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Pollution in L.I. Sound Tied to Defects in Terns

By BAYARD WEBSTER

A five-year scientific study of a colony of terns on Long Island Sound has disclosed a rising incidence of birth deformities that researchers suspect may be caused by pollutants in the Sound's waters.

The birth defects were first noticed in 1969 among young roseate and common terns on Great Gull Island at the eastern end of the Sound. They included such abnormalities out down feathers or that later fails to develop adult feathers; a four-legged chick, birds that lost their primary and secondary feathers — which are needed for flight — one born with stumps for legs, and others that had crossed mandibles and too-small eyes.

The researchers who conducted the study likened the birth deformities to those caused by the use of the sedative, thalidomide, by pregnant women in the late nineteen-fifties.

The study was conducted at Great Gull Island, a tern sanctuary, on some 2,000 young birds that live in the colony that has a total population of about 7,000 terns.

The researchers were Dr. Robert W. Risebrough, an ecologist at the University of California at Berkeley, and Miss Hays, an ornithologist at the American Museum of Natural History. Their study, which is continuing, is sponsored by the museum, its department of ornithology and the Linnaean Society, an ornithological group.

The report of the study was published in part in the November issue of Natural History magazine. A more extensive report will be published in a forthcoming issue of the ornithological journal, The Auk.

As the reports of deformities grew, starting with three in 1969 and reaching more than 20 in 1970 and 1971, Dr. Risebrough and Miss Hays began to seek the causes. They knew that such toxins were above normal. One tern study made recently in Florida turned up only one abnormality—an extra claw on a tern's foot—among a sample of 10,000 birds.

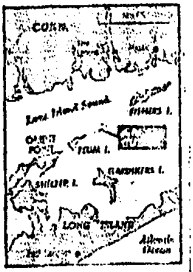
Working with Dr. Risebrough, Miss Hays began shuttling frozen bodies of the abnormal terns, along with specimens of the eight species of sardine-sized fish that the tern eat, across the country to Dr. Risebrough in the Bodega Bay Marine Laboratory of the University of California.

At first tests were made for DDT and its compounds—DDE and DDD—but the levels of these hydrocarbons were found to be normal or less than normal. The same proved true in later tests that were made in Long Island Sound for lead, mercury and cadmium levels.

Dr. Risebrough has conducted much research on PCB, a highly toxic relative of DDT that has been used industrially in the production of plastics, paints, printing ink and paper and has found its way into many parts of the environment. He also tested for PCB.

He found that PCB levels in the birds and fish ranged from slightly below five parts a million, the Federal limit for poultry, to as much as 35 times the Federal limit. Most of the samples contained PCB levels considerably above this limit.

In recent laboratory tests in the Netherlands, PCB was injected into chicken embryos that later developed deformities similar to the ones noticed in the Long Island Sound terns, according to the authors of the study.



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"We don't say that this is the cause, because we really don't know," said Dr. Risebrough by telephone from his laboratory.

In their study, he and Miss Hays note that much further research is necessary "before we can definitely pinpoint just what pollutants are responsible for what deformities, and what the cause-and-effect relationships are."

The difficulty of establishing such connections was noted by Dr. George M. Woodwell, senior ecologist at the Brookhaven National Laboratory, L. I. In a telephone interview, he said:

"It is difficult to prove the cause of birth defects in wild populations, but this is something that would not appear commonly in nature. It is very unusual to turn up this sort of anomaly."

Dr. Charles F. Wurster, associate professor of environmental sciences at the State University of New York at Stony Brook, L. I., said he felt the study was "highly relevant, pointing up a very dangerous situation.

"The problem here," he added, "is time. In shortlived animals such teratogenic [birth deforming] abnormalities show up quickly. But with humans, the time element is so long and we tend not to worry so much about something that may not happen for 20 years."

The authors of the study noted that the loss of flight feathers, observed in many chicks, "are the kinds of effects that might be expected from a chemical capable of affecting gene reproduction during embryonic cell division."

Duryea Calls for Study

"Many thousands of young must be examined to detect the first effects of pollutants building up in a population of any species," the authors said.

Calling Long Island Sound one of the more polluted areas of the world's oceans, "a distinction it shares with the Baltic, the Mediterranean, and the Southern California coastal waters," Dr. Risebrough and Miss Hays urged that a study be made to determine what pollutants are in the Sound.

In Albany, Assembly Speaker Perry B. Duryea, in response to the details of the study of the terns' birth defects, called for the creation of a bistate commission to study the problems of the Sound.

He said he planned to call for a preliminary meeting with leaders of the Connecticut Legislature to address "the many faceted problems of Long Island Sound as they are shared by both governments.

"There is a possibility that the pollution may be related to some problem in Long Island Sound, not as yet identified."

Copies to:
Cunningham
Corey
Papageorge
Mason
Bergen
Wheeler

C. J. Knapp
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