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Striped Bass Major PCB Carriers Among American Fish Population

By STUART DIAMOND
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NEW YORK — The striped bass is a tasty, crafty, migratory fish that has lured thousands of sports fishermen to give chase. But the fish also has another, more sinister quality: It readily absorbs the toxic chemical PCB, and it will pass the substance on to fish who eat its flesh.

There are three things about the bass that cause it to be one of the foremost carriers of polychlorinated biphenyls. First, it spawns in bodies of fresh water, into which industries have discharged large amounts of the chemical for 40 years. Second, it is a roaming fish so that it often wanders into rivers or bays polluted with PCBs. Third, it has a relatively high percentage of fats and oils, where the chemical usually concentrates.

A few other fish — bluefish, whiting, menhaden, freshwater trout and salmon — have at least one of these qualities that make them, too, PCB-carriers. The trout and salmon are principally those in the polluted Great Lakes. Of the others, bluefish off Long Island have been found with PCB levels that exceed the proposed federal safe standards, although those from deeper waters appear to be somewhat less contaminated.

But it is the striper which is most seriously affected. For, beyond its potential for passing the toxic PCBs to its predators, indications are that the bass itself has been harmed by the chemical.

"THE BASS should be on the endangered species list right now," said Robert Pond, a Massachusetts fish lure manufacturer who in 1965 started Stripers Unlimited, an East Coast group devoted to the fish. "The PCBs in the environment today are already far above the ability of the fish to stand it." Striper populations have decreased and the number of eggs and young have dropped dramatically in both the Hudson and Chesapeake spawning areas, where high levels of PCBs have been detected. So large are the reductions that Stripers Unlimited has dubbed the striper "this century's dinosaur."

While there have been no controlled scientific evaluations linking PCBs with striped bass mortality, the chemical has consistently turned up in studies showing fish damage. It has been conspicuously absent in analyses of healthy fish. This is true in tests both by Pond's group and by federal research laboratories with other fish.

"We know there is a relationship between PCBs and reproduction, not only for striped bass and lake trout, but also for seals in the Baltic Sea and off the coast of California," said Thomas Kopp, of the Toxic Substances. "The higher the levels of PCBs, the lower the reproduction."

Fishermen first noticed the decline in the numbers of striped bass fish and eggs about five years ago, Pond said. Last year, the commercial striper catch in New York State was only 64 per cent of what it was in 1967, according to the National Marine Fisheries Service.

SINCE 1970, sports fishermen also have noticed an increasing number of stripers with fin rot, a condition that means a generally unhealthy fish, according to Robert Rance, head of Save Our Stripers, a group representing thousands of Long Island sports fishermen. Federal researchers in Florida and California have linked fin rot with PCB contamination. The fin rot is produced, they said, because chlorinated hydrocarbons, a chemical group to which PCBs belong, lower resistance to disease in marine organisms.

Striped bass caught off the north and south shores of Long Island have been found by the State Environmental Conservation Department with PCB concentrations up to 21.5 parts per million — about 10 times the new limits of 2 parts per million being proposed by the FDA for fish sold in interstate commerce. Bluefish have had levels up to four times the new limits.

Even at the average levels found in Long Island bluefish (2.57 parts per million) and striped bass (3.48 parts per million), scientists agree that children and women of child-bearing age should limit their consumption to four meals a month, or less. Women who ingest contaminated fish can store PCBs and pass them on to their infants, either through

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the placenta or in their breast milk. Children, because they are smaller than adults, can get larger relative doses of PCBs. The dangers from large doses or many small doses, scientists say, include cancer, skin lesions, lowered resistance to disease, reproductive failure and genetic damage.

Not all the striped bass are contaminated, however. Some have concentrations of less than one part per million. But eating striped bass "is like playing Russian roulette," Rance said. "You never know when you are getting one that's loaded."

The New York state test results are expected to have an important effect on both commercial and sport fishing for striped bass and bluefish, because the federal government will ban interstate shipments of such contaminated species, and consumer interest may flag. Many fishermen and businessmen, however dispute the state's figures and oppose the FDA's plan to lower the acceptable PCB level for fish — which is expected to go into effect this year and which would mean a revenue loss of about $2.5 million annually, according to state figures. Opponents note that the sampling included fish caught near the Hudson River, into which the General Electric Co. has dumped thousands of pounds of PCBs during the past few decades. They argue that stripers caught farther east are cleaner because many of them spawn in the Chesapeake and not in the Hudson. The Chesapeake is the largest striper spawning area on the East Coast. Carolina bass, Pond said, seldom get into Long Island waters.

BUT STUDIES and interviews with experts dispute the Chesapeake-Hudson argument.

First, fish migrating to Long Island from the Chesapeake may swim through the PCB-contaminated New York Bight and stop to feed there. "A striped bass has no deadline to meet," said John Spagnoli, who heads PCB monitoring and research for the state conservation department. "If it finds a nice place in the New York Bight, where the waters of the Hudson mix, it will stay there for a while."

Second, both bass and bluefish move into the Hudson waters, no matter where they come from, because the fish often roam from place to place, Spagnoli said. The fish go where the food is, and have been known to swim 100 miles in a single day, said Rance, a sport fisherman for 40 years.

Even the argument that Chesapeake bass are less contaminated has been proven wrong. Beginning in 1971, Stripers Unlimited tried to start a hatchery in the rivers feeding to the Chesapeake. "The egg casings started to disintegrate," Pond said. "The inner yolks tore. We had 85 to 90 per cent mortality."

The next year, the group had the eggs tested by a private laboratory in Philadelphia. The lab found PCB concentrations averaging 6.5 parts per million, Pond said. That is even higher than the average levels in Long Island fish. In 1974, the highest PCB concentration found in the Chesapeake striper eggs was 10.5 parts per million, more than five times the proposed new federal limits. The PCB concentrations were the highest of any chemical contaminant in the tested fish. They were several times the average of DDT compounds, which has been thought to be the most widespread chemical pollutant.

Striped bass caught off Long Island also have been known to migrate from the Chesapeake to the New Bedford, Mass., area to ripen their eggs, a process that takes three years. That area is also polluted with PCBs, however. Two companies, Cornell-Dubilier and Aerovox, have discharged PCBs into local waters.

FIGURES published in a Stripers Unlimited bulletin show that since 1971, the percentage of netted striped bass younger than 3 years has dropped from 90 per cent to 10 per cent. The catch is gradually getting older. Last year, less than 1 per cent of the catch was under 3 years of age, Pond said. "The young," he said, "aren't surviving."

Federal researchers have found that even if a fish left contaminated water and laid its eggs in clean water, it passed the chemical on to its young. They also found that fish in PCB-contaminated waters increased the concentrations of the chemical in their flesh up to 670,000 times.

There is still some uncertainty about the conclusions of Rance and Pond, and both will admit it. There has been no real scientific evaluation of the findings. And last year's commercial striped bass catch, while well below previous years, was still higher than the catch in every year before 1961. The striper catches have been increasingly steadily since 1967, the year that records were first kept, largely because of better equipment and hatcheries, experts said. In 1967, the New York State commercial catch was 115,000 pounds. Last year it was 674,000 pounds. Anthony Taormina, who is in charge of preserving coastal resources for the state conservation department, says that last year's low was not below what could be a normal statistical variation of the peaks and valleys that have been occurring as the catch has gradually increased.

Fin rot, which has been linked to PCBs, could be caused by a variety of other things, among them poor feeding, experts say. No controlled experiments have been done to isolate PCBs as the source.

Other contaminants besides PCBs have been present. In Maryland, where the hatcheries showed high egg mortality, DDT and its related compounds were detected. It was not clear at first, said Pond, which one had caused the fish mortality.

RECENT information, however, has appeared to answer many of these questions, at least in part. In the South Carolina bass hatcheries, the levels of DDT and related compounds equaled those of the Maryland group. PCBs were not present, Pond said. The Carolina eggs showed only a 12 per cent mortality, he said — one-sixth the egg mortality in the Maryland hatchery run by his group. The Chesapeake area accounts for about 80 per cent of the bass caught in salt water, fish experts say. The other 10 per cent comes from the Hudson. Carolina bass stay in fresh water, Pond said.

The first figures in from this year's catch in Maryland show that the number of spawning bass appears to be only a quarter of what it was at this time last year — and last year was bad, Pond said. The projected 1977 catch for Maryland, he added, is for under a million pounds, the lowest since the mid-1930s, when a dam was being built and many fish could not get into fresh water to spawn.

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