



The annual report also discusses the effects of pesticides on marine life. Most pesticides were developed for the control of land arthropods (insects, spiders, crustaceans, etc.) and there were reasons to expect the toxicants to be equally harmful to the aquatic members of this group. Many water-inhabiting arthropods--the crustaceans, which include shrimps and lobsters--have economic importance. Laboratory tests even with low concentrations of DDT produced considerable death in shrimp after 72 hours.

Oysters proved hardier. In about a month, they accumulated DDT residues 70,000 times the amount of DDT in their environment--but they did not die. When the contaminated oysters were put into fresh water, the concentrations of DDT were reduced somewhat within a few weeks.

Because tests on the usual laboratory animals may not provide adequate measures of the pesticide hazard to wildlife, the Federal researchers carried out toxicity tests on the captive birds of several wild species--bobwhite quail, ring-necked pheasants, and mallard ducks.

The birds were treated in groups and were permitted to get food and water without hindrance. Tests on young birds began when they were only a day or two old; with the older birds, males and females were equally divided in each group. The "controls" were fed regular game-bird diets. The other groups received the same diets plus the test compounds. Some birds were exposed to diets containing each of the more than 60 commonly used pesticides. The results showed acute and chronic effects on the liver, brain, fatty tissue of the reproductive organs, and the eggs.

To investigate the effects and movement of pesticides under natural conditions, researchers selected a tidal marsh. They treated it with 1/5th of a pound of DDT per acre and observed the marsh for 4 months. They studied 7 fish species and fiddler crabs and performed residue analyses for DDT and its metabolic products on samples of water, vegetation, bottom sediments, and snails.

The researchers found that 98 percent of the total mortality of animals took place within 3 weeks after treatment--under conditions of low rainfall, semi-isolation from tidal flushing, and increasing temperatures. Distribution of DDT was affected by wind and water movement. Most of the pesticides in the inflowing water accumulated in tissues of the resident animals and in the bottom materials. After the tests, the fish populations were restored by the reproduction of the surviving fish and by replacements.

Copies of the report, "Pesticide-Wildlife Studies, 1963," Circular 199, may be obtained without charge from the Fish and Wildlife Information Office, Department of the Interior, Washington, D. C., 20240.

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