PCB Levels Down In Lake Michigan Fish

Noteworthy decreases in levels of PCBs (polychlorinated biphenyls) in Lake Michigan coho salmon have been shown, for the first time since monitoring began five years ago, reports the Department of Natural Resources.

"This could mean our efforts are paying off, that PCBs are on their way out," says DNR Environmental Protection Bureau Chief William Turney.

The source of Turney's optimism is a September U.S. Fish and Wildlife Service report that pegs PCB levels in adult salmon taken last fall from east-central Lake Michigan at 9.21 parts per million (ppm), compared to 10.77 ppm measured in a similar catch from the same area in 1975.

Based on data gathered by the U.S. Fish and Wildlife Service Great Lakes Fish Laboratory in Ann Arbor, the report also lists PCB level declines in Lake Michigan chubs and lake trout. However, the only statistically significant, thus most meaningful, decrease was that noted in coho, says John Hesse, Chief of the DNR's Toxic Materials Section.

Before voluntary restrictions on the sale of PCBs in 1971, chemicals of this group were commonly used to absorb heat in capacitors, transformers and hydraulic fluids, and as plasticizers or additives in carbonless reproduction papers.

Voluntary PCB sales restrictions came from Monsanto, Inc., the sole U.S. manufacturer, after it was clearly established that PCBs posed a health hazard to humans and animals.

Among the first creatures to show ill effects were Great Lakes fish-eating birds such as herring gulls and terns, many of which died after eating PCB-contaminated fish.

"In Michigan, we found PCBs in the brains of dying gulls in concentrations as high as 2,600 ppm," says Hesse, "which is 10 times what wildlife researchers view as a lethal concentration." Fish accumulate PCBs in fatty tissue, sometimes to the point where they contain PCB levels thousands of times higher than the water in which they swim.

Also stricken with PCB poisoning have been mink at Michigan ranches, where the animals died or had reproduction problems after being fed Great Lakes salmon. Testing this, researchers have induced reproductive failure in mink by adding relatively low concentrations of PCBs to their normal diet.

Although there is no record of negative human health effects from consumption of PCBs in this country, Hesse says, such effects were clearly shown in Japan after a 1968 accident in which PCBs were leaked into rice oil. Some 1,200 persons fell ill after eating the contaminated foodstuff.

The U.S. Food and Drug Administration has established 5 ppm as the maximum allowable concentration of PCBs in foodstuff to be sold for human consumption.

Although the PCB problem is far from Michigan's alone, this state was among the first to identify it and take steps to solve it, Turney says.

The DNR, with strong support from Governor Milliken and the Michigan legislature, has played a key role in the drive to rid the environment of PCBs, which are extremely persistent in the food chain. That role has included intensified monitoring and analysis to determine the extent of PCB contamination and implementation of control programs that have virtually halted PCB losses from major industrial and commercial sources.

"Perhaps our efforts are being rewarded," says Turney, referring to the report's conclusions. "Perhaps the days when we can stop advising people to limit consumption of Great Lakes fish will come sooner than we've imagined."

Many states, including Michigan, have advised sport fishermen to limit consumption of PCB-contaminated fish such as Great Lakes salmon, lake trout, steelhead and brown trout to no more than one meal per week, and have advised women of child-bearing age not to consume these fish at all.

Two other developments that should help are Michigan's new PCB law, Act 60 of 1976, which took effect April 1, 1977. It essentially prohibits the manufacture, sale or use of PCBs in Michigan for all applications other than in transformers and capacitors, "closed systems," as they are called.

Also, the recent Monsanto decision to halt all PCB distribution permanently in October is looked upon favorably by state and federal officials, and is expected to augment the legislative mandate. Meanwhile, this month's Fish and Wildlife Service report also notes a continued decline in DDT concentrations among the east-central Lake Michigan salmon and among chubs and lake trout caught off Saugatuck.

And, the report lists a decline from past years in mercury levels measured in Lake St. Clair walleyes.

"We'd like to believe these welcome results are from some of our pollution efforts," Turney says.

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