

Some veteran coal miners in the Appalachians go to work carrying a dinner pail in one hand and a caged canary in the other. The little bird is their safeguard against death.

For some unknown reason, a canary is particularly susceptible to deadly mine gases. It succumbs at first whiff, well before man is affected.

If the canary suddenly stops singing and topples over, miners drop their tools and flee to the surface.

New York State is now involved in a similar effort with fish — using them to warn of poison in our water supply.

What these fish are telling us now could be important to everyone's health in the future. The first reports are frightening, grim and don't make pleasant breakfast reading.

According to the Department of Environmental Conservation, the state has approximately 30 sampling stations on line in a statewide water monitoring program. Samples are taken on a continuing basis in the Hudson, St. Lawrence and Mohawk rivers, the Finger Lakes, Lakes Erie and Ontario, marine coastal areas and other important state watersheds.

Varied species of fish and core samples of silt and sediments are sent to the department's Rome laboratory for testing for harmful industrial chemicals and for agricultural pesticides. Many of these chemicals leach into the ground water even if not discharged directly into water as waste.

The state's water survey is part of a federal program. The U.S. Fish and Wildlife Service has 100 stations across the country in its National Pesticide Monitoring Program. It likewise uses fish in its warning system.

Fresh water fish go to the Fish-Pesticide Research Laboratory at Columbia, Mo., and

Upstate's Outdoorsman

FLOYD KING

salt water marine species are tested at similar U.S. laboratories in Maine and Florida.

New York's water monitoring program has been stepped up because the state occupies the hot seat in chemical contamination. Some state waters have the highest concentration of polychlorinated biphenyls (PCBs) in the nation.

Many scientists say flatly that PCBs are the most dangerous contaminants ever introduced into the environment. Testifying before a congressional committee, Assistant Interior Secretary Nathaniel P. Reed said, "PCBs in our environment loom as a dark cloud casting an ominous shadow upon all of our living natural resources."

Like DDT, PCBs are chlorinated hydrocarbons. They have been used since 1929 in such industrial processes as making glass, laminating ceramics and metals, as paint and varnish additives, in epoxy resins and as an additive in sealants. They are used in printing and the xerographic transfer process. Possibly their most important use has been in electric transformers.

When scientists were making their stud-

**First it was DDT,
then mercury,
and now, perhaps,
the greatest threat
of all—PCBs**

ies of the effects of DDT which ultimately led to a nationwide ban on that agricultural pesticide, they found mysterious chlorine compounds in the water they could not identify. It was not until 1966 that these substances were identified by a Swedish scientist as PCBs.

Even then scientists were not greatly alarmed. It took a disaster to bring PCBs into focus. In 1968, some 1,000 Japanese on the island of Kyushu became seriously ill when they ate rice oil contaminated during processing by PCBs. Twelve died, many developed horrible skin diseases and others suffered nerve disorders and hearing loss. Pregnant women were particularly affected, having many stillbirths or giving birth to deformed children.

After the accident, the Monsanto Chemical Co. of St. Louis, the only company in the United States manufacturing PCBs, informed its customers of the toxic effects of the chemical and halted its sale for any use except closed system heat exchangers (electric transformers). Recently Monsanto announced plans to discontinue manufacture of the compound as soon as a suitable substitute can be found.

The U.S. Food and Drug Administration has set a limit of 5 parts per million for PCBs in either human or animal food.

Alerted by the Japanese incident, scientists began tests of PCB toxicity. Among other things they found it caused liver cancer in rats, reduced the reproductive capacity of mink and gave monkeys severe skin disorders, hair loss and resulted in either stillbirths or dwarfed infants.

PCBs also are now suspected in the decline of canvasback ducks, a decline so severe they are likely to become an endangered species. Laboratory tests on some of these waterfowl found PCBs in muscle

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POISON IN THE WATER

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'Any fish with more than one fin missing should not be eaten'

tissue at levels known to cause embryonic death in chickens.

In all of this June New York's fish have been waving the flag of danger — and have been ignored.

In 1970, Sports Illustrated reported striped bass caught in the Hudson River were contaminated with PCBs. In 1972 an article in Science magazine by two Cornell University scientists reported lake trout in Cayuga Lake contained PCBs. One 9-year-old fish had a concentration of 30.4 parts per million of the chemical.

Finally, the Department of Environmental Conservation began collecting and testing several species of fish and the reports steadily became more alarming. One rock bass taken from the Hudson River had 350 parts per million of PCBs in its tissues, the highest ever found by either state or federal laboratories.

Ward B. Stone, wildlife pathologist in the department's Delmar Wildlife Research Laboratory, began sending a series of memos to administrators warning of the seriousness of the situation. Apparently because of the furor about DDT and mercury, warnings were ignored.

It was not until Ogden Reid took over as conservation commissioner that the department began to pay attention to what the fish were saying.

Reid shocked fishermen last year when he closed the Hudson River to fishing and recommended that salmon caught in Lake Ontario should not be eaten.

The state Department of Health tempered Reid's edict. The department has ruled that salmon from Lake Ontario can be eaten once a week with comparative safety but pregnant women should not eat them at all.

Despite the health department's stand, Reid has not changed his views.

The conflicting views and the fact that the state is continuing to push its salmon restoration program in Lake Ontario has left fishermen confused. Many don't know whether they are taking home an excellent food or a slow-acting poison.

At a recent meeting of the Seth Green chapter of Trout Unlimited, members mentioned catching salmon with more than one fin missing (one fin is usually clipped when fish are stocked). The anglers wanted to know if that is normal.

Fisheries biologist Bill Abraham replied that the regional office has received reports of this abnormality and hoped to net such a fish for laboratory testing. However, the federal pesticide lab in Missouri has already determined that fin rot of fish is a sign of heavy PCB contamination. Any fish with

more than one fin missing is suspect and should not be eaten.

See Grant, a government-funded coastal management advisory service, has offered a suggestion to fishermen: Because fish concentrate poison in their body fat, if most of the fat is cut away, it will largely eliminate the contamination. See Grant recommends cutting away the belly fat (about a two-inch strip on a large fish) and another V-shaped strip from along the backbone.

Rick Sodin of the See Grant office at the State University College at Brockport demonstrated the technique during the Bicentennial Salmon Derby. He is also available to interested groups to show how it is done.

Using the See Grant cleaning technique it is probably as safe to eat fish as most other protein sources. Environmental Protection Agency figures for the past two years show 50,000 turkeys in Minnesota, 88,000 chickens in North Carolina and thousands of eggs from all over the country have been destroyed because of high levels of PCB contamination.

Because of 50 years of contamination, the agency believes half the people in this country carry from 1 to 3 parts per million of PCB in their fatty tissues. Other scientists say the figure may be even higher. Perhaps more awesome is the agency's conclusion that every living thing on earth now has PCBs in its tissues.

For the first time, samples of Finger Lake trout were sent to the state's Rome lab this spring for testing. They were found to be PCB-contaminated but not as badly as Lake Ontario fish.

The most frightening aspect of the PCB story is that the pollution continues. There is only one known polluter in New York State. General Electric plants at Ford Edward and Hudson Falls discharge waste PCBs in the upper Hudson River every day. The two plants, which manufacture electric capacitors, had been releasing 30 pounds of the chemical daily into the river until action was brought against them. General Electric has reduced its pollution but is fighting in the courts against further cutbacks.

Because of the extensive use of PCBs for a half century, environmental scientists now believe there is also considerable leaching of the chemical from old dumps into the underground water table.

Where it will end is a vexing problem because PCBs never degrade. They may be in our environment forever.

Meanwhile, those fish out there are waving their flags of danger ever more frantically. They're developing tumors, cancers, deformed skeletons and even dying trying to tell us something. □

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