New Plastic Pollutant in Bay, Mothers' Milk

By Robert Gillette
Science Writer

LA JOLLA — An alarming new chemical pollutant resembling the insecticide DDT is accumulating in Pacific and Atlantic Ocean marine life, according to a scientist from the University of California at Berkeley.

The substance apparently is playing a role in the rapid decline of at least one species of bird, the peregrine falcon, and it may have abetted the disappearance from the Gulf Coast of the brown pelican.

Plastics

Swedish scientists first identified the pollutant in fish taken from the Atlantic. Now in recent months, UC researchers have found it in birds and fish from San Francisco Bay.

Dr. Robert Risebrough, of the UC Institute of Marine Sciences, said the chemical is polychlorinated biphenyl, or PCB.

It is used to make plastics, synthetic rubber products, and epoxy adhesives. It apparently escapes to the environment in fumes and industrial waste water, Dr. Risebrough said yesterday.

PCB has also been found in human milk analyzed at the University of Colorado.

Though it is not an insecticide, PCB belongs to the same chemical family as DDT chlorinated hydrocarbons.

They are not easily broken down in the environment. They tend to accumulate in fats and oils in living tissue, and they can disturb a variety of chemical processes within living cells.

Dr. Risebrough said Monsanto Chemical Company is apparently the sole producer of PCB compounds in the United States, selling them under the trade name of Aroclors. He said Monsanto has not responded to questions about the chemistry of PCB and its long range effects on animal life.

PCB is the latest addition to a growing list of chemicals, generated for the benefit of man, that are appearing in ever larger amounts in the open ocean — and in some cases, in the food man takes from the sea.

Whole Picture

As such, the presence of PCB in marine life is the newest symptom of "man's chemical invasion of the ocean" — the subject of a grim and occasionally outraged discussion among 200 scientists, here for two days at the Scripps Institution of Oceanography.

To most Californians today, a polluted sea most likely means the huge oil slick in the Santa Barbara Channel.

But scientists here regard such spills as only a small facet of global marine pollution.

Dr. Edward Goldberg, a professor of chemistry at Scripps, observes that with lead, the chlorinated hydrocarbons, and crude oil, "man has left his imprint in all parts of the world ocean, which covers two-thirds of the earth's surface to an average depth of several miles."

Lead, used as an anti-knock agent in gasoline, is pouring from the world's automobiles at a rate of about one million tons a year, Dr. Clair Patterson, a geochemist at Caltech in Pasadena, reported.

Rain and snow sweep flakes of the automotive fallout from the air and carry it to the sea.

As a result, Dr. Patterson said, the amount of lead in the upper 3000 feet of the ocean has grown to nearly twice that expected from natural sources.

The heavy metal has been known as a poison for ages, "but as yet we don't know the effects of lead accumulation in ocean food chains," Dr. Patterson said.

One disquieting hint, however, is that marine plants and animals — hold most of the lead they ingest, then pass it on to the next link in the food chain.

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Aroclor
Toxicity

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