniques Used:

Fishes taken in netting samples were collected with standard gill nets consisting of six 25-foot sections of mesh varying from 1 to 3½ inches square. Lengths, weights and numbers of netted fish were recorded in the field. From these records species composition, condition factors of individual specimens and species were computed. Fish collected by seining were taken in 12- by 4-common sense minnow seines or with 20- by 6-foot, ¼-inch mesh, straight seines, and were preserved in 10 per cent formalin solution for later identification and tabulation in the laboratory.

Since more than one body of water was studied, the techniques used and/or findings will be taken up separately for these waters in the succeeding sections of this report.

RIO GRANDE RIVER

Techniques Used and Findings:

The Rio Grande River in Region 5-A, namely in Kinney, Maverick, Webb and Zavala Counties, was surveyed for the first time during this year. Falcon

Table 1. Checklist of fish species used in report

Common Names	Scientific Names
1. Alligator gar	Lepisosteus spatula
2. Spotted gar	L. oculatus
3. Longnose gar	L. osseus
4. Threadfin shad	Dorosoma petenense
5. Gizzard shad	D. cepedianum
6. Mexican tetra	Astyanax mexicanus
7. Blue sucker	Cycleptus elongatus
8. Smallmouth buffalo	Ictiobus bubalus
9. River carpsucker	Carpiodes carpio
10. Gray redhorse	Moxostoma congestum
11. Carp	Cyprinus carpio
12. Goldfish	Carassius auratus
13. Golden shiner	Notemigonus crysoleucas
14. Speckled chub	Hybopsis aestivalis
15. Longnose dace	Rhinichthys cataractae
16. Rio Grande shiner	Notropis jemezanus
17. Texas shiner	N. amabilis
18. Weed shiner	N. texanus
19. Tamaulipas shiner	N. braytoni
20. Blacktail shiner	N. venustus
21. Red shiner	N. lutrensis
22. Plateau shiner	N. lepidus
23. Proserpine shiner	N. proserpinus
24. Sand shiner	N. stramineus
25. Ghost shiner	N. buchanani
26. Roundnose minnow	Dionda episcopa
27. Plains minnow	Hybognathus placita
28. Bullhead minnow	Pimephales vigilax
29. Flathead minnow	P. promelas
30. Stoneroller	Campostoma anomalum
31. Channel catfish	Ictalurus punctatus
32. Blue catfish	I. furcatus
33. Black bullhead	I. melas
34. Yellow bullhead	I. natalis
35. Flathead catfish	Pylodictis olivaris
36. Tadpole madtom	Schilbeodes gyrinus
37. Blackstripe topminnow	Fundulus notatus
38. Sheepshead minnow	Cyprinodon variegatus
39. Mosquitofish	Gambusia affinis
40. Sailfin molly	Mollienesia latipinna
41. Tidewater silverside	Menidia beryllina
42. White bass	Roccus chrysops
43. Largemouth bass	Micropterus salmoides
44. Warmouth	Chaenobryttus gulosus
45. Green sunfish	Lepomis cyanellus

Table 1. Continued

Common Names	Scientific Names
46. Green-Redear sunfish hybrid	L. cyanellus x L. microlophus
47. Spotted sunfish	L. punctatus
48. Redear sunfish	L. microlophus
49. Bluegill	L. macrochirus
50. Redbreast sunfish	L. auritus
51. Longear sunfish	L. megalotis
52. White crappie	Pomoxis annularis
53. Logperch	Percina caprodes
54. Greenthroat darter	Etheostoma lepidum
55. Freshwater drum	Aplodinotus grunniens
56. Rio Grande perch	Cichlasoma cyanoguttatum

Reservoir, located on the Rio Grande in the lower portion of the region, has been surveyed almost continuously since its beginning in 1953.

Three reconnaissance trips were made to the Rio Grande River during this survey. The first, which was made in December, was for scouting and locating collection stations and points of access. It was found that the upper section, in the Eagle Pass area and in the Laredo vicinity, had numerous points of access, but heavy growths of aquatic and terrestrial vegetation made entry to the water next to impossible. Also, heavy siltation in the lower portion of the study area posed a difficult entry problem. The remaining section surveyed consists, for the most part, of rugged country with few roads or passes to the stream bed. In addition, fluctuating water level on the river posed the problem of locating adequate waters for gill netting and seining sites. For example, the Rio Grande was some six feet lower in the summer of 1964 than in December 1963. Many collection sites located in December were of little or no value when revisited for sampling.

Nine seining collection stations were sampled during this survey and yielded 22 species of fish (see attached map and Table 2). Shiner minnows were the most numerous fish in these collections.

Table 3 gives the results of the gill netting samples taken from this stream. The longnose gar was the most numerous single species taken and accounted for approximately 64 per cent of the total collection. It will be noted that game fish species made up a very small portion of the collection with only slightly over 5 per cent. Although the game species composition may not average this low throughout the entire stream, these collections are probably an indication of a low game fish population. Good catches of catfish, channel, blue and flathead are reportedly taken by trotlines and setlines from this stream.

RIO GRANDE RIVER

MAVERICK and WEBB COUNTIES

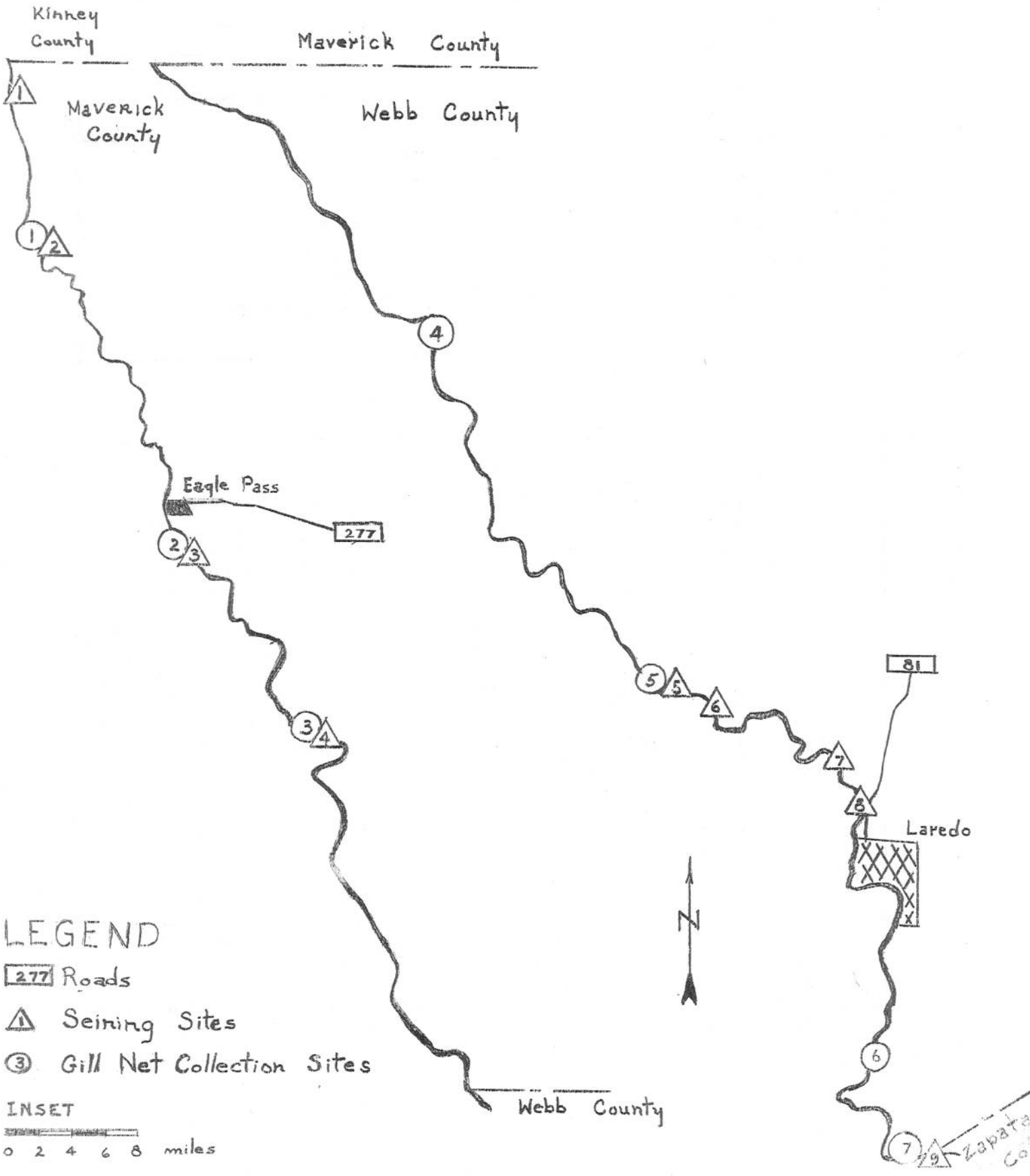

Table 2. Rio Grande River seining results, 1964

Species	Stations									Totals
	1	2	3	4	5	6	7	8	9	
Longnose gar							2			2
Gizzard shad					1		2			3
Mexican tetra						1	1			2
Blue sucker	2			9				1		12
Smallmouth buffalo	1	34	3	7	3	1	2	1		52
River carpsucker					18		85		9	112
Speckled chub		4	4		12	10	15	6	10	61
Longnose dace		1	9				1	88		99
Rio Grande shiner		18	187		5	15		1		226
Tamaulipas shiner				3	91	10	57		21	182
Red shiner	2	9	18			1	1	1		32
Sand shiner		251	48	6					13	318
Plains minnow			2		86	2				90
Bullhead minnow			24							24
Channel catfish					1	2	1		9	13
Flathead catfish						1			1	2
Mosquitofish	17	17	24	4	1	6	8	1	2	80
Sailfin molly									21	21
Largemouth bass						1	6			7
Green sunfish						1	7		3	11
Bluegill	1								1	2
Rio Grande perch									1	1
Totals	23	334	319	29	218	51	188	99	91	1352

Table 3. Gill netting results, Rio Grande River, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Alligator gar*	2	1.16	77.00	34,927	13.35	1.10
Spotted gar*	10	5.81	12.46	5,651	2.16	0.54
Longnose gar*	110	63.97	377.20	171,096	65.40	0.40
Gizzard shad*	10	5.81	4.53	2,053	0.78	2.14
Blue sucker*	1	0.58	2.25	1,021	0.39	1.72
Smallmouth buffalo*	17	9.88	99.02	35,012	13.38	3.53
River carpsucker*	6	3.49	6.60	2,995	1.15	2.99
Carp*	1	0.58	6.94	3,147	1.20	3.23
Channel catfish	4	2.33	3.40	1,540	0.59	1.72
Blue catfish	2	1.16	1.64	744	0.28	1.44
Flathead catfish	1	0.58	3.88	1,758	0.68	1.76
White bass	2	1.16	1.08	488	0.18	2.01
Freshwater drum*	6	3.49	2.61	1,184	0.46	2.47
Totals	172	100.00	598.61	261,616	100.00	

* Indicates rough fish species.

FALCON RESERVOIR

Techniques Used and Findings:

Gill netting collections for Falcon Reservoir show the continued increase in incidence of rough fish when compared to previous samples. This year's collections showed that over 71 per cent of the specimens taken were classified as rough fish compared to 68 per cent for the previous year (Table 4). This is not a large overall increase, but indicates the continuation of the rough fish build-up. Gizzard shad were the most numerous single species and showed an increase from 49.12 per cent for 1963 to 60.42 per cent for this year. All game species, except blue catfish, showed a slight decrease percentage-wise when compared with last year's collection.

Fishing success for the white crappie, mentioned in previous reports, was continued during this segment. However, the overall decrease in largemouth bass fishing success was also continued during this year.

Seining collections from Falcon Reservoir showed the red shiner to be the most numerous single species taken (Table 5). The tidewater silverside was also present in substantial numbers.

NUECES RIVER

Techniques Used and Findings:

The section of the Nueces River surveyed during this segment was confined to the area south of the Balcones Escarpment in Uvalde County to above Crystal City in Zavala County. This section consists of large pools, some of them covering several acres, and normally flows only during a rise on the river. Access is difficult,and only two areas were sampled by gill netting. Table 6 gives the results of these collections. Rough fish species were dominant among the specimens taken. Good fishing is reported from these areas, especially for catfish species and white crappie.

Seining collections show a wide range of minnows as well as other fish species present (Table 5).

Fish samples were also taken from five channel impoundments on the Nueces River including Lake Nueces, Comanche, Espantosa, Harris and Holland. Results of these surveys are discussed separately in the text below.

LAKE NUECES

Findings:

This is the latest impoundment to be built on this stream and provides much needed fishing and water recreation in an area where public lakes are non-existent.

Table 4. Gill netting results, Falcon Reservoir, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Spotted gar*	23	1.40	52.31	23,731	6.17	0.63
Longnose gar*	30	1.83	127.50	57,833	15.05	0.46
Threadfin shad*	36	2.19	3.82	1,732	0.46	2.00
Gizzard shad*	992	60.42	306.21	138,894	36.15	2.00
Smallmouth buffalo*	9	0.55	45.75	20,750	5.40	3.50
River carpsucker*	17	1.04	22.17	10,057	2.62	2.94
Carp*	18	1.10	57.77	26,206	6.82	2.77
Channel catfish	94	5.72	29.16	13,227	3.44	1.48
Blue catfish	107	6.52	74.52	33,801	8.80	1.32
Flathead catfish	3	0.18	5.64	2,560	0.66	1.77
White bass	92	5.60	34.12	15,475	4.03	2.44
Largemouth bass	12	0.73	7.19	3,262	0.85	2.20
Warmouth	2	0.12	0.26	116	0.03	3.50
Redear sunfish	2	0.12	0.58	264	0.07	4.47
Bluegill	25	1.52	3.00	1,361	0.35	4.00
White crappie	138	8.40	67.91	30,802	8.02	2.66
Freshwater drum*	42	2.56	9.09	4,122	1.08	2.36
Totals	1642	100.00	847.00	384,193	100.00	

*Indicates rough fish species.

Table 5. Seining results, 1964

Species	Numbers of Fish Collected for the Waters Surveyed										
	Falcon Reservoir	Nueces River	Frio River	Diversion Lake	Elmendorf Lake	Woodlawn Lake	Davis Lake	Hi-Lions Lake	Atascosa River	Cibolo Creek	Totals
Spotted gar		1									1
Threadfin shad	205										205
Gizzard shad	17										17
Mexican tetra	6	2	2				5				15
Smallmouth buffalo	76										76
River carpsucker	5										5
Gray redhorse										1	1
Carp	7										7
Golden shiner						4					4
Texas shiner		9	27						26		62
Weed shiner		130	4							48	182
Blacktail shiner		28	64	14					8		114
Red shiner	1974	51	100	22			446		100		2693
Plateau shiner		86	4							304	394
Sand shiner										17	17
Ghost shiner	13									19	32
Roundnose minnow		25									25
Plains minnow	1										1
Bullhead minnow	154	14								3	171
Flathead minnow							15				15
Stoneroller		1	75							1	77
Black bullhead									2		2
Tadpole madtom										2	2
Blackstripe topminnow										20	20
Sheepshead minnow	107										107
Mosquitofish	360	133	166	1	65	248	70	19	408	104	1574
Sailfin molly		1	11		142	65	132	2	357	10	720
Tidewater silverside	1292										1292
Largemouth bass	1	22	8			4			1		36
Warmouth		1			3	2					6
Green sunfish		2	5		15	17	1				40
Green-redear sunfish hybrid								21			21
Spotted sunfish			5								5
Redear sunfish		6				2			2		10
Bluegill	2	36	4		3	49			22	29	145
Redbreast sunfish			6			1				6	13
Longear sunfish		75	36						15	4	130
Logperch										1	1
Greenthroat darter										1	1
Rio Grande Perch	1	1	10				4		3	8	27
Totals	4221	624	527	37	228	392	673	42	944	578	8266

Table 6. Gill netting results, Nueces River, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Spotted gar*	3	7.69	1.74	792	2.58	0.59
Longnose gar*	9	23.09	33.29	15,102	49.31	0.36
Gizzard shad*	5	12.82	2.29	1,041	3.39	1.97
Smallmouth buffalo*	3	7.69	17.75	8,051	26.29	3.73
Gray redhorse*	2	5.13	4.26	1,933	6.31	1.98
Channel catfish	1	2.56	2.06	936	3.05	1.64
Blue catfish	1	2.56	1.44	652	2.13	1.76
Yellow bullhead*	7	17.95	1.65	748	2.44	2.06
Largemouth bass	1	2.56	2.00	907	2.96	2.41
Bluegill	5	12.82	0.77	350	1.15	3.65
White crappie	2	5.13	0.26	119	0.39	3.00
Totals	39	100.00	67.51	30,631	100.00	

* Indicates rough fish species.

Channel catfish and the gray redhorse were the most abundant species taken by gill netting on this lake (Table 7). This 19-acre impoundment has been stocked with game fish species since its completion in 1963 and is providing a good sport fisheries.

COMANCHE LAKE

Findings:

This lake is located on Comanche Creek, a tributary of the Nueces River, approximately five miles west of Crystal City and covers about 500 surface acres when full. However, the lake fluctuates a great deal, because of irrigation and lack of rainfall, and is normally greatly reduced in size.

Freshwater drum were the most numerous single species collected by gill netting from this lake during the study period (Table 8). The next two most numerous species were the smallmouth buffalo and gizzard shad. White crappie were the most numerous game species collected. This species provides good fishing during fall and winter months. It is recommended that additional channel catfish be stocked in this lake in an effort to build up a fishable population of this species.

ESPANTOSA LAKE

Findings:

This channel impoundment is located on a branch of the Nueces River in the Crystal City area. This lake, as is true of all the lakes in this area, fluctuates a great deal because of its use to impound and divert water for irrigation. Because of this, the maintenance of a sport fish population is next to impossible.

Gill net samples showed spotted gar and gizzard shad as the two dominant species collected (Table 9). White crappie was the dominant game species taken. Channel catfish have been stocked in this lake during the last two years in an effort to build up this game species, but relatively few were collected. It is recommended that the stocking of this species be continued for at least two more years.

HARRIS LAKE

Findings:

This relatively small and shallow impoundment is located on the Nueces River west of Cotulla, La Salle County. The reported poor fishing of this lake is apparently due to the predominance of rough fish species (Table 10). Fisheries management practices to alleviate this problem would be virtually impossible, because of the heavy rough fish population present upstream from this lake. Also, the lack of access and size of the lake preclude any extensive fisheries management work.

Table 7. Gill netting results, Lake Nueces, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Spotted gar*	2	4.08	0.90	407	2.93	0.56
Gizzard shad*	3	6.12	3.71	1,682	12.10	2.39
Gray redhorse*	11	22.45	0.24	110	0.79	2.03
Channel catfish	22	44.91	21.14	9,591	68.99	1.62
Flathead catfish	1	2.04	1.44	652	4.69	2.01
Largemouth bass	3	6.12	1.56	707	5.08	2.32
Warmouth	1	2.04	0.61	276	1.98	4.02
Longear sunfish	3	6.12	0.20	91	0.65	3.22
Rio Grande perch*	3	6.12	0.86	388	2.79	5.05
Totals	49	100.00	30.66	13,904	100.00	

* Indicates rough fish species.

Table 8. Gill netting results, Comanche Lake, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Longnose gar*	7	7.29	28.31	12,842	26.34	0.40
Spotted gar*	9	9.38	5.54	2,513	5.15	0.57
Gizzard shad*	13	13.54	7.77	3,526	7.23	1.92
Smallmouth buffalo*	15	15.63	33.37	15,138	31.05	3.48
Black bullhead*	1	1.04	0.27	124	0.26	2.53
Largemouth bass	2	2.08	1.54	699	1.43	3.12
Warmouth	2	2.08	0.53	244	0.50	4.58
Bluegill	2	2.08	0.31	141	0.29	5.34
White crappie	9	9.38	5.18	2,349	4.82	3.20
Freshwater drum*	36	37.50	24.64	11,178	22.93	2.80
Totals	96	100.00	107.46	48,754	100.00	

* Indicates rough fish species.

Table 9. Gill netting results, Espantosa Lake, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Spotted gar*	33	37.50	29.09	13,195	49.03	0.59
Gizzard shad*	25	28.40	7.49	3,399	12.63	1.84
Smallmouth buffalo*	3	3.41	10.62	4,819	17.91	3.73
Channel catfish	4	4.55	3.54	1,606	5.97	1.53
Bluegill	2	2.27	0.18	82	0.31	4.58
Redbreast sunfish	1	1.14	0.07	31	0.11	3.84
White crappie	12	13.63	4.99	2,265	8.42	3.03
Freshwater drum*	5	5.69	3.05	1,383	5.14	2.70
Rio Grande perch*	3	3.41	0.28	128	0.48	4.87
Totals	88	100.00	59.31	26,908	100.00	

* Indicates rough fish species.

Table 10. Gill netting results, Harris Lake, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Alligator gar*	1	2.38	10.12	4,593	8.47	0.77
Spotted gar*	3	7.14	4.94	2,241	4.13	0.68
Longnose gar*	15	35.72	60.02	27,225	50.24	0.46
Gizzard shad*	9	21.43	9.61	4,360	8.04	2.24
Smallmouth buffalo*	11	26.19	34.43	15,617	28.81	4.37
White crappie	2	4.76	0.26	118	0.22	3.40
Rio Grande perch*	1	2.38	0.11	49	0.09	5.88
Totals	42	100.00	119.49	54,203	100.00	

* Indicates rough fish species.

HOLLAND LAKE

Findings:

Holland Lake is the last of the channel impoundments on the Nueces River in Region 5-A. It is located near the La Salle County line and covers an area of approximately 250 surface acres.

Netting results on this impoundment showed an abundant white crappie population (Table 11). This was the most numerous single species collected and provides a good fisheries during most of the year. The high fishing pressure on this lake is no doubt due to the relatively high game fish population indicated by the netting collections for this lake.

FRIO RIVER

Techniques Used and Findings:

The fisheries study of this stream was confined to sections in Uvalde County, which are fairly representative of this stream. Large numbers of largemouth bass and sunfish species have been stocked in this stream during the past several years. The success of these plantings are apparently reflected in the relatively high percentages of these species in the netting and seining collections made on this stream (Tables 12 and 5). Shoreline and wade fishing are popular forms of angling and usually yield good success to the fisherman.

DIVERSION LAKE

Techniques Used and Findings:

Eight gill net collections from Diversion Lake on the Medina River produced only 59 fish (Table 13), tending to indicate the sparse fish population present in the lake. The planting of young largemouth bass and sunfish during the past three years has not been successful in establishing a good game fish population.

The most numerous single species taken in nets was the gizzard shad.

The relatively few specimens collected in seines indicate the lack of young fish and minnow species present (Table 5).

ELMENDORF LAKE

Techniques Used and Findings:

Compared to the previous year, an increased number of fish were taken from Elmendorf Lake by gill netting. The planting of largemouth bass and sunfish

Table 11. Gill netting results, Holland Lake, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Spotted gar*	19	11.73	22.35	10,136	18.37	0.64
Longnose gar*	3	1.85	11.56	5,244	9.51	0.53
Gizzard shad*	50	30.86	13.54	6,141	11.13	2.20
Smallmouth buffalo*	12	7.41	40.31	18,286	33.15	3.75
Largemouth bass	2	1.23	1.56	709	1.28	2.73
Warmouth	1	0.62	0.16	74	0.14	4.50
Redear sunfish	4	2.47	0.91	411	0.74	4.09
Bluegill	4	2.47	0.07	233	0.42	4.49
Redbreast sunfish	5	3.09	0.45	203	0.37	4.62
White crappie	53	32.71	21.23	9,630	17.46	3.11
Freshwater drum*	9	5.56	9.03	4,096	7.43	3.05
Totals	162	100.00	121.17	55,163	100.00	

* Indicates rough fish species.

Table 12. Gill netting results, Frio River, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Spotted gar*	3	3.26	8.75	3,969	8.30	0.72
Gizzard shad*	16	17.39	10.36	4,701	9.83	1.70
Smallmouth buffalo*	2	2.17	9.25	4,196	8.77	2.69
Gray redhorse*	18	19.58	43.98	19,948	41.71	2.00
Channel catfish	9	9.78	19.38	8,792	18.38	1.75
Largemouth bass	12	13.04	3.97	1,803	3.77	2.24
Warmouth	7	7.61	2.79	1,266	2.65	4.26
Green sunfish	1	1.09	0.11	52	0.11	3.16
Bluegill	7	7.61	1.05	476	1.00	4.44
Redbreast sunfish	5	5.43	0.62	282	0.59	4.05
Rio Grande perch*	12	13.04	5.16	2,339	4.89	5.45
Totals	92	100.00	105.42	47,824	100.00	

* Indicates rough fish species.

Table 16. Gill netting results, Lake Davis (Formerly Esquivel Lake), 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Carp*	115	41.57	159.72	72,449	43.43	3.15
Goldfish*	3	1.08	5.19	2,353	1.41	6.46
Golden shiner*	6	2.16	0.87	394	0.23	2.25
Channel catfish	22	7.94	27.11	12,299	7.37	1.82
Black bullhead*	45	16.24	141.80	64,460	38.65	2.22
Yellow bullhead*	21	7.58	14.89	6,768	4.05	2.36
Largemouth bass	6	2.16	7.62	3,459	2.08	2.72
Warmouth	2	0.72	0.41	188	0.11	4.85
Green sunfish	7	2.52	0.80	361	0.22	3.72
Bluegill	19	6.85	1.80	815	0.48	4.30
Redbreast sunfish	5	1.80	0.38	173	0.11	5.04
White crappie	13	4.69	4.56	2,071	1.24	3.72
Rio Grande perch*	13	4.69	2.26	1,027	0.62	5.37
Totals	277	100.00	367.41	166,817	100.00	

* Indicates rough fish species.

Table 17. Gill netting results, Atascosa River, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Spotted gar*	4	7.27	4.00	1,813	4.70	0.60
Longnose gar*	1	1.82	6.19	2,807	7.28	0.53
Gizzard shad*	23	41.81	12.70	4,489	11.64	2.31
Smallmouth buffalo*	11	20.00	44.05	19,982	51.84	3.86
Carp*	1	1.82	4.25	1,928	5.00	2.48
Black bullhead*	2	3.64	0.32	145	0.38	2.66
Flathead catfish	2	3.64	9.06	3,657	9.49	1.76
Largemouth bass	5	9.09	2.65	1,201	3.12	2.59
Bluegill	1	1.82	0.08	39	0.10	3.90
Redbreast sunfish	1	1.82	0.11	51	0.13	4.53
Longear sunfish	1	1.82	0.07	34	0.09	4.66
Freshwater drum*	3	5.45	5.29	2,401	6.23	2.94
Totals	55	100.00	88.77	38,547	100.00	

* Indicates rough fish species.

LAKE DAVIS

Techniques Used and Findings:

As was reported the previous segment, a fish kill, caused by insecticide pollution in October 1963, removed most of the game fish population from this lake. Netting results this year show a reduction from 50.51 per cent to 26.68 per cent for the combined game fish species collected (Table 16). Plantings of game species after the kill and during this year were made to rebuild this population.

Seining collections (Table 5) show that the minnow population has partially recovered from this kill with the red shiner being the most numerous species taken by this method.

ATASCOSA RIVER

Techniques Used and Findings:

This small stream was surveyed during this segment, and the fisheries resources were found to be poor. Because of extensive irrigation in this area, the stream is reduced to pools for most of the year. This practice greatly affects the fish population.

Seining and netting are very difficult on this stream. Most of the banks are steep and covered with trees and other terrestrial and aquatic plants. The reduced water level adds to the collection problem.

Gill netting collections showed the gizzard shad to be the most numerous species taken (Table 17). Game fish comprised only 18.19 per cent of the total specimens collected. Fisheries management practices for this stream in its present condition are virtually impossible.

Seining collections show the mosquitofish and sailfin molly present in substantial numbers (Table 5).

CIBOLO CREEK

Techniques Used and Findings:

This stream is also affected by irrigation practices throughout this region. Because of this, the stream is intermittent and usually flows only shortly after a rise from rains on its watershed.

Gizzard shad made up the largest per cent of the fish species collected by gill netting with 33.85 (Table 18). The combined game species represented 24.80 per cent, with white crappie accounting for 9.78 per cent.

Seining collections made on Cibolo Creek show the shiner minnows well represented in the specimens taken (Table 5).

Table 14. Gill netting results, Elmendorf Lake, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Golden shiner*	25	37.88	3.83	1,736	25.61	2.36
Black bullhead*	6	9.09	2.66	1,205	17.78	2.35
Yellow bullhead*	2	3.03	2.25	1,021	15.06	2.48
Largemouth bass	1	1.52	3.00	1,361	20.08	2.92
Warmouth	3	4.54	0.94	428	6.31	3.87
Green sunfish	2	3.03	0.22	98	1.44	3.40
Bluegill	27	40.91	2.05	930	13.72	3.29
Totals	66	100.00	14.95	6,779	100.00	

* Indicates rough fish species.

Table 15. Gill netting results, Woodlawn Lake, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Carp*	9	1.82	11.90	5,397	8.02	3.15
Goldfish*	23	4.65	22.37	10,148	15.08	4.07
Golden shiner*	3	0.61	0.45	204	0.30	2.33
Channel catfish	27	5.47	40.53	18,382	27.33	1.69
Black bullhead*	65	13.15	12.96	6,333	9.41	2.31
Yellow bullhead*	17	3.44	3.09	1,403	2.08	2.23
Flathead catfish	1	0.21	8.00	3,629	5.40	1.86
Largemouth bass	6	1.21	5.31	2,409	3.58	2.96
Redear sunfish	1	0.21	0.09	43	0.06	3.61
Bluegill	135	27.31	10.00	4,985	7.41	4.00
Redbreast sunfish	75	15.18	6.42	2,910	4.33	4.37
Longear sunfish	1	0.21	0.08	35	0.05	4.48
Warmouth	1	0.21	0.15	68	0.10	3.74
White crappie	127	25.71	24.36	11,048	16.42	3.33
Rio Grande perch*	3	0.61	0.63	285	0.43	6.43
Totals	494	100.00	146.34	67,279	100.00	

* Indicates rough fish species.

Table 13. Gill netting results, Diversion Lake, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Longnose gar*	4	6.78	3.23	1,467	7.88	0.30
Gizzard shad*	31	52.57	16.24	7,369	39.61	1.78
Smallmouth buffalo*	1	1.69	5.18	2,348	12.62	3.06
Carp*	1	1.69	1.31	595	3.20	2.49
Channel catfish	3	5.08	3.60	1,634	8.78	1.48
White bass	9	15.25	9.45	4,287	23.04	2.69
Largemouth bass	4	6.78	1.23	557	2.99	2.14
Warmouth	2	3.39	0.27	123	0.66	3.96
Green sunfish	1	1.69	0.14	66	0.35	3.63
Redear sunfish	1	1.69	0.13	61	0.33	3.36
Bluegill	2	3.39	0.22	100	0.54	3.60
Totals	59	100.00	41.00	18,607	100.00	

* Indicates rough fish species.

possibly contributed to this increase. Bluegill sunfish were the most numerous single species taken with 40.91 per cent of the total collected (Table 14).

The sailfin molly and the mosquitofish accounted for the major portion of the fish collected by seining from this lake (Table 5).

WOODLAWN LAKE

Techniques Used and Findings:

Gill netting collections from Woodlawn Lake continued to show a good game and panfish population during this period of study with 75.72 per cent (Table 15). This is a slight increase from last year, but the reduced number of collections and specimens taken probably account for this difference.

This lake continues to provide much needed fishing recreation for young anglers and other persons unable to fish outside the City of San Antonio. Because of this, continuing efforts should be made to provide good fishing in this lake.

Table 18. Gill netting results, Cibolo Creek, 1964

Species	Fish Collections					Mean "K"
	Numbers		Weights			
	Fish	Per Cent	Pounds	Grams	Per Cent	
Spotted gar*	2	1.50	2.37	1,074	1.43	0.62
Longnose gar*	9	6.77	7.05	3,196	4.26	0.36
Gizzard shad*	45	33.85	30.80	13,970	18.65	2.02
Smallmouth buffalo*	23	17.29	81.00	36,740	49.04	3.49
River carpsucker*	2	1.50	4.25	1,927	2.57	2.88
Gray redhorse*	19	14.28	19.19	8,706	11.62	2.22
Channel catfish	6	4.51	10.79	4,894	6.53	1.67
Flathead catfish	2	1.50	3.31	1,503	2.01	1.97
Largemouth bass	1	0.75	0.19	88	0.12	2.36
Bluegill	8	6.02	1.08	488	0.65	4.30
Redbreast sunfish	1	0.75	0.13	61	0.08	4.98
Warmouth	2	1.50	0.46	207	0.28	3.50
White crappie	13	9.78	4.55	2,065	2.76	2.93
Totals	133	100.00	165.17	74,919	100.00	

* Indicates rough fish species.

Discussion

Fisheries problems reported in Segment Completion Report Job D-1 for this and previous segments become apparent when data and field notes collected for this job are analyzed. The tables in this report show the abundance and predominance of rough fish species present in nearly all waters covered by this survey. In some waters the game fish species are almost non-existent. The severe water fluctuation of most impoundments and streams studied, resulting from extensive irrigation, greatly aggravates this situation.

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