

Maryland Port Administration (MPA) Innovative Reuse (IR) Program

Frequently Asked Questions (FAQs)



DREDGED
MATERIAL
MANAGEMENT
PROGRAM

GENERAL DREDGED MATERIAL INFORMATION

What is dredged material?

Dredged material is sediment excavated - or dredged - from the bottom of waterways.

Why is dredging necessary?

Over time, sediment accumulates in shipping channels due to wind, tides, and runoff. Several factors may impact the sediment depth in the shipping channels, such as runoff that originates from land-based activity, weather events, or underwater sediment that shifts in the wake of commercial and industrial ship traffic. This sediment accumulation can limit channel navigability.

How often do channels need to be dredged?

Dredging is happening continually, with an average of 4.6 million cubic yards (mcy) of sediment removed from shipping channels in the Chesapeake Bay and 1.17 mcy removed from the Baltimore Harbor shipping channels annually. That's the equivalent of filling the Baltimore Ravens M&T Bank Stadium to the brim with sediment twice. The frequency of dredging in specific areas depends on the amount of sediment accumulated. The Maryland Port Administration (MPA) and the US Army Corps of Engineers (USACE) work together to conduct dredging and find placement sites and solutions for this dredged material, which is also referred to as "maintenance dredging."

What is in dredged material?

Dredged material in the Chesapeake Bay and Baltimore Harbor is mostly fine silts, clay, and sand accumulating in the shipping channels. The geologic formations in the region, as well as human activities, affect the character of the sediment in different locations. Human activities affecting sediment include industrial activity, agriculture, and urban development. However, dredged material from shipping channels generally does not contain pollutants at levels that could cause human or environmental harm and is not classified as hazardous.

DREDGED MATERIAL TESTING

How is dredged material tested for placement in a DMCF or CAD cell?

Sediment dredged from shipping channels is tested before dredging and, if it meets state and federal regulations, can then be placed in a containment facility, including a CAD cell. To evaluate dredged material from the federal navigation channels, EPA's Inland Testing Manual is used to screen channel material during USACE evaluations for maintenance channel dredging.

MPA mandates testing of dredged sediments for various physical and chemical traits to determine sediment suitability for placement at DMCFs. Sediments are tested for organic contaminants, such as polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and pesticides that bind strongly to sediments. Tests include grain size, specific gravity, metals, nutrients, pH, total organic carbon, oil, total petroleum hydrocarbon (TPH), ammonia, sulfides, cyanide, and tributyltin. A Toxicity Characteristic Leaching Procedure (TCLP) is also performed, a leaching procedure used to evaluate a sample to determine which contaminants are present in the leachate as well as their concentrations.

How is dredged material tested for innovative reuse?

If sediment will be re-used in innovative reuse, a discrete amount will be separated and dried after dredging has occurred, then tested again to be categorized as fill using Maryland Department of the Environment (MDE) guidelines. Samples are evaluated using MDE criteria based on EPA's Regional Screening Levels (RSLs), considering toxicity, exposure, and properties. These guidelines are in place to ensure that human health and the environment are safeguarded. Dredged material reuse follows [MDE Guidance](#), with categories as follows:

- Category 1: Residential Unrestricted Use Soil and Fill Material - for offsite fill use.
- Category 2: Non-Residential Restricted Use Soil and Fill Material - non-residential fill.
- Category 3: Restricted Use Soil and Fill Material - for managed commercial innovative use.
- Category 4: Ineligible Soil and Fill Material - unfit for reuse, requiring containment.

How is dredged material tested for beneficial reuse?

Dredged material that meets specific state and federal regulations criteria can be considered for "Beneficial Use." Beneficial use includes dredged material for the restoration of underwater grasses, island restoration, stabilization of eroding shorelines, the creation or restoration of wetlands, and the creation, restoration, or enhancement of fish or shellfish habitats. This is a mutually beneficial outcome as it helps MPA meet its dredged material management needs and provides the sediments needed to restore animal and plant habitats.

Beneficial use projects require monitoring and maintenance plans to prevent adverse effects and ensure proper function. A key consideration in determining sediment characterization requirements by MDE for beneficial uses is the source of the dredged material. Dredged material from inside the legally defined

Baltimore Harbor will generally require more rigorous sediment characterization, both physical and chemical, and associated monitoring to be deemed suitable for beneficial use.

What is the salt content of dredged material?

Baltimore Harbor is a brackish, estuarine environment, which means dredged material has a salinity (salt) content ranging between freshwater (salinity equals 0 parts per thousand [ppt]) and marine or ocean water (salinity equals 35 ppt). Baltimore Harbor water salinity can range from 1 to 15 ppt depending on recent freshwater inflow from seasonal rainfall and storm events.

INNOVATIVE REUSE AND BENEFICIAL USE (IRBU) OVERVIEW

What is innovative reuse and beneficial use?

In the State of Maryland, there are two distinct definitions for IRBU.

Innovative reuse is defined as the use of dredged material in the development or manufacturing of commercial, industrial, horticultural, agricultural, or other products. Examples of innovative reuse include capping landfills, creating building materials, and raising site elevations.

Beneficial use is the use of dredged material in the restoration of underwater grasses or islands; the stabilization of eroding shorelines (including beaches, dunes, and wetlands); the creation or restoration of wetlands; or the creation, restoration, or enhancement of fish or shellfish habitats. This is a mutually beneficial outcome as it helps MPA meet its dredged material management needs and provides the material needed to restore animal and plant habitats.

Why is MPA interested in reusing dredged material and what are the benefits?

There are several locations in Maryland where dredged material is placed, including Cox Creek and Masonville. These are called dredged material containment facilities (DMCF). Finding additional placement capacity is a challenge in the Baltimore Harbor region because property adjacent to the Port is densely populated and developed. For this reason, new solutions are needed. By innovatively reusing or beneficially using dredged material, MPA is recycling dredged material instead of disposing of a resource. Recycling the dredged material provides renewed capacity in the existing containment facilities, so the need for new facilities is less pressing.

What can dredged material be used for?

Dredged material can be used as landfill cover, fill material (including in soil amendments and on agricultural lands), and beneficial use material. Other acceptable uses may include building materials/aggregate, mine and quarry reclamation, or other upland uses (like capping landfills or raising site elevation). Dredged material can be innovatively reused on its own in place of a commercial product or blended, amended, and incorporated into a manufactured product. As new projects are proposed, MDE will review new opportunities for end uses of dredged material.

What can't dredged material be used for?

There are no limitations on dredged material use if specifications outlined in the MDE Guidance Document are followed.

What are some specific example applications of dredged material?

The Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island utilized dredged material to restore upland and wetland habitats. The Mid-Chesapeake Bay Island Restoration Project at James and Barren Islands is also planned and will include dredged material to restore upland and wetland habitat. Blackwater National Wildlife Refuge utilizes thin-layer placement of dredged material to restore fragmented marsh habitat. Additionally, dredged material has been used in construction materials (including lightweight aggregate, bricks, paving stones, and highway barriers) and upland uses (including capping landfills and raising site elevation).

Are there limitations to where the Innovative Reuse / Beneficial Use material can be placed?

The placement of dredged material must be in accordance with the MDE Guidance Document (please see MDE dredged material/fill categories listed previously).

What are other ports using their dredged material for?

Ports in the following states reuse dredged material: California, Delaware, Louisiana, Massachusetts, New Jersey, Ohio, Oregon, Pennsylvania, Virginia, and Washington, to name a few. These ports utilize dredged material for upland uses; habitat development; wetland and shoreline restoration; agricultural land application; agronomic benefit; brownfield remediation; mine reclamation; beach nourishment; levee stabilization; construction, structural and engineering fill; backfill; landfill cover; parking lot and road base material; sub-base for basements of industrial buildings; roadway construction; concrete aggregate; roadside projects; earthen and noise barrier mounds; replacement of raw material; manufactured soil; soil amendment; fertilizer; fuel; concrete; and commercial products.

What is the IRC?

The Dredged Material Management Program Innovative Reuse Committee (IRC) meets quarterly and was created in February 2006 to provide advice on developing a strategy for recycling and reusing dredged material from the Baltimore Harbor.

Why is dredged material blended or amended and what are the requirements?

Dredged material can be blended or amended with other materials to meet project-specific material specifications for physical and environmental applications.

Is the reuse of dredged material cost-effective compared to traditional upland placement?

The cost to reuse dredged material varies greatly based on end use, location, technology, and volume to be reused. However, reusing dredged material reclaims valuable capacity (space) within the DMCFs. It recycles a resource, ultimately providing life cycle cost savings associated with finding, acquiring, permitting, designing, and constructing alternative DMCFs.

Is there a minimum request limit for use of dredged material?

There is no minimum volume limit at this time. IRBU material for research and development or small pilot studies can always be requested.

How much material is available?

IRBU material availability varies. As the IRBU Program expands and is established, material availability will be more consistent. The MPA IRBU Webtool will contain updated information regarding material availability.

If I don't use all of the requested material, can I return it?

No, all material removed from the DMCF must be placed in accordance with the contractor's plan for use or be moved to an approved landfill.

Are there specific requirements for the hauler?

Standard hauling requirements under the Maryland Department of Transportation are applied to IRBU.

If I receive dredged material, what are my responsibilities?

Material received must be utilized in accordance with the contractor's plan for material reuse/use and approved by MDE.

How do I get the material tested and where?

A variety of commercial laboratories can complete testing. Depending on the constituents being tested, specific laboratory certifications may be required. More specific information on this topic is available within the MDE Guidance Document.

Who is responsible for testing the material?

Testing for specific Innovative Reuse/Beneficial Use applications is defined in the MDE Guidance Document. The user of the material will need to carry out these tests based on MDE requirements. MPA maintains a database of all the materials received at our sites.

Where can I find information about the regulatory review and approval process for material reuse?

MDE Confirmation of Suitability Material forms are used to document and track the suitability of dredged material for the specific use of an end user. They contain information about the dredged material source sampling results, and those data have been evaluated to approve reuse. Material suppliers and receiving facilities or end users must complete and submit one form. For more information, visit the [MDE Fill Material and Soil Management information page](#) and the [MDE Confirmation of Suitability information video](#)

Are long-term site monitoring requirements associated with the reuse/use of dredged material?

Any monitoring requirements associated with the reuse/use of dredged material depend on end use, material category, and the MDE Guidance Document requirements.

Does the use of dredged material need to be noted in the property records?

Category 1 IRBU material does not need to be noted in property records. Institutional controls may be placed on properties utilizing Category 2 or 3 material related to the property being designated as a brownfield or similar property type.

Is dredged material safe to be used? Can it be used in a recreational setting?

Based on sampling results, the innovative reuse material obtained from the Cox Creek DMCF generally falls within MDE Category 2 and is suitable for use in commercial and industrial settings. Dredged material can be blended or amended with other materials to meet recreational standards.

Where can I find products made from dredged material?

Dredged material products are in development. In November 2019, MPA issued the Innovative Reuse Research and Development Request For Proposal, created to support advancing dredged material products such as bricks, permeable pavers, concrete structures, and amended soils.

As each study is finalized, the results will be presented to the IRC, and information about vendors will be available on the IRC information page on the Maryland Dredged Material Management Program website.

How can IRBU be scaled up?

The Cox Creek Sediment Technology and Reuse Facility adjacent to the Cox Creek DMCF will be instrumental in scaling up IR. MPA will continue to develop methods to maximize an efficient and economical approach for dewatering dredged material

What interactions does the IRC have with MDE in vetting the use of dredged material?

MDE is a member of the IRC and discusses potential uses of dredged material. The ultimate use of dredged material must be in accordance with the MDE Guidance Document.

What are the policies that guide the reuse/use of dredged material?

The MDE Guidance Document and technical screening criteria are a comprehensive guide to the reuse/use of dredged material.

Who are the points of contact for environmentally safe reuse?

The MDE is the state environmental regulatory agency. Mr. Matthew Rowe (matthew.rowe@maryland.gov) is the point of contact for dredging and dredged material management. Specific contact information can be found on the MDE Dredging and Dredged Material Management webpage.

Does dredged material meet any of the Maryland Department of Transportation State Highway Administration (MDOT SHA) construction material specifications?

MDOT SHA does not currently have a specification for dredged material. The MDOT SHA Recycled Materials Task Force continues investigating the advancement and incorporation of additional recycled materials, including dredged material, into MDOT SHA projects.

How can I get additional information on the MPA IRBU Program, including where to request material?

Please visit the Maryland Dredged Material Management Program (DMMP) website Future Solutions page at <https://maryland-dmmp.com/future-solutions/> for information about the MPA's IRBU program. Please visit the MPA IRBU Webtool at https://gis.anchorgea.com/MDOTMPA_IRBU/ for comprehensive resources related to the IRBU of Baltimore Harbor dredged material, including background information and a form to contact MPA or request material. Information about the IRC can be found on the IRC information page on the DMMP website at <https://maryland-dmmp.com/committees/irc/>.