Wash Post

Toxic Levels Rising in Great Lakes

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More than 20 tons of toxic PCBs are pouring into the Great Lakes every year, mostly from the air, a group of scientists reported yesterday.

And this influx, which is occurring despite a ban on PCBs imposed in 1976, is likely to get worse over the next several years, according to one of the scientists, Dr. S. J. Eisenreich of the University of Minnesota.

PCBs are polychlorinated biphenyls, a family of chemicals once widely used in industry, particularly in electrical components. They have been found to cause skin and internal disorders in humans and have been linked to cancer and birth defects in laboratory animals.

The sources of the PCBs in the atmosphere are not certain, the scientists noted, but they pointed to municipal incinerators and sanitary landfills as likely candidates.

Incinerators' "operating temperatures are usually too low to burn the PCBs, which are contained in electrical capacitors and other items," said Dr. Thomas Murphy of DePaul University.

In addition, he said, when PCB-containing objects rust or break open in sanitary landfills the chemicals slowly evaporate and mix with other decay gases rising from the landfill.

Murphy, who took samples extensively in Lake Huron and also took measurements in Chicago, found that dust in his Chicago apartment contained 8 parts per million of PCBs. By comparison, the Food and Drug Administration limit for PCBs in milk is 1.5 parts per million.

Eisenreich, noting the long life—20 years or more—of things made with PCBs, said that as these objects wear out and are discarded they will continue to release PCBs into the environment, despite the ban.

He and Murphy were among a group of scientists who presented papers on PCBs at the annual meeting of the American Chemical Society here this week.

Eisenreich focused on Lake Superior. He and a colleague, G.J. Hollod, calculated that between 8.0 and 9.7 metric tons of PBCs enter the lake each year. At the same time, between 1.0 and 1.6 tons are broken down or drained out of the lake, leaving a net increase each year of between 6.4 and 8.7 tons.

Assuming that PCBs began accumulating in the water around 1955, some 44 tons of the material are now present—24 tons in the water, just under 20 tons in the sediment on the lake bottom, and the rest in various organisms, including fish.

He said that while peak production of PCBs was reached in about 1969, concentrations in fish have remained high. Thus, he said, "my gut feeling after working up all the data" is that concentrations will increase for the next several years.

And "we are probably underestimating" the levels, Eisenreich added.

Eisenreich said that while data is not available on all five Great Lakes, the total amount of PCBs entering them annually should "easily" exceed 20 metric tons.

The failure of PCB concentrations to decline is in sharp contrast to the pesticide DDT, which was banned in the 1960s and has fallen off rapidly in the lakes, both Murphy and Eisenreich said.

Another researcher, however, Dr. Terry F. Bidleman of the University of South Carolina, measured the concentrations of a number of heavy hydrocarbons in the air over a remote South Carolina swamp and found significant amounts of DDT there.

He said that the levels of DDT were not surprising, considering the enormous volume of the pesticide used in South Carolina over the years.

Bidleman's sampling turned up the pesticides toxaphene and chlordane, as well as PCBs.

He estimated that 1.2 kilograms of toxaphene are rained each year on the estuary he studied. He said that is cause for concern because the pesticide damages bone development in young fish.

MONS 008637