

**EVALUATION OF THE STRIPED BASS (*ROCCUS SAXATILIS*) AND WHITE BASS (*R. CHRYSOPS*)  
HYBRIDS AFTER TWO YEARS**

BY R. DAVID BISHOP  
*Tennessee Game and Fish Commission*  
Nashville, Tennessee



A three and a half pound—18 month old hybrid.

The initial crossings of striped bass and white bass, within a hatchery, were accomplished in April, 1965. Numerous crosses were made during the 1966 and 1967 spawning seasons.

The most successful crosses were obtained by fertilizing striped bass eggs with white bass sperm. The reciprocal cross has produced fry but the biologist-in-charge reported very poor survival.

A release of 35,000 fry produced in 1965 into a "semi-wild" environment provided excellent results. More than five thousand hybrids were recovered by shoreline seining prior to January, 1966.

Rapid growth occurred during the first two years. Individuals weighing up to 1.7 pounds at a year of age; up to 3.5 pounds at 18 months; and up to 4.8 pounds at two years were confirmed.

Ripe males were taken at an age of ten and a half months by sport fishermen during the 1966 white bass spawning run. Some females matured the second year and were also taken during the white bass run. An estimated 2,500 fish, averaging more than two pounds, were taken by sport fishermen from the initial stocking of 35,000 fry.

Reproduction was obtained from the hybrids by inducing the females to ovulate with hormone injections. Back-crosses using hybrid males and striped bass females were also successful.

More than 24,000 fingerlings were produced in a 1.2 acre hatchery pond from a stocking of 40,000 fry.

The hybrids, unlike both parent species, handle well under hatchery conditions. Adults have been held in concrete troughs for as long as seven months without mortality. During this period they attained considerable growth on a diet of live fathead minnows.

## INTRODUCTION

The desire for a large game fish, combined with the need for a shad controlling predator, has created a considerable interest in the striped bass. However, experimental releases of adult fish in several states and fertile eggs and fry in Tennessee and South Carolina have produced only limited success. None of the releases have created a fishery. The adult fish stocked failed to successfully reproduce and the survival of the millions of eggs and fry released apparently was a very low percentage.

In early 1965, through correspondence and phone conversations with R. E. Stevens of the South Carolina Wildlife Resources Department, it was decided to hybridize the striped bass with the white bass. If it produced a fish similar to the striped bass, but more adaptable to inland reservoirs, it might provide a satisfactory alternate.

The idea of hybridizing the striped bass had been discussed for several years. In 1963, biologists at North Carolina's Weldon hatchery were prepared to cross the male striped bass with the female white bass, but for unknown reasons the experiment was not conducted.

The development of the technique of ovulating striped bass with hormones (Stevens, 1964) produced viable eggs while male white bass were still ripe. Since it made hybridizing an easy process, the experiments were initiated in 1965.

## PROCEDURES

### *Hybrid Fry Production in 1965*

The procedure used in hybridizing the two species is the same as that used for producing striped bass fry (Stevens, 1964) except that white bass sperm is used. In following years, other biologists have produced fry by fertilizing white bass eggs with striped bass sperm and by fertilizing striped bass eggs with sperm of other *Roccus* species (personal correspondence). Thus far, the results of these crosses have been less successful.

There were three separate crosses made in 1965. The first two were made using white bass males acquired near the Moncks Corner hatchery, and the third was made using males transported from Douglas Dam, Tennessee. All crosses were successful in producing fry.

Data for the first two crosses were reported by Stevens (personal correspondence, 1966), and are summarized as follows:

On March 31, ten percent of the eggs from a large striped bass were fertilized with white bass sperm and ninety percent with striped bass sperm. Both developed normally and produced fry. After holding the fry six days, they were given to a local doctor (M.D.), who tried unsuccessfully to rear them in an aquarium. There were no estimates of the number of fry produced.

On April 10, an estimated 762,000 eggs from one striped bass were fertilized with sperm from three white bass. About twenty percent became fertile, and on April 13, the number of fry was estimated at 155,000. A die-off reduced the number to 45,000 by April 16. Three thousand were lost when exposed to water having a high pH. Two small farm ponds were stocked with 5,000 fry each, but apparently none survived. The remainder died in aquaria when attempts to rear them on prepared shrimp were unsuccessful.

White bass males used for the third cross were taken in gill nets below Douglas Dam, Tennessee. They were transported to Moncks Corner, South Carolina, in plastic bags and polystyrene boxes. They were kept as near 60°F. as possible to maintain the state of "ripeness." The fish were each placed in a bag containing four gallons of water and about a cubic foot of oxygen. They were held in the bags 30 hours without any losses.

On April 18, an estimated 120,000 eggs from a 20-pound striped bass were fertilized with sperm from three one-pound white bass. The remaining eggs were fertilized with striped bass sperm. The hybrid fry hatched in 47 hours at 67°F., whereas the striped bass hatched in 43 hours. There were no obvious differences in the fry.

There were approximately 80,000 fry, based on volumetric sampling, produced by this cross. They were held in an aquarium at the hatchery for 48 hours without a significant loss. Forty thousand were transported to Tennessee, in plastic bags, on April 22. Losses from the 14-hour trip by automobile were less than one percent.

#### *Tank Rearing Experiment*

Five thousand two-day-old fry were released into a fiberglass tank containing 600 gallons of pond water. On the eighth day the fry were observed feeding on zooplankton, and appeared to be in very good condition. On the ninth day most of the fry died, and the remainder were dead on the following day. The suspected cause of mortality is high water temperature. The temperature exceeded 80°F. on both days.

#### *Fry Stocked in the Frog Pond Refuge*

The survivors of the 35,000 hybrid fry released in the Frog Pond are the only known survivors of the three crosses made in 1965. Prior to the recovery of fingerlings from the area in October, 1965, it had not been proven that the hybrid could live beyond the fry stage. The fish that resulted from this fry release have provided the basis for much of the enthusiasm concerning the hybrid.

The Frog Pond was selected for the release of hybrid fry because of success, in previous years, with rearing other species from fry to fingerling, and striped bass fingerlings had been reared in the area in 1964. Since no hatchery facilities were available, it was the only area where recovery of hybrid fingerlings could be expected.

The Frog Pond is an isolated area of Cherokee Lake. Cherokee is a 30,000-acre reservoir at full-pool level. The water is used for power generation and flood control. It has an annual fluctuation of seventy to ninety vertical feet. The lake is located in eastern Tennessee in an area where large recessions have been formed in the limestone substrate. As a result, potholes are formed as the water level of Cherokee recedes during the fall of the year.

The Frog Pond, a 500-acre pothole, connects with the main reservoir through a surface channel during periods of high water. There are underground crevices in the limestone that allow the pothole to fluctuate with the reservoir, and in the winter, when the water level of Cherokee is lowered, the Frog Pond empties.

When the pothole fills in the spring, fish migrate in through two large crevices. Only a limited number enter the area, and since it is underpopulated when the reproductive season begins, the survival rate of fry is usually high. Most of the fish are stranded in small potholes when the water level drops and can be recovered by seining.

The two-day-old fry were released the night of April 22. They were gradually conditioned to the pH and temperature of the reservoir for thirty minutes. They swam well when released, and showed no tendency to settle to the bottom.

Seine checks were made periodically during the summer, but no hybrids were recovered. White bass, largemouth bass (*Micropterus salmoides*) and white crappie (*Pomoxis annularis*) were plentiful, and

several muskellunge (*Esox masquinongy*) up to six inches long were recovered.

The first hybrids were recovered on October 4, after water levels had dropped and the Frog Pond had divided into several smaller potholes. Two fish measuring 4.4 and 6.3 inches were recovered from a quarter-acre pool. The potholes were seined frequently until the area completely emptied in mid-November. A total of 5,017 hybrids up to 8.4 inches in length were recovered.

In addition to the hybrids, there was an estimated 20 tons of other fish in the Frog Pond, 90 percent of which were gizzard shad (*Dorosoma cepedianum*). Almost everything was too large to be utilized as forage by the smaller hybrids, and many were in poor condition.

Three thousand of the largest hybrids were released in Cherokee. One hundred and twelve failed to survive the seining and handling. The remainder were taken to the hatchery, where many died before injuries and parasitic infections could be effectively treated. Some were released in smaller impoundments, and four hundred were held in concrete troughs for experimental purposes.

On February 14, 1966, nine hybrids weighing up to one pound were recovered from a pothole several miles from the Frog Pond. This confirmed the suspicion that some of the hybrids had escaped from the area during the two months of high water.

#### *Hybrid Fry Production in 1966*

The South Carolina Wildlife Resources Department and the Tennessee Game and Fish Commission again cooperated in the production of hybrid fry at the Moncks Corner hatchery. Numerous crosses were made, and both states engaged in fingerling rearing experiments. Tennessee released 160,000 hybrid fry in Cherokee Lake. South Carolina produced fry by the reciprocal cross (striped bass male X white bass female) (personal communication, Jack Bayless).

North Carolina Wildlife Resources Commission personnel began hybridization experiments. In addition to producing hybrid (white bass male X striped bass female) fry, they also produced fry by fertilizing striped bass eggs with white perch (*R. americanus*) sperm (Smith, *et al.*, 1966).

Virginia and Kentucky (Bowers, personal communication) cooperated to produce fry by fertilizing striped bass eggs with yellow bass (*R. interrupta*) sperm.

#### *Rearing Fingerlings in Hatchery Ponds*

In 1966, 24,817 fingerlings were reared from an estimated 40,000 fry stocked in a 1.2-acre hatchery pond.

The pond was prepared by draining it in the fall of 1965 and allowing it to dry. It was cultivated and two pounds of rye grass seed were broadcast. In February, 1966, the pond was filled. The rye grass which was approximately four inches high was left standing.

Ten days before fry were stocked, sodium cyanide was applied at the rate of three parts per million to eradicate wild fish and predacious insects. The treatment also killed the majority of the zooplankton, but it had become reestablished by the time fry were stocked.

The three-day-old fry were released in mid-April. They were stocked at night to avoid high surface temperatures. Conditioning the fry to the pH and temperature of the pond was done by gradually flowing water into the plastic bags. This was continued for thirty minutes in which time the volume of water in the bags was more than quadrupled.

On May 16, a seine check across one corner of the pond revealed that a high percentage of fry had survived. They were approximately one-inch long at a month of age.

Zooplankton, algae, and other matter, believed to be small insect naiads, were found in the stomachs examined. A daily supplemental

feeding of sinking-type trout pellets was offered in various sizes. This was discontinued after thirty days when it became apparent that the food was not being taken.

Fifty pounds of adult fathead minnows (*Pimephales promelas*) and 500 adult threadfin shad (*Dorosoma petenense*) were stocked during May to provide natural forage. Both species had successfully spawned by the first week in June.

The hybrids were from two to two and a half inches long by the middle of June. They could easily be seen early or late in the day swimming in an almost continuous school around the edge of the pond. In the hotter part of the day they retreated to deeper water.

To provide additional food, wire mesh boxes were constructed from one-half-inch-mesh hardware cloth. The boxes, which measured 20 x 20 x 3 inches, were placed on posts out in the pond, approximately 18 inches above the water. Fish scraps were placed in the boxes to encourage the development of fly larvae. After larvae began falling to the water (about four days after fish scraps were placed in the boxes) hundreds of fingerlings were seen feeding below each box.

Although the fly larvae were readily accepted, it was difficult to feed several thousand fingerlings by that method, and the odor of the decaying fish was no minor problem. To imitate the fly larvae, white rice was boiled and mixed with canned herring. It was fed twice daily at the rate of three pounds of rice and one pound canned herring per day.

The pond was lowered in October for removal of the fingerlings. More than 24,000 were seined from the pond kettle with one-eighth-inch mesh knotless nylon seine. The fingerlings were from three to five inches in length and weighed a total of 354 pounds.

The fish were transported in a one-half part per million acriflavine solution. They were treated in a one-half p.p.m. potassium permanganate solution for five minutes immediately before releasing.

Eighteen thousand were stocked in Cherokee Lake, forty-five hundred were stocked in Norris Lake, and the remainder held for experimental purposes. Known mortality was less than one percent.

#### *Reproduction and Back-Crosses*

Approximately ten thousand F<sub>1</sub> fry were hatched from eggs of a hormone ovulated hybrid. Fry were also hatched from striped bass eggs fertilized with hybrid sperm, but many fingerlings resulting from these fry were deformed.

The sexes of the F<sub>1</sub> hybrids appear to be evenly divided. Eighteen males were found among forty fish examined. Some males were ripe at ten and a half months, and most females were developing eggs at eighteen months of age.

In March, 1966, hybrid males migrated up the Holston River during the annual white bass "run." It has not been proven that any natural back-crossing occurred, however. The following year gravid females also migrated up the river.

No females were found with free-flowing eggs, but one spawned in the holding tank without any hormone injection. A less advanced female was injected with 1,000 I.U. of chorionic gonadotropin. The fish died four days later, but the eggs had advanced to a translucent stage. Another female injected with the same dosage was successfully ovulated five days after the injection.

The three-pound female produced an estimated 200,000 semi-adhesive eggs. They were fertilized with sperm from two naturally ripened males. After 48 hours, eighty percent of the eggs were still alive, but development was very slow in the 58°F. hatchery water.

A fungus infection, on the third day, resulted in a die-off of more than fifty percent. Treatments with malachite green were only partially successful in controlling the infection.

Incandescent lights were used to raise the water temperature to 60°F. on the fourth day, and the following day the fry began to hatch. The total incubation time was 118 hours. It is believed the eggs would have hatched in about 48 hours in 65°F. water. This probably would have produced a higher hatching percentage.

The F<sub>1</sub> fry were held in an aquarium two days and then transferred to a 1,000 gallon fiberglass tank. They began feeding activity at seven days of age, and appeared to be picking something from the sides of the tank. On the twelfth day, cold weather caused the water temperature to drop to 43°F. and the fry died. They were approximately one-half inch long at that time.

In April, 1967, hybrid males were back-crossed with striped bass females. The percentage of eggs fertilized and incubation period were approximately the same as for striped bass. However, almost fifty percent of the fingerlings, reared from back-cross fry, were badly deformed. The others appeared normal, and had attained lengths of more than six inches in three months.

## DISCUSSION

### Description

Fingerling hybrids (*chrysops* male x *saxatilis* female) closely resemble striped bass fingerlings and distinguishing between the two is difficult. Both have prominent parr marks which separate them from white bass young, but these disappear when the fish are approximately seven inches in length. The best identifying character has been the slightly greater body depth and a more prominent hump at the nape. So far it has not been proven that there is an overlap in the number of soft anal rays (see counts below), but this alone should not be used as a distinguishing feature. Lateral line scale counts overlap in all three fish.

The adult hybrid in appearance is a blend of the two parent species (Plate 1). The ratio of body length to body depth is between that of the white bass and the striped bass. The nape of the hybrid is more prominently "humped" than striped bass, but not as much as white bass.

Coloration is similar to that of the striped bass. It is olive-green along the dorsal region, becomes lighter on the sides, and white ventrally. There are usually four stripes above the lateral line and four below. The stripes are almost black, and unlike white bass, they are wide and prominent to the posterior end of the peduncle.

The arrangement of the patches of teeth on the tongue of the hybrid are identical to those of the striped bass. There are two long patches near the anterior end, and two small parallel patches near the base of the tongue. The white bass has the long patches near the anterior end, but the patch near the base is usually a single round spot. However, white bass in Cherokee Lake weighing more than three pounds frequently have a divided patch on the base of the tongue.

The general appearance is sufficient to distinguish the adult hybrid from the striped bass and white bass. However, with reciprocal crosses and back-crosses entering the picture, it will become more difficult. The following are basic scale and fin-ray counts:

	Striped Bass	Hybrid	White Bass
Lateral Line Scales	57-67	53-61	52-58
Soft Rays—Second Dorsal	11-12	12-14*	usually 13
Soft Rays—Anal	10-11	12-13*	12-13
Teeth on Base of Tongue	2 patches	2 patches	1 or 2 patches**
Ratio Body Length to Body Depth	3.2:1	2.7:1	2.4:1

\* If the last ray is branched near the base, it is counted as two rays.

\*\* White bass in Cherokee Lake over three pounds frequently have a divided patch of teeth on the base of the tongue.

Note: The ratio of body length to body depth is for adult fish over two pounds, and is only approximate.

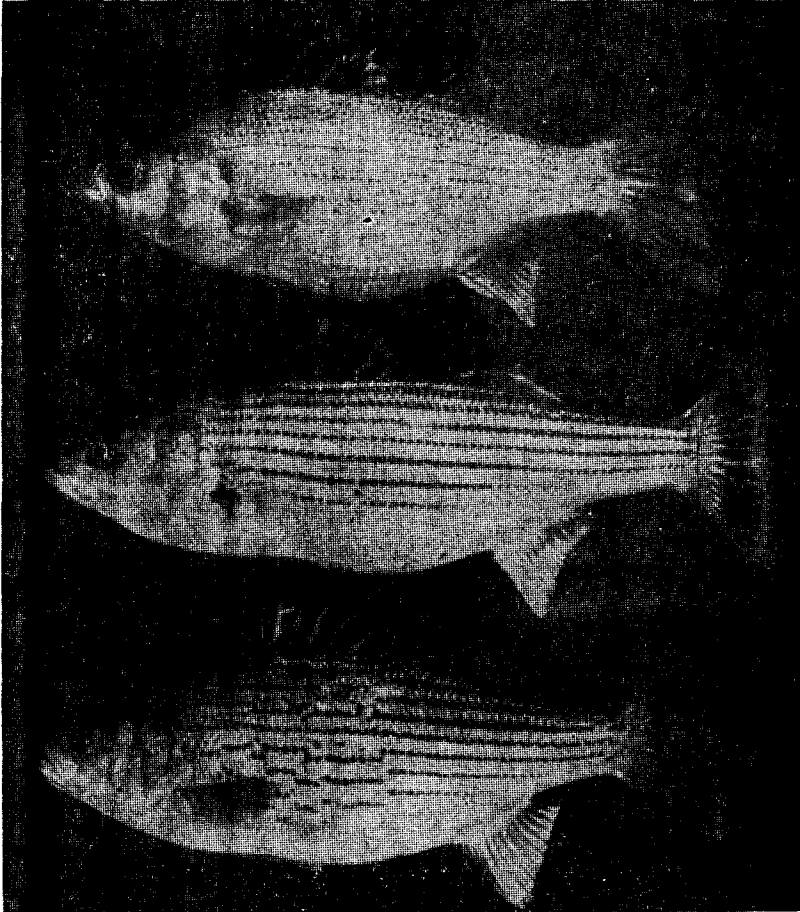


Plate 1 — Top — white bass *Roccus chrysops*; middle — striped bass *Roccus saxatilis*; lower — hybrid *chrysops* male x *saxatilis* female.

### *Survival*

The most impressive feature of the hybrid, as compared to the striped bass, has been its ability to survive in Tennessee waters. All releases of striped bass fry in reservoirs of the state have produced adult fish, but the survival rate has been much lower than that of the hybrid releases.

In 1965, when 35,000 hybrid fry were released in the Frog Pond section of Cherokee, the main reservoir was stocked with 3.5 million striped bass fry. Yet, the confirmed catch by sport fishermen has been more than eighty hybrids for every striped bass. Gill nets have recovered ten hybrids for every striped bass. The 5,017 fingerlings seined from the Frog Pond represented a survival of 12.5 percent, and it has been proven that some escaped during the two months of high water.

In 1966, 40,000 hybrid fry were released in a 1.2 acre hatchery pond and 40,000 striped bass fry were placed in an adjacent pond of similar size. The rearing techniques applied to both ponds were the same. After six months, more than 24,000 hybrids (60.0 percent) were removed, compared to 1800 striped bass (4.5 percent).

In April, 1966, 120,000 hybrid fry were stocked in Cherokee Lake. Recoveries made during July, 1967, using gill nets, indicate that the survival rate was high. The 30,000-acre impoundment was stocked with only four fry per acre. Catches have run as high as five fish per 150 feet of gill net.

Adult striped bass and white bass do not survive well when confined to small holding areas. Adult hybrids have been held in concrete troughs for as long as seven months without losses. Two troughs measuring 30 feet by three feet by eighteen inches were used to hold one hundred fish each from November, 1966, to May, 1967. During the period the hybrids were maintained on a diet of live fish and increased in weight by almost fifty percent.

### *Growth*

The hybrids in Cherokee grew considerably faster than the striped bass during the first eighteen months. After that, the rate of growth of the hybrid appears to have decreased and that of the striped bass increased. At twenty-seven months of age both fish are averaging slightly less than four pounds. Of the fish taken in gill nets from Cherokee, the largest hybrid weighed 5.2 pounds, and the largest striped bass 4.4 pounds.

There has been no obvious difference in the growth rates of males and females. Nearly half the fish examined, weighing more than four pounds, were males. A difference may become evident as the hybrids become older.

Table 1 briefly reports the length and weight ranges for known-age hybrids recovered from Cherokee.

TABLE 1—LENGTH AND WEIGHT RANGES OF KNOWN AGE HYBRIDS.

Date	Age	No. Fish	T L Range	Weight Range
November, 1965	7 mo.	200	3.0- 8.4 in.	0.1-0.4 lbs.
April, 1966	12 mo.	15	9.1-14.1 in.	0.5-1.7 lbs.
October, 1966	18 mo.	17	15.1-18.0 in.	1.8-3.4 lbs.
March, 1967	23 mo.	40	16.8-19.3 in.	2.5-4.8 lbs.
July, 1967	27 mo.	26	17.2-20.7 in.	2.8-5.2 lbs.

### *Sport Fishing*

The majority of hybrid catches in Cherokee by sport fishermen have been during the early spring spawning run. The only other time that it has been practical to fish specifically for hybrids has been in late summer when the fish are in the jumps.

The hybrid, like the white bass, becomes active in late February or early March. There is not much other fishing activity at this time of the year, and from this standpoint it is especially attractive. In 1967 the three-year-old hybrids were about three times as large as the average white bass, and were powerful fighters. The food quality is better than white bass. They were regarded by the fishermen as an excellent sport fish.

A limit of two per day per fisherman was established to avoid depletion of the 1965 year class before desirable data had been collected. No creel survey was conducted. However, project personnel have verified more than two hundred fish and an estimate of the total sport fishing catch would be in excess of two thousand. If gill net recoveries are indicative of the population, there are approximately four times as many mature fish in Cherokee as there were last year. Provided a proportional number of the fish migrate to the headwaters, the hybrid should make a substantial contribution to the fishery in the



spring of 1968, and with three year classes now in Cherokee, the year-round hybrid fishing should improve by the fall of next year.

#### *Food Habits of the Adult*

The examination of stomachs of hybrids caught in gill nets in Cherokee have found the fish to be feeding primarily on shad. Those held in concrete troughs at the hatchery fed on practically any live fish of the proper size. Quantities of fathead minnows, goldfish, threadfin and gizzard shad, carp, bluegills, mosquito fish (*Gambusia* spp.) and golden shiners (*Notemigonus crysoleucus*) were consumed during the seven months. Although the hybrid seems to prefer small fish, less than three inches, shad up to five inches in length have been found in larger hybrids.

After being without food for two or three days, the hybrids in the troughs would take small dead fish or cut fish. They would also take trout pellets, but efforts to maintain them on pellets alone were unsuccessful. Bullfrog tadpoles (*Rana catesbeiana*) were not fed upon by the hybrids, even though no other food was available.

One hundred and twenty hybrids were stocked in a thirty-acre pothole containing only carp and gold fish. The fish weighed approximately one pound each when stocked on May 27, 1966. When the pothole went dry on August 28, 1966, one hundred and eight were removed. They had more than doubled their weight in three months' time.

#### *General Evaluation*

From the results of the first two years, the hybrid of the white bass male and striped bass female appears to be one of the most successful ever produced. However, two years is not sufficient time to determine whether or not the hybrid is a satisfactory alternate for the striped bass.

It was felt that the hybrid would commonly have to exceed weights of five pounds to have a significant advantage over the white bass as a sport fish. It must also get large enough to feed on adult gizzard shad if it is to be of any value in controlling shad populations.

With some fish exceeding five pounds at slightly more than two years of age, it appears the hybrid will meet the size requirement for a sport fish. Fishermen who have caught them are impressed with the hybrid's fighting ability and also rate them to be of better food quality than white bass. Whether or not the hybrid will be able to control shad populations remains to be seen.

Natural reproduction and/or back-crossing could create serious problems within a reservoir, especially if stunting or a high percentage of deformity results. Deformed fish such as those produced by back-crossing the hybrid male with the striped bass female would not be desirable sport fish. Reproduction has not been confirmed in Cherokee to date, but eight spent females have been recovered in nets. Until more is known about the reproductive potential of the hybrid, as well as life span and maximum size, the fish is not going to be introduced into other large impoundments in Tennessee.

The hybrid is somewhat less important now that biologists and hatchery personnel are developing techniques for rearing striped bass. Within a few years there should be several inland reservoirs with striped bass fisheries, but the hybrid appears to be a desirable fish and the survival of fry released in Cherokee Lake indicates a fishery could be created with less expense and effort than that required for striped bass.

#### ACKNOWLEDGMENTS

Experiments with the striped bass x white bass hybrid have been incorporated as a portion of the Dingell-Johnson project, Tennessee F-27-R.

The assistance and cooperation of Bob Stevens, Jack Bayless, and

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 WATERS<sup>1</sup>

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

<sup>1</sup> 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).