

SEDIMENT MANAGEMENT



FOCUSED, SCIENCE-BASED SOLUTIONS FOR COMPLEX SEDIMENT CHALLENGES

When it comes to sediment management, you need more than standard answers—first you need someone who can help you ask the right questions. Battelle has the expertise and resources you need to evaluate the risks, understand the options and develop a strategic sediment management plan that meets regulatory requirements and balances environmental, economic and community needs. We can help you find cost-efficient and scientifically objective solutions for:

- Contaminated sediment regulated under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA) or state guidelines
- Sediments dredged for navigation following Marine Protections, Research and Sanctuaries Act (MPRSA) and Clean Water Act (CWA) guidelines

OUR SERVICES

Contaminated Sediment Assessment and Management

Battelle offers integrated services for assessment, remediation and monitoring of contaminated sediment sites. Our team can help you with every stage of the process, from site assessment and characterization to final site closure and long-term monitoring. We'll develop a focused and informed plan for data collection and analysis to ensure that you get the answers you need for effective decision making. Then we'll work with you to find the most cost-effective path to site restoration and closure. Our team can:

- Develop a sampling plan and collect field data (including sediment coring, porewater collection, exposure/toxicity testing and bioaccumulation testing) for baseline assessment, impact assessment and long-term monitoring
- Characterize contamination levels and build a conceptual site model
- Identify sources of contamination and analyze the movement of contaminants through the environment
- Assess physical, chemical and biological risks, including ecological and human health risks, and develop a model for determining acceptable risk levels

- Evaluate the efficacy, cost and impact of remediation options, including monitored natural recovery, sediment capping, in situ treatment and dredging
- Develop a remediation plan, including cleanup goals, remedial action objectives and long-term monitoring
- Develop or evaluate new technologies and methods—including in situ treatments, passive samplers, and analytical methods—to solve non-standard sediment challenges

Dredged Materials Management

If you're handling navigational dredging operations, we can help you control costs while meeting regulatory requirements for disposal of dredged materials. We work with our clients to develop practical solutions based on objective assessment of the physical, chemical and biological risks associated with different disposal options, including open ocean disposal, confined disposal and reuse. We can:

- Conduct physical, chemical and biological testing of dredged materials based on federal (e.g., Green Book and Inland Testing Manual) and regional testing guidelines that address MPRSA and CWA requirements
- Evaluate dredged materials for disposal suitability
- Develop an optimized disposal plan that balances costs and environmental concerns
- Prepare NEPA documents (e.g., Environmental Assessments or Environmental Impact Statements) to address potential environmental concerns related to dredged material disposal options that meet both MPRSA and CWA requirements
- Prepare rigorous Site Management and Monitoring Plans (SMMPs) for open water placement sites
- Monitor nearshore and open water disposal sites for environmental impacts
- Find beneficial uses (such as wetland remediation) for dredged materials

OUR EXPERIENCE

Battelle has long been a trusted partner to federal and state agencies and local communities facing sediment challenges. As part of our ongoing mission to advance technology for societal benefit, we continually invest in independent research. That research has led to new and innovative tools and approaches to address our clients' most pressing sediment management needs. We also organize and present the biannual International Conference on Remediation and Management of Contaminated Sediments, which draws more than 1,000 environmental professionals from the global sediment management community. Our experience includes:

Hunters Point Naval Shipyard Capping Study: Battelle researchers performed sediment profile imaging (SPI) surveys to monitor the placement of thin-layer sediment caps.

New Bedford Harbor Superfund Site, OU3 Passive Sampler Study: We deployed passive samplers to measure the flux of hydrophobic organic contaminants from the sediment bed into the water column.

Long Island Sound Dredged Material Management Plan/Programmatic EIS (PEIS) – Disposal Alternative Screening Tool and Comment Response Database: We developed and applied a database tool to help the USACE choose the most environmentally sound and cost effective dredged material disposal alternative for each of the over 100 federal navigation projects within Long Island Sound. For this same PEIS, we utilized Battelle's comment response tool, collecting more than 1,600 documents and addressing more than 600 individual comments in just 6 weeks.

New Bedford Harbor Superfund Site Sediment Monitoring: Battelle researchers collected and processed more than 1,000 sediment cores in subtidal and intertidal areas to delineate PCB contamination, characterize sources, assess dredging performance and inform future dredge operations.

Quantico Watershed Study, Marine Corps Base

Quantico: Battelle developed and implemented a long-term monitoring program that includes groundwater, sediment, benthic community analysis, fish and vegetative cap monitoring. In addition, we conducted an innovative bench-scale treatability study to identify the most effective organoclay sorbent material for use in reactive capping to isolate DDT sediment contamination.

Lower Passaic River Restoration Project, Superfund

RI/FS: Our sediment experts utilize a weight-of-evidence approach to address risk to ecological and human health at urban contaminated sediment sites such as Passaic River.

Great Lakes Areas of Concern (AOCs): Battelle has conducted comprehensive sediment assessments at more than 10 AOCs to characterize the effectiveness of dredging as the selected remedy to remove contaminated sediments and restore the ecosystem. We used a multi-faceted approach to determine the physical, chemical and biological character of the sediment and surface water. The study included collection of surface water and surface sediments as well as water column mooring deployments. Researchers used a combination of passive samplers, Hester Dendy macroinvertebrate collectors and bivalves (to measure tissue bioaccumulation of contaminants).

Support for Navigation Projects: Battelle has prepared comprehensive Environmental Impact Statements (EIS) to support designation of open-water dredged material disposal sites (ODMDS) and other dredged material management issues. Our team has conducted thousands of physical, chemical and biological tests according to federal (e.g., Green Book, Inland Testing Manual) and regional guidelines to determine suitability of dredged material for open water, nearshore and upland placement.

Every day, the people of Battelle apply science and technology to solving what matters most. At major technology centers and national laboratories around the world, Battelle conducts research and development, designs and manufactures products, and delivers critical services for government and commercial customers. Headquartered in Columbus, Ohio since its founding in 1929, Battelle serves the national security, health and life sciences, and energy and environmental industries. For more information, visit www.battelle.org.

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