Report of Fisheries Investigations

Inventory of Species Present in Lake Fort Phantom Hill near Abilene, Texas

by

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Dingell-Johnson Project F-5-R-4, Job B-18
April 16, 1956 - April 15, 1957

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SEGMENT COMPLETION REPORT

State of TEXAS

Project No. F5R4 Name: Fisheries Investigations and Surveys of the Waters of Region 3-B.

Job No. B-18 Title: Inventory of Species Present in Lake Fort Phantom Hill near Abilene, Texas.

Period Covered: April 16, 1956 to April 15, 1957

ABSTRACT:

Unanticipated difficulties encountered on other jobs limited the extent of work done on Fort Phantom Hill during this segment. Six gill net collections yielded only six different species with gizzard shad and river carpsuckers being the dominant rough species taken and white crappie being the prevalent game species taken. Seining collections yielded seven additional species with redhorse shiners being the most numerous species collected. This job is to be continued during the next segment.

OBJECTIVES:

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

PROCEDURE:

Netting collections were made at six locations in Lake Fort Phantom Hill. Experimental nylon gill nets, measuring 125 feet long by 8 feet in depth and made up in five, 25 foot sections were used. Mesh size of these nets increased progressively in each following section at one-half inch intervals, beginning with one-inch mesh and terminating with a three-inch mesh section.

Seining collections were made at five locations on the lake. Commonsense seines with one-fourth inch mesh were used for these collections. To estimate relative abundance a count was made of all individuals taken.

Samples from netting collections were weighed and measured in the field. Stomach contents and sexual maturity were also observed in an effort to obtain ecological information.

FINDINGS:

Limitations - Because of unanticipated difficulties encountered in work on the river surveys, primarily that for the Upper Colorado System and for the Pecos River, inventory work on Fort Phantom Hill Reservoir and on Hords Creek Reservoir was not begun until the latter months of the year. For this reason insufficient data was obtained for a comprehensive evaluation, and it is proposed that these studies be continued during the 1957-58 period.

Description - Lake Fort Phantom Hill is located on Elm Creek, twelve miles northeast of Abilene in Jones County. It is one of three water supply lakes for the City of Abilene. Built in 1938 by the Freeze and Nichols Construction Co. of Fort Worth, this lake has a dam 3,639 feet long with a height of 85 feet.

Besides receiving water from Elm Creek, Fort Phantom Hill also has Cedar Creek, Little Elm Creek, Bull Creek, Deadman's Creek, and Rainy Creek in its watershed. These creeks compose a watershed of 384 square miles. There is a pumping station on the Clear Fork of the Brazos River which supplies the lake with additional water. The drainage area of the Clear Fork of the Brazos above the pumping station is approximately 1,500 square miles.

The lake has a capacity of 76,680 acre feet (24 billion gallons) and during the period covered by this report was approximately 62% full. At maximum capacity it covers an area of 3,950 acres, with a maximum depth of 65 feet and an average depth of 36 feet.

The water is slightly turbid and also slightly alkaline, having a pH recorded as 8.5. Most of the inundated area was not cleared of mesquite prior to the impoundment of water and the silty-sand bottom is covered with concentrations of these woody plants in various phases of decay. The lake shore is irregularly shaped. The bottom slopes gradually to the old stream bed which runs an erratic path through the lake. No oxygen deficiencies or excessive dissolved carbon dioxide content were recorded during inventory work. Temperatures of the water were not greater than 84 degrees F. nor less than 5 degrees F.

Netting Results - As this reservoir was netted on only two occasions during the period for a total sampling effort of six gill net collections the following data is fragmentary. More complete data will be obtained and presented during the year as this job is to be continued.

Species	No.	% Numerically	Avg. Wt. ounces	% by weight	Avg. K
Largemouth bass	2	2.1	22.6	3.14	2.24
White bass	9	9.4	22.0	14.14	2.16
Channel catfish	5	5.2	28.0	10.00	2.00
White crappie	14	14.7	9.0	9.00	3.26
Gizzard shad	38	40.0	5.0	13.50	1.86
River Carpsuckers	27	28.6	26.0	50.10	2.26

Seining Results - Because of high winds and other extreme weather conditions, the difficulty in locating suitable locations for seining, and the limited time available for this method of population sampling; data collected by seining is meager and at present completely inadequate. However, a number of species not taken in gill net collections were captured. The following is in a general sense an evaluation of that work.

Cyprinids and other forage species - Redhorse shiners (Notropis lutrensis) were numerous in all seining collections and were probably the dominant species of this group.

Parrot minnows (Pimephales vigilax) were also abundant and with Mosquitofish (Gambusia sp.) were probably subdominant dependent upon locality. Others of this group that were collected but were of a lesser importance were: Plains shiner (Notropis percobromus), River carpsucker (Carpiodes carpio), Carp (Cyprinus carpio) and Gizzard shad (Dorosoma cepedianum).

Game fish- Green sunfish (Lepomis cyanellus) and Bluegill sunfish (Lepomis macrochirus) were numerous.

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