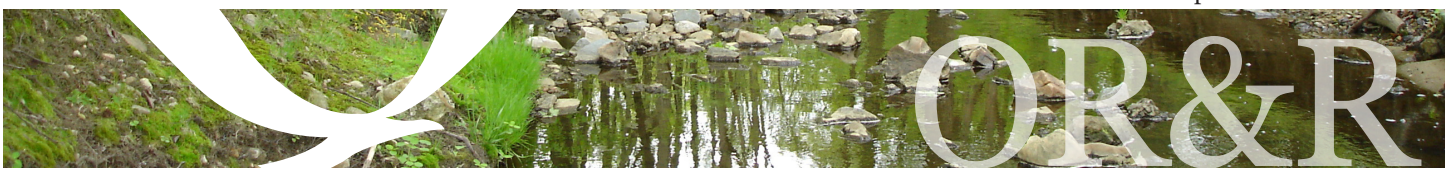


Addressing the Contaminated Sediment Problem: NOAA's Role

Sediments are contaminated by a variety of sources: industrial and commercial facilities; non-point sources such as roads, parking lots, and storm drains; wastewater treatment plants and sewage systems; and surface discharge of contaminated groundwater.

Contaminant sources at an industrial facility

Hazardous waste sites and industrial facilities that were contaminated decades ago are still polluting the aquatic environment. More than 700 waste sites across the U.S. could adversely alter coastal habitats and species. EPA's National Sediment Inventory identified areas of probable concern in ninety-six watersheds where toxic sediments could afflict aquatic life.

Modern source control and pollution prevention efforts are effective and can prevent further degradation in water quality, and much of the sediment contamination is a legacy of past practices. As a result, old contamination is often buried under cleaner sediment. These contaminants still pose environmental threats, however, because severe storms and biological activity can redistribute contaminants.

Pollutants that resist breakdown and accumulate in the food chain (such as PCBs) are of greatest concern, not only because they can affect fish and wildlife, but also because they are a threat to humans who consume them. Other contaminants such as metals and polycyclic aromatic hydrocarbons can be highly toxic to the aquatic organisms that are the base of aquatic food webs.

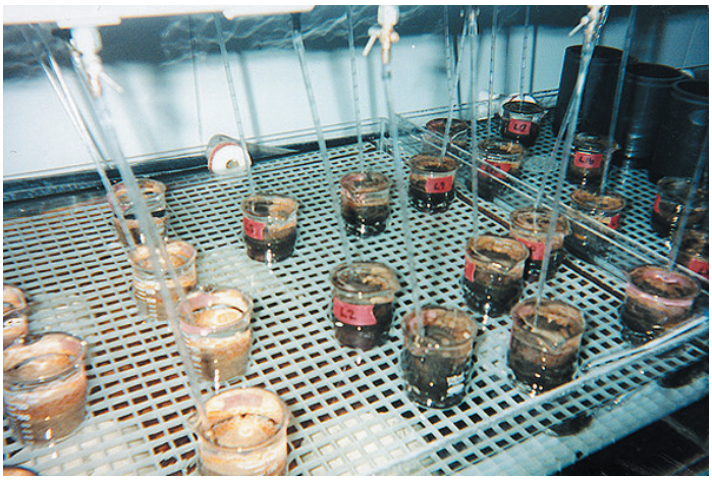
Since 1984, NOAA's Office of Response and Restoration (OR&R) has protected and restored natural resources threatened by contaminated sediments. OR&R staff in field offices around the country work with EPA, states, and other partners at coastal waste sites and in areas where sediment is significantly contaminated, including in the Great Lakes.

Brown bullhead with firm, red tumor on lower lip

The essential first step in restoring the environment is controlling the spread of contamination to protect natural resources. Although OR&R's expertise in contaminated sediment issues has been most thoroughly applied at waste sites, the same approach applies to addressing any contaminated sediment problem:

- Control ongoing sources;
- Evaluate consequences of contamination in the context of local conditions;
- Provide an effective long term solution,
- Monitor to ensure risk is reduced; and
- Restore harmed resources where possible.

OR&R provides technical expertise in sediment evaluation and decision support for cleanup, with particular expertise in aquatic ecological risk assessment.



Sediment toxicity testing using fish eggs

As a natural resource trustee, OR&R advocates the protection of coastal natural resources. OR&R partners with decision makers and those responsible for contamination to balance concerns such as cost, long-term effectiveness, protection of human health, and public acceptance of cleanup alternatives.

OR&R helps design effective remedies. The office has particular expertise in techniques for protective environmental dredging, capping, and natural attenuation.

OR&R designs and implements monitoring to demonstrate that cleanup actions reduce ecological risk.

OR&R restores the environment through cooperative projects with responsible parties and cleanup agencies. To fulfill its natural resource trustee responsibilities, NOAA also pursues damage assessment claims to recover funds to restore coastal resources harmed by pollution releases.

Through the application of sound science and practical, cost-effective, and proven techniques, OR&R continues to protect and restore coastal species and habitats nationwide.

For additional information:
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Protective sediment removal at a chemical manufacturing plant

Marsh restoration at former chlor-alkali plant site

NOAA's Office of Response & Restoration—Protecting our Coastal Environment

For further information about NOAA's Office of Response and Restoration, please visit our Web site at

http://response.restoration.noaa.gov or call (301) 713-2989.