Persistent PCBs: Pollutants Loom As a Worse Menace Than DDT

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PCBs as a widespread contaminant, entering the environment through pollution of waterways, the burning of trash containing PCBs and other routes.

Then the alarm grew as new evidence of PCBs' toxicity came to light. In 1968, more than 1,000 people in Japan suffered an epidemic of a disfiguring skin disease, dubbed Yusho, that later was traced to rice oil heavily contaminated with PCBs. The victims also suffered abdominal pains and disturbances in liver function. The chemicals had been used as a heat transfer agent in making the oil, which apparently had been contaminated by leaking equipment.

Evidence of toxicity continues to increase. After PCBs became an issue three years ago, the Food and Drug Administration set maximum levels, effective in 1973, to be tolerated in foods, the tolerance for fish, for example, was put at five parts per million. But recent research suggests that PCBs may be hazardous at the stipulated levels or lower.

The evidence comes from the University of Wisconsin's Primate Research Center. James R. Allen, a professor of pathology, says rhesus monkeys, only a few months after being put on diets containing as little as 2.5 parts per million of PCBs, suffered loss of hair, general metabolic disturbance and, in effect, a severe stomachache. Moreover, even low levels of PCBs in monkeys apparently caused abortions and sickly offspring. "This indicates that if man were exposed to similar levels over the same time, he also would become extremely ill," Mr. Allen says.

The monkey studies are considered significant because many fish contain more than five parts per million of PCBs. Through an insidious phenomenon known as bioaccumulation, PCBs tend to build up in the fatty portions of animals and man; authorities say PCB concentrations in fish may be up to 250,000 times as great as in the water in which they feed.

High Levels in Fish

Fish from the Great Lakes, the Hudson, Milwaukee and Ohio rivers and other waterways are showing worrisome PCB levels. Recent samples from Lake Michigan average 5.6 parts per million in bloater chubbs, 22.9 parts per million in large lake trout and 10.5 parts per million in coho salmon. PCB levels tend to be somewhat lower in edible portions of fish but still exceed the five-parts per million limit.

Two shipments of Great Lakes canned salmon recently were seized by the FDA as contaminated, and several states have been trying to police fish sold within states. But many people, mainly sport fishermen, are believed to be still eating contaminated fish, despite warnings by health authorities in New York and the Midwest. And serious problems could loom for commercial fishermen. After studying Lake Michigan, for example, a special task force recently concluded, "Although all species aren't affected by PCBs, the potential exists for a significant portion of this fishery being curtailed."

Moreover, there are hints that PCBs also might cause cancer in man, although this possibility is far from having been proved. One soon-to-be-published study by Renate D. Kimbrough, a physician currently with the federal Center for Disease Control in Atlanta, provides the strongest indication to date that PCBs can cause liver cancer in rats. "This serves as a warning that PCBs may be a low grade carcinogenic agent in man," she says. Some scientists speculate that if the chemicals cause cancer in man, it would be only after heavy exposure over many years and possibly only in longtime workers in PCB plants.

Problems With Mink

The dangers to some forms of animals has been definitely established. For example, mink that ate Great Lakes fish containing PCBs failed to reproduce, and PCB pollution is said to have forced some mink growers out of business. And the chemicals are prime suspects in wildlife problems. Robert W. Risebrough, an ecologist with the University of California's Bodega Marine Laboratory, says there is a "strong but still unproven" case that PCBs are killing birds such as the herring gull and osprey.

Scientists also worry that PCBs in the oceans will eventually decimate some forms of algae, with a possibly fatal impact on tiny animals, near the bottom of the food chain, that eat those specific algae. Experimentation also has suggested that PCBs somehow interfere with the process of photosynthesis through which plants flourish. More recent research at Woods Hole, however, suggests that photosynthesis isn't impaired, but cell division is, the result would be fewer cells and less total photosynthesis in types of algae sensitive to PCBs. Nobody knows what the eventual impact, if any, will be on man.

Amid all these uncertainties, few people are seriously arguing that PCBs shouldn't be cleaned up. The EPA promises "aggressive" action. Mr. Schweitzer of the toxic substances office says that next February the EPA will finally set effluent limitations for PCBs aimed at stopping industrial polluters. (Since 1972 the agency has had the authority to issue such standards, but hasn't done so. In the absence of standards, most PCB users have been free to pollute waterways, though some regional EPA offices have tried to regulate emissions through permits.)

New Legislation Sought

The EPA also is citing PCBs in renewing its call for passage of the long proposed Toxic Substances Control Act. The legislation, which isn't considered likely to clear Congress soon, would expand the EPA's powers to curb pollution. But environmentalists call the proposed legislation weak since it wouldn't require new testing procedures that presumably would stop dangerous chemicals from ever coming to market.

And skeptical environmentalists doubt the EPA, even with new laws, will accomplish much. "We're distressed at EPA because it's been a useless piece of bureaucratic machinery," says David N. Seymour, president of the Hudson River Fisherman's Association. The EPA's Mr. Schweitzer replies: "Maybe we should have given higher priority to the PCB problem—that's easy to say in hindsight. Certainly PCBs now have emerged as a high priority item."

Proposals for a complete phaseout of PCBs, of course, imply that there is a substitute for their vital electrical applications. And Dow Corning Corp., a joint unit of Dow Chemical Co. and Corning Glass Works, claims that for transformers it has developed a workable substitute, polydimethyl siloxane, which is being used successfully in Japan. But doubts are expressed by General Electric Co., a major PCB user, self acknowledged polluter and, ironically, a producer of polydimethyl siloxane. GE says there isn't any satisfactory substitute for PCBs in electrical gear, at least as the equipment is currently designed. It argues that the risk of banning PCBs—possible transformer fires and explosions — would outweigh the risk of keeping them.

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