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More study wanted on effects of PCBs

A National Research Council report on the PCBs (polychlorinated biphenyls) says their most harmful effects could be on wildlife reproduction.

The council says more study is required to determine if such effects can be attributed to PCBs themselves, or in combination with other compounds containing chlorine. Of the PCB compounds, those with high chlorine contents were found to be most harmful.

PCBs have been manufactured since 1930, and used in a wide variety of products, such as dielectric fluids used in electrical transformers, heat transfer agents, lubricants, flame retardants, plasticizers, and waterproofing agents.

They were manufactured in North America solely by the Monsanto Chemical Co. under the trade name Aroclor. Monsanto voluntarily restricted sales in 1970 to closed applications, where any leakage into the environment would be through accidents or deliberate dumping. In 1977, they stopped the manufacture and distribution of Aroclor, though other companies throughout the world still make it.

Reproductivity can be affected by residues in the order of 2.5-5.0 mg/kg and fish from a variety of locations have been found to have levels higher than this. The fisheries inspection branch of the federal government recently established a temporary guideline of 2 ppm (parts per million) for the edible portion of fish.

Figures from a previous study, the Canada Task Force on PCBs, showed that in the Great Lakes, coho salmon were found to have levels of 4.97 ppm, eels 17.14 ppm, and catfish 9.63 ppm.

The average level in fish outside the Great Lakes was found to be .10 ppm.

PCBs are retained for a long time in the environment, and are non-soluble in water, the report says. They tend to accumulate in living organisms, mainly in fish and aquatic animals, though residues form in mammals that have eaten affected fish.

The council says reproductive failures have been reported in merlins and prairie falcons, in herring gulls, common terns, cormorants and bald eagles. It says residues have been found in lake trout, seal and polar bears in the Arctic, birds, and fish around the Great Lakes area, and on both coasts.

PCBs in water are taken up rapidly by fish, and with as much efficiency as they extract oxygen from water. PCBs that are ingested by fish and mammals are often transferred to the liver, often causing lesions and sometimes cancer, the report says.

The council says possible damaging effects to humans are minimal because most do not eat sufficient quantities of fish. The biggest danger is to those involved in the manufacture of the compound. A variety of effects have been reported, including chloracne (a severe acne), loss of appetite, nausea, vomiting and burning and soreness of the eyes.

The council recommended improved facilities be provided for more exact research.

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