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US-Canada To Probe Phosphorus Input Data For Lake Erie Basin

The International Joint Commission for the United States and Canada is going to take a closer look at the phosphorus problem in Lake Erie.

This was decided at a meeting earlier this month by the commission's Great Lakes Water Quality Board in approving plans for a program to evaluate Lake Erie municipal phosphorus loading data.

Since municipal loadings represent 50 percent of the phosphorus inputs to the lake and since operational problems occur (storm overflows, bypasses, breakdowns, etc.) in treatment plants, data from sewage treatment plants in Ontario and the five

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states in the Lake Erie Basin will be examined in detail, it was stated.

The board was also presented with information about polychlorinated biphenyl levels in Lake Michigan, but decided more facts were needed on the effectiveness of current PCB controls used in Canada and the US.

The board's Surveillance Committee will investigate and report on the PCB concentrations in fish and waters of the other lakes as part of its ongoing surveillance and monitoring program for all micropollutants, which include a variety of toxic substances like herbicides, pesticides, asbestos fibers, and fungicides.

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Some Michigan fish have PCB

PCB levels as high as 50 parts per million (ppm) have been found in some Lake Michigan salmon and trout recently. Even young fish may have levels in excess of 15 ppm, says Paul Degurse, microbiologist with the Wisconsin Department of Natural Resources. These PCB concentrations are well above the safe level of 5 ppm set by the U.S. Food and Drug Administration.

PCBs, or polychlorinated biphenyls, are chlorinated hydrocarbons similar to DDT. However, PCBs are not used as pesticides but rather as industrial compounds.

Degurse, who discovered the high PCB levels, has been studying chlorinated hydrocarbons in Wisconsin fish for 10 years. He and other researchers first noticed the presence of PCBs several years ago when analyzing fish for DDT content.

At that time the State Department of Health warned Wisconsin fishermen to eat no more than one meal per week of fish caught in waters with known high levels of PCBs. And in 1971 Gov. Patrick Lucey ordered a halt to the commercial sale of some Lake Michigan fish that contained high PCB levels.

"Since then, the PCB problem in Lake Michigan has worsened," says Degurse. Most large lake trout now have levels in excess of 5 ppm, Degurse reports, though he also notes that some Lake Michigan coho salmon analyzed are below the 5 ppm mark.

Part of the reason that PCBs are such a problem is that they do not break down very rapidly and remain in the biological environment a long time.

"Consequently, their persistence probably makes them much more toxic than DDT," says Degurse.

But just how much more toxic is not fully known. Monkeys and mink, given steady diets containing PCB concentrations of less than 5 ppm, suffered from reproductive failures and other abnormal conditions. Mink fed a diet containing 2 ppm of PCBs for 90 days died. In addition, PCBs are suspected of causing egg shell thinning and abnormal offspring in some birds.

Degurse points out that there are marked differences between the toxic levels for one species and another. Nevertheless, he feels that PCBs would probably damage the health of anyone making a steady diet of Lake Michigan fish over a long period.

Though PCBs can be partially eliminated from fish by removing the fatty tissues, Degurse warns that some samples of Lake Michigan fish had high PCB levels even after being gutted and cleaned.

There are many sources of PCBs. They have been used in this country since the 1930s as insulating fluids, plasticizers, adhesives and in fire resistent electrical fluids and hydraulic fluids.

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