

JOB COMPLETION REPORT

As required by

FEDERAL AID IN FISHERIES RESTORATION ACT

TEXAS

Federal Aid Project No. F-4-R-10

Fisheries Investigations and Surveys of the Waters  
of Region II-A

Job No. B-30: Resurvey of Possum Kingdom Lake

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## ABSTRACT

Monthly gill net collections taken between November 1, 1962 and October 31, 1963 collected 18 species of fish. Data collected during this segment of work is comparable to that taken in 1961-1962 (Job B-30). Netting done in 1961-1962 showed a population of 54.42 per cent rough fish and 45.58 per cent game fish. The results of netting during this segment show 47.40 per cent rough fish and 52.60 per cent game fish with gizzard shad being the most numerous species both in the 1961-1962 and 1962-1963 netting.

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Period Covered: November 1, 1962 to October 31, 1963

Objectives:

To conduct investigations to obtain current information concerning the fish population and factors influencing that population.

Techniques Used:

Gill net collections, using nets 100 feet long by eight feet deep with one and one-half inch square mesh, were made at monthly intervals utilizing previously established net stations where possible. All fish species taken in the nets were identified, weighed, measured and examined for evidence of sexual maturity and food habits.

Seine sampling was abandoned on the lake proper due to the fluxuation in water levels which made the former seine stations unusable. Seining was restricted to the river channel immediately above the lake.

History:

Possum Kingdom Lake was the first major impoundment on the Brazos River. This multipurpose reservoir was completed in 1941 to be used for flood control, hydroelectric power, irrigation and municipal uses. At spillway level, 10,991 acres of land are inundated to an average depth of 36.69 feet.

A closed season was imposed on this lake during the first year after impoundment. The bass fry, that were stocked immediately after closure of the dam, grew rapidly in this lake which filled to spillway level in a few weeks. Fishing was excellent after the season was opened particularly for largemouth bass. This condition continued for approximately ten years.

Following three years of netting an attempt was made to control gizzard shad (Dorosoma cepedianum) with rotenone applied by the use of airplanes. This application was made in August 1958 and was unsuccessful as shown by post-treatment netting.

Bad weather hampered the reconnaissance netting during the time allocated to survey Possum Kingdom Lake in 1961-1962. The reports of poor fishing together with the lack of data during the 1960-1961 reconnaissance prompted the recommendation that a resurvey be made on this lake.

Gill net collections (Table No. 3) are comparable with those made during 1961-1962 (Table No. 4) Job B-30. Net collections during this segment of work produced eighteen species of fish.

Results:

Spotted and longnose gar show no appreciable change (Table No. 1) when compared with previous collections.

Gizzard shad show an increase in per cent of number, per cent of weight, number per 100 feet of net and pounds per 100 feet of net as compared to net collections from 1961-1962 (Table No. 4).

No change in the carp population was noted and only a slight change in that of buffalo but the carpsucker indicate a small decrease in both per cent of number and per cent of weight.

Channel and flathead catfish show no substantial change in either numbers or weight compared with data from the previous year.

White bass display an increase in the per cent of number from 3.97 in 1961-1962 to 5.05 in 1962-1963. White bass also display an increase in the per cent of weight with 4.70 in 1961-1962 and 5.06 in 1962-1963. Largemouth bass exhibit an increase in the per cent of number and the per cent of weight. Fishermen have reported satisfactory catches of yearling largemouth bass.

Warmouth and green sunfish were not taken in gill nets during 1961-1962 and are represented during the 1962-1963 segment with only one individual each. Redear and bluegill, the most numerous of the sunfishes in Possum Kingdom demonstrate a slight drop in per cent of number. The longear sunfish, (Lepomis megalotis) was added to the species list for the lake during this segment.

White crappie show a drop in per cent of number with 6.05 in 1958-1959, 5.48 in 1961-1962 and 1.57 per cent in 1962-1963. White crappie exhibit an increase in average length with 193 millimeters in 1961-1962 and 198 millimeters in 1962-1963 but indicate a drop in the average "k" factor.

Seining was restricted to the river channel immediately above the lake. A single seine sample which was taken on the sand flats of the Brazos River, using a twenty foot seine, produced 60 sharpnose shiners (Notropis oxyrhynchus), 136 Brazos River shiners (Notropis brazosensis), 3 redhorse shiners (Notropis lutrensis) and a number of channel catfish fry.

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Prepared by Dwane Smith  
Co-Leader

Approved by Marion Toole  
Coordinator Inland Fisheries

Date February 10, 1964

JOHN E. TILTON  
Regional Supervisor

Table No. 1. Comparison of gill net data, Possum Kingdom Lake, 1961-1962 and 1962-1963.

| Species            | 1961-1962   |                    | 1962-1963   |                    |
|--------------------|-------------|--------------------|-------------|--------------------|
|                    | Number      | Per Cent of Number | Number      | Per Cent of Number |
| Spotted gar        | 6           | 0.56               | 30          | 1.96               |
| Longnose gar       | 56          | 5.29               | 58          | 3.81               |
| Gizzard shad       | 397         | 37.49              | 698         | 45.82              |
| Smallmouth buffalo | 3           | 0.28               | 8           | 0.53               |
| River carpsucker   | 28          | 2.65               | 21          | 1.38               |
| European carp      | 3           | 0.28               | 4           | 0.26               |
| Channel catfish    | 59          | 5.57               | 90          | 5.91               |
| Flathead catfish   | 3           | 0.28               | 1           | 0.07               |
| White bass         | 42          | 3.97               | 77          | 5.05               |
| Largemouth bass    | 32          | 3.02               | 75          | 4.93               |
| Warmouth           | 00          | 0.00               | 1           | 0.07               |
| Green sunfish      | 00          | 0.00               | 1           | 0.07               |
| Redear sunfish     | 99          | 9.35               | 98          | 6.43               |
| Bluegill sunfish   | 263         | 24.83              | 322         | 21.14              |
| Longear sunfish    | 00          | 00.00              | 2           | 0.14               |
| White crappie      | 58          | 5.48               | 24          | 1.57               |
| Black crappie      | 1           | 0.10               | 3           | 0.20               |
| Freshwater drum    | 9           | 0.85               | 10          | 0.66               |
| <b>Total</b>       | <b>1059</b> | <b>100.00</b>      | <b>1523</b> | <b>100.00</b>      |

Table No. 2. Comparison of gill net data, Possum Kingdom Lake, 1961-1962 and 1962-1963.

| Species            | Weight<br>(Lbs.) | Per Cent of<br>Weight | Weight<br>(Lbs.) | Per Cent of<br>Weight |
|--------------------|------------------|-----------------------|------------------|-----------------------|
| Spotted gar        | 18.34            | 2.63                  | 42.61            | 3.95                  |
| Longnose gar       | 152.09           | 21.81                 | 207.42           | 19.23                 |
| Gizzard shad       | 184.03           | 26.39                 | 354.43           | 32.86                 |
| Smallmouth buffalo | 25.15            | 3.61                  | 51.16            | 4.74                  |
| River carpsucker   | 44.59            | 6.39                  | 47.45            | 4.40                  |
| European carp      | 4.36             | 0.63                  | 17.37            | 1.62                  |
| Channel catfish    | 82.63            | 11.85                 | 108.51           | 10.06                 |
| Flathead catfish   | 4.47             | 0.64                  | 1.00             | 0.09                  |
| White bass         | 32.78            | 4.70                  | 54.59            | 5.06                  |
| Largemouth bass    | 31.19            | 4.47                  | 71.59            | 6.64                  |
| Warmouth           | 00.00            | 00.00                 | 0.37             | 0.03                  |
| Green sunfish      | 00.00            | 00.00                 | 0.27             | 0.03                  |
| Redear sunfish     | 25.69            | 3.69                  | 26.25            | 2.43                  |
| Bluegill sunfish   | 61.14            | 8.77                  | 79.34            | 7.36                  |
| Longear sunfish    | 00.00            | 00.00                 | 0.41             | 0.04                  |
| White crappie      | 25.66            | 3.68                  | 10.31            | 0.95                  |
| Black crappie      | 0.31             | 0.04                  | 1.57             | 0.15                  |
| Freshwater drum    | 4.83             | 0.70                  | 3.85             | 0.36                  |
| <b>Total</b>       | <b>697.26</b>    | <b>100.00</b>         | <b>1,078.50</b>  | <b>100.00</b>         |

