Fish Polyculture

Polyculture is the production of two or more fish species within a particular aquaculture environment. Most polyculture occurs in ponds. Some of the fish species grown in catfish ponds include paddlefish, tilapia and big head carp (the later is illegal to posses in Kentucky). When considering pond polyculture, certain issues such as feeding, harvest and marketing should be considered first. Natural filter feeders, such as paddlefish will feed on small crustaceans living in the water. Similarly, big head carp will consume zooplankton and large phytoplankton. Tilapia will extract zooplankton and phytoplankton from the water via thick gill mucus which is then swallowed. However, big head carp and tilapia will both willingly consume catfish pellets.

Harvesting big head carp or paddlefish occurs when catfish ponds are seined. Otherwise, the fish are removed from the seine by hand and released back into the pond. Tilapia are difficult to seine, as they tend to swim under or jump over the net. Tilapia should be grown and fed in cages since they would be difficult to separate from the catfish during harvest. Caged tilapia have been successfully grown in Kentucky freshwater shrimp ponds. All-male tilapia should be used in ponds to avoid their prolific reproduction and the development of stunted fish populations. Tilapia are a tropical fish and cannot withstand water temperatures below 50^{o}F (10^{o}C).

Catfish growers must establish reliable markets for the additional species grown in their ponds. Ethnic markets for tilapia and big head carp grown in the United States typically require live fish. Potential markets for paddlefish meat and stocker fish to supply private reservoirs currently look promising. All female paddlefish stocked into private reservoirs may be harvested for roe and or meat 6-8 years following stocking.

Individual catfish growers must decide if the profits from the additional polycultured fish species would warrant the extra costs of production. These costs may include: feeding, fingerlings, aeration, harvest labor, transportation, processing, marketing, and the potential risk of becoming a vector for catfish diseases. Some catfish growers believe the presences of filter feeding fish pays dividends in improved water quality in ponds.

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