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Maintaining a Healthy Environment

Contaminants enter the environment in many different ways; disposal of municipal wastes, factory discharges, and oil or chemical spills are a few examples. These examples are considered forms of "point-source" (or "end of the pipe") pollution because their origin is easily recognized. The amount of point-source pollution that enters our environment is impressive. For example, in 1995, a reported 2.2 billion pounds of toxic chemicals were released into our land, air, and water⁽¹⁾ and during 1996, 27,347 chemical and oil spills were reported⁽²⁾. In addition, there are currently 33,000 known hazardous waste sites.

In many cases the origin of pollution may not be as clear. For example, agricultural pesticides can be carried by runoff, or enter an aquifer, and end up contaminating a stream dozens of miles away. Pollutants can also be carried for long distances through the air and deposited on land and water by rain. Such examples are called "non-point source" pollution. Pollution from non-point sources can contaminate areas that may appear to be relatively untouched. For example, 41 of our nation's Fish and Wildlife Service management units (national wildlife refuges, waterfowl production areas, etc.) have advisories against

The question is sometimes asked, "Why does the U.S. Fish and Wildlife Service have an Environmental Contaminants Program? I thought EPA did that stuff?"



Photo by Steve Hillebrand/USFWS

Maintaining a healthy environment is an immense responsibility. As the world's human population grows and contaminants accumulate in the environment, the responsibility looms even larger. In fact, it often takes both the EPA and the Fish and Wildlife Service (FWS) to detect the problems and begin to solve them. Although its work benefits the environment as a whole, including natural resources, the EPA has historically emphasized human health and safety issues. On the other hand, the FWS Environmental Contaminants Program focuses on identifying and preventing harmful contaminant effects

on fish, wildlife, and plants, and on restoring habitats degraded by various toxic substances.

FWS Environmental contaminants biologists are experts when oil and chemical spills occur. They understand pesticides, water quality alterations, hazardous material disposal, and many other aspects of pollution biology. With their understanding of chemistry and changes in water quality and their knowledge of fish, wildlife, and plants, our scientists know what to look for and where to look in cases of contamination. They do not work solely behind desks; they walk the streams, travel the

backwoods, and note the changes around them. This "on-the-ground" presence enables experienced biologists to understand the connections among pollution, human activities, and changes in wildlife health.

The Fish and Wildlife Service's Environmental Contaminants Program is comprised of four major components:

1) Contaminants Prevention.

Contaminants specialists review environmental documents, legislation, regulations, and permits and licenses with pollution potential to ensure that harmful effects on fish, wildlife, and plants are avoided or minimized. Some examples include:

- analysis of documents and permits related to control of nonpoint source pollution from agriculture and urban runoff, point source pollution from industrial and municipal waste treatment facilities, and discharges of dredge and fill material;
- review of proposed Federal projects related to mining, agricultural irrigation, range management, and oil and gas development to ensure that habitat quality concerns are adequately addressed; and
- review of pesticide use on FWS lands to ensure these chemicals are properly applied and, in some cases, to recommend acceptable alternatives.

2) Contaminants Identification

and Assessment. Contaminants specialists conduct field studies to determine sources of pollution, to investigate pollution effects on fish and wildlife and their habitat, and to investigate fish and wildlife die-offs. Sites typically assessed include those impacted by drain water from agricultural irrigation and mining, superfund sites, and oil and hazardous waste spills. Field specialists also survey for contaminants prior to FWS acquisition of lands.

3) Contaminant Cleanup and Resource Restoration. Data collected in contaminant assessments is often used to secure compensation for resources lost or degraded by hazardous waste releases or spills. FWS contami-

nants specialists often take part in the efforts to cleanup contaminated areas, rehabilitate wildlife, and restore habitat. When the U.S. Environmental Protection Agency (EPA), U.S. Coast Guard, Department of Defense, or various other Federal or State agencies are responsible for cleaning up a contaminated area, FWS contaminant specialist are often called in to ensure that fish and wildlife resources and habitats are adequately protected during, and upon completion of, the cleanup. Contaminants specialists also work closely with National Wildlife Refuge managers to design and implement actions to cleanup oil and hazardous material on refuge lands.

4) Technical Support. Training field office staff, analyzing contaminant samples, and managing information are all key to the Contaminants Program's success. A large part of the Program's technical support comes from the Patuxent Analytical Control Facility (PACF) in Laurel, Maryland. Staff at PACF are responsible for such things as overseeing all FWS laboratory analysis and managing the Environmental Contaminants Data Management System. This system is designed to electronically store, analyze, and create reports on the vast amount of analytical information obtained from fish and wildlife tissue samples collected by FWS biologists. Another significant aspect to the Program's technical support capabilities is demonstrated by the Contaminant Information Management and Analysis System (CIMAS). CIMAS provides the ability to view, analyze, and summarize contaminants data from the FWS and other Federal and State agencies and integrate it graphically through the Internet.

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consumption of their fish, shellfish, or other wildlife, and most of our national wildlife refuges have either known or suspected contaminant problems.

We are still learning what happens to contaminants once they enter the environment and the effects they have not only on fish, wildlife, and their habitat, but also on human health. Effects on fish and wildlife that have been noted with some chemicals currently registered for use in the United States include: acute toxicity; reproductive, developmental, and behavioral problems; immune system dysfunction; and premature death. It is often years, if not decades, before we may be able to prove that a specific chemical is having a harmful effect on our natural resources and, even if its use is banned, it may continue to persist in the environment for a long time.

⁽¹⁾ 1995 Toxics Release Inventory Public Data Release Overview. Toxics Release Inventory: Community Right-to-Know. (Computer Search: <http://www.epa.gov/opptintr/tri/pdr95/drover01.htm#CH2>).

⁽²⁾ NRC (March 1999) National Response Center: Incident Summaries: Incidents Per Year. USDOT/USCG. Washington, D.C. (Computer search: <http://www.dot.gov/dotinfo/uscg/hq/nrc/incident.htm>)