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Fish Contamination Under Study

By GENE WANG
Staff Writer

RALEIGH — The state's Environmental Management Division is conducting studies of fish from all major streams and estuaries in North Carolina in an effort to determine if the fish contain residues of potentially dangerous chemical compounds known as polychlorinated biphenyls (PCBs).

L. Page Benton, chief of water quality for the state, said his staff is looking into the problem to determine how much contamination has occurred in the state's waterways.

PCBs are primarily used in electrical transformers and capacitors as a heat-exchange medium but they have also been used in the manufacture of plastics and fertilizers.

Laboratory studies have indicated exposure to PCBs has led to liver cancer in rats. Other studies in monkeys indicated that PCBs caused stillbirths and the birth of undersized monkeys to females fed a diet that included PCBs.

Benton said state officials have become concerned about the problem of PCBs as the result of recent concerns about high levels of PCB contamination in the Great Lakes.

PCBs present a problem because they linger in the environment for long periods of time, just as DDT does, Benton said.

Because of their long life, the sole American manufacturer of the compounds, Monsanto Industrial Chemicals Co., has restricted production of PCBs only to those situations where disposal can be controlled.

However, their use remains widespread, according to an official for the U.S. Fish and Wildlife Service in Atlanta.

The only study involving North Carolina that Benton knew of was a 1970 report on the National Pesticides Monitoring Program that indicated that a gizzard shad sample taken from the Cape Fear River at Elizabethtown contained 23 parts per million (ppm) of PCBs.

"Apparently one sample was collected," Benton said. "I have no idea if it was accurate. The data is so sketchy."

The federal Food and Drug Administration has recommended that fish for human consumption contain no more than five parts per million of PCBs.

The shad sample taken as Elizabehtown was mentioned in a recent story in Sports Illustrated on the problem of PCBs.

However, a biologist with the U.S. Fish and Wildlife Service regional offices in Atlanta, Dave Walsh, said in a telephone interview that use of a single report is misleading.

Walsh said fish samples from two North Carolina rivers, the Cape Fear and the Roanoke, have been used in studies of PCB residues during the last several years.

Isolated figures should not be used alone, since the studies are intended to show treads, Walsh said. He said data collected by his office in the fall of 1969 showed a PCB level of .86 parts per million in a gizzard shad sample taken at Elizabethtown, while a channel catfish taken at the same location had a level of 3.2 parts per million.

Samples taken in 1973 showed no PCBs in carp, channel cats or large mouth bass and all had less than one part per million of DDT.

Walsh said the fish and wildlife service is concerned about PCBs because of their potential effects, but he said the analysis of data is a complex process.

"You have to look at the trend information. To draw conclusions from raw data is wrong," he said.

Walsh also said the technique for determining PCB levels was not refined until 1971 or 1972 and the compounds themselves were not isolated until the mid-1960s. Earlier PCB analyses were "masked" by DDT, he said.

PCB residues in fish flesh tend to collect in fatty tissues and eggs but not in the meaty portions that humans would consume, Walsh said. However, PCB studies consider the entire fish, which is ground up and analyzed, so they reflect a higher PCB level than that found in the meat alone.

Because the fish and wildlife service studies are done on a nationwide basis, Walsh said each sample taken at a particular location involved from three to five adult fish of a given species.

With those numbers, one fish could have caused the high reading reported in 1970, he said.

In order to get an accurate idea of the situation on any given river, intensive studies must be made, Walsh said.

In Raleigh, Benton said the state has already received some data from its studies, "but how conclusive they are I don't know. "When we see the entire results, we'll know where to go from there."

Benton said he expected the testing will take all winter to complete since it takes two to three man-days to do one sample.

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