STATE Texas

PROJECT NO. F-5-R-2, Job B-10

PERIOD June 22, 1954 - May 1, 1955

Segment Completion Report

Lawrence S. Campbell
Project Leader

William G. McClellan
Assistant Project Leader

TITLE

Inventory of Species Present in Lake J. B. Thomas near Snyder, Texas.

OBJECTIVES

To determine the species present and their relative abundance and to determine the ecological factors influencing their distribution.

PROCEDURE

Forty-nine gill nets were set at ten locations. Experimental nylon gill nets measuring 125 ft. long by eight ft. deep and made up in five, 25 ft. sections were used. Mesh size for these nets increased progressively in each following section at half inch intervals beginning with a one-inch mesh section and terminating with a three-inch mesh section.

Thirty-three seining collections were made at eight seining stations in the reservoir. In nearly all collections both 26 ft., $\frac{1}{4}$" mesh bag seines and 15 ft., $\frac{1}{4}$" common sense seines were used. To estimate relative abundance a count was made of all individuals taken in two hauls with a 26 ft. $\frac{1}{4}$" bag seine. In addition to this work, collections with 4 ft. common sense 1/16" mesh fry seines were taken.

Water analysis to determine dissolved oxygen content and the quantity of dissolved carbon dioxide was taken for each netting collection. Surface temperature, pH and weather conditions were recorded for each netting and seining collection. Turbidity was taken on four occasions.

In netting collections, samples from each collection and for each species were weighed, measured and sexed. This work was done in the field. A scale sample was taken from a sample number of individuals for each species and stomachs containing food were preserved for laboratory analysis. Similar work for seining collections included identification, weighing and measuring and preservation of all individuals whose identity was questionable in 10% formalin.

FINDING

Lake J. B. Thomas is located approximately 10 miles west of Ira, Texas. The earth fill dam impounds the Colorado River and Bull Creek about 2.5 miles above their confluence. The structure was completed in September 1951 by Freeze and Nichols Construction Company of Dallas, Texas for the Colorado River Municipal Water District. The reservoir impounded it's first water, about 4,000 acre ft. volume, in August 1952, and

by July 1953 about 11,000 acre feet of water was in storage. When work was initiated on this job, in July 1954, the lake had increased to about 47,890 acre feet; and since that time has continued to rise to a volume of 134,480 acre feet in May 1955. The maximum storage capacity for Lake J. B. Thomas is 220,000 acre ft. and the reservoir has flood control potential of 255,000 acre ft. All impounded water is owned by the Colorado River Municipal Water District and is to be used to fulfill the municipal and industrial demands of Big Springs, Odessa and Snyder, Texas. The contributing watershed of approximately 751 square miles is exclusively within the Permian Basin, and soil types are generally loose sands and red or brown sandy loams. Average annual rainfall is 21.15 inches, average maximum temperature is 82° F. and the average annual minimum is 41° F. Much of the watershed is utilized for ranching; however, in the northwestern "Lamesa" area irrigated and "dry land" farming is extensive. Four oil wells are surrounded by the lake; however, these wells are adequately protected by dykes, and no evidence of pollution has been discovered. The lake is usually slightly turbid having a reading of from 2 to 7; pH is about 8.2, and total solids are about 150 ppm. Minimum recorded dissolved oxygen content recorded during the segment was 8 ppm and the maximum carbon dioxide was 12 ppm. Excepting algae and minute pelagic forms there is no aquatic vegetation in Lake J. B. Thomas.

Netting Results:

During the segment 49 gill nets were set at ten netting stations in the lake and captured 2,029 individuals of fifteen species. As shown in Table No. I, gizzard shad (Dorosoma cepedianum) were the most numerous fish taken in gill net collections, and numbers of yellow bullheads (Ameiurus natalis), river carp suckers (Carpiodes carpio), freshwater drum (Aplodinotus grunniens), and Southern channel catfish (Ictalurus punctatus) followed in that order. Although this lake is less than two years old white bass (Morone chrysops) are more numerous than largemouth black bass. River carp suckers are second to gizzard shad in percent of the total weight of the catch.

Seining Results:

Thirty-three seining collections at eight seining stations in the lake captured 1,958 individuals of twenty-three species. Mosquito fish (Gambusia affinis), red shiners (Notropis lutrensis), blacktail shiners (Notropis venustus), gizzard shad (Dorosoma cepedianum) and bluegill sunfish (Lepomis macrochirus) were the most abundant of all fishes taken. Mosquito fish catches apparently declined during the latter months of the segment.

Remarks:

Sixty-nine man days were spent working in the field and fourteen man days work was done in the laboratory. A continuation for this job has been requested and approved for next segment.

SUMMARY

1. Forty-nine gill net collections captured 2,029 individuals of fifteen species. Gizzard shad, yellow bullheads, river carp suckers, and southern channel catfish are the most numerous species in the lake.

2. Seining results from thirty-three collections captured 1,958 individuals and indicate high percentages for mosquito fish, red shiners, and gizzard shad.

3. A continuation for this job has been requested and approved for next segment.

Table 1. Netting Collections from Lake J. B. Thomas

Species	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Mar.	May	Total	%by No.	%by Weight	Avg. K
Dorosoma cepedianum	52	23	12	0	14	9	170	620	900	49.47	22.28	177
Carpiodes carpio	7	1	5	26	0	5	49	160	253	13.90	29.12	239
Cyprinus carpio	0	0	0	5	0	0	7	20	32	1.75	4.75	253
Moxostoma congestum	0	0	0	13	0	0	0	0	13	.72	2.15	240
Lepisosteus osseus	0	0	0	0	0	0	0	3	3	.16	.92	320
Aplodinotus grunniens	18	20	27	0	5	1	5	61	137	7.53	7.33	288
Ameiurus natalis	0	1	0	0	3	0	49	87	140	7.69	4.04	247
Pilodictus olivaris	0	0	0	0	2	0	3	2	7	.38	1.55	254
Ictalurus punctatus	6	4	11	0	33	0	16	140	210	11.54	12.10	199
Micropterus salmoides	0	0	1	0	2	0	9	31	43	2.36	3.19	236
Morone chrysops	0	0	0	0	31	0	11	18	60	3.29	3.46	216
Chaenobryttus coronarius	0	0	0	0	0	0	0	2	2	.11	.06	420
Sunfishes	0	0	0	0	4	0	10	5	19	1.04	.46	408
Totals	83	49	56	44	94	15	329	1,149	1,819	99.94	100.0	

Table 11. Seining Collections from Lake J. B. Thomas

Species	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	March	May	Total	% by Number
Gambusia affinis	121	140	60	23	0	6	23	18	391	20.00
Notropis lutrensis	38	26	31	47	16	21	134	211	524	26.80
Notropis venustus	6	11	5	0	0	9	44	62	137	7.00
Pimephales promelas	0	0	22	4	21	20	16	21	104	5.32
Hybognathus placitus	0	0	0	6	0	0	10	20	36	1.84
Notemigonus chrysoleucas	4	0	13	0	0	0	14	31	62	3.17
Cyprinodon sp.	0	2	0	0	0	0	25	16	43	2.20
Dorosoma cepedianum	14	6	11	21	24	3	16	42	137	7.00
Carpiodes carpio	0	0	0	2	6	0	3	8	19	.98
Cyprinus carpio	0	2	2	0	0	0	0	2	6	.03
Aplodinotus grunniens	0	2	0	5	0	0	0	0	7	.40
Lepisosteus osseus	0	1	0	0	0	0	3	0	4	.02
Ameiurus natalis	0	0	0	4	0	2	21	6	33	1.70
Ictalurus punctatus	0	1	0	1	0	0	2	5	9	.05
Micropterus salmoides	2	6	0	6	9	4	18	31	76	3.85
Morone chrysops	0	0	0	1	0	14	6	4	25	1.30
Pomoxis annularis	3	8	6	5	2	2	14	12	52	2.70
Chaenobryttus coronarius	1	2	2	1	5	0	13	6	30	1.54
Lepomis macrochirus	28	10	13	6	0	4	24	21	106	5.42
Lepomis cyanellus	4	16	3	3	2	8	31	18	85	4.40

Table 11. Seining Collections, Lake J. B. Thomas, Page 2.

Species	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	March	May	Total	% by Number
Lepomis microlophus	0	0	2	0	0	0	2	8	12	.62
Lepomis megalotis	8	3	6	0	0	0	12	12	41	2.40
Lepomis auritus	13	6	0	0	0	0	0	0	19	.98
Totals	242	242	176	135	85	93	431	554	1,958	100.00