

Some Recent Changes in the Fish Fauna of Lake Texoma¹

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The fish fauna of Lake Texoma is not well known. The 95,000-acre impoundment of the Red and Washita rivers, lying in Oklahoma and Texas, is too large for intensive study by individuals or small groups. Its more than 700 miles of shoreline include many types of aquatic habitats, that are constantly changing, chiefly because of seasonal fluctuations of water level and the steadily increasing maturity of the lake.

Although several agencies have contributed to studies of the fishes of Lake Texoma, including the Oklahoma Game and Fish Department, the Texas Game, Fish, and Oyster Commission, the University of Oklahoma Biological Station, and the U. S. Army Corps of Engineers, no complete list of the fishes has been published. Bonn and Riggs (unpublished) gave a preliminary list of the fishes of Lake Texoma at the 1954 meeting of the Southwestern Association of Naturalists, which included 64 species. Only a few annotations were included.

Since 1949, Riggs and colleagues have regularly collected fishes from the lake, particularly in the summer in the vicinity of the University of Oklahoma Biological Station. This collecting has been by gill-netting, seining, fyke-netting, trapping, rotenone, and an electric shocker—primarily by the first two methods mentioned. During this time, especially during the past 18 months, several rather marked changes in the fish fauna have been indicated. We do not know the causes for most of these changes. We do feel that the two-year period (1952-1953) of consistently low water with only small fluctuations in level and the resulting environmental stability must have favorably affected several species, e. g., young-of-year of the following species were unusually abundant in 1954: *Lepisosteus platostomus*, *L. productus*, *L. osseus*, *Amphiodon atosoides*, *Cyprinus carpio*, *Morone chrysops*, and *Micropterus salmoides*.

The abundance of the following species appears to have changed sufficiently to be worthy of mention:

Aspnyanax fasciatus mexicanus, Mexican banded tetra. This species was taken in four different seine collections made with small (6 x 4-foot) seines from July 19 to October 8, 1954; one, four, nine, and ten specimens were collected. On July 22, nine *Aspnyanax* were taken by rotenone from a small pond on one of the islands in Texoma, the same pond which was treated with rotenone in 1952 by Riggs and Smithpeter (2). During this 1952 operation the first *Aspnyanax* was collected and later reported by Riggs (1) who attributed its presence to a bait-bucket introduction. Several biologists of the region expressed opinions that this tetra could not survive the cold winters and would not increase in numbers. These opinions are not substantiated by our 1954 collections. The fish taken ranged from 2 to 3.75 inches in total-length, and were collected as far as 9 miles apart. It is very doubtful that annual bait-bucket introductions in a lake as large as Texoma could provide so many individuals over so wide a range.

Minytrema melanops, spotted sucker. Mr. Ed Bonn of the Texas Game, Fish, and Oyster Commission took one spotted sucker in 1951 and one in 1953. The first was taken in a gill-net from the lake near the Biological Station; the second was seined from Buncombe Creek. On June 21, 1954, we seined one 9-inch specimen from Buncombe Creek about one mile above its mouth. We have never taken it in several hundred gill-net collections.

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Ameiurus melas, black bullhead. It is said that this species was common in Texoma shortly after impoundment. We have never taken it from the main part of the lake. Riggs and Smithpeter (2) reported it from a pond on Island 2, and Ed Bonn (unpublished) has reported taking it occasionally in Texas tributaries of the lake. This year, for the first time, we found it quite abundant in Buncombe and Briar creeks.

Amcturus natalis, yellow bullhead. This species, like the black bullhead, was taken abundantly for the first time this year. The locality was Briar Creek.

Notropis boops, bigeye shiner. To our knowledge this species has not been taken previously in Lake Texoma. We took one specimen from Briar Creek about one mile up from its mouth on June 28, 1954.

Notropis buchani, ghost shiner. During the first three years of collecting in Lake Texoma the ghost shiner was taken regularly, but in small numbers. During 1953 and especially in 1954 we took it frequently and often abundantly. It was most abundant in quiet coves, particularly where the bottom is silt or fine sand, but it was also abundant along many areas of the shore of the main part of the lake.

Fundulus kansae, plains killifish. In past years this fish has been collected regularly in several of the tributaries in the vicinity of the Biological Station. In 1954 only one specimen was taken from these same tributaries in spite of intensive seining. The two-year drought is apparently the major cause of the sudden depletion.

Menidia audens, Mississippi silversides. This species is very common in the Red Rived below the dam, especially in the spring. Ed Bonn (unpublished) reported one specimen taken near Delaware Bend of the Red River arm of the lake in 1953. For the past two years we have watched for it in the vicinity of the Biological Station. While making the first two summer collections in Lake Texoma this year we noticed an abundance of what we took to be half-grown *Labidesthes sicculus*, the brook silversides. Finally we took a large adult fish (4 inches, total-length) which was unmistakably *Menidia*. This, we thought, was our first record for the lake. However, when we examined our collections carefully in the laboratory we found that of the 276 atherinids collected, 222 were *Menidia*. It was later taken abundantly in five other collections, and was present in a sixth. A thorough examination of the atherinids in the 1952 and 1953 collections revealed nothing but *Labidesthes*. However, a collection made by Dowell, March 20, 1954, in upper Buncombe Creek, about $\frac{1}{4}$ mile upstream from Camp Jack Little, included six *Menidia*. These had been previously identified as *Labidesthes*.²

It is difficult to explain this explosive appearance of this species. If it had been present in the vicinity of the Biological Station, even in small numbers during the previous two years, we should have collected at least one specimen. That it was present in the lake is attested by the specimen which Ed Bonn collected, but again, had it been present in any numbers he would surely have taken more since he collects regularly in the Texas part of the lake.

Micropterus punctulatus, spotted bass. The decided increase in the numbers of this fish is well illustrated by sport fishermen's catches in 1954. Yearling fish were very abundant throughout the summer not only in catches made near the Biological Station, but in many other parts of the lake. It has only been an occasional component of the catch in previous years.

Lepomis microlophus, redear sunfish. We have taken no redear sunfish for the past three years. It was never collected more than occasionally, but did appear each year in both seine, gill-net, and angling catches.

²Note added May 26, 1955.

LITERATURE CITED

1. RIGGS, CARL D. 1954. The occurrence of *Astyanax fasciatus mexicanus* in Lake Texoma, Oklahoma. Proc. Oklahoma Acad. Sci. 33 (1952): 141.
 2. RIGGS, CARL D., AND ROGER SMITHPETER. 1954. The fish population of a small, periodically inundated island-pond in Lake Texoma, Oklahoma. Proc. Oklahoma Acad. Sci. 33 (1952): 49-55.
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