



Many other types of fish of excellent eating quality have much lower feed and water quality requirements than catfish, such as tilapia or carp shown above the catfish.

CATFISH are not the only FISH in the POND

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UNDER WILD or uncultured conditions catfish coexist with numerous other species of fish, each utilizing a different segment of the food chain. Natural production, of course, does not yield the harvestable poundage obtained under intensive culture with supplemental feeding.

During 1974 about 1,900 Alabama farmers devoted approximately 11,000 acres of water to catfish production. Less than 1,000 of the producers grew fish for sale through the various available markets. The remaining catfish producers maintained recreational ponds for their own use and to provide fishing for friends and relatives. Catfish production, even for personal use ponds, was similar to feedlot operations for cattle or swine. The fish were stocked in ponds usually at sizes ranging from 3 to 10 in., 0.01-0.33 lb. each, and were fed a high protein, complete nutrient ration. Little growth was obtained by fish feeding on natural foods available within ponds.

Two biological factors limit production when catfish are stocked and fed at relatively high rates under conditions similar to those discussed. First, catfish do not utilize feed efficiently when water temperature is below 60°F. Second, total nutrients available in the pond are underutilized. Catfish do not consume and convert all of the ration fed into flesh. Both the unutilized feed and catfish biological waste products enrich the nutrient level of the pond.

Another limiting factor in catfish production for many farmers is the inability

to maintain water quality in their pond situation. Aquatic organisms that are non-competitive with catfish for nutrients, have economic value, and improve water quality would be ideal for inclusion in catfish culture. Such organisms could include both plants and animals.

Researchers are interested in aquatic organisms that can extend the use of production facilities and/or utilize the excess available nutrients during the catfish growing season. Ideally, such aquatic organisms should have economic value, but this is not a necessary condition. In cases where increased value or decreased cost of producing catfish exceeds cost of incorporating these types of organisms, then they could feasibly be included in the production unit.

Trout perform well when water temperature is below 60°F. Good water quality is required by trout, but the condition is somewhat easier to maintain under relatively cool water temperatures. Several Alabama producers with sufficient water supplies are double cropping their ponds or raceways. Trout are stocked in late fall, fed through the winter months, and harvested during the early spring when the water temperature is warming. Ponds or raceways are immediately restocked with catfish which reach harvestable size by fall. The feed requirements for trout and catfish are similar although catfish can be fed a lower cost ration. The feed conversion ratios for trout and catfish are approximately the same. The demand for trout is high for both recreational and market sales, and the resulting high liveweight

price provides a good profit margin. So, in some instances the trout operation with its higher variable costs is more profitable than catfish.

A species that has been successfully cultured for quite a while is the bait minnow. Many fishermen who regularly purchase bait minnows do not realize that the fish are pond raised. Bait minnow production is highly developed in the Mississippi Delta and dealers haul the small fish to all parts of the country. Alabama has one major bait minnow producer who operates on a similar basis. Some biological research has shown that the bait minnow can be successfully utilized to capture excess food supply in the pond when catfish fingerlings are small. Then as catfish become larger, they consume the bait minnows, thus utilizing those excess nutrients captured early in the production period.

Buffalofish, carp, Tilapia, and other species biologically appear to complement catfish well under polyculture conditions. Since a pond is a three-dimensional space containing both plants and animals, fish that graze on aquatic plants and fish that feed on aquatic animals should utilize a high degree of the available nutrients in a pond. Unfortunately, the market demand for many of these species as food fish is relatively low. Under these circumstances incorporation of a second fish species in the pond must increase the production of catfish or the net market gain from the second species must exceed the reduced market of catfish. For example, if catfish sell for 45¢ per lb. and Tilapia at 15¢ per lb., 3 lb. of marketable Tilapia must be sold for every pound that catfish production is decreased. In a wild or natural state these two species are not competitors. Under pond conditions with supplementary feeding, however, many of the Tilapia consume the feed ration rather than seeking natural food items, much like steers on pasture that will consume grain if available in preference to grass.

Many other types of fish of excellent eating quality have much lower feed and water quality requirements than catfish and require much lower levels of capital and management. Common carp, considered a trash fish in the United States, have low level capital and management requirements. Although not produced extensively in this country, they are the most widely cultured fish in the world.

In conclusion, catfish are not the only fish in the pond and research can lead to new combinations for polyculture systems which will utilize each niche in the food chain and return output to input ratios unthinkable at the present time.