

## SEGMENT COMPLETION REPORT

STATE OF TEXAS

Project No. F5R3 Name Fisheries Investigations and Surveys of the Waters of Region 3-B.

Job No. B-10 Title Inventory of Species Present in Lake J. B. Thomas near Synder, Texas.

Period Covered: June 22, 1954 - May 1, 1956

### ABSTRACT

Lake J. B. Thomas increased by about thirty percent during the 1955 - 56 period. Fifty-man days work at the lake included fifteen seining collections, sixteen gill net collections, and seven water analysis collections. All of the principal game species and many desirable forage species increased numerically and by percent. Reductions in yellow bullheads and river carpsuckers is regarded as favorable. Redhorse shiners had gained dominance over similar species, and evidence of successful spawning activity was obtained.

### OBJECTIVES

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

### PROCEDURE

Sixty-nine gill nets were set at ten locations in the reservoir. Experimental nylon gill nets measuring 125 feet long by eight feet deep and made up in five, 25 foot 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.

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

### FINDINGS

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 Upper Colorado River Municipal Water District. The reservoir impounded its first water, about 4,000 acre feet 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 in volume to 134,480 acre feet in May 1955; to 180,000 acre feet November of the same year, and had 163,800 acre feet volume in April 1956 when the year's work was completed. The maximum storage capacity for Lake J. B. Thomas is 220,000 acre feet and the reservoir has flood control potential for 255,000 acre feet. All impounded water is owned by the Colorado River Municipal Water District and is to be used to fulfill the municipal and the industrial requirements for Big Spring, Odessa and Snyder, Texas. The contributing watershed of approximately 751 square miles is exclusively within the Permian Basin, and soil types are generally sands and red or brown sandy loams. Average annual rainfall is 21.15 inches, average maximum temperature is 82°F, and average minimum is 42°F. Most of the watershed is utilized for ranching; however, in the northwestern "Lamesa" area irrigated and "dryland" farming is extensive. Four oil wells were surrounded by the lake; however these wells are adequately protected and no evidence of pollution has been discovered. Drilling activity increased the original number to seven wells now producing in the inundatable area, and exploration continues. During the year no recordable turbidity was observed, total solids were about 150 ppm and pH was from 8.3 to 8.4. Minimum dissolved oxygen content recorded was 9.5 ppm, and the maximum carbon dioxide content recorded was 5 ppm.

#### AQUATIC VEGETATION

Except algae and minute pelagic forms there is no aquatic vegetation in Lake J. B. Thomas.

#### FISH POPULATIONS

There was a notable increase in number and condition of virtually all fish populations during the year. As shown in the following charts 1,907 individuals representing nine families and nineteen species were taken in seining and netting collections. Sampling included fifteen seining collections and sixteen gill net collections. This work brought total sampling to sixty-nine gill net sets and forty-two seining collections.

Game Fish - In game species probably the most increases were for white bass (Roccus chrysops) and flathead catfish (Pylodictus olivaris), and the only species not exhibiting rapid increases were sunfishes (Lepomis). Southern channel catfish (Ictalurus punctatus) improved in condition.

Species of Questionable Benefit - The only populations where data obtained indicated decreases were yellow bullheads (Ictalurus natalis) spottail shiners (Notropis venustus), mosquitofish (Gambusia) and river carpsuckers (Carpoides carpio).

Important Forage Species - Redhorse shiners (Notropis lutrensis) had apparently gained dominance over similar species. The high ratio of mosquitofish was being reduced, and gizzard shad (Dorosoma cepedianum) were increasing.

#### REMARKS

In the spring of 1955 extensive fish kills were observed in the reservoir.

Principal species effected were gizzard shad, river carpsuckers, and white crappie. A few largemouth bass were also killed at that time. The reason for these kills was not clearly established; however oil sludge had escaped during drilling activity on the north shore of the lake. Final data for this survey is being prepared for the final year's work at this time and in order to conserve time and other costs of publication and to prevent duplication of information in that report no additional analysis is included at this time.

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Date April 8, 1957

Netting Collections from Lake J. B. Thomas May 1, 1955 through April 31, 1956

| Species                         | July       |       | October    |       | January    |       | March      |       | Total      | Percentages   |
|---------------------------------|------------|-------|------------|-------|------------|-------|------------|-------|------------|---------------|
|                                 | No.        | %     | No.        | %     | No.        | %     | No.        | %     |            |               |
| <u>Dorosoma cepedianum</u>      | 61         | 32.10 | 48         | 32.00 | 36         | 36.00 | 98         | 55.69 | 243        | 39.20         |
| <u>Carpionodes carpio</u>       | 24         | 12.64 | 18         | 12.00 | 13         | 13.00 | 12         | 6.82  | 67         | 11.10         |
| <u>Cyprinus carpio</u>          | 1          | .53   | 0          | 0     | 0          | 0     | 3          | 1.71  | 4          | .58           |
| <u>Moxostoma congestum</u>      | 0          | 0     | 0          | 0     | 0          | 0     | 1          | .57   | 1          | .13           |
| <u>Lepisosteus osseus</u>       | 0          | 0     | 2          | 1.33  | 2          | 2.00  | 0          | 0     | 4          | .58           |
| <u>Ictalurus natalis</u>        | 32         | 16.84 | 10         | 6.66  | 0          | 2.00  | 2          | 1.14  | 44         | 7.10          |
| <u>Pylodictus olivaris</u>      | 0          | 0     | 4          | 2.67  | 4          | 4.00  | 3          | 1.69  | 11         | 1.70          |
| <u>Ictalurus punctatus</u>      | 21         | 11.05 | 13         | 8.67  | 4          | 4.00  | 16         | 9.10  | 54         | 9.00          |
| <u>Micropterus salmoides</u>    | 3          | 1.56  | 4          | 2.67  | 7          | 7.00  | 5          | 2.81  | 19         | 3.09          |
| <u>Rocoxis chrysops</u>         | 21         | 11.05 | 0          | 0     | 2          | 2.00  | 0          | 0     | 23         | 3.80          |
| <u>Pomoxis annularis</u>        | 2          | 1.06  | 0          | 0     | 0          | 0     | 2          | 1.14  | 4          | .58           |
| <u>Chaenobryttus coronarius</u> | 4          | 2.12  | 3          | 2.00  | 0          | 0     | 18         | 10.23 | 25         | 4.21          |
| <u>Lepomis (Sunfishes)</u>      | 21         | 11.05 | 48         | 32.00 | 32         | 32.00 | 16         | 9.10  | 117        | 19.01         |
| <b>Totals</b>                   | <b>190</b> |       | <b>150</b> |       | <b>100</b> |       | <b>176</b> |       | <b>612</b> | <b>100.08</b> |

## Seining Collections from Lake J. B. Thomas May 1, 1955 through April 31, 1956.

| Species                         | July | October | January | March | April | Total | Percentage |
|---------------------------------|------|---------|---------|-------|-------|-------|------------|
| <u>Notropis lutrensis</u>       | 201  | 100     | 100     | 150   | 84    | 635   | 48.39      |
| <u>Pimephales vigilax</u>       | 21   | 50      | 50      | 50    | 50    | 221   | 16.84      |
| <u>Hybognathus placidus</u>     | 8    | 16      | 24      | 24    | 24    | 96    | 7.31       |
| <u>Dorosoma cepedianum</u>      | 0    | 4       | 4       | 0     | 2     | 10    | .71        |
| <u>Carpionodes carpio</u>       | 2    | 4       | 9       | 0     | 0     | 15    | 1.11       |
| <u>Aplodinotus grunniens</u>    | 0    | 2       | 2       | 0     | 6     | 10    | .71        |
| <u>Ictalurus natalis</u>        | 21   | 12      | 0       | 12    | 8     | 53    | 4.02       |
| <u>Ictalurus punctatus</u>      | 0    | 2       | 7       | 0     | 13    | 22    | 1.61       |
| <u>Micropterus salmoides</u>    | 2    | 8       | 5       | 0     | 1     | 16    | 1.20       |
| <u>Roccus chrysops</u>          | 0    | 0       | 8       | 12    | 7     | 27    | 2.09       |
| <u>Pomoxis annularis</u>        | 8    | 12      | 17      | 5     | 4     | 46    | 3.50       |
| <u>Chaenobryttus coronarius</u> | 2    | 0       | 3       | 4     | 0     | 9     | .68        |
| <u>Lepomis macrochirus</u>      | 14   | 24      | 36      | 18    | 20    | 112   | 8.60       |
| <u>Lepomis cyanellus</u>        | 0    | 6       | 2       | 5     | 11    | 24    | 1.82       |
| <u>Lepomis microlophus</u>      | 0    | 2       | 1       | 2     | 2     | 7     | .53        |
| <u>Lepomis auritus</u>          | 0    | 2       | 1       | 3     | 3     | 9     | .68        |
| Total                           | 279  | 244     | 269     | 285   | 235   | 1312  | 99.80      |

