



Maryland Port Administration **Dredged Material Management Program**

Annual Report 2024

**NAVIGATING
TOWARDS
TOMORROW**



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DREDGED
MATERIAL
MANAGEMENT
PROGRAM

Cover photography by Bill McAllen

2024 ANNUAL REPORT OVERVIEW

» Investing in Communities and Resilience

- Over \$147 million in federal funding was awarded to the Maryland Port Administration (MPA) from the Environmental Protection Agency's Clean Ports Program to expedite decarbonization and electrification efforts.
- MPA is undertaking an extensive Coastal Resiliency and Climate Change Vulnerability Assessment to inventory, model, and analyze facilities for risk from sea level rise, storm surge, and a combination of these elements.

» Innovative Dredged Material Management Solutions

- Through a robust capacity planning process, sufficient dredged material placement capacity is projected for the next twenty years; however, current projections show that the Innovative Reuse and Beneficial Use program will become instrumental in maximizing placement capacity.
- The Maryland Board of Public Works has approved nine Innovative Reuse research and development awards for sustainable reuse applications that support long-term, strategic planning initiatives and identify the critical steps to making large-scale Innovative Reuse a reality.
- Pilot studies could begin at the Cox Creek Sediment Technology and Reuse (STAR) Facility as early as next year.
- A proposed second Confined Aquatic Disposal (CAD) pilot project has been paused due to concerns from community members and regulatory agencies. A CAD subcommittee has been established under the Dredged Material Management Program's (DMMP) Bay Enhancement Working Group to explore the technical aspects of a second pilot project. Meanwhile, focused outreach is underway and will continue to ensure stakeholders are engaged throughout the process.

» Milestones in Construction and Planning

- The Mid-Bay Project is advancing, with notable progress on both Barren and James Islands, and will begin to accept 2-3 million cubic yards (mcy) of annual maintenance dredged material from the Maryland Chesapeake Bay channel segments as Poplar Island placement capacity is reached in 2035.
- MPA achieved a significant construction milestone at the Cox Creek Dredged Material Containment Facility (DMCF) by raising the upland dike, perimeter dike, and cross dike to +60 feet, increasing the overall capacity to 14.7 mcy.

- Dike raising at the Masonville DMCF to an elevation of +30 feet is 30% complete and slated for completion by the end of 2025.

» Creating Community Benefits

- Groundbreaking for the Swan Creek Nature Trail, a 2-mile loop in the Cox Creek Forest Conservation Easement Area, occurred this fall, and construction is anticipated to begin in 2025.
- The Masonville Cove Connector will improve safe and equitable access to the site. The project team is currently working on the 30% design phase, with design completion expected in 2026.
- MPA is unwavering in its commitment to the future of Hart-Miller Island (HMI) and will continue to collaborate closely with sister state agencies and the HMI Citizens Oversight Committee as future uses of HMI are considered, including habitat development in the North Cell.

» Equitable Engagement

- MPA continued to invest in educating and collaborating with stakeholders from diverse backgrounds, bolstering relationships with Historically Black Colleges and Universities, faith-based organizations, and civic organizations.
- MPA's education and outreach efforts have produced over 21,000 interactions at nearly 800 events, including engagements with over 14,000 students.

» Career Connections

- With support from MPA and industry professionals, the Baltimore Port Alliance hosted its sixth Hiring and Career Expo, the largest expo to date, bringing together 34 employers and more than 300 job-seekers.
- As part of an ongoing Career Conversations lecture series for youth and young adults offered by the Ministers Conference Empowerment Center, MPA provided speakers to share information on career opportunities in the maritime and transportation industries.
- Now in its second year, the Masonville Cove Links WildSTEM summer internship provided four interns with exposure to conservation career paths, practical experience, and a pathway for future conservation careers and leadership opportunities. Participants came from Bowie State University, Coppin State University, and Morgan State University.

► Progress in 2024: Navigating Towards Tomorrow

The Dredged Material Management Program (DMMP) plans and implements sustainable, climate-resilient solutions to meet the Port of Baltimore's ongoing need to maintain a 50-foot-deep channel system. In 2024, working from its rolling 20-year plan, the DMMP moved briskly forward to carry out strategic operational initiatives. Top priorities were Dredged Material Containment Facility (DMCF) expansion, capacity optimization, exploration of new management options, and stakeholder engagement.

The Francis Scott Key Bridge caused significant and still-to-be fully determined damage to the Port and State. In early June, after 78 days, the critical Fort McHenry Federal Channel was safely reopened to its original, operational dimensions for commercial maritime transit thanks to the determined work of The Key Bridge Response 2024 Unified Command. Material dredged from the channel after the bridge collapse was not placed at any Maryland Port Administration (MPA) DMCFs.

The MPA DMMP team continues to adapt and innovate while delivering on the mission to maintain the Port's 50-foot-deep navigational channel system. Despite the tragedy, 2024 has been a year of significant progress as priority projects advance on or ahead of schedule, instilling optimism for the future. Communities and other stakeholders continue to collaborate with MPA regarding planning and decision-making, and the DMMP remains committed to pursuing future outcomes that are informed by science and equitably benefit all Marylanders.

This year, MPA is renaming the Office of Harbor Development to better reflect the office's role in the organization: the oversight and maintenance of the navigation channels through the application of state-of-the-art approaches and an overriding commitment to stewarding the resources of the Chesapeake Bay in collaboration with its stakeholders. The department's new name: the Office of Navigation, Innovation, and Stewardship (NIS), captures these priorities and positions the office for future success. NIS plays an essential role in supporting the Port, one of only four East Coast ports with a 50-foot channel. The addition of a second 50-foot berth allows two of the world's largest vessels to be serviced simultaneously at Seagirt Marine Terminal, where other improvements are ongoing. Meanwhile, the expansion of Baltimore's Howard Street Tunnel will allow double-stacked rail cars to transit from the Port, providing seamless double-stack capacity from Maine to Florida. Together, these improvements will increase annual container capacity from 900,000 twenty-foot equivalent units (TEUs) today to 1,400,000 TEUs by 2027. Several shipping companies have announced new services to Baltimore as a result.

This increase in capacity and competitiveness is made possible by MPA's ability to find long-term storage and alternative management solutions for nearly five million cubic yards (mcy) of sediment dredged annually by the U.S. Army Corps of Engineers (USACE) from the shipping channels leading to and from the Port. This work is carried out by NIS and is founded on key principles, including strategic long-term planning, a comprehensive approach to stakeholder engagement, and developing and nurturing partnerships that lead to mutually beneficial outcomes.

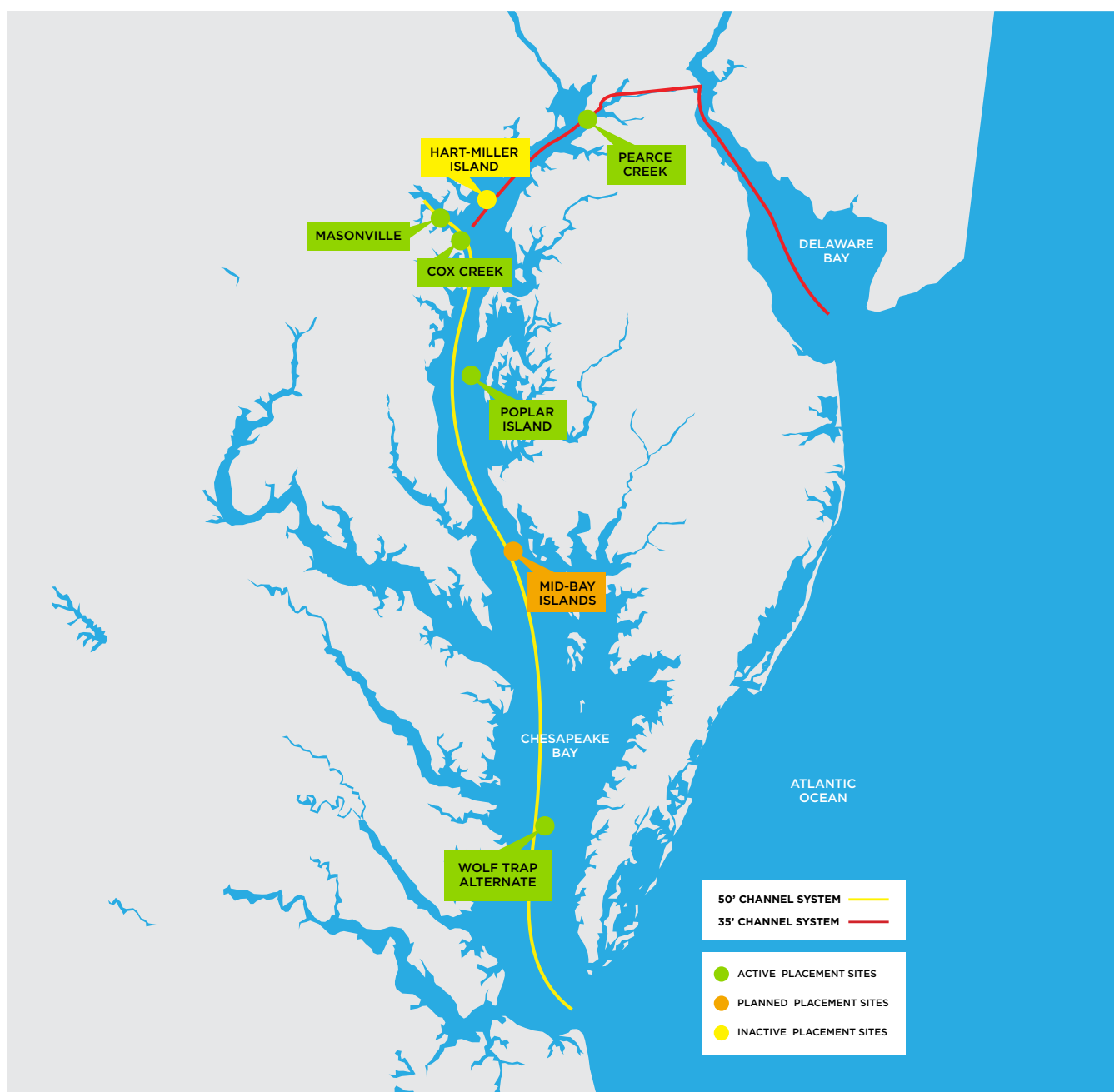
This annual report from the DMMP Management Committee to the DMMP Executive Committee outlines activities and plans for the Executive Committee, program managers, elected officials representing Marylanders at the local, state, and national levels, and state and federal agency staff.

The report:

- Provides an overview of DMMP's long-term dredged material management plans,
- Highlights 2024's key accomplishments and the essential partnerships that have led to success, and
- Provides recommendations for 2025.

» MPA's Mission

Waterborne commerce is at the heart of Maryland's tradition, as are strong maritime communities and healthy aquatic resources. MPA is committed to carrying out its statutory mission to increase waterborne commerce through the state's ports, and to improving its stewardship of Maryland's natural resources and the health of the Chesapeake Bay using collaborative, science-based, forward-looking ideas and methods. Doing so requires significant dredging and maintenance of over 130 miles of navigation channels. This work is a fundamental responsibility of NIS, and is executed in accordance with DMMP's rolling 20-year plan that outlines projected dredging demands, identifies adequate placement capacity and alternative management solutions for dredged material, and proposes research and partnerships to meet tomorrow's needs. For more than two decades, MPA has been working with stakeholders to develop long-term placement and capacity solutions that are cost effective, innovative, and environmentally sound. As a result, the Port's programs are having positive impacts in and around the Chesapeake Bay, improving habitat for native plants and animals while also positively impacting the lives of Marylanders.



PORT OF BALTIMORE ECONOMIC IMPACT IN MARYLAND



20,193 DIRECT JOBS



31,173 INDUCED AND INDIRECT JOBS



346,137 JOBS RELATED TO PORT'S CARGO

**TOTAL:
397,503
JOBS**

\$647 MILLION IN MARYLAND STATE AND LOCAL TAX REVENUES

\$3.9 BILLION IN MARYLAND BUSINESS REVENUES

\$5.3 BILLION IN PERSONAL INCOME TO MARYLANDERS

Source: Martin Associates (2023) THE 2023 ECONOMIC IMPACT OF THE PORT OF BALTIMORE IN MARYLAND

» Infrastructure Improvements

In 2022, Maryland broke ground on the Howard Street Tunnel expansion project to alleviate the last remaining transportation bottleneck on the East Coast and create the shortest distance high-capacity rail conduit from the Mid-Atlantic to the upper Midwest. Reconstruction of the 127-year-old, CSX-owned freight rail tunnel launched double-stacked intermodal container trains moving in and out of the Port this fall, months earlier than expected, which will lead to doubling the throughput capacity.

This project will increase supply chain efficiency, reduce carbon emissions by decreasing highway congestion, and help alleviate the remaining transportation bottlenecks on the East Coast. The project is expected to increase the Port's business by about 160,000 containers annually. The combination of this expansion and the deep-water Seagirt Loop, which is currently in the pre-construction, engineering, and design (PED) phase, will increase container capacity, improve supply chain efficiency for shippers, reduce highway congestion for communities, and deliver environmental benefits from increased use of rail, which is more fuel-efficient than trucks.

» Navigating Towards a Better Tomorrow

Building the Port's future in partnership with its stakeholders is a multi-faceted effort combining investment, implementation, and collaboration. MPA's efforts drive investment in new projects and ongoing initiatives, including providing the dredged material placement capacity that allows for routine maintenance dredging to keep the channel system open to support the continued safe passage of vessels calling on the Port. Long-range capacity planning and plan implementation, including site engineering, operational optimization at dredged material placement and ecosystem restoration sites, and permit acquisition and compliance, all contribute to successful implementation. So does MPA's comprehensive stakeholder engagement approach, which helps ensure that implementing the DMMP produces equitable and mutually beneficial outcomes for all Marylanders.

» Sustainability of Dredging and Dredged Material Placement Solutions

Maintaining a sustainable, cost-effective, environmentally sensitive, and community-supported dredging program remains a long-term challenge. Constraints on dredged material management solutions, the cost of dredging, and federal funding for ongoing maintenance dredging and dredged material management continue to be a focus of MPA. Current containment capacity is inadequate to perform maintenance dredging and take on new work private sector dredging projects without overloading the Baltimore Harbor DMCFs. The need remains to activate additional dredged material management solutions, such as large-scale innovative reuse, for the safe, long-term, and environmentally appropriate management of dredged material.

► Funding and Policy

Investing in Infrastructure and Resilience

MPA continues to engage congressional delegations and federal and state partners to ensure favorable legislation, sufficient funding, and support for climate change and resilience planning.

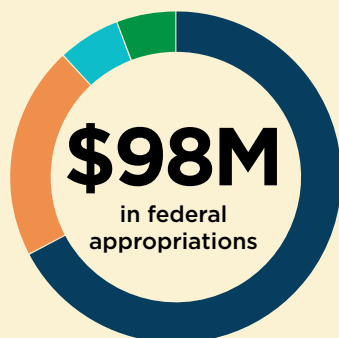
» Funding

State transportation programs are facing funding constraints. Current state funding levels do not provide the investment levels needed to meet the state's goals. The Maryland congressional delegation continues to be integral to ensuring the Port receives adequate federal funding and authorization for critical infrastructure and ecosystem restoration projects. MPA works with USACE to identify federal priorities and submit funding requests to the congressional delegation.

MPA has worked closely with congressional members to draft language in Congress' 2024 bill to reauthorize the Water Resources Development Act (WRDA). This biennial legislation authorizes flood control, navigation, and ecosystem restoration projects for USACE. On August 1, the U.S. Senate unanimously passed its version of WRDA. The U.S. House of Representatives passed its version of WRDA on July 22. Next, the Senate Committee on Environment and Public Works and the House Transportation and Infrastructure Committee conferenced to resolve the differences between the two bills. The Senate version included a provision to encourage the expedited completion of the Mid-Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay Project). The House version included the project authorization for the Baltimore Harbor Anchorages and Channels Modification of Seagirt Loop Channel Deep Draft Navigation and the assumption of maintenance for the West Dundalk Branch Channel and Dundalk-Seagirt Connecting Channel. WRDA 2024 is in conference; anticipated passage of the bill is pending.

The Mid-Bay Project is critically important in planning for future dredged material placement. It has consistently been identified as the Port's number one federal priority when briefing the Maryland congressional delegation, USACE, the Assistant Secretary of the Army for Civil Works, and the Office of Management and Budget. Once the Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island (Poplar Island) reaches capacity, the Mid-Bay Project is the recommended plan to accept annual maintenance dredged material from the Maryland Chesapeake Bay channel segments. Without the Mid-Bay Project, the Port's 50-foot channel segments in the Bay will shoal to a controlling depth (the maximum draft of vessels that it can safely accommodate) of 45 feet within two to three years, rendering it impassable to the largest modern vessels. MPA is seeking sustained congressional delegation support for the Mid-Bay Project and Poplar Island as USACE and MPA continue to advocate for funding. In August, Michael Connor, Assistant Secretary of the Army for Civil Works, visited Poplar Island and flew over the Mid-Bay Project to see the sites firsthand.

The USACE Federal Fiscal Year 2024 Budget and Work Plan included over \$98 million in federal appropriations for annual channel dredging and associated activities, including:



- **\$66 million** for operations and maintenance for Baltimore Harbor and Channels
- **\$20.43 million** in operations and maintenance for the Chesapeake and Delaware Canal
- **\$6 million** in construction for Poplar Island
- **\$5.74 million** in Energy Transfer Port funding. MPA plans to use the funds to perform hydrographic surveys of the MPA maintained berths and access channels, to continue to monitor shoaling rates and the need for future dredging activities to maintain these areas, and to perform maintenance dredging when the need is identified.

MPA is actively pursuing federal grant opportunities to help meet MPA's commitment and the State's target to reduce greenhouse gas (GHG) emissions. This fall, over \$147 million in federal funding was awarded to the MPA to create good-paying, clean jobs and to expedite decarbonization and electrification efforts at the Port. The U.S. Environmental Protection Agency (EPA) awarded the funding to the Port of Baltimore through its Clean Ports Program, created under the Inflation Reduction Act. With these funds, NIS will upgrade several pieces of equipment at DMCFs and ensure meaningful community engagement in the Port's emissions reduction planning and project development process.

MPA, Living Classrooms Foundation, National Aquarium, and the U.S. Fish and Wildlife Service (USFWS) are the primary collaborators forming the Masonville Cove Urban Wildlife Refuge Partnership. The Partnership's fundraising efforts have more than doubled MPA's initial seed funding, resulting in over \$5.3 million in grants and donations since 2006 and over \$500,000 this year.

"...we are investing in the Port of Baltimore and electrifying the way to a greener, cleaner, and healthier future with a strong economy and good-paying jobs."

- Governor Wes Moore

» Policy

Legislation was introduced in this year's Maryland General Assembly to amend the composition and responsibilities of the Cox Creek Citizens Oversight Committee (COC). The Cox Creek COC is established in statute (Environment Article, Title 5 Water Resources, Subtitle 11 Chesapeake Bay and Tributaries, Cox Creek COC: 5-1102.1). Recognizing that the Committee makeup specified in the statute is outdated, MPA worked with legislators to update the membership to accurately reflect active organizations in the area in addition to the current active members. MPA supported, with amendments, House Bill 343 (cross-filed with SB20) and the legislation was passed, updating the Committee membership effective July 1, 2024. The Governor is currently reviewing applications to fill the vacancies.

The same legislation also included an amendment to reopen the Hart-Miller Island (HMI) North Cell, allowing it to accept dredged material from nearby Baltimore County projects, including the large-scale Sparrows Point Container Terminal project led by Tradeport Atlantic (TPA). TPA has since pivoted away from using the Hart-Miller Island North Cell as a placement site for material dredged to construct the Sparrows Point Container Terminal. However, MPA is unwavering in its commitment to the future of HMI and will continue to collaborate closely with sister state agencies and the HMI COC as future uses of HMI are considered, including habitat development in the North Cell.

The CAD Subcommittee held its first meeting on September 12 and plans to meet monthly on five or more occasions. Meetings are open to the public. Subcommittee members are exploring technical aspects of a second pilot project—including environmental impacts and benefits, location selection, associated regulations, and socioeconomic benefits and impacts—to aid in meeting the state's long-term dredged material placement needs. The Subcommittee will develop a group consensus and submit a report to the DMMP Management and Executive Committees and the general public in 2025.

The Maryland State Highway Administration, in partnership with MPA, has drafted a material specification for the inclusion of dredged material in their standard specifications for construction and materials in 2025. This significant development will bring about a positive change in the construction industry. It will support end users, like private developers, who can refer to the materials specifications as policy guidelines, ensuring that construction projects are completed to a high standard and protecting public safety. This will be crucial for end users who want to innovatively reuse dredged material.

MPA is undertaking an extensive Coastal Resiliency and Climate Change Vulnerability Assessment. The facilities included in the assessment are Cox Creek DMCF, Masonville DMCF, Hart-Miller Island and its associated land bases, the Cox Creek Sediment Technology and Reuse (STAR) Facility, Poplar Island, Mid-Bay Project, and mitigation sites (Masonville Cove and Swan Creek Mitigated Wetland including its associated Forest Conservation Easement). This effort aims to inventory, model, and analyze these facilities for a risk assessment that highlights various levels of sea level rise, storm surge, and a combination of these two elements. In response to Executive Order 01.01.2007.07 signed April 20, 2007, establishing the Maryland Commission on Climate Change, MPA developed a policy entitled “Incorporating Climate Change and Sea Level Rise Information into the Public Marine Terminal and Harbor Development Process.” The policy identified the need for MPA to make infrastructure and facility improvement decisions to maintain a competitive advantage for Maryland and to accommodate projected long-term growth in waterborne cargo. The first assessment was completed in 2010, and an update to the Climate Change Vulnerability Assessment and Recommendations Report is currently underway.

The next phase of this work will include using hydrodynamic models to determine wave action impacts on site-specific locations and develop site-specific adaptation plans. The resultant data sets will help guide the final report, including recommendations for future programming of capital investments based on the vulnerability assessment findings. The final phase will implement the mitigation measures proposed in the adaptation plans developed in preceding phases.

► Planning and Operations

MPA continues navigating a path to the future by implementing strategic operational initiatives aligned with the rolling 20-year plan, including expanding DMCFs, optimizing capacity, and exploring new dredged material management techniques for sustainable climate-resilient solutions. Ongoing implementation continues with material inflow at the Poplar Island Expansion and the Masonville and Cox Creek DMCFs.

Long-Range Capacity Planning

MPA manages the dredging demand and placement capacity for most channels serving the Port of Baltimore. To support this effort, it has developed a comprehensive and formal procedure, referred to as long-range capacity planning, to project dredging needs, the available capacities of placement sites serving those channels, and alternative measures to extend the life of existing placement sites. This procedure identifies the 20-year dredging demand and available placement capacity to assist MPA in determining the necessary timing for new dredged material management options to be brought online.

Dredging needs and placement site capacity are functions of multiple factors, some of which are based on engineering and science and others on factors such as federal and state budgets and legislative priorities. Through a robust and innovative planning process, sufficient dredged material placement capacity is projected for the next twenty years; however, MPA will need to continue the identification and planning process to have sufficient dredged material placement capacity beyond state fiscal year (SFY) 2044. Facilities must continue to be carefully managed to maximize capacity, adhere to project construction schedules, and incorporate capacity recovery and dewatering strategies.

Long-range capacity planning facilitates DMMP efforts by ensuring capacity is available to meet dredging needs. Current projections show that the Innovative Reuse and Beneficial Use (IRBU) program will become instrumental in maximizing placement site capacity to ensure MPA can accommodate channel maintenance dredging needs during the 20-year planning period.

20-YEAR DREDGING DEMAND AND THE AVAILABLE CAPACITIES OF THEIR RESPECTIVE PLACEMENT SITES AS OF JUNE 2024

Channel Segments	Need	Remaining Placement Capacity
Baltimore Harbor Channels (channels west of the North Point-Rock Point line established at the mouth of the Patapsco River)	22.5 mcy	28.8 - 30.5* mcy (Cox Creek DMCF expanded, Masonville DMCF, and IRBU)
Maryland Chesapeake Bay Approach Channels (channels outside the Baltimore Harbor, east and south to the Maryland/Virginia border)	42.3 mcy	>100 mcy (Poplar Island and Mid-Bay)
Virginia Chesapeake Bay Approach Channels (channels from the Maryland/Virginia border to the Atlantic Ocean)	19.7 mcy	>1,000 mcy
C&D Canal and Approach Channels (channels north of the Tolchester Channel to the Maryland/Delaware border)	12.0 mcy	15.1 mcy (Pearce Creek with dike raising)

**Baltimore Harbor Channels remaining placement capacity is presented as a range due to variables associated with the in-development IRBU program.
(mcy = million cubic yards)*

While overall capacity has the potential to accommodate the next 20 years of dredging needs, there are near-term pinch points in the current plan for material dredged from the Baltimore Harbor channel segments, resulting in an ongoing exclusion of private sector new work dredging inflows. MPA is working diligently to keep DMCF expansions on track, recover capacity, and pursue innovative and creative alternative dredged material management solutions.

Dredged material management is evolutionary in nature, and finding sites and solutions for placing dredged material from both operations and maintenance dredging and new work dredging projects is a constant challenge. Implementing a full-scale IRBU program is essential to achieving sufficient Baltimore Harbor dredged material placement capacity, ensuring MPA is prepared for placement through SFY 2044 and beyond and able to accommodate new and unanticipated challenges. NIS must continue to maximize material recovery volume at a rate equal to or exceeding inflow volume, accelerate material recovery schedules, and develop new or alternative placement sites for Baltimore Harbor dredged material.

» Baltimore Harbor-wide Dredging Permit

MPA secured a tidal wetland license from the Board of Public Works (BPW) for maintenance dredging and sediment sampling in the Baltimore Harbor to cover MPA property, including North Locust Point Marine Terminal, South Locust Point Marine Terminal, Seagirt Marine Terminal, Dundalk Marine Terminal, Hawkins Point Marine Terminal, Cox Creek DMCF, and Fairfield/Masonville Marine Terminal. This 6-year permit, which took effect on August 9, 2024, is a proactive measure to ensure that MPA can execute dredging to maintain access channels and berths and take any necessary sediment samples for project-specific needs. It allows MPA to:

- Install a temporary scow unloading dock, intake pipeline, and discharge pipeline at the Hawkins Point DMCF during dredged material dewatering activities from the Colgate Creek dredging project
- Mechanically or hydraulically maintenance dredge the existing marine terminal and DMCF access channels and berthing areas to maintain operational depths
- Place dredged material at MPA's Cox Creek, Masonville, or Hawkins Point DMCFs
- Collect soil borings and sediment grab samples for geotechnical or environmental investigations, material analyses, and monitoring

Innovative Reuse and Beneficial Use and Capacity Recovery

MPA has achieved significant milestones in IRBU, and has advanced toward strategic programmatic goals. MPA and the IRBU program are at the forefront of implementation by using dredged material in sustainable and resourceful applications. MPA recognizes that environmental stewardship does not stop outside of the Port or at the water's edge.

INNOVATIVE REUSE

The use of dredged material in the development or manufacturing of commercial, industrial, horticultural, agricultural, or other products and includes upland uses of dredged material.

BENEFICIAL USE

The use of 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.

» Cox Creek STAR Facility Draws Closer to Pilot Studies

Pilot studies could begin as early as next year at the Cox Creek STAR Facility, a site that was formerly used for heavy industrial activities and requires remediation due to the previous uses. MPA purchased the property in 2022 with a settlement that included an administrative consent order with the Maryland Department of the Environment (MDE) and the previous site owner, providing a road map for remediating the site over ten years.

MPA is working with MDE to develop remedial action plans for the site. The administrative consent order divides the property into five operable units. MPA has received approval for the remedial action plans for almost all operable units. Portions of the site are expected to be available for development as soon as next year. Short-term plans include constructing a haul road connecting the property to the Cox Creek DMCF to enable easy and efficient access between the sites and setting up a geotube field for drying dredged material near the Cox Creek DMCF.

MPA is commencing a pilot study that will comprehensively compare geotube dewatering processes and products. This comparison will be instrumental in informing the design and best practices of a full-scale dewatering program at the Cox Creek STAR Facility. The study will evaluate the quality and performance of different commercial geotubes and flocculants, including dewatering timing, and measure the actual capacity recovered from the DMCF. This is a crucial step in evaluating the viability of advancing full-scale reclamation of dredged material from the Cox Creek DMCF for IRBU.

This is an exciting step forward. Previously, MPA was limited by a lack of space to create a dewatering/drying operation. Now, readily available material for IRBU projects and the capacity to dewater and dry material continually will result in significant progress. MPA is developing a master plan for full-site development while the property is being remediated and is dewatering and stockpiling material. Preparations have begun to eventually house one or more IR tenants/partners at the facility, and potential tenants are being engaged.

» A New Road to Increase Efficiency for Innovative Reuse

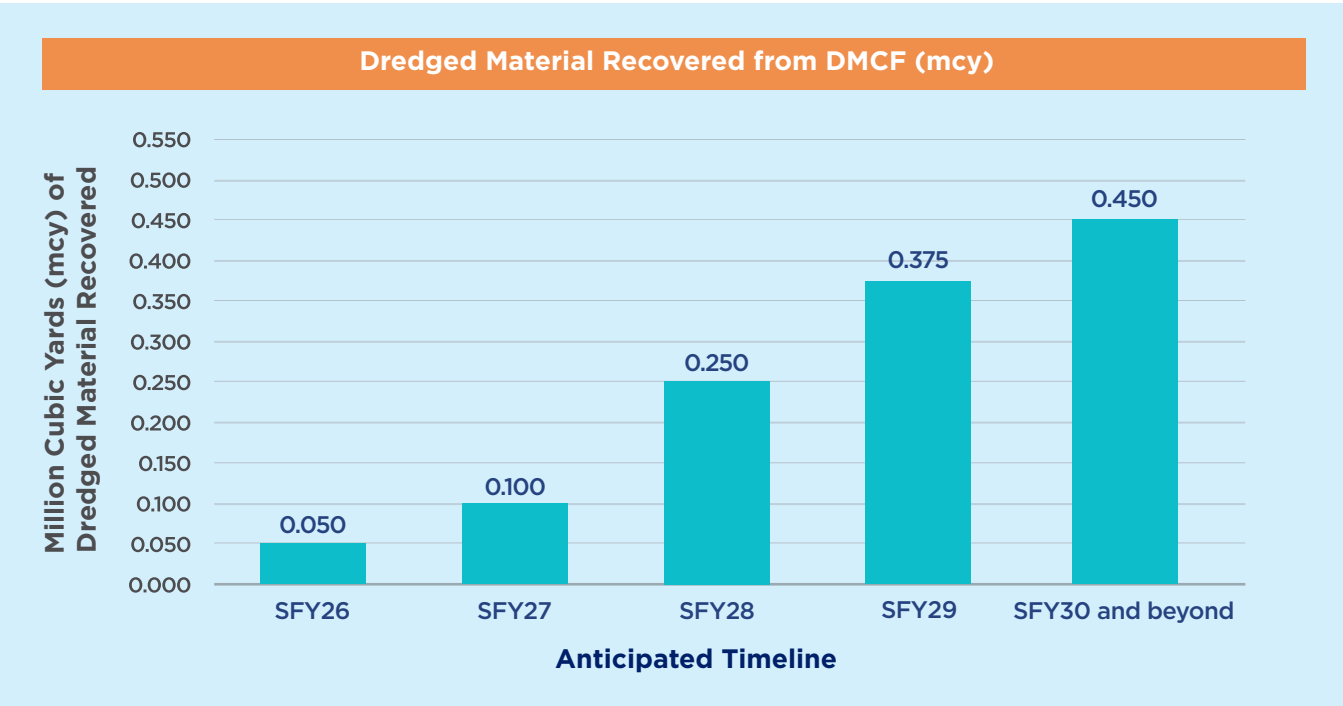
MPA has designed a new road that will provide direct access between the Cox Creek DMCF and the Cox Creek STAR Facility. The design is complete, and MPA is working with MDE and DNR to obtain plan approval this year. The interior access road will directly connect the two adjacent facilities and greatly increase the efficiency of moving material between the Cox Creek DMCF and the Cox Creek STAR Facility for IR purposes without accessing public roadways. It will also reduce noise, travel distance, and truck traffic in the surrounding area. Construction is expected to begin in 2025.

» Cox Creek STAR Facility Request for Information

As the year draws to a close, MPA is issuing a Request for Information (RFI) for the innovative reuse of dredged material, entitled "Cox Creek Sediment Technology and Reuse Facility Request for Information." This request will address large-scale IR of dredged material, informing site development and preliminarily identifying potential IR processes that could take place on the site. Respondents will be asked to provide detailed information regarding their proposed operations, how they would be implemented, the scale of the operation, production rates, and the cost and time frame for development and implementation. The ultimate purpose of any information received will be to develop a complete plan for IR operations development. MPA will also review market analyses of products and economic impact statements for the immediate area and the state of Maryland and will determine whether the end products are consistent with the specifications established in the MDE Innovative Reuse and Beneficial Use Guidance Document. After MPA reviews and verifies the information, it will engage with prospective developers to start development negotiations. Construction activities at the Cox Creek STAR Facility could begin in the next two years.

» **Goals for IRBU Program Scale-up**

Phased remediation and site preparation activities will allow dredged material processing to begin at the Cox Creek STAR Facility in SFY26, the start of a five-year scale-up period, during which the Cox Creek STAR Facility will process gradually increasing volumes of dredged material. Approximately 1.2 mcy of dredged material is anticipated to be recovered during the five-year scale-up period.



» **Innovative Reuse**

MPA has re-engaged with Baltimore City for an ongoing agreement to use dredged material as alternative daily cover at landfills, with a focus on the Quarantine Road landfill because of its size and proximity to the Cox Creek STAR Facility. MPA is working closely with the city regarding material sampling and other logistics. In 2024, 90 cubic yards (cy) of dredged material was also innovatively reused to level and grade an existing access road spur at Cox Creek DMCF, adjacent to the Swan Creek Nature Trail. Between 2018 and 2024, 37,200 cy of Baltimore Harbor dredged material has been innovatively reused.

» **Beneficial Use of Harbor Material**

In 2024, two small-scale BU projects were implemented in the Patapsco watershed, totaling 1,700 cy. MPA contributed 1,200 cy of dried dredged material for the Stoney Beach restoration and living shoreline project in northern Anne Arundel County. Hauling of dried dredged material from the Hawkins Point DMCF began in September 2024. In Baltimore City, the Race Street wetland area, a former Honeywell contaminated site, is undergoing a remediation project utilizing 500 cy of dried dredged material also from the Hawkins Point DMCF.

Research and Development of Innovative Reuse Projects

The Maryland BPW has approved nine IR research and development contract awards for high-volume, sustainable reuse applications that support long-term, strategic planning initiatives and identify the critical steps to making large-scale IR a reality at the Port. All material supplied by MPA for these projects has been tested and meets the necessary criteria set forth in MDE's IRBU Guidance Document. The Research and Development Request for Proposals (RFP) closed in October 2023. So far, results from six of the IR projects have been shared, and the products — such as manufactured bricks, soil reengineered for sod growth, dredged material incorporated into concrete mixtures, and the use of dredged material as a lightweight aggregate — show potential for large-scale implementation. Noteworthy completed projects include collaborations with Belden-Eco Products, Fastrak Express, Harford Industrial Materials Inc., Suscon Products, Northgate Environmental Management, Inc., and CSI Environmental, and cover various innovative reuses deemed safe for residential and commercial use.

At the May 28 Innovative Reuse Committee meeting, CSI Environmental presented preliminary results from its project to hydraulically dredge material from the Cox Creek DMCF into geotextile tubes for shoreline flood protection. The tubes were vegetated at the final project site at the Baltimore Gas and Electric Spring Gardens. Further results are expected later this year.

In 2024, a new project began with Northgate Environmental Management, Inc. This contract provides for a study of the feasibility of using dredged material from the Cox Creek DMCF to produce supplementary cementitious material (SCM), which can be used as a replacement for cement and cement clinker, which are used in the production of concrete. Northgate Environmental Management, Inc. will collaborate with the Georgia Institute of Technology to evaluate dredged material use as an SCM, and CTL Group will test the silt and clay components from dredged material for use in cement clinker. Both SCM and cement clinker have been shown to have significant local market potential. Results are expected in 2025.

In October, the BPW approved a ninth and final R&D contract to HarborRock to convert dredged material into SCM and lightweight aggregate. Results are expected in 2025. MPA will evaluate the RFP projects for lessons learned, adaptive management approaches, and scalability, focusing on future opportunities to recover capacity in DMCFs. The robust pipeline of research and development projects was a key factor in defining the need for the Cox Creek STAR Facility adjacent to the Cox Creek DMCF.

A new opportunity emerged in 2024 with the potential to reclaim large amounts of capacity at the Cox Creek DMCF. Research by Comus Sustainable Pozzolan Products explored using Baltimore Harbor dredged material as a part of their process that creates natural pozzolan, a SCM, to help reduce GHGs by replacing cement produced by traditional methods. Findings show that this dredged material can be used as a natural pozzolan and blended with Portland Cement to create a durable “green cement” since the process to produce the SCM does not include the usage of fossil fuels.

INNOVATIVE REUSE IN ACTION: Research and Development Projects

The robust pipeline of research and development projects was a key factor in defining the need for the Cox Creek STAR Facility adjacent to the Cox Creek DMCF. Research projects include:

Product and Company	Results	Current Status / Future Considerations
Ceramic bricks and permeable pavers Belden-Eco Products, LLC	Dredged material pavers have the potential to be successful residential and commercial products and could be sold at equal or lower cost than traditional clay/shale pavers and used as green infrastructure to reduce runoff and infiltrate stormwater.	R&D completed in 2022. The successful mixture contained 100% dredged material and met or exceeded American Society for Testing Materials standards for pedestrian and light traffic paving bricks.
Concrete traffic barriers and shoreline protection structures Northgate Environmental Management, Inc.	Dredged material is a cost-effective key ingredient in a new concrete barrier mix for low-stress uses like sidewalks, curbs, and gutters. Another potential use could include modular 3D-printed shoreline protection structures that could be used for wave attenuation and to address coastal stabilization concerns, including erosion from sea level rise and storm surge.	R&D completed in 2022. Modular 3D-printed shoreline protection structures are a potential use with important applications for climate resilience.
Re-engineered soil for growing sod FasTrak Express, Inc.	FasTrak worked with local project partners to combine dewatered dredged material with mushroom compost to develop a formulation for growing sod. Results showed that it is possible to use up to 50% dredged material in a re-engineered soil with adequate grass growth. Soil components could contain seeds that are not suitable for sod, so it may only be appropriate for #2 grade sod.	R&D completed in 2023. Lessons learned regarding screening of materials, transport distances, etc., are being considered for future improvements. In addition to sod, other uses for 50% dredged material re-engineered soil to support grass include capping material, roadside restoration, and sports fields.
Lightweight aggregate Harford Industrial Minerals, Inc.	Dredged material as a lightweight aggregate has the potential to be successful when used in concrete mixtures, green roofs, or behind bridge abutments to relieve pressure on the superstructure.	R&D completed in 2023. Early success is promising, but there is a need to identify a more effective binding agent and an efficient process for creating the sphere shape of the aggregate.
Concrete mixes for general use Susquehanna Concrete Products, Inc. (Suscon Products)	Dredged material as a concrete product has the potential to be commercially successful.	R&D completed in 2023. Together with Harford Industrial Materials, a sister company, Suscon is considering full-scale development of a plant that could process dredged material into aggregates and concrete products.

INNOVATIVE REUSE IN ACTION (CON'T):

Product and Company	Results	Current Status / Future Considerations
Upland and shoreline berms using geotextile tubes (geotubes) CSI Environmental, LLC	Results expected in 2024.	R&D project to continue through Fall 2024. Geotubes are being monitored at upland and shoreline locations for vegetative establishment.
Vegetative earth berms University of Maryland	Baseline testing and data compilation have been completed. Results expected in 2025.	Additional testing and preparations for full-scale prototype testing are underway, and the project is expected to continue through summer 2025.
Cement clinker and supplemental cementitious material Northgate Environmental Management, Inc.	Results expected in 2025.	Project newly initiated.
Supplemental cementitious material and lightweight aggregate HarborRock	Results expected in 2025.	Project newly initiated.

IRBU Need and Contingency Planning

Methods to recover capacity at the DMCFs show promise. However, some of these methods will require additional development, including regulatory coordination and stakeholder engagement, before real capacity gains can be realized. It is critical that funding for expansions is promptly secured as the timing of dredging needs and capacity expansion at DMCFs is carefully choreographed.

Reclaiming dredged material from the DMCFs at a volume equal to or exceeding annual inflow is essential to ensuring sufficient capacity to accommodate the 20-year dredging demand. Colgate Creek, located between the Seagirt and Dundalk marine terminals, is being dredged to maintain safe navigation adjacent to Dundalk Marine Terminal. In 2026, approximately 200,000 cy of dredged material from this effort will be placed in geotubes at the Hawkins Point DMCF for drying rather than being placed in the Cox Creek or Masonville DMCFs. Once dry, it can be innovatively reused or beneficially used. MPA will be evaluating this project for future dredging projects as a placement option to save capacity in the Baltimore Harbor DMCFs. MPA is hoping to utilize this process again when circumstances allow.

The logistics of the IRBU program will be evaluated annually to identify lessons learned, potential efficiencies, and necessary improvements to help refine and streamline the program. This may include strategic expansion of the Cox Creek STAR Facility to accommodate increasing dredged material recovery goals and identification of ways to integrate operations effectively between the Cox Creek DMCF and Cox Creek STAR Facility. Expanding the dredged material dewatering process to include mechanical means rather than the current passive dewatering process may be a part of this effort.

» Confined Aquatic Disposal (CAD)

The existing development of property adjacent to the Port makes it challenging to identify additional placement capacity for materials dredged from Baltimore Harbor, beyond the Masonville and Cox Creek DMCFs. While these facilities are active and undergoing expansion, they will be near capacity in the next 20 years, so it is essential to plan for the future. Therefore, in addition to upland placement sites, MPA is exploring innovative alternative approaches to dredged material management, like CAD.

CAD is a technique used successfully in other U.S. ports that involves placing and containing dredged material in an underwater depression, or CAD cell, made by scooping sand and gravel from the bottom of a waterway. In 2011, the DMMP Harbor Team, an advisory committee to the State of Maryland's DMMP, recommended CAD as an alternative to the limited capacity available in DMCFs and as part of the DMMP's statutory mandate to provide a continuous, long-term strategic plan for dredged material management. That team recommended that MPA consider a pilot study to determine if CAD is feasible in Baltimore Harbor, based on cost-effectiveness, human and environmental health and safety, and benefits to Maryland.

MPA constructed its first CAD pilot project in 2016, completed monitoring the pilot project in 2019, and has been working to evaluate the lessons learned and determine the program's next steps. The initial change in material elevation after placement shows consolidation of the material placed in the CAD cell over the entire footprint, as expected. Additional data was collected in November 2023 for an 80-month comparison. More recent surveying indicates ongoing sediment deposition within the CAD cell, providing natural cover over the placed material.

A proposed second CAD pilot project has been paused due to concerns from citizens and regulatory agencies. A CAD subcommittee has been established under the DMMP's Bay Enhancement Working Group (BEWG) to explore technical aspects of a second pilot project, including environmental impacts and benefits, location selection, associated regulations, and socioeconomic benefits and effects. Meanwhile, focused outreach is underway and will continue to ensure stakeholders are engaged throughout the process.

MPA is expanding its engagement efforts in 2025 to ensure it can reach more people, create opportunities for more dialogue, and incorporate all feedback into the planning process as it continues to consider the use of CAD as an innovative solution to dredged material management. This effort includes the work of the BEWG CAD Subcommittee. Updates to the community are also being provided through the DMMP Citizens Advisory Committee and other existing stakeholder relationships.

» Modification of the Seagirt Loop Channel

In partnership with USACE, MPA initiated the Seagirt Loop Feasibility Study in 2020 to assess the need for navigational improvements to the Seagirt Loop Channel system. The study, completed in June 2023, recommended the channel be deepened to 50 feet and widened at the bends to allow for safe passage by ultra-large container vessels. These changes will improve navigation efficiencies at the Port to help meet the demand for future capacity at Port facilities, including efficient handling of increased container volume at Seagirt Marine Terminal and faster and safer movement of vessels transiting the channels. This 3-year feasibility study was completed ahead of schedule and under budget. It demonstrated a favorable benefit-cost ratio, which allowed the project to advance. The pre-construction engineering and design (PED) phase began this fall and is expected to last two years. The outcome of this phase will be the design of the channel, schedule, and estimated costs for construction.

Dredged Material Placement Sites

Mid-Chesapeake Bay Island Ecosystem Restoration Project

» A Generation's Worth of Capacity

Once completed, the Mid-Bay Project will accommodate an estimated 90-95 mcy of dredged sediment, providing placement capacity for more than 30 years. Without the Mid-Bay Project, the Port of Baltimore's 50-foot channel segments in the Bay will shoal to a controlling depth of 45 feet within two to three years.

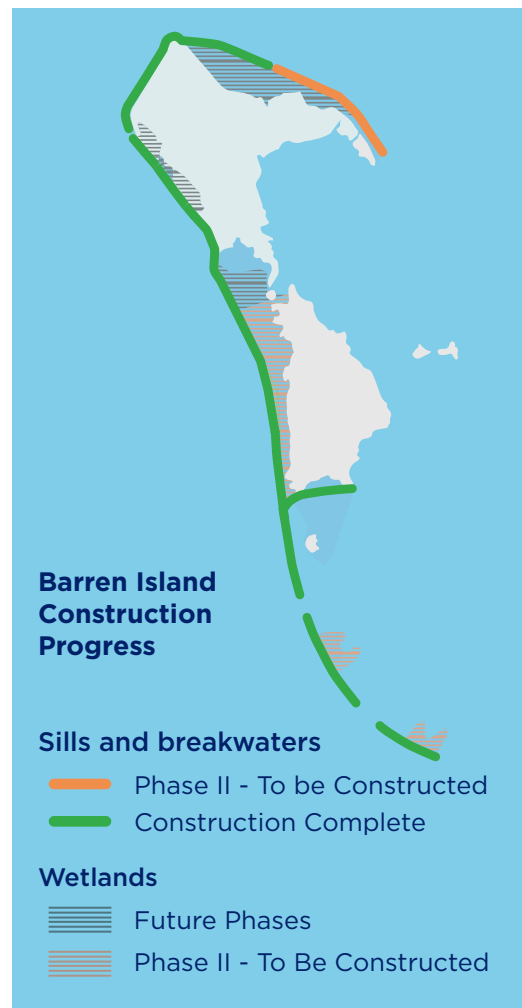
MPA's innovative approach to environmental restoration using dredged material is the foundation for the Mid-Bay Project. This restoration project, located in Dorchester County near what remains of James Island and Barren Island, is a crucial future placement site for the DMMP and is integral to the Port's 20-year DMMP strategy. Once Poplar Island reaches capacity in 2035, the Mid-Bay Project will accept 2-3 mcy of annual maintenance dredged material from the Maryland Chesapeake Bay channel segments.

The Mid-Bay Project is advancing, with notable progress on both Barren and James Islands, and will begin to use dredged material beneficially as Poplar Island placement capacity is reached. In partnership with USACE and MPA, the project will restore 2,144 acres of valuable remote island habitat within the Chesapeake Bay while providing a total capacity of 90-95 mcy over the next 30 or more years.

» Barren Island

Phase I of construction for Barren Island is complete, including the installation of protective stone sills and breakwaters that line the island's western side. The Phase II construction contract was awarded in August 2024. It includes the construction of two islands providing habitat for nesting birds, foundation remediation and completion of the northeast sill, design and installation of spillway structures in the southern wetland, modification of the existing sill to incorporate materials to limit material egress from the site, installation of geotextile structures (filled with suitable materials from a nearby borrow area adjacent to the southern remnant) to confine placed material, and dredging and placement of material from the Honga and Tar Bay federal navigation channels.

Material from the initial dredging of the Honga River is anticipated to be placed at Barren Island in 2026 into the southern wetland. Material will continue to be placed onto Barren Island in multiple dredging events as USACE navigation funding is available for the federal shallow draft channels.



Preliminary design and modeling for the Barren Island southern wetland is underway. These efforts will evaluate channel alignments, inlet locations, and size and wetland features to determine channel velocities and target wetland elevations; the goals are to meet the input by agency stakeholders and ensure resiliency to sea-level rise.

Throughout 2024, MPA and USACE worked closely with community members, especially watermen, to limit the potential impacts of construction on their livelihoods. MPA held targeted outreach and public meetings and facilitated positive relations with the construction contractor as watermen navigated safety zones during fishing and crabbing season. Construction-related monitoring of turbidity and submerged aquatic vegetation coverage began in 2023. Monitoring ensures site construction is permit compliant and does not adversely impact the surrounding environment.

30%
reduction in
storm-related erosion

\$1M
in personal property
value benefits

\$1.5M
increased recreational value

8.5
acres of habitat for
round-nesting birds

72
acres of restored
island habitat

1,300
acres of seagrass
habitat protected

Barren Island Benefits for People and Wildlife

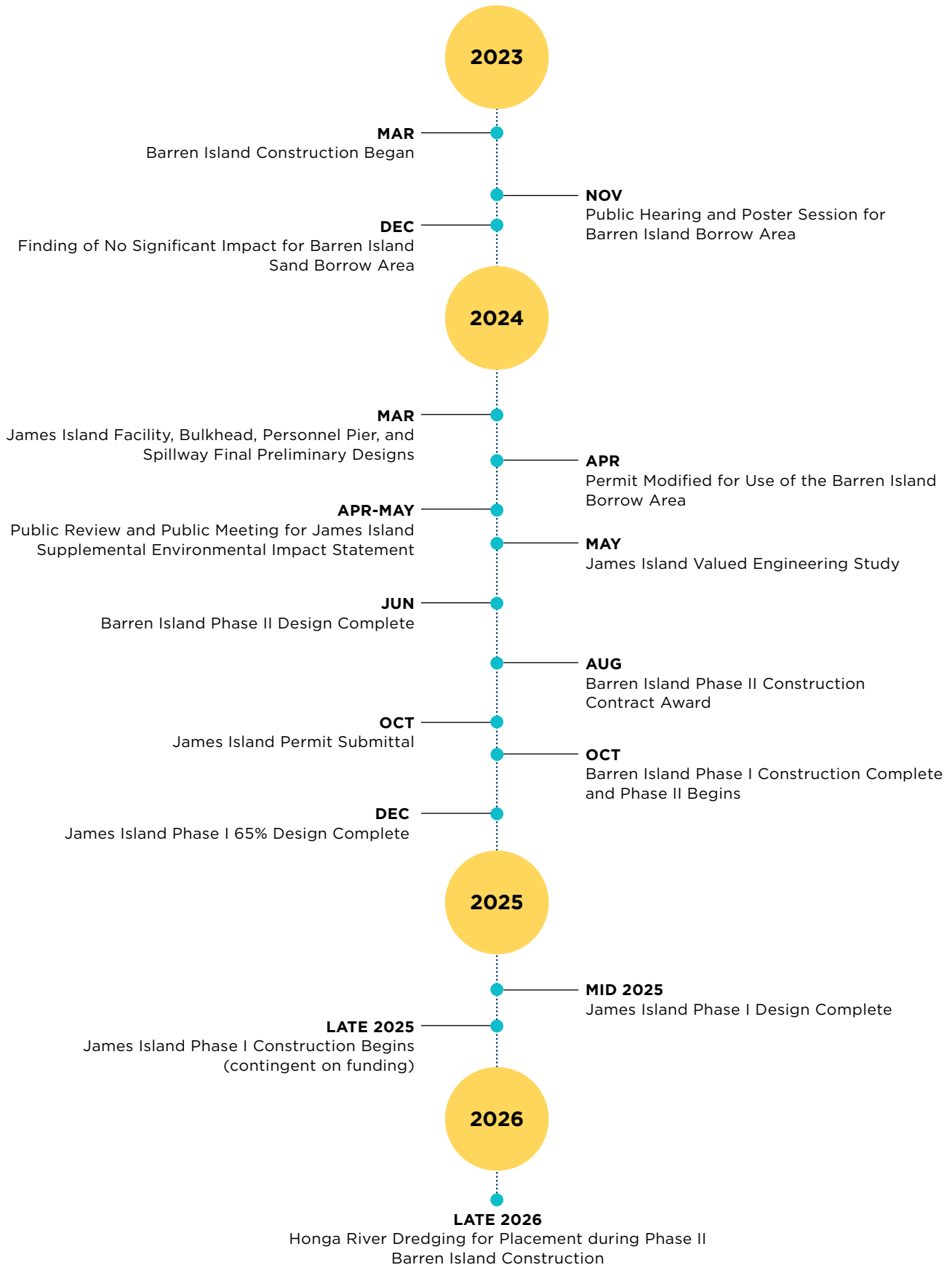
The Barren Island project will produce a wealth of economic, environmental, and community benefits over the next ten years, including:

- **Up to a 30% reduction** in the storm-related shoreline erosion rate on Upper Hoopers Island and the area north of Fishing Creek
- **\$1 million** in personal property value benefits due to reduced wave energy, improved water quality, and the presence of seagrass
- **\$1.5 million** in increased recreational value through boating, fishing, and wildlife watching
- Two new bird nesting locations that add **8.5 acres** of remote habitat for protected ground-nesting bird species
- A minimum of **72 acres** of restored remote island habitat that will support diverse wildlife, including diamondback terrapin and common terns
- Protection of **1,300 acres** of historic seagrass habitat, as a result of the construction of stone sills and breakwaters surrounding Barren Island

» James Island

James Island’s design work was 65% complete by the end of 2024 and is expected to be completed in early to mid-2025. Modeling and geotechnical analysis are underway to determine the project’s final alignment and structural components. MPA and USACE conducted workshops to gather feedback and ideas from resource and regulatory agencies, with the goal of incorporating more nature-based solutions into the design. A second “Engineering with Nature” workshop was held in February 2024, and the five alternative concepts that were the highest-ranked were refined throughout the year and will proceed to modeling. The outcomes and benefits of James Island restoration will emerge once the design is finalized. MPA is coordinating closely with MDE regarding permitting requirements. Pending funding availability, the first contract for this work is to be awarded in late 2025 or early 2026.

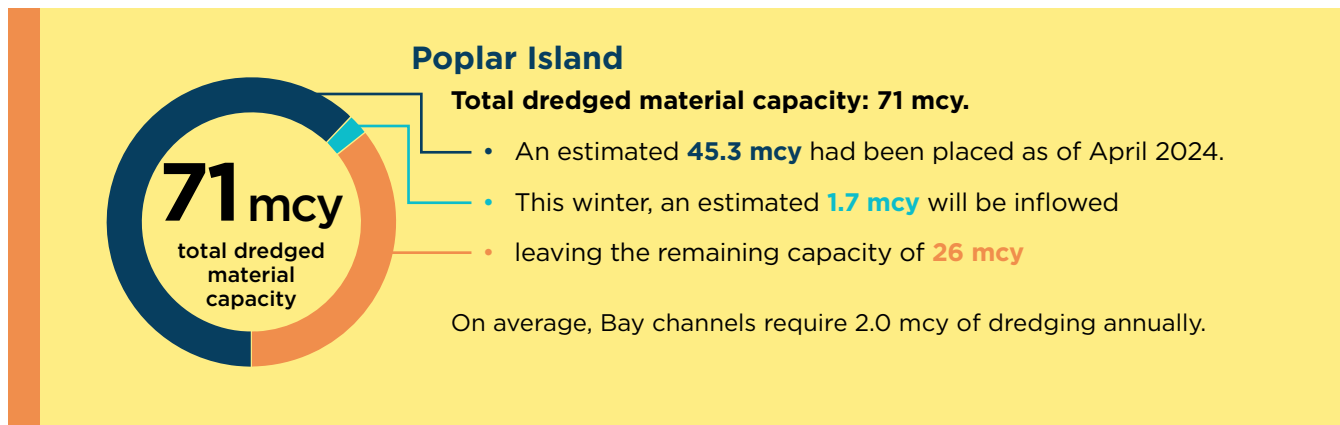
MID-BAY MILESTONES



» Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island (Poplar Island)

Poplar Island is world-renowned for its early, innovative, and effective beneficial use of dredged material to restore remote island habitat. Lessons learned are already being incorporated into the planning and design of the Mid-Bay Project.

The island provides 1,715 restored acres of wildlife habitat and is a popular stopover site for migratory birds along the Mid-Atlantic Flyway and provides a home to a wide variety of other wildlife. Official 2024 bird censuses have identified 198 species, with 32 species confirmed as breeding onsite and another 20 species likely to be breeding. Species documented at Poplar Island for the first time in 2024 include neotropic cormorants, willow flycatchers, and bay-breasted warblers.



Scientific Study and Partnerships at Poplar Island

The goals of research at Poplar Island are to maximize climate resiliency and habitat restoration and develop a set of lessons learned to be applied to other BU projects. Multiple studies have been completed or are underway assessing the relationships between wetland restoration using dredged material and nutrient cycles, GHGs, and long-term resiliency in the face of projected sea level rise. Here are a few examples of innovative ways that MPA and their project partners are working to improve the environment of Chesapeake Bay.

In an ongoing study, researchers from the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Naval Academy are studying whether juvenile oysters, known as spat, will set directly on stone reefs within the project's open water embayment. A standard practice is to produce spat-on-shell in the lab and transplant them onto a hard bottom reef. Early monitoring of the experimental placement has found natural recruitment of oysters onto the rock reefs. Lessons learned from this research have the potential to make new habitats available for oyster spat, with benefits to restoration efforts and water quality improvements. Monitoring will determine whether the naturally recruited oysters observed in fall 2023, the larvae introduced by NOAA through their ongoing study, or both, will continue to be successful through varying conditions. If the oysters are still present during the fall 2024 monitoring of the rock reefs' surface zone, the Poplar Island Monitoring Subgroup will be asked to consider routine oyster monitoring to explore the possibility of expanded experimental placement and to identify lessons learned.

NOAA also initiated a study tracking fish usage of Poplar Island's restored marshes. In this study, fish are surgically implanted with coded transmitters and acoustic telemetry is used to identify their locations and habitat preferences, using an array of battery-powered data receivers deployed in various marshes and outside the site. Since May 2023, 254 fish and crabs have been tagged. The species tagged include American eel, blue crab, channel catfish, gizzard shad, red drum, spot, striped bass, white perch, and cownose ray. Through June 2024, 30 fish tagged in the marshes were also detected in the northern embayment, almost all striped bass that were tagged in 2023 returned and were detected in 2024, and 27 tagged fish were

detected beyond Poplar Island at other locations around the Bay. Data is still being collected, but preliminary data evaluation shows there are species-specific range patterns and utilization of particular parts of the Poplar Island marshes.

The University of Maryland Center for Environmental Science (UMCES) has developed an approach to assess the rate of carbon sequestration in restored wetlands at Poplar Island using the protocols in a manual developed by the Blue Carbon Initiative. The assessment will provide an estimation of carbon uptake at a project scale, leading to a better understanding of the potential benefit of using dredged materials for wetland restoration at Poplar Island and the beneficial use of dredged material at future restoration sites. Carbon sequestration helps fight climate change by removing it from the atmosphere and locking it into plants and sediment. The carbon incorporated into the sediment and the marsh elevation increases, helping to ensure the marsh's resiliency to sea level rise. Unlike nearby reference marshes, studies show that Poplar Island marshes are currently keeping pace with sea level rise.

Impact Spotlight:

Rising Seas and Marsh Resilience

MPA also funded UMCES and the University of South Carolina to develop a site-specific wetland model to investigate the resilience of restored Poplar Island marshes under predicted rates of sea level rise. A key finding was that thin layer sediment placement onto the marsh at periodic intervals can increase marsh resilience to rising sea levels. Other benefits include added carbon sequestration from marsh plants' growth and the full suite of ecosystem services provided by a healthy marsh. The costs identified were those associated with site operations and the temporary loss of some ecosystem services while the marsh is recovering. The study also identified the ideal marsh elevation to ensure long-term marsh resilience to sea level rise. Planning for future development should include planting the native marsh grass *Spartina alterniflora* at the highest range possible and increasing the high marsh acreage to build in elevation capital (a place for the low marsh to migrate as it responds to sea level rise). This research helps ensure that dredged material restored wetlands are built for long-term ecological benefits.

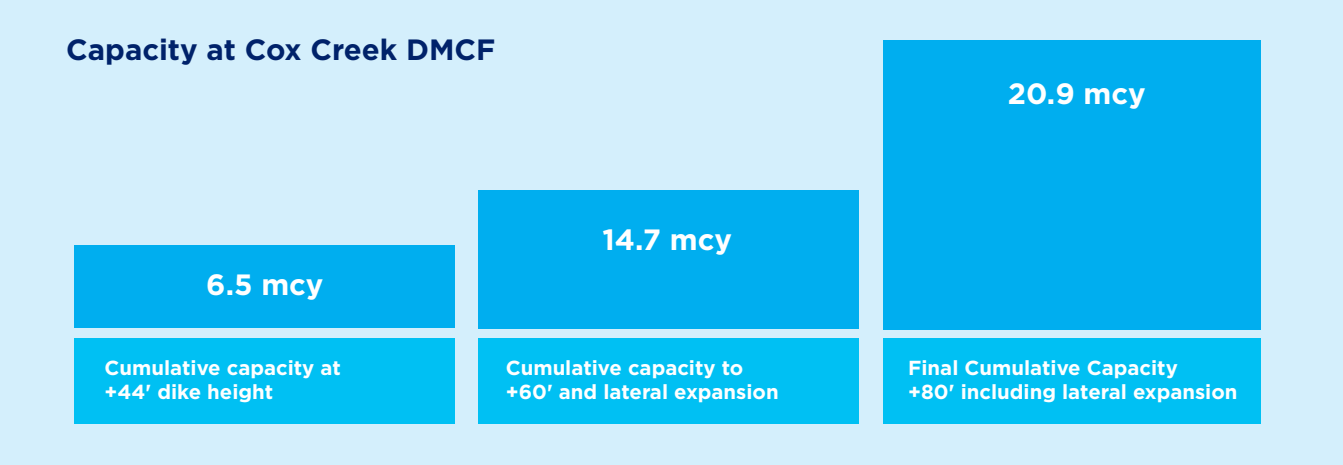
The [Bay Journal article "Poplar Island marshes showing resilience, study shows"](#) reveals how researchers found that most of Poplar Island's marshes are gaining height faster than the current rate of relative sea level rise – the total increase in elevation of the sea's surface from human-caused global warming combined with the natural sinking of the Earth's crust – in the Bay region.

The research supports important DMMP recommendations to incorporate the potential impacts of climate change and facilitate the use of nature-based and climate resilient solutions into long-term DMMP project planning, DMCF design and operations, and related project delivery. In 2024, DMMP affirmed its commitment to leverage the best available science to quantify carbon sequestration benefits from the beneficial use of dredged material, and ensure that planning, design, and operational efforts related to DMMP infrastructure and restoration projects accelerate nature-based and climate resilient solutions.



» **Cox Creek DMCF**

In 2024, MPA achieved a significant construction milestone at the Cox Creek DMCF by raising the upland dike, perimeter dike, and cross dike to +60 feet, increasing the overall capacity to 14.7 mcy. The feasibility study for the next expansion phase, raising to +80 feet, is complete, and MPA has solicited design proposals. Construction is expected to begin in fiscal year 2030. The construction phase is projected to add 6.2 mcy of capacity to the project, bringing the total site capacity to 20.9 mcy.

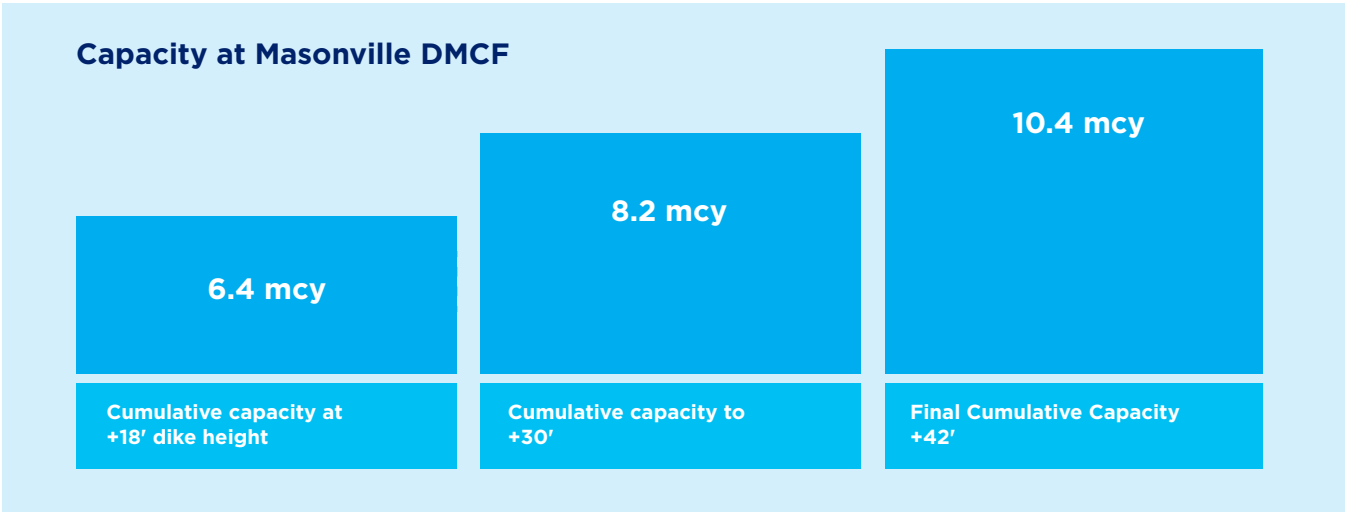


The related mitigation, a nontidal wetland restoration and creation project at Genesee Valley Outdoor Learning Center, is pending finalization of the conservation easement with USACE. MPA plans to submit a request to the BPW to secure the easement in early 2025 followed by project construction.

The Cox Creek COC continues to provide input to MPA regarding the management of dredged material at Cox Creek DMCF and to make recommendations on minimizing the potential impacts it may have on the communities and natural resources in the area. A recent project demonstrating this fruitful collaboration is the Swan Creek Nature Trail. Developed in coordination with Cox Creek COC and community stakeholders, the trail is a community enhancement project creating an approximate 2-mile loop in the Cox Creek Forest Conservation Easement Area. The design includes boardwalks, a bridge, outdoor classrooms, and informational and directional signage. The project has received \$214,250 of federal grant funding from the U.S. Department of Transportation Recreational Trail Program. The design is complete, and a groundbreaking was held on October 19 at the Cox Creek Open House. Construction is anticipated to begin in 2025. The goal is to open the trail to the public in late 2025.

» **Masonville DMCF**

Dike raising at the Masonville DMCF to an elevation of +30 feet is 30% complete and slated for completion ahead of schedule, likely by the end of 2025. The dike raising to +30 feet first required drainage improvements on one of the neighboring terminal lots. The steep slope design of the expanded dikes will maximize DMCF capacity. The design for raising the dike to +42 feet, is taking place concurrently with construction to +30 feet; the goal is to have a gap of only a few months between construction to +30 feet and to +42 feet. Design work began in August and is expected to be complete by the end of 2025. The final elevation of +42 feet will result in the site gaining additional capacity, which is critical to maintaining the 50-foot channel system necessary for the competitive movement of cargo and the thousands of jobs associated with the Port.



All on-site and off-site mitigation for the impact of DMCF construction is complete. As a final protective measure, MPA worked with the Maryland Environmental Trust and Baltimore Green Space to secure a conservation easement on the entire cove property, covering 46.8 acres of restored wetlands, uplands, and nature trails. Masonville Cove, originally developed as a community enhancement tied to the creation of the DMCF, is a refuge and gateway, reconnecting communities to the water by providing public access to the shoreline, piers, and trails. The formal conservation easement ensures that the land must be used for conservation purposes in perpetuity. Official wildlife censuses include 208 bird species observed at Masonville Cove, with 30 species confirmed as breeding in 2024.

» **Growing Greener Neighborhoods Surrounding Masonville Cove**

As part of the mitigation for the Masonville DMCF, MPA has helped create an innovative approach to reducing trash in Baltimore neighborhoods and surrounding waters. Captain Trash Wheel, commissioned and owned by MPA, has been in place at Masonville Cove for six years. In 2024, Captain Trash Wheel removed nearly 9 tons of trash and surpassed an important milestone, with over 51 tons of debris removed from the waterway in six years.

The original trash wheel, Mr. Trash Wheel, has been joined over the years by other “family members”: Captain Trash Wheel, Professor Trash Wheel, and Gwynnda the Good Wheel of the West who have also been solely or partially funded by MPA to help prevent trash from entering Baltimore Harbor and the Patapsco River, which leads to the Chesapeake Bay. The entire trash wheel family of four have removed over 3,275 tons of debris. Trash wheels have also played an important role as environmental educational and awareness tools, particularly on social media platforms.

Volunteers removed almost one ton of debris from the Masonville Cove campus during shoreline clean-ups in 2024, and over 6.5 tons of debris have been removed since cleanups began.

» **Improving Access: Masonville Cove Connector**

As the nation’s first Urban Wildlife Refuge Partnership, Masonville Cove is well established as an educational and recreational community treasure, but gaining access to the site can be challenging. Consistent with its promise to restore access to the waterfront for the communities surrounding the Masonville DMCF, MPA and other partners have secured grants totaling \$2.86 million from the Federal Highways Administration Federal Lands Access Program (FLAP) and USFWS to design and construct a shared use path connecting Masonville Cove to the Gwynns Falls Trail and adjacent communities. The Masonville Cove Connector (MCC), which is currently in the planning stage, will increase safe and equitable access to the site. Serving as an important link to over 20 miles of trails, it will provide walking and biking connectivity to dozens of neighborhoods, a regional hospital, and wellness facilities.

Impact Spotlight:

A Rare Bird Stops in and Stays a While



The Masonville area had a rare and fascinating visitor: an American white pelican. This bird was spotted in the Masonville DMCF on June 10. Surprisingly, it has remained there through the fall.

The American white pelican is one of the largest birds in North America, with a nine-foot wingspan. It looks similar to the smaller brown pelican, but its body is snowy white with black flight feathers and a bright orange bill. These birds are magnificent fliers for their size, and it is exciting to observe one gracefully gliding across the sky. American white pelicans can be residential or migratory. Resident breeding populations are found in Texas and Mexico. Migratory breeding populations spend the summer in the Midwest and Canada and winter in southern California, the Gulf States, Mexico, and Central America. Their diet consists of fish, crustaceans, and occasionally salamanders. The pelican has been seen catching fish at Masonville DMCF and seems to be feeding well, probably dining on minnows and shrimp.

This is the first record of an American white pelican at Masonville DMCF. Poplar Island, another MPA site, received another American white pelican visitor in May. With this record, all four main DMMP birding sites (Cox Creek DMCF, Masonville DMCF, Hart-Miller Island, and Poplar Island) have at least one recorded sighting of an American white pelican. Blackwater National Wildlife Refuge is the only location in Maryland where this species is reliably found. It is not reported every year in the Baltimore area.

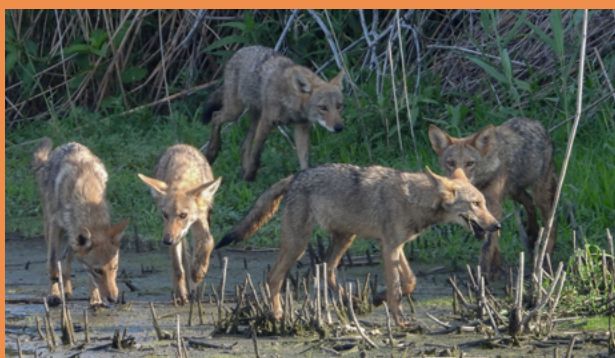
The MCC development team is working closely with neighbors, community members, and users of Frankfur Avenue to share the news of this project and seek input on how the Connector can best meet all users' needs. Two traffic studies have been conducted, and a set of design concepts have been developed which are being shared via targeted public outreach to obtain and incorporate local stakeholders' feedback in project development. The team continues to coordinate with adjacent trail projects and neighboring property owners. The MCC project team is currently working on the 30% design phase, with the completion of 100% design expected in 2026. MPA is applying for a grant from the U.S. Department of Transportation's Reconnecting Communities Pilot program to assist in funding the construction of the MCC. This competitive grant program supports projects that reconnect communities by removing, retrofitting, or mitigating highways or other transportation facilities that create barriers to community connectivity, including to mobility, access, or economic development.

» Hart-Miller Island

HMI is a haven for boaters in the northern Chesapeake Bay. It provides the public with recreational opportunities and the chance to encounter many different species of plants, insects, and wildlife, including abundant migrating bird populations. Over 37,700 people visited in 2024 to fish, camp, boat, swim, bike, hike, and picnic. This year, 208 species of birds were documented in official censuses, with 30 species confirmed as breeding on site. Two new bird species were seen on HMI for the first time in 2024: white ibis and cerulean warbler.

» Island Life is For Families

An estimated litter of seven coyote pups was born on Hart-Miller Island this summer. Onsite staff have seen the family roaming the island, and the photos have been posted on social media. It's assumed that adult coyotes swam to the island in the recent past. While the coyotes do not present a threat, humans can help them and other animals on the island by giving them plenty of space.



Photography by Cory Byrne

Since its establishment in 1981, the HMI Citizens Oversight Committee (COC) has ensured an open dialogue between the communities surrounding the site and MPA, and has provided oversight on dredged material inflow and operations activities. HMI COC is the oldest MPA citizens oversight committee. It was statutorily created to advise MPA on dredged material placement activities at HMI and the monitoring program. Dredged material placement ceased at HMI in 2009. Since then, the HMI COC has been engaged in developing the closure plan for the site and worked to create the Friends of Hart-Miller Island State Park, which is a volunteer group. HMI State Park opened the South Cell of HMI for seasonal recreational use on June 10, 2016, and MPA continues to partner with the Friends of HMI State Park to enhance the community experience.

» Virginia Channels - Wolf Trap and Northern Extension

The Virginia Channels Bay Enhancement Working Group (VA BEWG) developed a shortlist of potential BU projects, sites, and concepts that could serve as alternatives to open water placement at the Wolf Trap Alternative Placement Site. USACE and MPA are investigating options that are environmentally acceptable, cost-effective, and logistically efficient. In 2023, USACE initiated a study to further refine the VA BEWG shortlist of open water alternative placement sites. In 2024, USACE provided MPA with a technical memo that is currently under review. Once finalized, the VA BEWG will be reconvened for further discussions. Environmental coordination is ongoing for dredging in fall 2024, which will involve about 2.6 mcy to be removed from York Spit Channel and placed at the Wolf Trap Alternate Placement Site Northern Expansion.

► Outreach and Education

Environmental justice, diversity in representation, and increasing public knowledge about the Port are top priorities for MPA, which has long recognized that the Port's success and that of the DMMP depend on Marylanders' collaboration and support. Key goals are to reflect the communities that MPA serves and to pursue outcomes that equitably benefit all Marylanders.

To help people understand the importance of the Port of Baltimore, MPA has built a model engagement program, creating widely-accessible initiatives that restore the environment and enhance the quality of life for all communities. MPA offers a variety of community engagement options, from meetings and site tours to exhibits at community events, and environmental education programs held virtually and in classrooms. Tours for community members, business leaders, representatives of nonprofit organizations, and elected officials help stakeholders stay well informed and up to date on Port operations. These are important opportunities for MPA to receive feedback and fresh ideas on its environmental stewardship.

MPA's education and outreach efforts have produced more than **21,000** interactions at nearly **800** events, including engagements with over **14,000** students.

» **540 classrooms were engaged in 2024, of which:**

30%

were certified as Green School classrooms by the Maryland Association for Environmental and Outdoor Education (MAEOE)

32%

were in Title I schools where high numbers or high percentages of children are from low-income families

In 2024, the DMMP continued to invest in educating and collaborating with stakeholders from diverse backgrounds. NIS staff bolstered relationships with local Historically Black Colleges and Universities (HBCUs), faith-based organizations, and civic organizations. These relationships extended from the formal DMMP committee structure to education programs for adults and students and expanded stakeholder partnerships. When decisions about dredged material management are being considered, MPA seeks to collaborate equitably with all stakeholders, ensuring that all affected communities are involved in the planning process.

Increasing Access and Spanish Language Outreach

» Chesapeake WILD Partnership Grows

In 2024, MPA and the Partnership expanded outdoor education opportunities at MPA sites through funding from the National Fish and Wildlife Foundation Chesapeake Watershed Investments for Landscape Defense (WILD) grant program awarded to the National Aquarium. The program engaged 60 Baltimore City youth and 24 Girl Scouts in hands-on outdoor education programs at Hart-Miller Island and Cox Creek DMCF, furthering MPA's commitment to environmental stewardship. Chesapeake WILD also supported a successful BioBlitz at Masonville Cove as part of Urban Wildlife Conservation Day.

» Bilingual Engagement

In 2023, MPA premiered new outreach initiatives in Spanish as part of an ongoing commitment to increasing inclusivity and equitable access to MPA's sites and activities. These efforts were expanded significantly in 2024, with additional bilingual programming and more outreach materials translated and printed in Spanish.

Masonville Cove's bilingual interpretative outreach team member was instrumental in supporting bilingual outreach with community members, helping to lead educational programming and special events like Latino Conservation Day. The increased commitment to Spanish language materials included the addition of a bilingual nature bookshelf for children and families, supported by funding from the EPA and the Chesapeake Conservancy.

In 2024, more speaking engagements in Spanish were held as MPA brought Spanish programming directly to schools and Spanish-focused groups through lessons, community programs, and events. Patterson High School's ESL program visited Masonville Cove for a spring field trip, enjoying a stream survey and seining program led in Spanish. Poplar Island hosted a birding tour for a Spanish-speaking group in partnership with Defensores de la Cuenca for the first time. Additional partners in MPA's outreach efforts include Liberty's Promise, Maryland DNR, and Latino Outdoors Baltimore.

» Latino Conservation Day

This summer, the Masonville Cove Partners worked in collaboration with Brooklyn-based Templo de Alabanza y Restauración (TAYR) to host a Latino Conservation Day event at Patapsco State Park, engaging 205 individuals. The Partnership has worked with TAYR for years on community conservation projects. Latino Conservation Day is an initiative led by the Hispanic Access Foundation, encouraging members of the Latino community to get outdoors and participate in events to protect their natural resources. Participants enjoyed programs, including archery, guided nature walks, and games for families. The event was hosted in partnership with the National Aquarium, USFWS, MPA, Maryland Environmental Services (MES), Living Classrooms Foundation, Chesapeake Conservancy, Corazón Latino, Latino Outdoors Baltimore Chapter, MD DNR, and Defensores de la Cuenca.

» Masonville Cove Signage

The Masonville Cove Partnership worked to create the first set of bilingual interpretive signs in Spanish and English at the Masonville Cove campus, funded through the National Park Service Chesapeake Gateways Program. All Masonville Cove partners came together to collaborate with the community, determine content for the signs, and concept-test the content, imagery, wording, and interactive components. Masonville Cove has now installed five bilingual interpretive signs covering the site's history, native plants and pollinators, underwater restoration, Captain Trash Wheel, and donor recognition for the signs.

» Welcoming New Birders

To ensure more opportunities for first-time and non-affiliated birders, in 2024, MPA began a standardized process for birding event registration across all DMCFs by introducing a lottery system for the tours. Online registration at Maryland-dmmp.com makes registration more user-friendly and ensures fair and diversified access to birding tours. Using the online process, in 2024, 69% of participants at HMI birding events were first-time attendees, and 18% of Cox Creek DMCF birders were new to MPA birding programs.

Mid-Bay Project Outreach

Mid-Bay Project public outreach and stakeholder engagement are ongoing as the construction and design of Barren and James Islands advance. Targeted efforts have led to increased dialogue with local water users regarding restricted safety zones as Barren Island construction commenced. MPA and USACE continued an annual tradition of hosting a community poster session, held this year on November 6. This event invited all area residents and interested stakeholders to meet project representatives, learn about recent activities and impending milestones, and raise their questions and ideas in a welcoming atmosphere.

Notable new initiatives for 2024 include the convening of the Mid-Bay Community Stakeholder Group and the Mid-Bay Community Conversations initiative. The Mid-Bay Community Stakeholder Group is a new, standing group of committed Eastern Shore community representatives. Its goals are to provide project updates to the community, hear community questions and concerns, gather input on community awareness of the project, and maintain open, ongoing dialogue between the project and the community. Following a broad listening session with area stakeholders, the Mid-Bay Outreach Team identified six individuals to serve on the Mid-Bay Community Stakeholder Group. These new group members represent important and varying perspectives, are well connected and have deep roots in the community, and are invested and interested in the Mid-Bay Project.

Through the Mid-Bay Community Conversations, the Outreach Team is increasing its presence at community events in Dorchester County, including but not limited to cultural, community, and special interest group events. The team strives to meet people where they are to encourage new relationships, hear new perspectives, and build additional support for the project. Some examples include:

- The City of Cambridge's Juneteenth Celebration at Cornish Park allowed MPA and partners to connect with over 100 members of a community that is near Hoopers Island and the Bay.
- On September 14, the Mid-Bay Outreach Team attended the Nause-Waiwash band of Indians 32nd Native American Festival in Vienna, MD, the only powwow on the Eastern Shore, where the team engaged with 80 festival attendees.
- On September 29, the outreach team attended the Dorchester Showcase Festival, engaging with 35 festival attendees who were primarily local to Dorchester County.

Masonville Cove

Operated in partnership with Living Classrooms Foundation, National Aquarium, and USFWS, the Masonville Cove Environmental Education Center is a hub where area schools and community members participate in educational programs. In 2024, the center drew over 6,000 visitors and made notable progress in enhancing the inclusivity of its programs, strengthening volunteer work, and greening the campus.

The Masonville Cove Environmental Education Center staff and USFWS members participated in a course titled "Co-designing Conservation" to learn how to better work with local communities to develop conservation goals, projects, and programs curated for those communities. This commitment to incorporating community feedback has led to new programming, such as a mindful pollinator walk, and has helped draw new partners to the campus, including Women of Color Outdoors (WOCO), a group specializing in hike and sound healing experiences for women of color. Co-designed programs were also held at the Brooklyn Branch of the Enoch Pratt Free Library, such as workshops to create seed bombs, painted flower pots, and bird boxes.

» Urban Wildlife Conservation Day

Urban Wildlife Conservation Day in September drew 223 participants, the biggest crowd to date. Attendees enjoyed a full day of free, family-friendly activities, including outdoor games, guided nature walks, fishing, birding, and boat rides. This success came after MPA and the Masonville Cove Partnership listened to requests from the community and enhanced the day's offerings and outreach. To promote the event, bilingual postcards were sent to zip codes closest to Masonville Cove. Because lack of transportation is a potential barrier to attendance, a free shuttle service was provided from the local library. Free food was an additional incentive and "thank you" to attendees. Nearly 40% of attendees resided in either Baltimore or Brooklyn, and nearly 60% of participants were first time visitors.

In 2024, the Friends of Masonville Cove volunteer group partnered with nearby wildlife refuge Friends groups, including those at John Heinz National Wildlife Refuge at Tinicum and Patuxent Research Refuge. Through site visits and networking, the Friends are learning how these established groups find and retain volunteers, manage operations, prioritize projects, and extend their impact to surrounding communities. The Friends also installed a new garden at the Education Center, and undertook tree planting, maintenance, and campus greening.

Masonville Cove partners are forging a new partnership with Boy Scouts of America (BSA), increasing opportunities for Scouts to earn merit badges at Masonville Cove, starting with an Eagle Scout project on campus. The Scout installed a storage closet for fishing gear near the pier, benches with backs, and bird and bat boxes to increase habitat. The foundation is being laid to nurture Scout relationships that lead them to become Friends of Masonville Cove after aging out of BSA.

Maryland DNR hosted Geo Girls with a new event held at the Masonville Cove campus for sixth-grade students from Lillie May Carroll Jackson Charter School, a Baltimore City public charter school for girls in grades five through eight. The two-day program includes fishing, kayaking, and BioBlitz-style species identification and data collection. In preparation for the Geo Girls events, five teachers participated in a professional development day that included a citywide scavenger hunt culminating at Masonville Cove, where they explored the campus, developed curriculum ideas, and learned more about becoming certified as a Maryland Green School.

» Close Encounters with Wild Birds

Several MPA properties provide critical habitat for native and migrating birds, making them ideal places for bird banding and associated research. Bird banding is conducted during spring and fall migration at Masonville Cove, and researchers also band certain species on Poplar Island, including bald eagles. Wildlife conservationists welcomed the public for the second year to observe bird banding at Masonville Cove. Scientists collect data on each bird, which is entered into a nationwide database used to study bird health and migration patterns and to track later sightings of individual birds. A total of 350 birds were banded at the two events, including 20 recaptured birds which had been previously banded at Masonville Cove.

Youth Birding Week expanded to two weeks this year to accommodate a wider age range, resulting in 27 young birders participating in hands-on activities ranging from bird walks to group art projects. On field trips to Hart-Miller Island, Poplar Island, and Cox Creek DMCF, young birders used the citizen science tool, eBird, to identify and record bird species and learn about local bird populations, their habitats, and how these habitats have been restored. In addition to MPA, partners and sponsors include the Chesapeake Bay Trust, the Maryland Ornithological Society, the Baltimore Bird Club, Michael Hudson of Birds of Urban Baltimore, and local artist Laura Wolf.

Poplar Island Outreach and Education

» National Conservation Meeting Highlights Poplar Island

The Restore America's Estuaries national coastal conservation conference, held in Arlington, Virginia in October, featured a session dedicated to research at Poplar Island. Six speakers from MPA, MES, UMCES, and University of South Carolina presented the results of 20 years' worth of tidal marsh habitat restoration, monitoring, and research. The session offered attendees the chance to learn how to manage fine-grained dredged material for marsh restoration, how to design and manage marshes for resilience, what features enhance the value of wildlife habitat, and how Poplar Island has contributed to Chesapeake Bay restoration goals. A tour of Poplar Island was one of the conference field sessions. Tour participants saw the restored habitat firsthand and heard from stakeholder agencies' experts about the successes and challenges of rebuilding the island through the beneficial use of dredged materials.

» A Head Start For Terrapins and Stewardship

Maryland students give diamondback terrapin hatchlings from Poplar Island a head start in life, and in return they receive a head start in Bay conservation education, through the Terrapin Education and Research Partnership (TERP). This MPA sponsored program works with schools to place about 200 hatchlings per year in classrooms from fall through spring, where students care for them, study their behavior and their natural history, and record their growth. The terrapins are returned to Poplar Island at the end of the school year. More than 3,000 terrapins have been head started by Maryland students since 2005, and more than 930 classes have released head started terrapins on Poplar Island field trips. Some current hatchlings are the offspring of terrapins that were head started in the program's early years. In one instance, a hatchling was assigned to the same classroom where its parents were head started.

TERP's main goal is to inspire the next generation of Bay stewards, and over 69,000 students have participated in classroom outreach programs and field experiences over the life of the program. TERP engages students from diverse backgrounds and earns loyalty from participating teachers. In celebration of the 20th anniversary of the program, this year, a new recognition program honored teachers with three, five, or 10 or more years of involvement in the program, as well as with longstanding partners: the National Aquarium (Baltimore City and Baltimore County Schools), Arlington Echo Outdoor Education Center (Anne Arundel County Public Schools), CHESPAX (Calvert County Public Schools), William S. Schmidt Center (Prince George's County Public Schools), and Maryland Environmental Service (Various Eastern Shore County Schools).



» TERP Inspires Students and Teachers

22 teachers have been part of the TERP program for 10 years or more

Creating Career Opportunities Through Workforce Development

» Baltimore Port Alliance (BPA)

With support from MPA and industry professionals, BPA hosted its sixth Hiring and Career Expo, bringing together 34 employers and more than 300 job-seekers, the largest expo to date. The event also matched five support organizations with workers impacted by the Port closure. In exit surveys, 75% of job seekers said they learned about opportunities for which they will apply, 78% of employers said they intend to interview or make offers to candidates they met, and 100% of exhibitors said they would attend a similar event again.

» Maritime Educator Externship

Community College of Baltimore County hosted its annual Maritime Educator Externship on July 8-12 in collaboration with BPA. The week-long program taught nine local secondary teachers, career coaches, guidance counselors, and administrators about maritime and logistics career pathways. Participants toured terminals at the Port of Baltimore, including the Dundalk and the Seagirt Marine Terminals, C. Steinweg, Masonville DMCF, and the ship simulators at the Maritime Institute of Technology and Graduate Studies. They also strategized how best to transmit this information to students at their schools.

» Career Conversations

As part of an ongoing Career Conversations lecture series for youth and young adults offered by the Ministers Conference Empowerment Center, MPA provided speakers to share information on career opportunities in the maritime and transportation industries. Part of the “Cradles to Careers Pipeline,” this series focuses on mentorship, skill development, networking, and equipping participants with tools to navigate the complexities of the modern job market and achieve success.

» Linking HBCU Students to Conservation Careers

For four college interns from local HBCUs, the Masonville Cove Links WildSTEM summer internship was “a very enriching and powerful statement on the need for more environmental awareness, integration in life and justice,” in the words of intern Irvin Bonsu. Now in its second year, the program provides interns with exposure to conservation career paths, practical experience, and a pathway for future conservation careers and leadership opportunities. Participants came from Bowie State University, Coppin State University, and Morgan State University. The program is affiliated with The Links, Inc., an international volunteer service organization of more than 16,000 professional women of color, and funded by Brown Advisory, the Keith Campbell Foundation and Mr. Truman Semans.

Interns from 2023 and 2024 with majors in business, architecture, and environmental planning have taken part in designing a nature play area for the Masonville Cove campus, inspired by the nature playground at Lillie May Carroll Jackson Charter School. The interns’ design is being reviewed by Masonville Cove stakeholders and will be funded by the Brown Advisory, with installation taking place as early as December. Bonsu and other interns thanked MPA, National Aquarium, Living Classrooms Foundation, and USFWS for partnering in the program. On September 14 at Urban Wildlife Conservation Day, partners and students were presented with Governor’s Citations to recognize their experience and contributions.

► Our Vision for 2025

As MPA navigates toward tomorrow, the wisdom of DMMP's ongoing investments in innovation and collaboration is clear. By supporting strategic improvements in the Port's capacity, DMMP's work enhances the state's economy to the benefit of all Marylanders. Its work in IRBU and its commitment to science-based environmental stewardship benefit all the state's living resources. While pursuing its mission to increase waterborne commerce and advance key projects, initiatives and studies, MPA will continue to work closely with its partners and stakeholders and emphasize strong sustainability practices and goals in 2025 and beyond.

Looking to the future, we offer the following recommendations to support the Port of Baltimore in achieving the successes that will bring economic, environmental, and social benefits to Maryland, the region, and our nation.

» Funding & Policy Recommendations

1. Engage federal, state, and local elected officials, the American Association of Port Authorities, and other federal and state partners to ensure favorable legislation and sufficient funding for priority Dredged Material Management Program (DMMP) projects, the U.S. Army Corps of Engineers (USACE) navigation program, and projects that benefit and favorably position the Port of Baltimore in new legislation related to resilience and climate change.
2. Seek partnerships and available funding for DMMP-related greenhouse gas emissions reduction projects at the state and federal levels to meet the state's target of 60% reduction by 2031 and net zero by 2045.
3. Leverage partnerships with stakeholders and related collaborative efforts to facilitate legislation and funding. Examples of this work include engaging with the Maryland Commission on Climate Change and partnering with the Maryland Department of Natural Resources on existing sediment management planning. These efforts will help the DMMP and the Port address sustainability, climate change, and resiliency planning.

» Planning & Operations Recommendations

1. Conduct capacity and dredging demand planning beyond a 20-year timeframe to support long-term sustainable dredged material management options. Continue planning, design, and construction for future expansions at Masonville and Cox Creek dredged material containment facilities (DMCF) and mitigate associated environmental impacts while achieving capacity recovery through the 2020 Innovative Reuse & Beneficial Use Strategy.
2. Engage USACE, the Commonwealth of Virginia, resource agencies, and other stakeholders to refine the list of suitable, cost-effective dredged material placement options for the Virginia Channels, including beneficial use opportunities.
3. Continue to remediate the Cox Creek Sediment Technology and Reuse (STAR) Facility and prepare the site, and issue a Request for Information to implement long-term, large-scale Innovative Reuse and capacity recovery efforts.
4. Collaborate closely with sister state agencies and the Hart-Miller Island Citizens Oversight Committee as future uses of the island are considered.

5. Incorporate the potential impacts of climate change and facilitate using nature-based and climate-resilient solutions into long-term DMMP project planning, DMCF design and operations, and related project delivery. Concurrently, leverage the best science available to quantify carbon sequestration benefits from the beneficial use of dredged material.
6. Activate the Bay Enhancement Working Group to review and identify information needed to consider Beneficial Use of dredged material in Baltimore Harbor, resulting in more transparent and predictable guidance for potential Beneficial Use projects.
7. Ensure that planning, design, construction, and operational efforts related to DMMP infrastructure and restoration projects strive to leverage adaptive management, minimize environmental impacts, consider the equitable distribution of benefits, and ensure that vulnerable communities do not disproportionately bear associated adverse impacts.

» Outreach & Education Recommendations

1. Identify diverse community engagement opportunities in order to recruit members for all DMMP committees that reflect the diversity of the communities adjacent to and impacted by the Port of Baltimore and maintain transparency in DMMP decision-making processes.
2. Prioritize environmental justice by working closely with affected communities and stakeholders to develop and implement strategies that promote fairness and equity in the DMMP to pursue outcomes that equitably benefit all Marylanders.
3. Implement the comprehensive outreach and engagement strategy developed to focus on Confined Aquatic Disposal (CAD) in Baltimore Harbor and the importance of investigating emerging dredged material management approaches. This includes the initiation of the Bay Enhancement Work Group CAD Subcommittee focused on further evaluating the concept of CAD.
4. Collaborate with established programs for youth to increase access to DMMP sites and encourage the implementation of their creative ideas and assets as pathways to thriving career opportunities, including those in science, technology, engineering, math, and maritime-related industries.

DMMP ANNUAL REPORT GLOSSARY OF ACRONYMS

Acronym	Definition
BPA	Baltimore Port Alliance
BPW	Board of Public Works
BSA	Boy Scouts of America
BU	Beneficial Use
BEWG	Bay Enhancement Working Group
CAD	Confined Aquatic Disposal
COC	Citizens Oversight Committee
cy	cubic yards
DMCF	Dredged Material Containment Facility
DMMP	Dredged Material Management Program
DNR	Department of Natural Resources
EPA	Environmental Protection Agency
FLAP	Federal Lands Access Program
GHG	Greenhouse Gas
HBCU	Historically Black College and University
HMI	Hart-Miller Island
IR	Innovative Reuse
IRBU	Innovative Reuse Beneficial Use
MAEOE	Maryland Association for Environmental and Outdoor Education
MCC	Masonville Cove Connector
MCP	Masonville Cove Partnership
mcy	million cubic yards
MDE	Maryland Department of the Environment
MES	Maryland Environmental Services
Mid-Bay Project	Mid-Chesapeake Bay Island Ecosystem Restoration Project

Acronym	Definition
MPA	Maryland Port Administration
NIS	Navigation, Innovation, and Stewardship
NOAA	National Oceanic and Atmospheric Administration
PED	Pre-construction, Engineering, and Design
Poplar Island	Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island
Port	Port of Baltimore
R&D	Research and Development
RFI	Request for Information
RFP	Request for Proposal
SCM	Supplementary Cementitious Material
SFY	State Fiscal Year
STAR	Sediment Technology and Reuse
TAYR	Templo de Alabanza y Restauración
TERP	Terrapin Education and Research Partnership
TEU	Twenty-foot Equivalent Units
TPA	Tradeport Atlantic
UMCES	University of Maryland Center for Environmental Science
USACE	United States Army Corps of Engineers
USC	University of Southern California
USFWS	United States Fish and Wildlife Service
VA BEWG	Virginia Bay Enhancement Working Group
WILD	Watershed Investments for Landscape Defense
WOCO	Women of Color Outdoors
WRDA	Water Resources Development Act



**DREDGED
MATERIAL
MANAGEMENT
PROGRAM**