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CLIPPED BY BACON'S

s Present Major Environmental Hazard

BETHESDA, MD.—Both commercial and sport fishing probably will be banned from the Great Lakes because of contamination from polychlorinated biphenyls (PCBs), David P. Rall, MD, PhD, said here.

Fishing already has been banned from New York's Hudson River because of PCB contamination.

Dr. Rall, director of the National Institute of Environmental Health Sciences, said a remaining problem will be to educate persons of low income who rely on fishing for a large part of their protein about the hazards of eating these fish.

An educational campaign now is being developed, he said during a seminar for the press sponsored by the National Institutes of Health here.

NIEHS, part of NIH, is located in Research Triangle Park, N.C.

Dr. Rall called the PCB story a "long and sad saga"—the sadness deriving from PCBs' persistence in the environment.

For example, the safe level established by the Food and Drug Administration for PCBs is 5 parts per million. The water in the Great Lakes contains less than 10 parts per trillion. But the fish concentration is over the FDA level, and in another year or two those fish will contain toxic levels.



—*U.S. Medicine photo*

Dr. David P. Rall

Once PCBs enter the body, it takes years to get rid of them. Meanwhile, they continue to concentrate themselves.

The compounds were developed by chemists for use as insulators in motors, transformers, capacitors and the like. They are highly heat resistant fluids.

The problem, Dr. Rall said, is that they became very widely used—at one time even being included in the 1040 income tax form.

Probably the first reports of PCB toxicity came in the 1940s, when workers producing the compound broke out in chloracne.

Then in 1968 there was a virtual epidemic in Japan of babies born with brown skin, low weight, skin lesions

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Contamination From PCBs Brings Ban On Fishing In Great Lakes

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and liver damage. These "koala bear" babies, as they were called, were the result of PCB contamination of cooking oil that had been ingested by their mothers.

There even are cases of babies being born with the syndrome as long as four years after their mothers had used the cooking oil.

In the early 1970s high levels of PCBs were found in large flocks of chicken and turkeys, and they were destroyed. This contamination, Dr. Rall said, resulted from grain that picked up the compound while stored in a silo whose walls had been covered with paint containing PCBs.

In 1971 fish from Lake Michigan were used by several mink breeders as food for their animals. The mink stopped breeding, and the firms went bankrupt.

At this point NIEHS held an open meeting—a practice it now follows for all substances that crop up as new environmental hazards—at Quail Roost, N.C.

Scientists from industry and academia and the federal regulating agencies were invited, as were science writers.

Looking back at that meeting, Dr. Rall said, the mix proved to be a good one. Participants decided more studies were needed about the movement of PCBs in the environment, and how they could be restricted in effluents.

The nation's sole manufacturer of PCBs, Monsanto Chemical Company, suspended sales for any but entirely contained uses.

"There was no data available on carcinogenicity, but as a chlorinated hydrocarbon it had to be followed," Dr. Rall said. Reproductive toxicology and metabolic studies also were deemed necessary.

"HEW has done a good job in following through" on the PCB question, Dr. Rall said. Animal feeding experiments at the Center for Disease Control clearly documented its carcinogenicity, for example.

Studies at the University of Wisconsin on rhesus monkeys showed that babies of mothers fed PCBs were stillborn in many cases or born with brown, problem skin.

Pharmacokinetic studies at NIEHS showed that the highly chlorinated PCBs have half-lives of 90 to 120 days, which is "extremely long" in the environment.

In all, there are about 150 PCBs, Dr. Rall said.

Another problem with them is they can readily be converted into even more toxic compounds, he said.

Dr. Rall said the Great Lakes fish are not able to excrete PCBs, which they pick up directly through their gills and through the microorganisms they eat. In fact, the eggs they are born in also are contaminated.

One fish, living in a water concentration of 1 part per million, can concentrate up to 200 parts per million in one year, he said.

Recently fish have been found in the Great Lakes with concentrations up to 30 parts per million, he said.

"There is no moral to this story," Dr. Rall said. "It is a classic example of the problem of toxicology trying to keep up with technology."

There now are about 35 to 40 million pounds of PCBs produced each year, compared to 80 million pounds during its "peak" period of use.

Dr. Rall said Monsanto would like to stop producing PCBs, but if it does someone else will take over the market and perhaps even step up production again.

Initially PCBs probably were quite safe for their intended use as insulators in transformers, he said. But in 10 to 20 years they came into wider and wider use and "spread all over."

"We have to be concerned about increased use of this kind of substance," he said. "We have to be careful."

At present the Environmental Protection Agency has no legal authority to restrict the production, use or disposal of PCBs. The Department of Agriculture does prohibit its use as a pesticide and in food handling and processing.