



2016

Annual Report to the Dredged Material Management Program (DMMP) Executive Committee

Implementation of the Dredged Material Management Act of 2001

Activities and Recommendations

PREPARED BY THE DMMP MANAGEMENT COMMITTEE

Approved by the Management Committee November 14, 2016

Executive Summary

This Annual Report presents an overview of the accomplishments of Maryland's Dredged Material Management Program (DMMP) during 2016 and provides recommendations for 2017. It is organized by the key topics areas that the Maryland Department of Transportation's Port Administration (MPA) believes are fundamental to the ongoing success of the program.

Capacity, Authority, and Funding:

Timely development of additional dredged material management options continues to be crucial to maintain the Port of Baltimore's marine highway/navigation channels. MPA has a 20-year plan for dredged material management, but some planned projects face property acquisition, funding, permitting, or other impediments to implementation. Innovative reuse is moving toward the desired one-third of annual Harbor dredged material management capacity.

Capacity for the main Chesapeake Bay channels relies on Poplar Island and its Expansion as well as construction of the Mid-Chesapeake Bay Island project. These projects face stiff competition for federal funding in the face of many new project authorizations that were included in the federal Water Resources Reform and Development Act (WRRDA) of 2014, federal budget reductions, and changing federal budget priorities.

MPA continues to reach out directly to key leadership at the U.S. Army Corps of Engineers (Corps) and the federal Office of Management and Budget (OMB), and is working diligently through the American Association of Port Authorities (AAPA) as the Corps transforms its budget strategy for prioritizing federal investments in new navigation infrastructure, revises existing or develops new performance measures to prioritize funding for maintenance dredging, and develops new WRRDA 2014 implementation guidance. A Water Resources Development Act is scheduled to go to conference in 2016 and MPA is carefully monitoring progress as certain provisions may be beneficial to the Port of Baltimore.

Program Management: MPA is working closely with the Corps' Baltimore District office as that District updates its twenty year Dredged Material Management Plan. This plan will act as a roadmap for timely and quality project delivery for the Port of Baltimore for the next 20 years. The updated plan aligns well with MPA's 20 year DMMP plan. The final report is due by the end of 2016.

In 2016, MPA continued to investigate strategies to achieve the nutrient reductions that will be required by discharge permits for its placement sites in order to meet the federally mandated nutrient Total Maximum Daily Load (TMDL) for the Chesapeake Bay and its tributaries.

Innovative and Beneficial Use: The strategy updated in 2014 maintains the long term goal of recycling at least 500,000 cubic yards (cy) of dredged material annually. Short term goals include implementation of projects using small to medium quantities of dredged material and examination of regulatory requirements to streamline permitting processes. An inter-agency workgroup was formed in 2015 and submitted its recommendations to the Executive Committee in 2016. Work is underway to implement those recommendations, and it is expected that

technical screening criteria, a technical guidance document, and new outreach tools will be ready in 2017.

Stakeholder Engagement: Public outreach continues to be a critical component of the overall DMMP success story. Efforts in 2016 focused on expansion of the Cox Creek Dredged Material Containment Facility (DMCF) and reopening of the Pearce Creek DMCF. MPA has continued to strengthen the overall outreach program to provide the public with a deeper understanding of the issues, encourage contributions of new ideas, and engage new stakeholders. During 2016, MPA engaged directly with various DMMP stakeholder committees to delve further into key issues to gain a better awareness of stakeholders' views and opinions.

Baltimore Harbor Projects: MPA worked with the Department of Natural Resources (DNR) and the Hart-Miller Island (HMI) Citizen's Oversight Committee (COC) to develop the HMI long term management plan and to open the south cell for public use in 2016. The Cox Creek and Masonville DMCFs are the only options currently available for placement of Harbor dredged material and both received inflow in 2016. MPA has commenced work on expanding the Cox Creek DMCF on MPA-owned uplands adjacent to the existing DMCF by demolishing the structures on the upland portion of the site, and is also exploring acquisition of the adjacent Cristal USA site. MPA continued remediation and habitat restoration in Masonville Cove. MPA and Baltimore City are collaborating on trash interceptor mitigation projects. MPA remains interested in Coke Point as a potential location for a DMCF. MPA began implementation of the Confined Aquatic Disposal (CAD) pilot project in fall 2016.

Chesapeake Bay Channels and Placement Sites: Significantly increased federal funding in federal fiscal years 2017 and 2018 will be required for the Poplar Island Expansion project. In 2016, MDE issued the Water Quality Certification (WQC) and the Maryland Board of Public Works approved the Tidal Wetlands License for the project. The Corps of Engineers awarded three construction contracts for this project in 2016. Placement needs beyond those met by Poplar Island Expansion will be addressed by longer-range plans for the Mid-Chesapeake Bay Islands project.

Upland Sites - Chesapeake and Delaware (C&D) Canal: MPA and the Corps' Philadelphia District are collaborating on reopening the Pearce Creek DMCF for placement of material dredged from the approach channels to the C&D Canal. The District is installing an impermeable liner with the goal of having the DMCF ready to accept dredged material during the 2017 dredging cycle. MPA is funding a new water supply system to communities near the DMCF. This system is scheduled to be operational in 2018. The Pearce Creek Implementation Committee was formed in 2015 with representation from citizens and government agencies and is meeting every two months in Cecilton. A project website was created and has been enthusiastically received by local residents.

Contingency Plan – Ocean Placement: Ocean placement of Bay sediments in an existing ocean site is an alternative that is included in the Maryland DMMP as a contingency option if other placement options are not available. The U.S. Environmental Protection Agency (EPA) concurred with the ocean placement option for each of the Upper Bay Channels for the period 2014 to 2017. This concurrence will expire on October 2, 2017. Prior to use of this option, the

Corps would be required to complete an Environmental Assessment and provide public notice to Maryland and Virginia.

Projected New Work Dredging: Several significant projects will require new work (i.e., not maintenance) dredging in the future. These include completion of the Baltimore Harbor and Channels 50-foot Project to its Congressionally authorized widths within the Chesapeake Bay, as well as possible dredging for expansion of existing private terminals and potential future public and private marine terminals. New work projects will increase the need for additional placement capacity.

In Memoriam: The Management Committee honors the memory of Mrs. Helen Delich Bentley, the Port's namesake and a faithful and diligent advocate of the safe passage of cargo through the Port of Baltimore. With significant prescience, Mrs. Bentley acted to obtain Congressional authorization of the Port of Baltimore's 50-foot channel in 1970, well in advance of other East Coast ports. In recent years, she successfully advocated for additional federal funds to expand Poplar Island. She left a lasting mark on the Dredged Material Management Program and the Committee posthumously expresses its gratitude for her contributions.

Recommendations for 2017

- Begin implementation of the HMI North Cell Habitat Development Plan.
- Work with the federal government to support sufficient funding and beneficial policies for the Corps' dredging program serving the Port of Baltimore, emphasizing the necessary funding increase needed for the Poplar Island Expansion and Mid-Bay site design. Engage in continued coordination efforts with the Corps at the District, Region, and Headquarters levels, the Assistant Secretary of the Army for Civil Works, and the OMB on dredging and dredged material management funding requirements and planning to meet the current and long-term needs of the Port of Baltimore.
- Work with the Corps, directly and through AAPA, to ensure that the Corps' implementation of WRRDA 2014 and WRDA 2016, if passed, is in line with Maryland's understanding of the intent of the law.
- Work closely with the Corps' Baltimore and Philadelphia Districts in finalizing their updated Dredged Material Management Plan to ensure their complete understanding of the Port of Baltimore's expected business growth and development and the timeframe within State DMMP plans, so that the plans and schedules are fully coordinated and available funding is optimized.
- As MPA continues to develop its DMMP, focus on planning beyond the 20 year time frame, including identification of refined data and updated information needed to inform and support long term sustainable dredged material management options.

- Continue to review and evaluate the 2011 Harbor Team recommendations (See Appendix 5) and advance where feasible. Based on additional studies and more recent stakeholder feedback, the recommendations to be pursued in 2017 include:
 - Implement the Cox Creek Expanded (CCE) Project on MPA owned property (Stage 1 Expansion).
 - Pursue acquisition of the Cristal USA property for CCE Stage 2.
 - Compile and report on the monitoring analysis of the Confined Aquatic Disposal (CAD) Pilot Project.
- Advance innovative and beneficial use by continuing the work of the Regulatory Work Group, and planning for implementation of one or two small scale demonstration projects on Maryland Department of Transportation (MDOT)/MPA property or with external partners where practical.
- Maintain the schedule for the re-opening of the Pearce Creek DMCF, currently expected during the Fall/Winter of 2017, and the installation of a new drinking water supply system for nearby residents, currently expected by the end of March 2018.
- Sustain the public's engagement, understanding, and support of the Maryland's DMMP through strategic outreach to the communities, government agencies, non-government organizations, businesses, and schools in the vicinity of project sites. Incorporate stakeholder feedback and input into the DMMP planning process. Continue to build upon existing partnerships, and develop new partnerships, with DMMP stakeholders. Grow awareness of and support for the dredging program, especially with younger audiences, through increased use of social media.
- Continue development of a comprehensive water quality management strategy for all DMCFs that will focus on compliance obligations, TMDL implementation and maximizing dredged material placement capacity.

2016 Annual Report Narrative

Maryland's Dredged Material Management Program is a rolling twenty-year plan outlining the management of the State's dredging requirements: the need to regularly remove sediment from the Port of Baltimore's shipping channels and for adequate placement capacity of dredged material or alternative management solutions, such as reuse. Because of the 20-year timeframe of the DMMP, the complexity of the program, and need for coordination with multiple parties, changes generally occur incrementally and the program is adjusted as necessary. This report is provided annually by the Management Committee to inform the Executive Committee of the year's accomplishments as well as to highlight future challenges and opportunities for the DMMP with specific recommendations for the coming year. Memberships of the Management Committee and the Executive Committee are shown in Appendices 2 and 3, respectively.

Maintaining the shipping channels is critical to the continued success of the Port of Baltimore. Approximately 4.34 million cubic yards (mcy) of sediment must be dredged annually to maintain federal channels and anchorages at their authorized depths and widths to ensure reliable navigation for vessels transiting the Port of Baltimore. MPA and private sector partners dredge another 0.8 mcy annually for maintenance, new work, and expansion projects, and federal new work projects are estimated at 0.1 mcy of material per year. Altogether, MPA, private sector, and federal maintenance dredging, new work dredging, and expansion dredging needs are estimated at 5.24 mcy per year, a total of about 105 mcy over a 20-year planning horizon. All dredged material must be placed in approved placement sites or innovatively/beneficially used.

MPA's public-private partnership agreement with Ports America Chesapeake has positioned the Port of Baltimore to attract the potential cargo growth associated with the Panama Canal expansion. It is critical that the Port of Baltimore have sufficient dredged material placement capacity to support maintenance of its 50-foot channel in terms of both depth and width in order to capitalize on that anticipated growth and to maintain existing business.

MPA is fortunate to have an active, engaged constituency of DMMP advisory committees and stakeholders that are integral to the State's DMMP. These include private sector businesses, citizens, academia, government agencies, elected officials, and non-government organizations.

The Port of Baltimore generates about 13,650 direct jobs and about 127,600 jobs are linked to Port activities. This represents \$2.9 billion in salaries and \$2.2 billion in business revenues. Among U.S. Ports, Baltimore ranks 9th for the total value of foreign cargo and 13th for foreign cargo tonnage (2015, the most recent data available).

I. KEY ISSUES

This report of the Management Committee provides updated information on 2016 DMMP activities. In reviewing the year's work, it is clear that several major items remain critical to the success of the DMMP and should be brought to the attention of the Executive Committee for the

purpose of planning strategically for the year ahead. This section highlights these significant issues.

A. Capacity

Maritime dredging is driven by the needs and schedules of the Port's public and private sectors and local governments throughout the entire Harbor and Chesapeake Bay channel system. Maintaining capacity for placement of dredged material from both Harbor and Bay channels continues to be a significant challenge to the Maryland DMMP. Harbor material that was previously placed in the 1,140 acre HMI DMCF is now placed in two DMCFs that are each about 100 acres in size. The smaller sizes of the sites mean that they have limitations on annual placement capacities that MPA has not previously experienced. Additionally, both Harbor sites have nutrient discharge limits that HMI did not have; which present challenges with water management. The issuance of an overlay discharge permit for these sites provides some relief in managing water, and thus capacity in these DMCFs, but the overall decreased available area for dredged material placement remains a significant challenge for the DMMP.

Due to the smaller surface areas and the new permit discharge limits, the Harbor sites do not allow for dewatering and consolidation operations in the same way that MPA experienced with HMI. In order to allow for dewatering of the site, drying and consolidation (known as crust management), is essential. It is anticipated that as these sites begin to approach full capacity there may be years when no material can be placed in them at all. Getting the last portions of capacity from these sites will be spread out over longer periods of time, ultimately making the final placement dates difficult to predict. This explains and highlights the need for additional capacity and/or alternative management options so that MPA can continue to receive dredged material at the Harbor DMCFs. MPA and the Maryland Environmental Service (MES) have been actively managing the water in the Cox Creek DMCF to identify best management practices to reduce water retention and increase capacity recovery, and they continue to pursue methods to increase available capacity at the sites.

In addition to the annual maintenance dredging quantities, new work dredging projects are also expected in the foreseeable future. These projects will stretch the limits of the small Harbor sites even more than routine maintenance projects. In response to MPA interest, the Corps' Baltimore District initiated a study looking at potentially widening the 50-foot channels to their currently authorized widths. This study is expected to be completed in 2017. The study has progressed far enough to determine that the Harbor channels (west of the North Point-Rock Point line) will not be widened. Generally, in the lower Bay, channel widths would increase from 800 feet to 1,000 feet, and in the upper Bay main channel widths would increase from 700 feet to 800 feet. Projects such as this will accelerate the timeframe in which additional placement capacity is needed for the Bay dredged material.

Expansion of Cox Creek, currently underway, is the primary current option for increasing capacity to ensure placement for future dredging activities in the Harbor. More capacity will still be necessary in the future, and sites that are best suited for creation of new DMCFs are scarce. In addition, it is important that existing and expanded sites are operated in the most efficient manner to ensure optimal capacity.

Innovative reuse options are still in the planning stage and, if feasible, will likely be developed incrementally over time to achieve the goal of providing one third of the annual capacity needed for Harbor material.

The overall strategy to accommodate the maintenance and new work dredging for the next 20 years is charted in Appendix 4 for annual approval by the Executive Committee so that options can be developed and made operational as needed.

***Challenge:** Although the DMMP identifies projects with sufficient capacity for 20 years out, property acquisition, construction funding, and permitting pose significant challenges to timely and successful implementation of those projects within the planning horizon.*

B. Budget Priorities and Funding

Budget cuts, federal law, and policy issues continue to impact the availability of State and federal funds for maintenance and new work dredging and for existing and future placement capacity. One or more of these issues affects every activity of the DMMP.

Constrained federal budgets coupled with a significant navigation back-log nationally are resulting in fewer funds for important dredging projects, studies, construction of environmental improvements, and containment projects across the nation. While WRRDA 2014 and the proposed WRDA 2016 include many beneficial provisions, additional project authorizations have significantly increased the demand on the Corps' construction budget. Due to limited availability of federal funds, some ports are choosing to provide funding through "advanced funds" agreements for the federal portion of a project using a combination of state and local funding in lieu of waiting for federal funding through Congressional appropriations. Advanced funds arrangements involve the non-Federal sponsor paying for all or part of the Federal share of the work to be performed, with the potential, although no guarantee, for repayment or credit.

MPA has expressed concerns to the Corps about some of the methods that may be employed in the Corps' proposals for performance based decision making for funding of dredging projects. The Port of Baltimore and its partners are committed to working cooperatively with the Corps on all policies and procedures to ensure the continued sustainability of safe and reliable navigation channels.

MPA notes that a conference committee of the U.S. Congress is scheduled to meet on WRDA 2016, which, if passed, may include provisions beneficial to the Port of Baltimore.

***Challenge:** MPA will need to continue to monitor the Corps of Engineers' budget very closely to identify any problem areas that could adversely affect vital maintenance and new work projects for the Port's navigation infrastructure. The Port of Baltimore must continue its enhanced advocacy for reasonable and fair consideration in the application of federal budgeting strategies.*

II. PROGRAM MANAGEMENT

The State of Maryland DMMP was created in recognition of the importance of the long range planning and collaboration necessary to keep the dredging program on course and the maritime industry flourishing in the State of Maryland. A committee hierarchy (see Appendix 1) was developed to ensure the success of this complex process. Committee members represent various federal and State agencies, port-related businesses, academia, and environmental and citizen groups. The broad based committee structure works cooperatively to study, evaluate, and proactively plan to ensure that dredging needs and dredged material management options for today and the future will be met.

A. The Corps' Dredged Material Management Plan

Maryland's DMMP and the Corps' Dredged Material Management Plan co-exist and are mutually supportive. Collaborative efforts have greatly helped in the development and implementation of both plans. During 2016, the Corps continued updating its Dredged Material Management Plan. The Corps is scheduled to finalize the updated Dredged Material Management Plan by the end of 2016. It will be essential to maintain strong communication and information sharing between the State and the Corps as well as with DMMP stakeholders throughout the federal revision and updating process so that projections for dredging needs and dredged material placement capacity can be accurately tied to forecasted Maryland business growth and customer needs. Such cooperation can result in mutual efficiencies and success.

The Management Committee believes that the structure and operation of the State's DMMP as a collaborative and transparent process with the Port's stakeholders has been successful and should be maintained and enhanced as necessary in 2017 and beyond.

***Challenge:** The State and the Corps must continue to work cooperatively in Maryland's DMMP activities as well as in the development of the Corps' updated Dredged Material Management Plan to ensure timely information sharing, resolution of issues, development of innovative ideas and approaches, and identification of mutually beneficial outcomes.*

B. Achieving New Bay Restoration Goals

The development of TMDL requirements for the Bay and its tributaries by the EPA will increase the operational and budgetary needs of MPA and Corps facilities in 2016 and beyond. In 2010, Bay watershed states and the EPA began the process of establishing Watershed Implementation Plans (WIPs) to achieve the target levels for nutrient (nitrogen and phosphorus) and sediment contaminants documented in the recently completed Chesapeake Bay TMDL. Port and dredging facilities have been assigned target load reductions through WIPs that were finalized in early 2012. All pollutant sources are being considered in the WIPs, so in addition to the direct discharges from the placement facilities, storm water loadings from existing marine terminals will have to be reduced or have their loads offset. Additional TMDLs for polychlorinated biphenyls (PCBs), metals, and trash have been developed or are in development. In 2014, MPA's TMDL Work Group finalized a report detailing concepts to achieve the coming reductions that will be required by discharge permits and the need for additional data collection. In 2016, MPA continued evaluating the nutrient reduction concepts identified in the

2014 report, by conducting re-circulation and mass balance studies and a pilot test of an algal turf scrubber system at the Cox Creek DMCF.

***Challenge:** Current and future TMDLs have the potential for requiring additional monitoring, treatment, and/or offset purchases and will need to be considered in setting budgets into the future.*

III. INNOVATIVE AND BENEFICIAL USE

Implementation of the 2014 Revised Innovative and Beneficial Use Strategy remains an important focus for the MPA. Several of the Strategy's action items are currently underway and, due to strong coordination and collaboration with key partners and stakeholders, opportunities for innovative reuse demonstration projects are advancing.

Since July 2015 the MPA has led an interagency regulatory workgroup with the goal of recommending policy changes that will help facilitate a clear and streamlined framework for successful innovative reuse projects in Maryland. In June 2016 the DMMP Executive Committee approved the Workgroup's Report and Recommendations. Moving forward, the Workgroup will continue to meet regularly and provide opportunities for public and stakeholder input as the Recommendations are put into effect. Specifically, the Workgroup's five recommendations included:

1. By spring of 2017, a technical screening criteria and guidance document should be developed and submitted to MDE for approval. The technical standards should be protective of human health and the environment and address the appropriateness of dredged material, including material from Harbor shipping channels, for various beneficial and innovative end uses.
2. Consideration should be given to accommodating innovative and beneficial use applications through existing MDE approvals such as National Pollution Discharge Elimination System (NPDES) permits or Water Quality Certifications.
3. The Governor should consider issuing an Executive Order, or other mechanism, as appropriate, encouraging State agencies to use dredged material in State projects, where economically reasonable and consistent with technical criteria approved by MDE, including but not limited to: transportation; climate change adaptation; and publicly-funded site remediation projects.
4. MPA should build upon existing outreach and education efforts to encourage public support for appropriate beneficial and innovative uses of dredged material and to encourage the private sector to pursue business opportunities related to appropriate reuse of dredged material.
5. After development of the technical criteria and guidance, the Innovative and Beneficial Reuse Work Group will make recommendation(s) as to whether or not the General Assembly should be asked to pass legislation amending the Environment Article to explicitly state that dredged material from the Bay and its tributaries may be reused, providing that the use is consistent with State and federal law and any rule or regulation adopted by MDE.

Work is well under way on additional sampling and testing of dredged material from the Cox Creek DMCF in order to inform the development of technical screening criteria that will ensure the protection of human health and the environment for any end use of the sediment. The State Highway Administration (SHA) is playing an important role in the analysis of screening standards and requirements needed for the material to be used in manufactured topsoil or engineered fill that would then be utilized in an SHA or SHA-related project. By the spring of 2017, technical screening criteria and a guidance document and several key marketing materials, including a fact sheet, a video, a marketing tag line, and graphics, explaining dredging and appropriate reuses of dredged material will be available.

An economic valuation analysis will be completed by the end of 2016 to assess the economic value of regained placement capacity. The DMMP Committees will be briefed on this analysis beginning in early 2017.

***Challenge:** Ongoing prioritization, coordination, and communication with multiple parties on numerous concurrent issues ranging from technical characteristics and regulatory frameworks to public outreach and acceptance.*

IV. STAKEHOLDER ENGAGEMENT

A. Community Outreach

Stakeholder understanding of and commitment to the DMMP is crucial to its success. The MPA continues its efforts to increase its visibility and the public's knowledge of the Port of Baltimore, its operations and projects, and their importance to the State of Maryland. MPA works continuously to improve collaboration, inclusiveness, and transparency with its partners, as well as to improve outreach, Port education, communications, and visibility of Port programs. MPA has increased its use and promotion of social media and is now making efforts to build followers and subscribers to the GreenPort eNewsletter.

In 2016 more than 18,000 people had the opportunity to learn about the Port of Baltimore by visiting DMCFs and participating in off-site events, such as community events, meetings, conferences, and educational programs. This included many new stakeholders participating in tours of DMCFs.

The MPA continued its work with Northern Anne Arundel County community organizations in the vicinity of the Cox Creek DMCF to expand awareness about Port activities and to develop closer ties with community leaders in that area. The Cox Creek Citizens Oversight Committee (COC) members continue to learn about the Port of Baltimore, the dredging program, and expansion plans at Cox Creek, and provide valuable feedback on the project. Legislatively, the oversight committee was expanded to include two additional organizations: Restore Rock Creek and the South Baltimore Business Alliance. These groups officially became active on the committee in 2016. Other community organizations have been encouraged to attend the oversight committee meetings.

The Pearce Creek Implementation Committee provides a valuable means of engaging with the surrounding communities during the construction of the new water system and the reactivation of the Pearce Creek DMCF. The committee brings together MPA, the Corps, Cecil County, Cecilton and the leadership of the communities surrounding the Pearce Creek site for bi-monthly updates about project progress.

MPA's commitment to community, education, and the environment continues to be demonstrated at the Masonville site where community members can visit the Masonville Cove campus and participate in programs hosted by the Living Classrooms Foundation and the National Aquarium. The Urban Wildlife Refuge Partnership, with assistance from the U.S. Fish and Wildlife Service, has provided expanded opportunities for environmental stewardship through internships, wildlife management, and funding. With funding awarded from the National Fish and Wildlife Foundation, Living Classrooms worked in partnership with the Hispanic Access Foundation and other partners at Masonville Cove to connect with Baltimore City church leaders and engage the local Hispanic church congregations in education and conservation activities centered on urban watershed issues and the monarch butterfly and its habitat. MPA is actively supporting the Masonville Cove stakeholders as they explore partnership opportunities with other state and federal agencies that can help support the Masonville Cove Environmental Education Center campus and programs.

Tours at Maryland's dredged material placement sites have proven to be excellent teaching tools for both school students and adults. Meaningful field experiences at Hart-Miller Island, Masonville Cove, Poplar Island, and Swan Creek (at Cox Creek) help students meet environmental literacy graduation requirements. Through hands-on field activities, teachers and students discover how MPA plays a crucial role in habitat restoration.

MPA coordinated with the Baltimore Port Alliance to organize its first workforce education workshop on the Port's future workforce needs. Additionally, educators and industry job trainers received a firsthand look at the importance and scope of the Port of Baltimore through the annual week-long summer externship organized by the Baltimore Port Alliance Education and Outreach Committee, working collaboratively with Anne Arundel Community College and the Southeast Maritime and Transportation Center (SMART) of Norfolk, VA. Eighteen participants from the Baltimore and Norfolk regions spent time with 18 maritime professionals, learned about careers in and training pathways to the maritime industry, toured the vast Port infrastructure and witnessed the coordination needed to deliver cargo between ports.

B. MPA and Corps Collaboration

Given the continued significant challenges facing the State's DMMP and Corps' Dredged Material Management Plan, the Management Committee continues to encourage regular executive level strategy meetings between MPA and the Corps.

Shortfalls in the Corps' dredging budgets are affecting channel reliability at a critical time as larger and wider vessels with drafts up to 50 feet are calling on the Port of Baltimore more frequently. Full availability of authorized channel depths and widths is critical to safe navigation. The larger the vessel, the smaller margin there is for navigational error. Groundings could have significant adverse effects on the business of the Port and the ecology of the Bay and

those who use it. This situation requires close coordination and collaboration among MPA, the Corps, and the Association of Maryland Pilots to minimize negative impacts on navigation and avoid unsafe conditions on our marine highway. Throughout 2016, MPA continued to employ a coordinated outreach strategy to all levels of the Corps including quarterly meetings with the Baltimore and Philadelphia Districts and the North Atlantic Division. MPA also meets annually with Corps headquarters, the Assistant Secretary of the Army for Civil Works, and the OMB. The purpose of these meetings is to maintain relationships and updated communication with all levels of decision makers within the Corps and the agencies responsible for federal budget recommendations. Additionally, working through AAPA, MPA continues to be heavily engaged with the Corps as it develops its budget transformation strategy, a national initiative intended to adjust navigational needs to available dollars, and its implementation of WRRDA 2014. These lines of communication are important to establishing a greater understanding of the Port of Baltimore's business plans, local, regional and national economic impacts, and expectations for growth that drive the needs of the DMMP.

In 2016, MPA also received \$2.5 million in federal Energy Transfer Ports funds as allocated through Section 2106 of WRRDA 2014. These funds may be used for several dredging and dredged material management purposes that improve access to the federal navigation channels. MPA has identified several potential projects that the funds can be used to implement, and the project(s) selected for implementation will be determined in 2017.

***Challenge:** With ever increasing constraints on federal funds and new federal agency procedures and policies, coordination among MPA, the Corps, Port customers, stakeholders, and the Pilots must be further strengthened. In addition, the MPA must continue to communicate with all levels of decision makers within the Corps at the District, Division, and Headquarters levels as well as with the agencies responsible for federal budget recommendations.*

V. BALTIMORE HARBOR PROJECTS

A. Hart-Miller Island

The South Cell of HMI opened for public access in May 2016, with an official opening ceremony held in June 2016. Under an interagency agreement among MPA, DNR, and MES, the success of the South Cell public access will be evaluated over a five year period to document visitor usage, need for future amenities, and identification of opportunities for local partnerships to implement environmental education programming. The agencies will continue to work with the HMI Citizen's Oversight Committee on the implementation of the agreement. There have been approximately 1,418 visitors to HMI in 2016.

MES, the University of Maryland Center for Environmental Science, and others have been working with MPA to resolve the issue of how to manage over 600 million gallons of water in the North Cell. The pond now holds less than 30 million gallons. In previous years, discharges have been limited due to low pH values. MES has provided a Master Plan of HMI existing features that will need to be developed, enhanced, or removed for the development plan. MES is also working with technical experts to develop a hydraulic model that analyzes the island's

storm water holding capacity as it relates to habitat goals. Initiation of activities under Phase II of the Master Plan in 2016 included geotechnical investigations and analysis and design start for features identified in the Phase I Master Plan

B. Cox Creek

During the 2015/2016 (October 1, 2015 – March 31, 2016) dredging cycle, 468,247 cy of dredged material from the Fort McHenry and Seagirt channels was placed in the Cox Creek DMCF.

As of this time, Cox Creek remains the likely location for a potential Innovative Reuse facility.

C. Masonville

In the 2015/2016 dredging cycle, approximately 48,418 cy of dredged material was placed in the Masonville DMCF.

Remediation and habitat restoration continued in Masonville Cove. Planting of 14.5 acres of trees should be completed in 2016-2017 in the Masonville Cove. These trees will be used as an offset for the nutrient TMDL requirement for the impervious surfaces at the terminals. Work included clearing invasive vegetation, hauling soil, and capping. Fine-tuning of plantings in Access Zone 1 and the fringe wetland continued. Grading and planting activities continued in Access Zone 2. Capping activities continued in Access Zone 3, and planting is expected to occur there in the spring of 2017.

In 2014, MPA coordinated with DNR to construct an eel passage mitigation project at Daniels Dam; 2016 saw continued increases in utilization of the passage by eels and other wildlife. Another mitigation project in partnership with DNR, shad and herring stocking, completed its fourth year in 2016.

MPA continues to coordinate with several partners on the development of water quality improvement projects as part of the mitigation package for the Masonville DMCF.

D. Coke Point

The Harbor Team recommended Coke Point as a third potential DMCF in 2003, and reaffirmed this recommendation in 2011. MPA completed a Draft Feasibility Study Report for the site in 2012. At this time, Tradepoint Atlantic, the property owner, has other tentative plans for the Coke Point area. Lines of communication between MPA and Tradepoint remain open with occasional meetings to discuss dredged material management issues.

E. Cox Creek Expanded and Confined Aquatic Disposal

The Harbor Team Recommendations of 2011 included a combined Cox Creek-Millennium placement option as a backup to Coke Point, and a CAD pilot project.¹

¹ CAD is defined as excavation of cells beneath existing navigation channels or anchorages by dredging in areas where there is commercial-grade sand and gravel underneath the channels or anchorages. These cells would be backfilled with material from maintenance dredging. In most cases, overburden material would have to be removed to access the sand and gravel. This overburden material would be placed in a dredged material containment facility. The commercial-grade sand and gravel would be used in upland construction projects or possibly in beneficial use projects such as capping contaminated areas elsewhere in the harbor.

In 2016, MPA began the expansion of the Cox Creek DMCF onto adjacent MPA owned property. Building demolition began in January 2016 and is expected to be completed by early 2017. The design of a new dike, including extensive geotechnical investigations and coordination with MDE began in early 2016. Outreach to interested stakeholders is continuing, and the COC held regular meetings throughout 2016. There has been no public opposition to raising the existing DMCF dikes. Separately, MPA is exploring the possible acquisition of the Cristal USA, Inc. site (formerly known as Millennium Inorganic Chemicals) which is adjacent to MPA's Cox Creek property. Active discussions between MPA and Cristal USA, Inc. have been ongoing in 2016.

Construction of the CAD pilot project began in September 2016 and the CAD cell will be available for the Corps' Fiscal Year 2016/2017 inflow cycle. This project includes comprehensive nutrient and turbidity monitoring.

VI. CHESAPEAKE BAY CHANNELS AND PLACEMENT SITES

A. Paul S. Sarbanes Ecosystem Restoration at Poplar Island and Poplar Island Expansion

The Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island, generally known as Poplar Island, continues to be a national showcase for the beneficial use of dredged material. Significant environmental benefits have already been achieved though the project remains far from complete. Poplar Island hosts a nationally protected migratory waterfowl, the American black duck, and two ground nesting colonial water birds, the Common Tern and the Least Tern. The Least Tern has threatened status on Maryland's list of rare, threatened and endangered animals. The Maryland Department of Natural Resources listed the Common Tern as endangered in 2016. Both tern species nest at Poplar Island. For several years, Poplar Island had been the only site within Maryland's portion of the Chesapeake Bay to host an active Common Tern colony.² Altogether, over 200 different bird species have been identified onsite or just offshore. Additionally, Diamondback terrapins nest on the island. Also, researchers have shown that the restored wetlands support significantly higher abundances of monitored species than was observed in baseline remnant marsh surveys.

Habitat restoration continues with grading in the undeveloped wetland areas; cell 3AC was planted in spring and summer 2016.

Approximately 2.5 mcy of dredged material from the Maryland Bay channels was placed at Poplar Island during the 2015/2016 dredging cycle. No material from the C&D Canal approach channels was placed at Poplar Island during the 2015/2016 dredging cycle. For the 2016/2017 dredging season, it is anticipated that approximately 0.5 mcy of dredged material from the Maryland Bay Channels and approximately 0.5 mcy from the C&D Canal approach channels will be placed at Poplar Island.

² In July 2015 a nesting colony of Common Terns was found near Masonville Cove.

Poplar Island remains the only placement option for sediments dredged from Bay channels located in Maryland waters south of Pooles Island. With authorization of the increased costs for the Poplar Island Expansion project in WRRDA 2014, subsequent funding was provided in federal fiscal year 2016 to initiate construction of the Expansion, which will provide an additional 28 mcy of dredged material placement capacity. Sufficient funding within the Corps' budget to complete expansion of the project has been a key focus in 2016. The Expansion received an additional \$20.8 million in federal Corps' Work Plan funds, over and above the \$26.5 million appropriated in the federal fiscal year 2016 budget. Working with all parties involved in the federal budget process to advocate for sufficient and sustained budgetary resources to continue the Expansion will be an ongoing focus for MPA in 2017 and 2018.

At this time, the President's federal fiscal year 2017 budget includes \$62.3 million for Poplar Island and Poplar Island Expansion together, which is a significant and strong signal of support for the project, its numerous benefits, and the Port of Baltimore.

The Corps of Engineers awarded three construction contracts for this project in 2016.

***Challenge:** MDOT and MPA need to work with all levels of the Corps, the federal OMB, and the Maryland Congressional Delegation to ensure sufficient funding in the Corps' budget in federal fiscal year 2017 and 2018 to complete expansion of the Poplar Island footprint.*

B. Mid-Chesapeake Bay Island Ecosystem Restoration Project - James Island and Barren Island (Mid-Bay)

One of the strategies for providing capacity needed for Bay channel dredged material after Poplar Island and its Expansion have been fully utilized is implementing other island protection and restoration projects south of Poplar Island, in the Mid-Chesapeake Bay. If funded and implemented, Barren Island would be restored before James Island. The Mid-Bay project has the strong support of the Dorchester County government and local citizens. WRRDA 2014 authorized the Mid-Chesapeake Bay project for construction. MPA and the Corps have begun discussions on the Pre-Construction, Engineering and Design (PED) agreement for the project and the timing of project construction.

***Challenge:** MPA and the Corps will need to work closely in designing the project and developing a plan for project construction and construction funding to ensure that the Mid-Bay project is available in a timely fashion to satisfy the WRRDA authorization requirements and meet dredged material placement needs.*

C. Upland Sites - Chesapeake and Delaware Canal

The C&D Canal is important to the Port of Baltimore as it provides shippers the shortest route to/from the Atlantic Ocean and is particularly favored by many auto-carrier ships making the journey between Baltimore and ports in New York/New Jersey and New England.

The Corps' Philadelphia District is responsible for maintenance of the upper Bay approach channels and the C&D Canal proper. That District owns the DMCFs along the approach channels and the Canal itself. The Philadelphia District has historically used the Courthouse Point and Pearce Creek DMCFs for placement of approach channel material. The Philadelphia

District also utilizes a number of local DMCFs along the Canal (including Bethel and Chesapeake City) for material dredged from the Canal proper.

In March 2016, MDE renewed for two years the Corps' WQC for the Pearce Creek DMCF. Installation of the liner began in winter 2015; the Corps has installed approximately 95% of the liner to date. Reactivation of the DMCF remains on schedule and is expected to be ready to receive inflow of dredged material in the 2017 dredging cycle, which begins October 1, 2017. The Corps is working with MDE on a groundwater quality monitoring plan which is required by the WQC prior to the re-opening of the site.

MPA is funding a water supply line from the Town of Cecilton to properties within the zone of influence of the groundwater contamination. According to a study conducted by the U.S. Geological Survey a new water supply is needed to address the degradation of water quality in drinking water wells in the vicinity of the DMCF. Agreements are in place among MPA, Cecil County and the Town of Cecilton and work began in 2016 on the water distribution line, which will provide water from Cecilton's community well. Extensive outreach has been ongoing and will continue in West View Shores, Bay View Estates, and Sunset Pointe. Construction of the transmission main and distribution main (the first two pieces of construction of the water line) commenced in 2016. These two contracts remain on schedule with an estimated significant completion date of April and May 2017, respectively. Construction of the third and final component of the project, the on-lot hookups to residences, is expected to commence in May 2017 with a completion date of March 2018. In response to concerns about groundwater quality in existing wells, MPA and the Corps jointly agreed to provide bottled water to residents. MPA provided bottled water from May 28, 2016 through July 31, 2016. The Corps began providing bottled water on August 1, 2016 and will continue to provide bottled water until completion of on-lot hookups.

A Pearce Creek Implementation Committee was formed in 2015 with representation from citizens and government agencies to share information and receive feedback on the progress of the project. The Committee meets every two months in Cecilton. This forum remains an important resource for residents and representatives of agencies alike to provide information, address questions and concerns and generate ideas in order to ensure timely responsiveness throughout every phase of both of these construction projects. A project website has also been created.

Challenge: *Continued collaboration and coordination among the Corps, MPA, MDE, Cecil County, the Cecil County Health Department and citizens are needed to ensure that the DMCF liner and the water supply line are completed on time.*

D. Lower Bay Sites

Most ocean-going vessels travel to and from the Port of Baltimore through the southern approach commonly referred to as the 50-foot channel, a deep north-south route extending 150 miles from the Port of Baltimore to the Atlantic Ocean at Cape Henry, Virginia. The Lower Bay channels servicing Port-bound vessels include Cape Henry, York Spit, and Rappahannock Shoal. Placement capacity is adequate for the next 20 years. The placement sites include the Norfolk Ocean Disposal Site, the Wolf Trap Alternate, and the Rappahannock Shoal Deep.

VII. CONTINGENCY PLANNING - OCEAN PLACEMENT

Ocean placement of dredged material from the Maryland Bay Channels at the Norfolk Ocean Disposal Site is an alternative that is included in the Maryland DMMP as a contingency option if other placement options are not available. Ocean placement of dredged material is regulated under Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972, which requires that any proposed placement of dredged material into ocean waters be evaluated through the use of criteria published by EPA.

The Corps' Baltimore District and the EPA established a schedule for the triennial sediment testing to be conducted as a requirement of maintaining authorization for ocean placement. The first round of triennial sediment testing was conducted in 2012 through 2013. On October 2, 2014 EPA sent correspondence to the Corps that concurred with the ocean placement option for each of the Upper Bay Channels for the period 2014 to 2017. This concurrence will expire on October 2, 2017. MPA will continue the triennial sediment testing for ocean placement in early 2017 to ensure that requirements are met prior to the October 2, 2017 expiration. The goal is to maintain the EPA and Corps authorizations that are necessary to allow the retention of the ocean placement option as a contingency component of the overall DMMP planning efforts.

The Baltimore District is continuing to update its Dredged Material Management Plan. As the update process moves forward, the Corps will evaluate the use of ocean placement as a contingency plan. If ocean placement is determined to be a preferred alternative in the Corps' Dredged Material Management Plan, the Corps would prepare an Environmental Assessment for the ocean placement option and release a public notice in both Maryland and Virginia. The Corps indicates that federal cost sharing would not be available for ocean placement even if it is included as a viable option in its Dredged Material Management Plan. This means that MPA would have to pay the considerable additional costs of transportation of the dredged material from the current Federal standard to the Ocean site.

Challenge: MPA needs to continue regular testing to ensure that ocean placement is a viable contingency alternative, subject to other regulatory coordination and approvals.

VIII. PROJECTED NEW WORK DREDGING

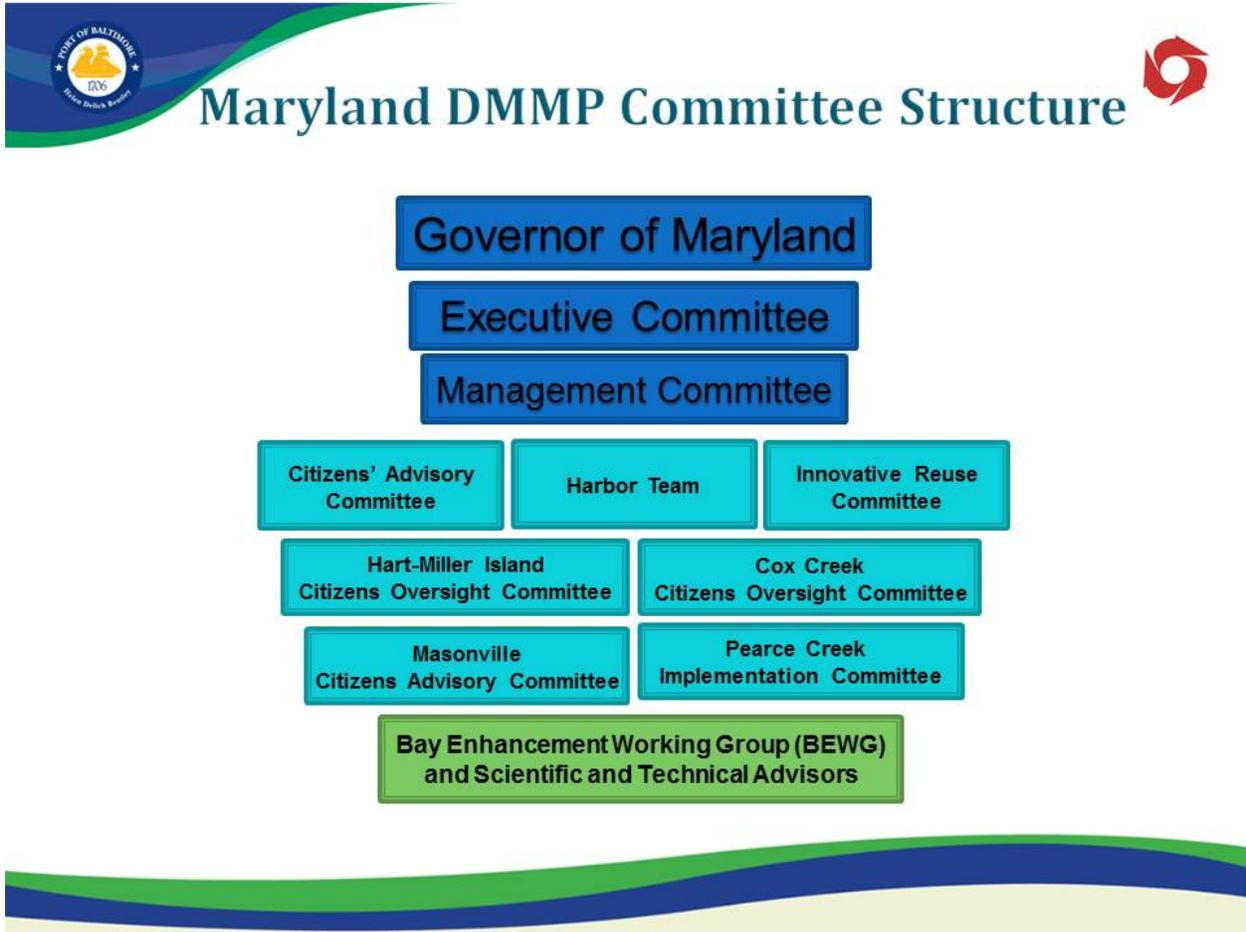
Several significant projects will require new work (i.e., not maintenance) dredging in the future. In February 2012, the MPA requested that the Baltimore District complete the congressionally authorized second phase of the Baltimore Harbor and Channels 50-foot project, i.e., bring some of the channels in this project from their current widths to their authorized widths. The Corps and MPA have collaborated on a Limited Reevaluation Report (LRR) to analyze the need for completing the widening. Generally, in the lower Bay, channel widths could increase from 800 feet to 1,000 feet and, in the upper Bay, main channel widths could increase from 700 feet to 800 feet. The study has progressed far enough to determine that the Harbor channels (west of the

North Point-Rock Point line) will not be widened. This study is expected to be completed in 2017. Completion of the project would require dredging of approximately 7 mcy in Maryland and Virginia waters.

Future new work dredging may include modifications of channels, berths, and anchorages as cargo continues to grow. MPA also expects some private sector new work dredging for expansion of existing private terminals. Including the 7 mcy for completion of the 50-ft. widening, MPA estimates a total of 11 to 12 mcy of new work dredging over the next 20 to 30 years.

Challenge: *Sufficient dredged material placement capacity for new work dredging projects will be needed in order to meet the needs of a growing port and economy over the next 20 to 30 years.*

APPENDIX 1: ELEMENTS OF THE MARYLAND DMMP



APPENDIX 2: 2016 MEMBERS OF THE DMMP EXECUTIVE COMMITTEE

Chesapeake Bay Foundation

Alison Prost
Maryland Executive Director

DMMP Citizens' Advisory Committee Liaison

Francis Taylor
North Point Peninsula Council

DMMP Management Committee Liaison

Donald Boesch
University of Maryland Center for Environmental Science

Maryland Department of Natural Resources

The Honorable Mark J. Belton (Co-Chairman)
Secretary

Maryland Department of the Environment

The Honorable Ben Grumbles
Secretary

Maryland Department of Transportation

The Honorable Pete K. Rahn (Co-Chairman)
Secretary

U.S. Army Corps of Engineers

Colonel Edward P. Chamberlayne
District Engineer, Baltimore

U.S. Army Corps of Engineers

Lt. Colonel Michael A. Bliss
District Engineer, Philadelphia

APPENDIX 3: 2016 MEMBERS OF THE DMMP MANAGEMENT COMMITTEE

Association of Maryland Pilots
Captain Eric Neilsen
Captain Jessie Buckler (alternate)

Baltimore Port Alliance
Rupert Denney

Chesapeake Bay Foundation
Doug Myers

DMMP Citizens Advisory Committee
Francis Taylor

EPA Region III
Sherilyn Lau

Maryland Department of the Environment
Matthew Rowe

Maryland Environmental Service
John O'Neill

Maryland Geological Survey
Richard Ort

Maryland Port Administration
Chris Correale

Maryland Department of Natural Resources
Bruce Michael

Maryland Department of Transportation Policy & Governmental Affairs
Deborah Haynie

National Marine Fisheries Service
Kristy Beard

NOAA Chesapeake Bay Office
Vacant

Rukert Terminal Corporation
Steve Landess, P.E.

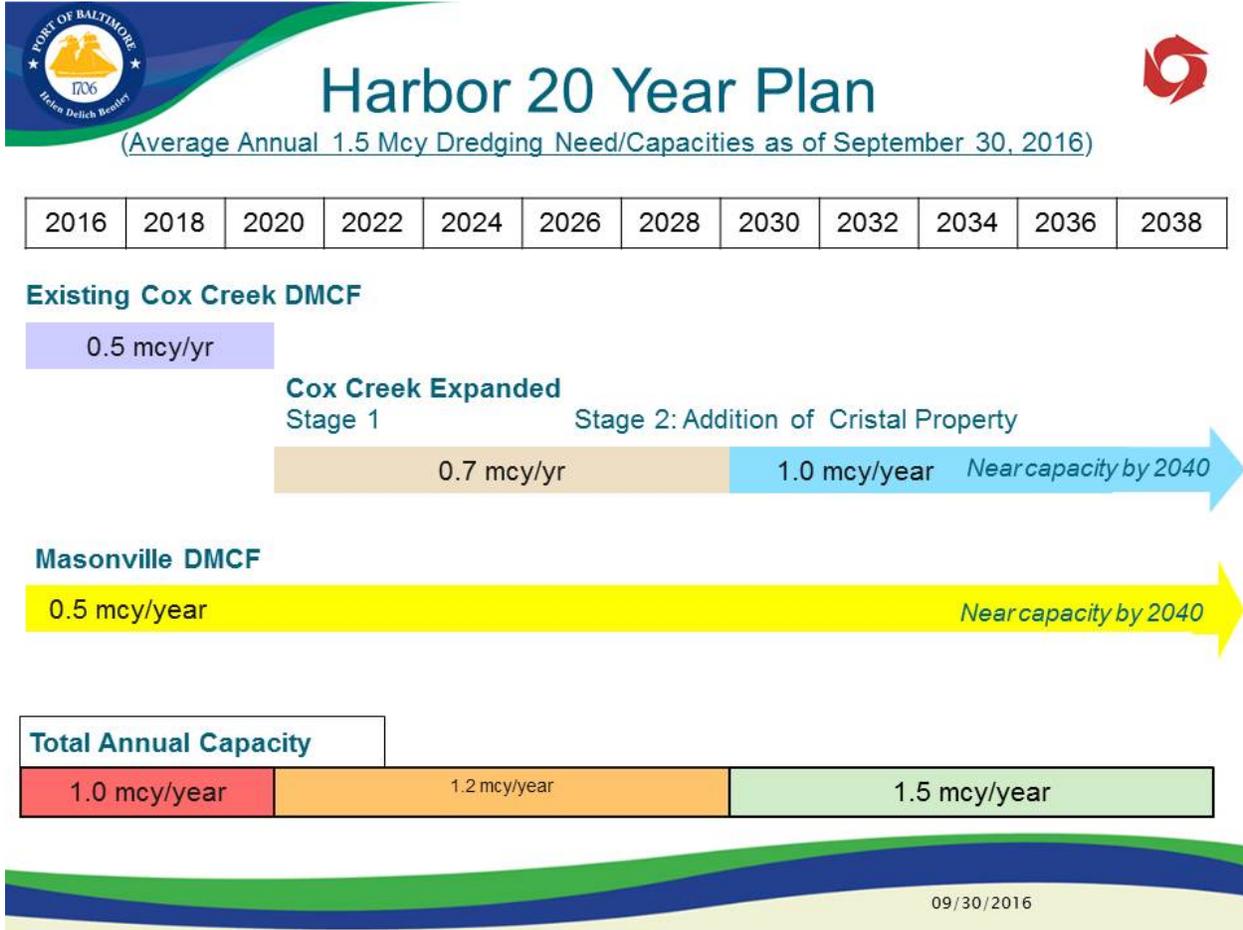
U.S. Army Corps of Engineers, Baltimore
Kevin Brennan
Justin Callahan (alternate)

U.S. Army Corps of Engineers, Philadelphia
Anthony DePasquale
Jerry Jones (alternate)

U.S. Fish & Wildlife Service
Genevieve LaRouche
Chris Guy (alternate)

University of Maryland Center for Environmental Science
Donald Boesch
(DMMP Management Committee Liaison)
David Nemazie (alternate)

APPENDIX 4: CURRENT 20-YEAR DREDGED MATERIAL PLACEMENT PLAN





Bay & C&D Approach 20 Year Plan



(Annual 3.2 Mcy Dredging Need)

2.0 Mcy Bay Channels, 1.2 Mcy C&D; Capacities as of September 30, 2016

2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036	2038
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Pearce Creek (near capacity by 2037)



Poplar Island Existing

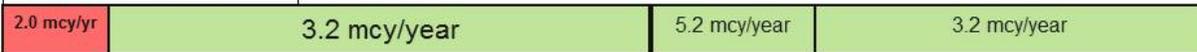
Expansion (near capacity by 2031)



Mid-Bay (near capacity by 2062)



Total Annual Capacity



09/30/2016

**APPENDIX 5: HARBOR TEAM RECOMMENDATIONS FOR FURTHER STUDY
COKE POINT BACKUP OPTIONS
Report to the Management Committee
and
Executive Committee of Maryland's
Dredged Material Management Program
September 15, 2011
EXECUTIVE SUMMARY**

The Harbor Team considered 23 potential options for backup to Coke Point over a period of one year.

The Harbor Team agreed to the following recommendations:

Strengthening the standards that apply to all dredged material management and community enhancement options;

Convening a committee to investigate and recommend innovative methods of funding community enhancement projects;

Pursuing a placement site with community enhancements at Coke Point as vigorously as possible – with Coke Point remaining the Harbor Team's highest priority;

Conducting a feasibility study to assess innovative reuses already under consideration with a goal of innovatively reusing at least 500,000 cubic yards of dredged material per year by 2023 and answering questions necessary to determine if innovative reuse can become a viable part of the State's Dredged Material Management Program;

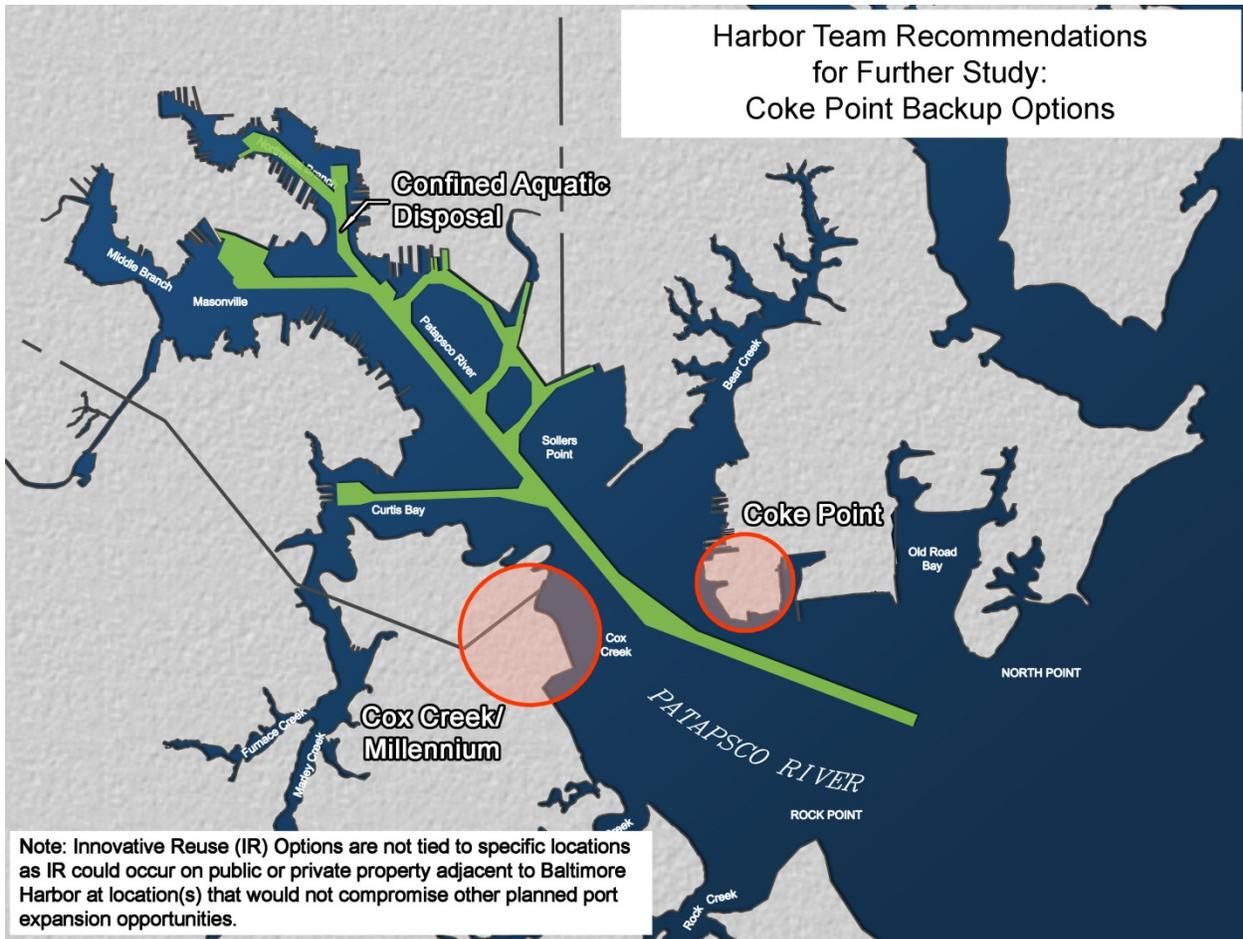
Coordinating a plan to conduct a pilot test of Confined Aquatic Disposal (CAD) to determine if MPA could obtain the necessary permits to conduct a pilot test; conducting a pilot test if permits are issued; and, if pilot tests results are favorable, conducting a feasibility study of the use of CAD for harbor materials;

Ranking the Combined Cox Creek Millennium option as the highest priority of the land-based backup options to Coke Point for further study with two provisos:

1. Conducting community outreach to determine whether or not raising the dikes on the existing Cox Creek Dredged Material Containment Facility would be acceptable; if not, this feature would be dropped from further consideration.

2. Holding public information meetings in Anne Arundel County and Baltimore City as close to the zip code of the option as possible.

Harbor Team Recommendations
for Further Study:
Coke Point Backup Options



Note: Innovative Reuse (IR) Options are not tied to specific locations as IR could occur on public or private property adjacent to Baltimore Harbor at location(s) that would not compromise other planned port expansion opportunities.