

personnel at the South Carolina Wildlife Resources Department Hatchery at Moncks Corner is greatly appreciated.

I am also indebted to Norval Netsch, Assistant Chief, Fish Management Division of the Tennessee Game and Fish Commission, for technical supervision; and to Mack Sellers, William Skaggs, Eldridge Cradic, Herbert Simpson, and Tom Hendrix, project personnel, for their assistance.

LITERATURE CITED

- Stevens, Robert E. A final report on the use of hormones to ovulate striped bass (*Roccus saxatilis*) Walbaum. 1964. Proceedings of the Nineteenth Annual Conference, Southeastern Association of Game and Fish Commissioners.
- Smith, William B., W. B. Bonner, and B. L. Tatum. Premature egg procurement from striped bass (*Roccus saxatilis*). 1966. Proceedings of the Twentieth Annual Conference, Southeastern Association of Game and Fish Commissioners (In print).

DISTRIBUTION OF THE STRIPED BASS, *ROCCUS SAXATILIS* (WALBAUM), IN MISSISSIPPI WATERS¹

BY THOMAS D. McILWAIN
Gulf Coast Research Laboratory
Ocean Springs, Mississippi

ABSTRACT

Striped bass, *Roccus saxatilis* (Walbaum), have been reported along the Gulf Coast from Florida to eastern Louisiana. This fish has been found in all major river systems along the Mississippi Gulf Coast from the Pascagoula River west to the Tangipahoa River. The striped bass population in the west Pascagoula River supports a small sports fishery and it is the only one that consistently yields fish from year to year. The Pascagoula fish range in size up to 32 pounds in weight. In the last two years striped bass from 7 to 28 pounds have been taken in February and early March and many of the larger fish contained roe. The population level in the other rivers appears to be too low to maintain a sports fishery. There is no concentrated effort by either sports or commercial fishermen to take striped bass in Mississippi waters and most of the striped bass now caught there are taken by fishermen while fishing for other fishes, particularly redfish (*Sciaenops ocellata*), or speckled trout (*Cynoscion nebulosus*).

INTRODUCTION

The data presented are the results of a preliminary survey of the striped bass population in Mississippi waters from 15 March 1967 to 1 August 1967.

The striped bass, *Roccus saxatilis* (Walbaum), is an anadromous species of great importance along the Atlantic Coast from South Carolina northward to the St. Lawrence River in Canada. It has been successfully introduced into California waters and now ranges from southern California to Washington and is a major sports fish.

The available literature on striped bass has been presented in a bibliography by Woodbridge and Hancock (1964) which has been revised by Massman (1967). A vast amount of information has been published on the striped bass of the Atlantic and Pacific Coasts. However, there

¹ This research was conducted in cooperation with the United States Department of Interior, Bureau of Commercial Fisheries and Sports Fisheries and Wildlife, under the Anadromous Fish Act (Project AFCS-1-1).

has only been a small amount of literature published on this species in the southeast portion of its natural range, which extends from South Carolina down to Florida and up through the northern Gulf into Lake Pontchartrain in Louisiana.

This fish has been found in all major river systems along the Mississippi Gulf Coast from the Pascagoula River west to the Tangipahoa River. The earliest published record of the occurrence of striped bass in Mississippi waters is by Wailes (1854). He reported this species in his catalog as *Labrax lineatus* Cuvier, but he failed to mention where in Mississippi it was collected. Bean (1884) reported one specimen taken from the Tangipahoa River near Osyka, Mississippi, and mentioned great schools of striped bass seen in that area. Raney and Woolcott (1955) mention several specimens taken from Mississippi. Cook (1959) reports one 14-pound striped bass taken from the Lower Pascagoula River. D. B. Heiliger (personal communication), formerly of the Federal Fish Hatchery, Lyman, Mississippi, observed one specimen taken from the Biloxi River that weighed 30 pounds. The author has received reports of striped bass being taken in all major rivers along the Mississippi Coast and has observed several specimens taken from the Lower West Pascagoula River which ranged in size from 7 to 28 pounds. These fish were taken in February and early March and many of the larger fish contained roe. This population in the West Pascagoula River supports a small sports fishery, but the population levels in the other rivers along the Mississippi coast appear to be too low to maintain a sports fishery. There is no concentrated effort by either sports or commercial fishermen to take striped bass in Mississippi waters and most of the striped bass now caught in Mississippi waters are taken by fishermen while fishing for other fishes near the coast, particularly the two marine species, redfish (*Sciaenops ocellata*) and speckled trout (*Cynoscion nebulosus*).

METHODS

Distribution records were obtained by several methods. Interviews with sport fishermen proved to be the most valuable source of information. Fish camp operator records were especially useful, as distribution records were available to confirm reports. A newspaper report was used for a locality record in one instance. Reliable commercial fishing records were also a valuable source of information in areas where commercial netting is allowed.

DISTRIBUTION

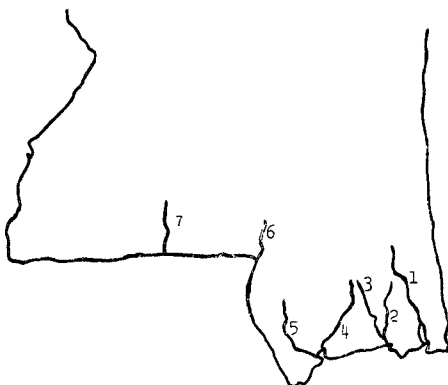
Striped bass are found in freshwater streams and estuarine waters in all major drainages along the Mississippi Gulf Coast. There is, however, no substantial striped bass fishery, either sports or commercial, in any of the Mississippi Gulf Coast drainages except the Pascagoula River.

An interesting point concerning distribution is that no records of this species were obtained from coastal marine waters. The absence of marine records indicates that the striped bass in Mississippi is non-migratory. Racial studies by Raney and Woolcott (1955) indicate that the striped bass in Mississippi and west Florida represent a distinct race. Therefore, the population is local and is not derived from migrants from streams to the east.

Locality Records (See Map)

The writer has found records of striped bass catches from both the east and west branches of the Pascagoula River and its many tributaries. This evidence has come from verbal reports, photographs, interviews with commercial fishermen, newspaper reports and mounted specimens. Records for other drainages include:

- Tchouticabouffa River—Verbal reports
- Biloxi River—Verbal reports, written reports and interviews
- Wolf River—Verbal reports
- Jourdan River—Verbal reports
- Pearl River—Verbal reports
- Tangipahoa River—Written reports



1. Pascagoula River
2. Tchouticabouffa River
3. Biloxi River
4. Wolf River
5. Jourdan River
6. Pearl River
7. Tangipahoa River

Pascagoula River Drainage

The Pascagoula River basin is the second largest river basin in the state comprising 8,900 square miles in southeast Mississippi. It has an average annual flow of 10,040 cubic feet per second. The Pascagoula River is formed by the confluence of the Leaf River and the Chickasawhay River just north of Merrill, Mississippi, and flows for only 80 miles before making its entry into the Mississippi Sound. The principal tributaries are the Bowie and Tallahala Creeks of the Leaf River and the Bucatunna Creek of the Chickasawhay River. The Escatawpa River is the major tributary of the Pascagoula River and it enters the Pascagoula only 7 miles above its mouth. The Pascagoula River splits into east and west branches 18 miles above the entrance of the river into the Mississippi Sound. The west branch of the river is unpolluted, but the east branch of the river is highly industrialized and grossly polluted. The most polluted section in the basin is the lower Escatawpa in the Moss Point-Pascagoula area, and since this lower section of the stream is subject to a marked tidal effect, the pollution situation is paramount. With one exception all the reports of striped bass taken in the Pascagoula River basin have come from the west branch of the Pascagoula.

It is estimated that less than 25 persons in South Mississippi are avid striped bass fishermen. Angling effort for this species is mostly seasonal.

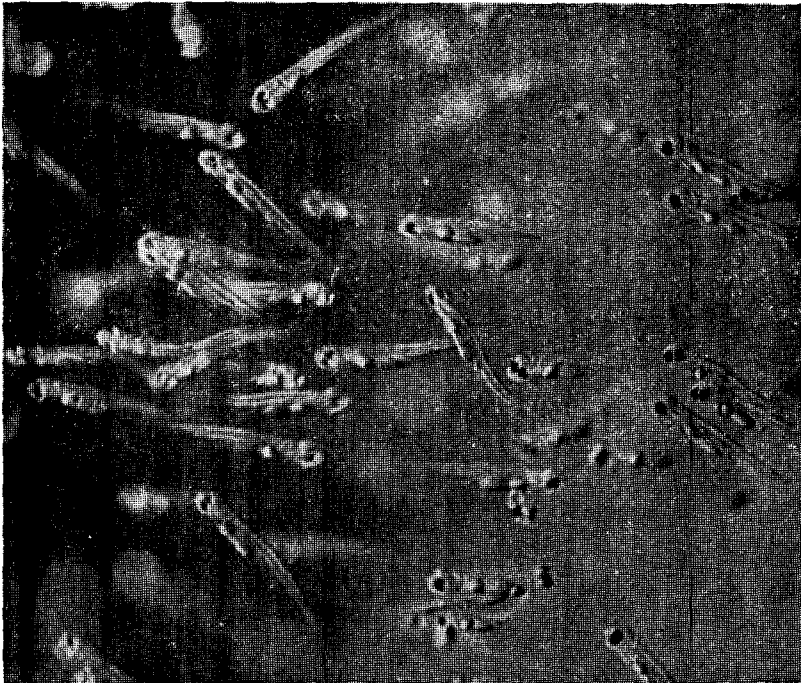
The striped bass fishery has two peak seasons on the Pascagoula River. The first is during the fall season, which occurs from mid-September to December. The second peak is in the early spring from mid-February to mid-March, which presumably is during the spawning season, for several large specimens contained well developed roe.

LITERATURE CITED

- Bean, Tarleton H. 1884. On the occurrence of the striped bass in the lower Mississippi Valley. Proc. U. S. Nat. Mus., 7:242-244.
- Cook, Fannye. 1959. Freshwater fishes of Mississippi. Game & Fish Comm. (Jackson). 239 pp.
- Massmann, W. H. 1967. Revision of H. C. Woodbridge and H. M. Hancock. 1964. A bibliography of the striped bass. Sport Fishing Inst. Sp. Publ., 26 pp.
- Raney, E. C. and William S. Woolcott. 1955. Races of the striped bass, *Roccus saxatilis* (Walbaum), in southeastern United States. Jour. Wildl. Mgt., 19:444-450.
- Wailes, B. L. C. 1854. Report on Agriculture and Geology of Mississippi, Chap. 6, pp. 332-337. Pub. by the State of Mississippi.
- Woodbridge, H. C. and H. M. Hancock. 1964. A bibliography of the striped bass or rockfish, *Roccus saxatilis* (Walbaum). Sport Fishing Inst. Sp. Publ., 24 pp.

PRELIMINARY OBSERVATIONS OF THE EFFECT OF TEMPERATURE ON STRIPED BASS EGGS AND SAC FRY

EUGENE H. SHANNON and WILLIAM B. SMITH
Division of Inland Fisheries
North Carolina Wildlife Resources Commission
Raleigh, North Carolina



ABSTRACT

Data gathered at the Weldon Striped Bass Hatchery, Weldon, North Carolina, during the years 1960-1967 indicated that the optimum spawn-