L-2411
SRAC Publication No. 303

Southern
Regional
Aquaculture
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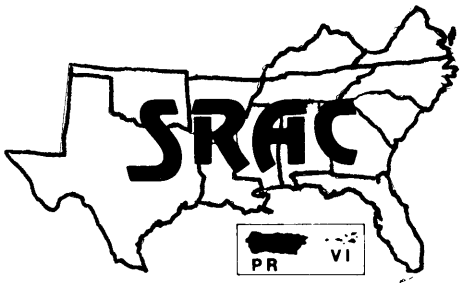


July, 1989

# Hybrid Striped Bass

## Pond Production of Foodfish

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The hybrid striped bass has become a highly desirable substitute for the declining striped bass seafood industry. As a foodfish, the hybrid exhibits a mild taste and firm texture. Aquaculturists have found these hybrids well-suited to pond culture, and current research is helping to improve culture techniques. Hybrid fry are raised in rearing ponds to 35- to 45-day-old fingerlings. Young finger lings, when harvested, are graded by size and trained to feed on pelleted feed. Hybrid striped bass can be raised to market-size in 15 to 18 months.

Phase I includes the collection of broodstock through production of 30- to 45-day-old fingerlings. Phase II includes the stocking of Phase I fingerlings (35 to 50 mm) through the harvest of Phase II fingerlings (125 to 225 g). Phase III includes the stocking of advanced fingerlings through the harvest of market-size fish.

### Production of Phase II fingerlings

The foodfish culturist should purchase fingerlings of uniform size (1 gram or larger) that are trained to feed for stocking in nursery ponds. Fish less than 1 gram can not be effectively graded. Grading reduces cannibalism which accounts for most of the losses during the first growing season. Stocking fingerlings smaller than 1 gram (500 fish/lb) can increase losses to cannibalism and will result in greater size variation at harvest than if larger fingerlings are stocked.

Fingerlings are generally available from producers in the southeastern U.S. from May to July depending on location. They are stocked at a rate of 8,000 to 12,000 fish per acre to complete their first year of growth. Two to 4 acre ponds are recommended for commercial production. Large ponds are more difficult to manage whereas small ponds are expensive to build. Initially fish are fed three times a day at a rate of 15 to 30 percent of body weight per day. After several weeks, feeding is reduced to twice a day, and gradually, the amount of feed is reduced to 1 to 3 percent of body weight per day by the end of the growing season. A commercial salmon or trout feed (38 to 50 percent protein) provides adequate nutrition. Protein requirements decrease as fish grow.

### Water quality important

Hybrid striped bass survive and grow well in a wide range of water quality variables; however, maintaining good water quality is a major part of all phases of production. Temperature and dissolved oxygen levels should be monitored daily, morning and evening, and aerators used to keep dissolved oxygen levels above 4 mg/l. Maximum growth occurs around 25° to 27° C, although hybrids survive a temperature range of 4° to 32° C in culture systems. Below 15° C, feed consumption is reduced and growth slowed.

Dissolved oxygen is important in any culture operation, and especially for hybrid striped bass. Hybrids may survive dissolved oxygen levels as low as 1 mg/l for a short time, but these levels are very stressful. Dissolved oxygen levels below 4 mg/l reduce food consumption and growth, increase amount of energy needed for respiration, and increase mortality.

### Monitor alkalinity

Alkalinity, hardness and pH levels are usually related, and hybrid striped bass grow well over a wide range of values. Alkalinity of 100 mg/1 or above is desirable in culture

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situations; however, fish have been known to survive alkalinity and hardness values of 20 to 30 mg/1. Mortality can be significant during transfer from water of high alkalinity/hardness to water with low alkalinity/hardness. Although still unproven, calcium levels appear to be important when handling fish in freshwater. Hybrids survive in a pH range of 6.0 to 10.0, although 7.0 to 8.5 is optimum for growth. Pond-reared hybrids have survived repeated exposure to a pH of 2.5.

Ammonia, the principal excretory product of fish, should also be monitored regularly in ponds. Concentrations should not exceed 1 mg/l. Hybrid striped bass generally become more tolerant of water quality with age; however, water quality management is a most important factor in successful foodfish production.

By the end of the first growing season, fish may weigh an average of 225 grams (0.5 lb). Any fish from 110 grams should reach marketable size (1.25 lbs) in the second year. Survival rates of 85 percent are common at the end of the first growing season. Fish are harvested after the growing season ends, usually beginning in December when pond temperatures drop below 12° C and continuing through March. Handling fish at 12° C or above increases the likelihood of fungus and disease problems. The pond is seined, and the fish are herded through an opening in the seine into a holding net (live car). The number and weight of fish is estimated by weighing several samples of a known number of fish and taking a total weight of fish. The fish should be weighed in water to reduce stress.

## Grade fingerlings

Advanced fingerlings should be graded before they are stocked for grow-out to reduce the size variation in each pond. Feeding problems will be reduced and all the fish in one pond will reach market size at about the same time. A commonly accepted grading technique for advanced fingerlings does not exist at this time. Each culturist should work out a method that is acceptable to his/her operation.

## Production of Phase III fish

Fingerlings (110 to 225 grams) are stocked into grow-out ponds at a rate of 3,000 to 4,000 fish per acre depending on the experience of the culturist. With proper management these fish will reach marketable size by October or November. Survival rates for the second growing season are generally 90 percent or better.

Fish are fed commercial feed at a rate of 1 to 3 percent of body weight per day. While temperatures are low and dissolved oxygen levels are high, fish can be fed at a rate of 3 percent of body weight per day. However, as temperature and biomass increase, dissolved oxygen levels become more difficult to manage. The feeding rate should then be around 1 percent of body weight per day. Food conversion ratios of 2 to 1 or less are expected.

## Aeration needed

Water quality requirements for second-year fish are similar to first-year fish. Daily monitoring is important because of the increased biomass of fish in the ponds. Low dissolved oxygen levels can become a major problem at this stage. Aeration techniques are standard procedure. Paddlewheels are the most efficient aeration method in production ponds. Typically, the aerator is off during the day and turned on at night to maintain dissolved oxygen levels above 4 mg/1. Location of the paddlewheel is important to adequate aeration in the pond.

Optimum growth occurs at 25° to 27°C and dissolved oxygen levels above 6 mg/1. Growth slows as dissolved oxygen levels approach 4 mg/1. Some mortality may occur at 1 or 2 mg/1, and all fish will die if dissolved oxygen levels remain lower than 1 mg/1 for very long. Disease problems are more prevalent when fish are stressed by low dissolved oxygen levels. Fish should be observed regularly for fungus, disease or any other problems and treated quickly when problems arise.

Fish are harvested in the same manner as the previous year. The pond is seined, and the fish are herded through an opening in the seine into a holding net. They are weighed and put on ice for processing and delivery.

This publication was supported in part by a grant from the United States Department of Agriculture, Number 87-CRSR-2-3218, sponsored jointly by the Cooperative State Research Service and the Extension Service.



Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Zerle L. Carpenter, Director, Texas Agricultural Extension Service, The Texas A&M University System.

2M– 5-90, Reprint