

Report of Fisheries Investigations

Basic Survey and Inventory of Species Present and their
Distribution in the Pecos River of Texas

FILE

by

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Dingell-Johnson Project F-5-R-4, Job B-13
April 16, 1956 - April 16, 1957

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JOB COMPLETION REPORT

State of TEXAS

Project No. F-5-R-4

Name: Fisheries Investigations and Surveys of the Waters of Region 3-B.

Job No. B-13

Title: Basic Survey and Inventory of Species Present and their Distribution in the Pecos River of Texas.

Period Covered:

April 16, 1956 through April 16, 1957

ABSTRACT:

The portions of the Pecos River and its principal tributaries between the Texas-New Mexico Border and Sheffield, Texas were studied. Portions of this stream area are intermittent, and are controlled by Red Bluff Reservoir. The stream from Imperial, Texas to Sheffield is fed by springs as well as run-off and is of a permanent nature.

Fifty-nine man days were spent working on the above portion of the river, twenty-two seining collections and three gill net collections were obtained.

Twenty-six species of ten families were identified from collections.

White bass are the most important game species of the area, and roundnose minnows and redhorse shiners are apparently the most important forage species.

Rainbow trout were found in a tributary of Delaware Creek and redfish were found near Imperial, Texas.

OBJECTIVES:

To gather fundamental data on the above waters in regard to their physical, chemical and biological aspects. To determine the distribution of fish species present, their relative abundance and the ecological factors influencing their distribution.

COOPERATING AGENCIES:

Texas Board of Water Engineers
United States Geological Survey
Red Bluff Power Water and Control District

PROCEDURE:

a. Basic Survey

By standard procedures to secure the information necessary to complete stream survey forms similar to those given by Lagler in his HANDBOOK OF FRESHWATER FISHERY BIOLOGY.

b. Inventory of Species

To set up seining stations as may be deemed necessary to adequately sample fishery populations as to their distribution and relative abundance.

1. Because of the stream conditions it was impossible to take population samples in a predetermined random method for much of the area worked; however where this procedure could be followed it was employed.
2. Two nylon gill nets were set at netting stations on the river. Experimental nets 125 ft. long by 8 ft. deep, and in 25 ft. sections of varying mesh were used. Mesh ranges were from one-half inch to three inches increasing at one-half inch intervals each 25 ft. length.
3. Water analysis, pH, air and water temperatures, and other data pertaining to water quality and conditions were recorded at appropriate intervals of the stream area worked.
4. Where field identification was in doubt individuals were preserved in 10% formalin and examined in the laboratory.

FINDINGS:

As stream surveys for both the Colorado and Pecos Rivers required much more work than was anticipated it was concluded that in order to save travel time and for other practical purposes, it would be desirable to complete the Colorado River survey first. For that reason only ten days, fifty-nine man days, were spent working on the Pecos drainage. Travel distances involved were extensive and field work was limited in terms of actual data obtained. The areas worked included McKittrick Canyon on Delaware Creek drainage in the Guadalupe Mountains, Toyah draw and Balmorhea area, and portions of the river from the New Mexico line to Sheffield, Texas.

Four new species and three families were added to the species distribution check list. These were: Gambusia gaigei (Big Bend mosquitofish), Dionda episcopa (roundnose minnow), Astyanax fasciatus (banded tetra), and Cichlasoma cyanoguttatum (Rio Grande cichlid).

The ranges and importance of these species was not established; however it was apparent that roundnose minnows dominated the lower river more completely than any cyprinid dominated the areas previously surveyed.

Rainbow trout (Salmo gardneri) were observed in McKittrick Canyon in the Guadalupe Mountains; however it is known that these fish were introduced. There was some evidence of reproduction.

A netting attempt to obtain additional information on the red fish or channel bass (Sciaenops ocellata) that were released by the Commission near Imperial, Texas was unsuccessful; however individuals recaptured by sportsmen and mailed to the marine biological staff for identification indicated that these fish survived and were in excellent condition.

Stream conditions change abruptly below Grandfalls, Texas. The area previously worked (from the New Mexico border to Grandfalls) was characterized by an intermittent

pool condition surrounded by alkaline marshes in localities that permitted slight contributions through seepage. Below Grandfalls to Sheffield, Texas (the lower extent of the area covered during the segment), the river is spring fed and has a continuous flow. Seining and netting in the stream is very difficult because of dense vegetation; however the water is clear and fish life is abundant.

A study of the irrigation practices employed at Balmorhea, on that reservoir, indicated that such practices prevented further consideration of future development work at that reservoir.

SUMMARY:

1. The survey was continued downstream to the Sheffield area; however, for convenience and for practical purposes (as best utilization of work time) it was concluded that the Colorado River Survey should be completed during the segment before extensive work was continued on the Pecos watershed. For that reason only ten days, fifty-nine man days, were spent on this job and much of that time was necessary for travel.

2. Four species of three families were added to the check list. Ranges of these species were not established accurately; however, it was obvious that roundnose minnows dominated the lower river more positively than any cyprinid dominated the area previously studied.

3. Rainbow trout were observed in McKittrick Canyon and an attempt was made to obtain additional information on the red fish or channel bass released by the Commission near Imperial, Texas.

4. Stream conditions change abruptly from an intermittent pool condition to a permanent flow stream in the Grandfalls area.

5. A study of irrigation practices at Balmorhea Lake indicated that development work at that reservoir was impractical.

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