

WHY DID ALL MY CATFISH DIE LAST SUMMER?

Well don't feel like the Lone Ranger, fish kills are a common problem in private ponds every year. According to Michael Masser a Fisheries Specialist with the Texas Agricultural Extension Service, the cause of most fish kills is either an oxygen depletion or a disease. However, in both cases the real problem is a biomass or carrying capacity problem. A little explanation is needed.

First, a pond is its own natural ecosystem. Within that ecosystem is a natural food chain that starts with aquatic plants of one sort or another. The plants are eaten by tiny animals, or die and form detritus. Detritus is then eaten by aquatic insects and worms, which in turn are eaten by fish. The most efficient natural food chain for small private ponds starts with planktonic algae or a green water system. In this situation, the pond has few or no rooted aquatic weeds but has green water which is literally billion and billions of tiny microscopic algae plants. This planktonic algae, either directly or indirectly, feeds the rest of the food chain in the pond.

Scientific research has shown that under this type of algal based food chain the pond can support between 250 to 600 pounds of fish per surface acre, called the "carrying capacity", depending on the species of fish and what they feed upon. In the case of catfish, it is possible to support a carrying capacity of as much as 600 pounds of catfish "biomass" per surface acre through a fertilization program that promotes planktonic algae. Of course, catfish can also be fed commercially available artificial feeds that promote rapid growth. Artificial feeding can increase the ponds carrying capacity but not without potential problems.

The problem is that ponds often achieve catfish populations that are above the natural carrying capacity. How does this happen? Well often ponds are initially over-stocked with catfish. Many pond owners have no idea of how many catfish to stock and so stock too many,

often on the recommendation of the person selling them the fish. Another problem is over-population because catfish reproduce in the pond. Catfish generally become sexually mature at 3 or 4 years of age and will spawn in most ponds. Usually in ponds with bass, no catfish survive because of predation but if no predators, like bass, are present then over-population often occurs. Along with this, often pond owners mistakenly stock sunfish, like bluegill, into the pond, thinking that the sunfish will provide prey for the catfish. Unfortunately, catfish prey on very few sunfish and the sunfish reproduce promptly and rapidly over-populate the pond.

A related problem is that pond owners who feed their catfish find that they become “pets”. As pets, usually few or none are harvested. Over time as these fish get larger, they spawn and over-populate, and the pond exceeds its carry capacity. Also remember that catfish are good feed converters, for every 2 pounds of feed consumed they will grow at least one pound. So artificial feeding grows catfish rapidly but also can cause the carrying capacity to be exceeded quickly. As a general rule-of-thumb ponds without aeration should never be fed more than 15 pounds of artificial feed per acre per day.

Once the carrying capacity is exceeded then it is just a matter of time before Mother Nature takes care of the problem. Usually what happens is a disease outbreak, or more often, an oxygen depletion and a fish kill. With a disease outbreak many fish may die but many others usually survive. Diseases are seldom totally devastating to the population. However, oxygen depletions often are catastrophic with few catfish surviving, particularly large fish do not survive.

So to prevent these catastrophic losses pond owners should stock conservatively, feed conservatively, harvest fish, and not let the pond get over-populated, above the natural carrying capacity.

For example, let us assume that we have a 1-acre pond and that without emergency mechanical aeration the pond will support about 600 pounds of catfish per acre. So we could stock 600 catfish, but if we artificially feed them. After one growing season they could average 1-pound apiece and we have reached the pond's carrying capacity. Start fishing! Or stock 300 catfish, and feed them for two years, and have 2-pound fish. Or stock 300 catfish, feed and harvest some of them after the first year (say 100 pounds), then feed and harvest 200 pounds the second year, then depend on reproduction the third year to perpetuate the population and continue to harvest catfish each year.

The choice is simple, manage the catfish pond through proper stocking and harvesting or let Mother Nature manage it through catastrophic fish kills.