

Catfish

Catfish farmers, who are engaged in the fastest growing branch of aquaculture in the United States, had a problem. Their trade association, the Catfish Farmers of America, determined that muddy or musty off-flavors that occasionally develop in farm-fed catfish were the single most serious threat to the growth of the industry. Catfish farmers turned to the Southern center for help.

SRRC scientists discovered in the mid-1980's that it wasn't muddy water that tainted the flavor of the fish. Rather, the large amounts of feed required for maximum fish production resulted in high concentrations of nutrients, mostly nitrogen and phosphorus, in farm catfish ponds. These nutrients, when combined with the heat and intense sunlight of the Southeast, provide an excellent medium for the growth of bacteria and blue-green algae.

The source of the off-flavors was traced to two natural chemicals, geosmin and MIB (2-methylisoborneol), that are produced

by the microorganisms. The fish take the chemicals in through their gills, and within 2 hours, they can absorb them in their fatty tissue, making their meat unmarketable. The same two chemicals are often responsible for drinking water with a swampy taste, and scientists are looking hard for ways to correct the problem.

Researchers at SRRC have developed sensitive methods for detecting these off-flavors and are making up test kits for monitoring levels of the two chemicals in drinking water and fish. The work has sparked the interest of water utility officials worldwide. Meanwhile, the search continues to find a way to defeat development of the chemicals, possibly through biotechnology. One scientist explains that "we are just starting to understand the biochemical machinery of these algae."

Until answers are found, some catfish farmers move fish ready for harvest to so-called purge ponds free of algae growth, where it takes at least 2 weeks to flush the off-flavors from fatty tissues. This practice not only delays sales and costs more feed, but fish also lose weight from the stress of moving to a new pond. Most farmers simply hold their fish in growing ponds until the off-flavor disappears.

*SRRC researchers
helped catfish
farmers by finding
ways to prevent
algae growth in
ponds, a source of
off-flavors.*



Source of swampy off-flavors in some farm-fed catfish has been traced to two chemicals by SRRC researchers, who also developed sensitive tests for early detection.