



EPA's Contaminated Sediment Management Strategy

The contamination of sediments in waterbodies of the United States has emerged in recent years as an ecological and human health issue of national proportions. Contaminated sediments are defined as soils, sand, organic matter, or minerals that wash from land and accumulate on the bottom of a waterbody and which contain chemical substances at concentrations that pose a known or suspected threat to aquatic life, wildlife, or human health. Contaminated sediments can have an unfavorable impact on aquatic life by killing benthic organisms, and causing fin rot, cancers, and reproductive toxicity in fish. Food chain contamination can also pose a threat to wildlife and human consumers when pollutants in sediments bioaccumulate in fish and shellfish.

EPA Sediment Steering Committee

In 1989, the Environmental Protection Agency (EPA) formed an Agency-wide Sediment Steering Committee to address the problem of contaminated sediments on a national scale. The committee, chaired by the Assistant Administrator of EPA's Office of Water, is composed of senior managers from all EPA program offices with the authority to address contaminated sediments, and a representative from each of EPA's 10 Regional offices.

Contaminated Sediment Management Strategy

In January 1990, the Sediment Steering Committee decided to prepare an Agency-wide Contaminated Sediment Management Strategy to focus the Agency's resources on contaminated sediment problems. In 1993, the Steering Committee approved this Strategy. The purpose of this Strategy is:

- To describe EPA's understanding of the extent and severity of sediment contamination;
- To present the cross-program policy framework in which EPA intends to promote consideration and reduction of ecological and human health risks posed by sediment contamination; and
- To describe specific actions EPA believes are needed to bring about consideration and reduction of risks posed by contaminated sediments.

The goals of this Strategy are: 1) to develop methodologies for analyzing contaminated sediments so that sediment contamination and associated ecological and

human health risks are consistently assessed; 2) to prevent further contamination of sediments that may cause unacceptable ecological or human health risks; 3) when practical, to clean up existing sediment contamination that adversely affects the Nation's waterbodies or their uses, or that causes other significant effects on human health or the environment; and 4) to ensure that sediment dredging and the disposal of dredged material continue to be managed in an environmentally sound manner. Reduction of human health risks associated with contaminated sediments will also serve to promote environmental equity since subsistence fishers, often racial and ethnic minorities, are disproportionately affected by consumption of fish that have taken up contaminants from the sediments.

EPA and Other Federal Agencies' Action

To achieve the overall goals of assessment, prevention, remediation, and dredged sediment management, the Strategy proposes that the following activities be taken by EPA in coordination with other Agencies:

Assessment

There are three primary activities that EPA will undertake to improve assessment of contaminated sediments. First, to promote consistency in assessment, EPA will develop and use standard bioassay test methods to determine whether sediments are contaminated. These methods will be placed in a dredged testing framework that identifies the type of tests that will provide an assessment of ecological and human health risks posed by sediments. Second, EPA will establish sediment critical criteria to protect benthic organisms. These criteria will be used to help identify chemical-specific sediment

contamination problems. Third, EPA will develop two inventories: a Site Inventory, containing data on sediment quality throughout the United States, and a Source Inventory, containing data on potential sources of sediment contamination.

Pollution Prevention

Prevention of sediment contamination is the most environmentally protective and, in most cases, cost-effective way to address the problem. EPA has statutory and regulatory authority to prevent many contaminants from being released to sediments. EPA's Office of Water, Office of Pesticide Programs, Office of Pollution Prevention and Toxic Substances, Office of Enforcement, and Office of Air will use their authorities under the Clean Water Act (CWA), the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the Toxic Substances Control Act (TSCA), and the Clean Air Act to address prevention of contaminated sediments.

Examples of actions that these program offices can take include: 1) incorporating sediment quality criteria in the form of effluent limits into National Pollutant Discharge Elimination System permits; 2) proposing revisions to regulations and guidance that would require pesticides and chemicals manufacturers to perform sediment toxicity tests when seeking registration and reregistration of certain pesticides under FIFRA and certain chemicals under TSCA; 3) banning or otherwise regulating the production of new chemicals to reduce bioavailability and partitioning of toxic chemicals to sediments; 4) implementing pollution prevention initiatives within various compliance programs; and 5) eliminating or reducing air emissions of contaminants that subsequently are deposited in surface waters, either directly through atmospheric deposition or indirectly through stormwater runoff.

Remediation and Enforcement

Where sediments are contaminated to levels that cause ecological harm or pose a risk to human health, EPA will strive to implement a remediation strategy that will most effectively reduce the risk. Remedial options range from active remediation of sediments to natural recovery, which consists of implementing pollution prevention measures and point and nonpoint source controls and allowing biodegradation, chemical degradation, and the deposition of clean sediments to restore contaminated sites. EPA may take remedial and enforcement actions under several statutes, including TSCA, CWA, the Comprehensive Emergency Response, Compensation, and Liability Act, the Rivers and Harbors Act, and the Oil Pollution Act .

Dredged Material Management

The presence of contaminated sediments can introduce significant ecological and human health considerations into the decision of whether and how to dredge and dispose of sediments to maintain navigational channels. Where contaminated sediments exist, dredging can result in resuspension of contaminated material which may then become more available to aquatic organisms. Disposal of contaminated dredged material requires locating a site, either in open water or on land, where large amounts of contaminated material can be safely contained. The Army Corps of Engineers, in cooperation with EPA, is currently developing an Inland Testing Manual to provide consistent national guidance on testing dredged material for discharge to waters of the United States. A similar Ocean Testing Manual is already available. The two agencies are also working on a comprehensive ocean disposal site designation, management, and monitoring guidance document.

Research and Outreach

To implement this Strategy effectively, EPA has developed a research plan covering development and validation of sediment quality criteria, as well as assessment and remediation methods for contaminated sediments. EPA has also developed an outreach program to increase public understanding of the ecological and human health risks associated with sediment contamination and of potential solutions to the problem. This outreach program includes the preparation of guidance documents, reports, public outreach publications, and multimedia materials, as well as the establishment of advisory groups, databases, and clearinghouses.

Water Resources Development Act

The most recent legislation addressing contaminated sediments is the Water Resources Development Act of 1992 (WRDA). WRDA calls for the establishment of a National Contaminated Sediment Task Force, to be co-chaired by the EPA Administrator and the Secretary of the Army, and to include representatives from the National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, U.S. Geological Survey, U.S. Department of Agriculture, States, ports, agriculture and manufacturing interests, and public interest organizations. This Contaminated Sediment Management Strategy addresses many of the tasks for which EPA is responsible as a member of the National Contaminated Sediment Task Force.