STATE Texas

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

PERIOD June 22, 1954 - May 1, 1955

Segment Completion Report

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TITLE

Inventory of Species Present in Lake Brownwood, Brownwood, Texas.

OBJECTIVES

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

PROCEDURE

Forty-one gill nets were set at twelve different locations in the lake. Experimental nylon gill nets, measuring 125 ft. long x 8 ft. in depth, and made up in five, 25 ft. sections were used. Mesh size for these nets increased progressively in each following section at 1/2 inch intervals beginning with one-inch mesh and terminating with a three-inch mesh section.

Twenty 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. $\frac{1}{4}$" mesh bag seine. In addition to that work; other seining collections were made to determine seasonal distribution of species, and to secure samples of fry after the spring spawning of some species. For this work 4 ft. common sense seines with $\frac{1}{4}$" mesh and 1/16" mesh were used.

Water analysis to determine dissolved carbon dioxide and oxygen content was taken at eight different locations on the lake, and pH, surface water temperature, and climatic conditions were recorded for each netting and seining collection.

In netting collections samples from each collection for each species were weighed, measured and sexed in the field. A scale sample was taken and stomachs containing food were preserved for laboratory study. Similar work for seining collections included identifying and counting all fish taken. Individuals needed for laboratory study were preserved in 10% formalin.

FINDING

During the segment the reservoir receded to an estimated 49,000 acre feet storage, and was refilled to spillway capacity of 137,000 acre feet by rainfall during April and May, 1955. Maximum surface temperature recorded during the period was 81° F., and the minimum record was 58° F. Minimum dissolved oxygen recorded during the segment was 3 ppm. Maximum carbon dioxide was 15 ppm. Maximum turbidity taken was 12.

Netting Results:

As shown in Table No. I., seven hundred and seventy individuals of eleven species were taken in forty-one net sets. As compared with first segment netting collections, this sample catch indicates significant changes in the numerical ratio of several fish populations. River carp suckers (Carpiodes carpio), long nose gar (Lepisosteus osseus), freshwater drum (Aplodinotus grunniens), and largemouth black bass (Micropterus salmoides) are apparently increasing. Data for white bass (Morone chrysops), and southern channel catfish (Ictalurus punctatus) indicate population decreases.

Seining Results:

Twenty seining collections captured 2,609 individuals of twenty-two species. Of this sample principal population increases are indicated for mosquito fish (Gambusia affinis), red shiner (Notropis lutrensis), blacktail shiner (Notropis venustus), and largemouth black bass (Micropterus salmoides). Population decreases are indicated for gizzard shad (Dorosoma cepedianum) and white bass (Morone chrysops). Log perch (Percina caprodes) and spotted largemouth bass (Micropterus punctulatus) were captured for the first time in the lake. Because recession in the lake exposed dense woody vegetation in all areas where seining had been previously done, and because suitable new locations for this work were not located, adequate seining was impossible during the last three months of work. For that reason data from these collections is not included in Table No. II.

Remarks:

A continuation of this job has been requested and approved for next segment. During this period, fifty-four man days were spent working at the lake, and an estimated nine man days were spent working on this job at the laboratory.

SUMMARY

1. Lake Brownwood receded approximately 49,000 acre feet during the year and was refilled during April and May, 1955.

2. Netting collections indicate river carp suckers, long nose gar, freshwater drum, and largemouth bass are increasing, and that white bass and southern channel catfish populations are decreasing.

3. Seining collections indicate mosquito fish, red shiners, blacktail shiners and largemouth black bass are increasing, and that gizzard shad and white bass are decreasing. Log perch and spotted bass were taken for the first time.

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

Table I

Netting Collections From Lake Brownwood

Species	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Mar.	Apr.	May	Total	% by No.	% by Wt.	Avg. K
Dorosoma cepedianum	40	38	13	23	2	41	51	31	61	21	321	41.69	18.64	1.83
Carpiodes carpio	23	11	0	1	2	31	14	1	28	9	120	15.58	18.95	2.38
Ictiobus bubalus	0	3	6	5	4	4	0	1	17	4	44	5.72	12.65	3.48
Cyprinus carpio	0	2	1	2	2	0	0	0	0	2	9	1.17	5.20	2.40
Lepisosteus osseus	0	0	2	3	8	0	0	0	4	0	17	2.21	8.54	.290
Aplodinotus grunniens	9	0	41	1	0	0	0	0	1	2	54	7.01	4.75	2.38
Pilodictus olivaris	0	1	0	0	0	0	0	0	0	1	2	.26	.92	1.95
Morone chrysops	41	11	4	10	0	22	5	6	2	0	101	13.12	15.95	2.20
Micropterus salmoides	7	0	0	0	1	4	0	0	0	1	13	1.68	5.04	2.59
Ictalurus punctatus	0	9	3	1	5	4	2	9	6	5	44	5.72	4.23	1.93
Pomoxis annularis	8	11	5	0	0	0	2	4	11	4	45	5.84	5.15	3.29
	128	186	75	46	24	116	74	52	130	49	770	100.	100.	

Table II

Seining Collections From Lake Brownwood

Species	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Total	% by Number
Gambusia affinis	145	200	75	31	12	0	120	28	611	23.41
Notropis lutrensis	21	180	21	18	64	28	16	24	372	14.25
Notropis venustus	0	64	10	38	21	30	8	0	171	6.60
Notropis amabilis	0	28	18	0	0	21	30	0	97	3.77
Notemigonus chrysoleucas	0	24	20	0	0	10	0	18	72	2.75
Pimephales vigilax	24	50	12	24	0	12	14	0	136	5.21
Fundulus notatum	38	21	38	24	12	21	60	0	214	8.20
Hybognathus placitus	14	8	12	0	0	25	12	0	71	2.72
Percina caprodes	0	10	0	0	0	0	18	0	28	1.07
Ictiobus bubalus	2	0	0	1	0	2	0	0	5	.19
Carpiodes carpio	0	2	4	0	4	7	0	0	17	.65
Dorosoma cepedianum	8	14	41	6	14	2	17	0	102	3.90

Table II (Continued)

Seining Collections From Lake Brownwood

Species	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Total	% by Number
Lepisosteus osseus	0	4	2	0	0	0	0	0	6	.23
Micropterus salmoides	6	2	8	4	6	6	4	0	36	1.38
Micropterus punctulatus	0	4	4	2	2	8	5	0	25	.95
Pomoxis annularis	10	20	4	2	8	2	4	6	56	2.14
Morone chrysops	4	6	0	0	0	1	2	19	32	1.23
Lepomis macrochirus	20	25	18	24	61	40	31	47	266	10.19
Lepomis microlophus	18	6	0	2	2	2	8	12	50	1.91
Lepomis cyanellus	20	18	13	21	18	20	2	0	112	4.29
Lepomis auritus	0	4	2	22	31	2	22	12	95	3.64
Chaenobryttus coronarius	0	8	6	9	2	4	4	2	35	1.34
	316	704	304	240	257	218	390	180	2,609	100.00