

**SUMMARY OF THE DREDGED MATERIAL MANAGEMENT PROGRAM  
EXECUTIVE COMMITTEE MEETING  
December 15, 2020, 9:30 AM  
Virtual Meeting**

***Members Attending:***

*Chesapeake Bay Foundation (CBF):* Doug Myers  
*DMMP Citizens' Advisory Committee (CAC) Liaison:* Adam Lindquist  
*Maryland Department of the Environment (MDE):* Ben Grumbles, Horacio Tablada  
*Maryland Department of Natural Resources (DNR):* Jeannie Haddaway-Riccio  
*Maryland Department of Transportation (MDOT):* Gregory Slater  
*Maryland Environmental Service (MES):* Dr. Charles Glass  
*Maryland Pilots Association:* Captain Eric Nielson  
*US Army Corps of Engineers (USACE), Baltimore District:* Colonel John Litz  
*USACE, North Atlantic Division:* Karen Baker, George Nieves  
*University of Maryland Center for Environmental Science (UMCES):* Dr. Peter Goodwin

***Others Attending:***

*Angie Ashley Consulting:* Angie Ashley  
*Baltimore Port Alliance:* Rupert Denney  
*Council Fire:* George Chmael II, Katie Smith  
*EcoLogix Group:* Steve Pattison  
*MDE:* Matt Rowe  
*Maryland Department of Legislative Services:* Caleb Weiss  
*DNR:* Nicole Carlozo, Bruce Michael, Richard Ortt  
*Maryland Department of Planning:* Jason Dublow, Debbie Herr Cornwell  
*MDOT, The Secretary's Office (TSO):* Sandy Hertz, Dorothy Morrison  
*MDOT:* Josh Foster, Denise Vrablic  
*MDOT Maryland Port Administration (MPA):* Dave Blazer, William Doyle, Kristen Fidler, Jennifer Guthrie, Margie Hamby, Katrina Jones, Kristen Keene, Shawn Kiernan, Jill Lemke, Holly Miller, Bill Richardson  
*MES:* Tammy Banta, Jeff Halka, Jay Sullivan  
*USACE, Baltimore District:* Kevin Brennan, Graham McAllister, Danielle Szimanski  
*USACE, Philadelphia District:* Mike Hart, Michael Landis  
*UMCES:* Dave Nemazie, Elizabeth Price, Dr. Lisa Wainger

**1.0 Welcome and Introductions**

**Secretary Gregory Slater, MDOT**

Sec. Slater convened the December 15, 2020 Dredged Material Management Program (DMMP) Executive Committee meeting. The November 13, 2020 meeting summary is still under review and will be approved at the next DMMP Executive Committee meeting.

Sec. Slater stated that the DMMP Executive Committee actions are critical to ensuring the continued vitality of the Port of Baltimore (POB), which is essential to the recovery of Maryland's economy. Sec. Slater stated that the December 15 meeting will be focused on climate and coastal resilience and dredged material use in climate resilience projects. Additionally, the meeting focus would cover updates on key efforts such as a renewed Maryland Department of Transportation (MDOT) and Maryland Department of Natural Resources (DNR) Intergovernmental Agreement (IGA) for the development of the Hart-Miller Island (HMI) North Cell, the current efforts to address the concerns related to the long-term

Virginia Channel dredged material placement location, strategic plans for engaging stakeholders and conducting outreach in 2021, new contracts for Innovative Reuse (IR) Request for Proposals (RFP), and recognition of the 20-year anniversary of the Dredged Material Management Act (DMMA). Co-Chair Sec. Haddaway-Riccio thanked committee members for joining and for their continued focus on climate resilience.

## **2.0 Climate Resilience and Mitigation Activities – Interaction with the DMMP Dr. Peter Goodwin, UMCES**

Dr. Goodwin stated that the selected panel of agency representatives to discuss coastal and climate resilience activities represents an effort to increase collaboration between Maryland agencies with coastal resilience expertise and to identify ways to include dredging operations and dredged material management in projects. The panel included Ms. Danielle Szimanski (USACE), Mr. Matt Rowe (MDE), Ms. Nicole Carlozo (DNR), and Ms. Sandy Hertz (MDOT). The panel discussion outcomes will advance progress for coastal resilience recommendations in the 2020 Annual Report and set the stage for concrete actions in 2021 and beyond.

Dr. Goodwin stated that in 2019, the National Science Foundation's (NSF) Coastlines and People Research Coordination Network held a competition to determine NSF's coastal resilience investment priorities. Professor Ming Li from the University of Maryland Center for Environmental Science (UMCES) is well known for his storm surge modeling and flood risk analysis around the Chesapeake Bay, which is highlighted in his published journal articles, *Impacts of Ocean Warming, Sea Level Rise, and Coastline Management on Storm Surge in a Semi-enclosed Bay* ([Zhang & Li, 2019, JGR](#)) and *Assessing Storm Surge Impacts on Coastal Inundation Due to Climate Change: Case Studies of Baltimore and Dorchester County in Maryland* ([Li et al., 2020, Nat. Haz.](#)). Professor Li was awarded a grant to participate in the NSF competition, and the grant allowed him to lead various efforts that advanced interdisciplinary research to build resilient communities and infrastructure in the nation's estuaries and bays. Dr. Goodwin stated that Professor Li's published papers prove that the "hardening" of coastlines with riprap and shoreline retaining walls cause elevated storm surges in Maryland of up to four to five feet. As storms increase in intensity and sea level rises, living shorelines will have an increasingly important role in decreasing storm surges.

Dr. Goodwin stated that "Blue Carbon", which is carbon stored in coastal and marine ecosystems, has been used in efforts to increase living shorelines. Brian Needelman and Arianna Sutton-Greir of University of Maryland, College Park (UMCP), Pat Megonigal (Smithsonian Environmental Research Center), Doug Myers (Chesapeake Bay Foundation [CBF]), and Elliot Campbell (DNR) are scientists that have had an integral role in the approval of Blue Carbon as a mitigation measure through carbon sequestration. There are two significant state-led Blue Carbon events planned for 2021.

Dr. Goodwin stated that there have been many innovative technologies developed that have furthered efforts to promote coastal resilience. "Greening the Grey" involves replacing grey infrastructure with green infrastructure or using more natural processes to provide resilience. Examples of this is seeding breakwaters with oyster larvae to create oyster castles along shorelines and using 3D-printed bio-reefs made of clam shells in marine ecosystem restoration projects. One large shortcoming of oyster restoration is the lack of substrate in oyster reefs. Maryland Institute College of Art, UMCES, and DNR are collaborating to tackle this problem through the creation of 3D-printed biosynthetic shells that address substrate limitations in the Chesapeake Bay by replicating the chemical shell composition needed for oyster reef regeneration. Dr. Goodwin added that Dr. Cindi Palinkas' work at UMCES on living shorelines' effectiveness and resiliency is a prime example of synergy occurring across multiple

agencies and non-governmental organizations, using multiple objectives and funding sources. Dr. Palinkas' work includes evaluation of bioretention and wetland enhancement projects across Maryland.

Danielle Szimanski - Ecologist and Project Manager, USACE, Baltimore District

Ms. Szimanski discussed the technical and policy barriers in coastal resiliency projects performed by the US Army Corps of Engineers (USACE) and reviewed the ways that successful interagency shallow draft projects could be applied to larger-scale deep draft projects.

Ms. Szimanski stated that within USACE, there are several applications of dredged material that encompass coastal resiliency. While the projects may be broadly termed as beneficial use and as aiding coastal resiliency, there are slight differences between each placement option.

- Thin Layer Placement (TLP) is defined as the purposeful placement of sediment or dredged material to reach a specific elevation. Placement must be within tide range and typically 6-30 centimeters in additional height, depending upon the variation in ground surface or water levels at the site, and the functional objectives the placement is intended to achieve.
- Wetland Restoration is the placement of material to restore eroded or fragmented wetlands using TLP or several feet of material placed to meet a desired elevation and vegetation scheme.
- Island Creation is highly sought after mostly for migratory bird nesting habitat and is composed of confined or unconfined sandy material.
- Living Shorelines are defined as several shoreline protection options that allow for natural coastal processes to remain through the strategic placement of plants, stone, sand fill, and other structural and organic materials. Living shorelines typically rely on native plants and are sometimes supplemented with stone sills, on-shore or off-shore breakwaters, groins, or bio-logs that reduce wave energy, trap sediment, and filter runoff, while maintaining habitat (National Research Council, 2007).

Ms. Szimanski discussed several mid- to large-scale coastal resiliency projects throughout the Baltimore region and in the gulf coast. Smaller scale coastal resiliency projects are highly amenable for shallow draft dredging, which usually removes 50-100,000 cubic yards (CY) of material. Larger scale, TLP and other coastal resiliency projects have started to become common in the Gulf states. In Galveston, Texas, TLP areas were used to promote intertidal habitat fringe marsh restoration to protect emergent land and to nourish seagrass beds to create land stability. In Mobile Bay, Alabama, approximately 9 million cubic yards (MCY) of dredged material has been placed in open water adjacent to Mobile Bay, not to exceed 12 inches in thickness. While the project was originally completed in 2012 as an emergency dredging operation for the repair of hurricane damage, the project's success led to the site being designated as a permanent placement location in 2014. One of the main goals of the Mobile Bay project is to emphasize the connection between maintenance dredging requirements, beneficial uses, and sediment management methods to help reduce overall dredging costs for Mobile Bay.

Ms. Szimanski stated that USACE considers both technical and policy barriers for USACE dredging and placement projects. Technical barriers can include the production rate, material quantity, material type, pumping distance, containment availability, and the potential for short-term ecological damage. Policy barriers can include the effects of costs and open water placement restrictions such as those that exist in Maryland. The largest obstacle is the project cost and adding multiple technical and policy barriers quickly increases the project costs beyond the traditional methods of dredged material placement.

Ms. Szimanski discussed the ongoing Swan Island project in the southern Chesapeake Bay. Swan Island was recently restored with dredged material from a relatively small-scale shallow draft dredging project and has served as a model of interagency collaboration between USACE, US Fish and Wildlife Service (USFWS), the Engineer Research and Development Center (ERDC), DNR, and the National Oceanic and Atmospheric Administration (NOAA). The project serves as an example of how to overcome policy and technical barriers on multiple scales. There were environmental modeling and monitoring efforts associated with the project, multiple stakeholders, and the need for multiple funding sources and collaboration with a local community sponsor to identify potential placement sites.

Mr. Myers asked if the Mobile Bay and Galveston projects while named “in water” were placed over existing marsh. Ms. Szimanski replied that the Mobile Bay and Galveston projects were both in-water and placed over existing marsh.

Matt Rowe - Assistant Director, Water and Science Administration, MDE

Mr. Rowe stated that the Maryland Department of Environment (MDE) wetland and stormwater programs are at the core of MDE's execution of climate and water policy. Climate resiliency is a pillar in the Water and Science Administration's strategic plan, which is partly executed by a Climate Policy and Implementation team that helps to build climate considerations into policies, approvals, and funding programs. There is also a matrix team working internally to accelerate climate resiliency into MDE permits and programs and to implement policies.

Mr. Rowe stated that ensuring the safety of Maryland's dams is a top priority for the Water and Science Administration. MDE recently revised the emergency action plans associated with dams and is ensuring those plans are regularly exercised. MDE is revising the science behind dam design and construction, to ensure that Maryland's dams remain resilient to changing climate conditions. Another top priority of MDE is emergency response and preparedness. MDE has conducted table-top exercises to prepare for instances such as multiple dam failures and post-storm scenarios that regularly test drive the emergency response for climate-driven events. Flood protection and pollution prevention are also priorities for MDE. In 2019, Governor Hogan's administration and the Maryland General Assembly collaborated to continue to fund MDE's \$300 million comprehensive flood management grant program. This program leverages local and federal funding for flood mitigation projects. MDE continues to prioritize living shorelines through continuation of development of targeting tools to determine where living shorelines are most suitable and to increase the living shorelines permitting. MDE is investigating an additional credit for green infrastructure practices and considerations that could be included in the draft permits of projects in flood-prone areas that are up for review, such as the Municipal Separate Storm Sewer System Permit Program and other general permits. Lastly, MDE is considering climate resiliency in the project prioritization process for awarding grant funds within the water quality and infrastructure financing administration.

Mr. Rowe stated that he believes that there are many opportunities for collaboration between MDE and DMMP partners to progress climate resiliency. Since both MDE and the USACE regulate permitting, there are additional opportunities to streamline the permitting process for projects such as living shorelines and dam removals that recognize resiliency benefits and the resulting ecological tradeoffs. Within MDOT, there may be opportunities to collaborate between MDOT Maryland Port Administration (MDOT MPA) and the MDOT State Highway Administration (MDOT SHA) to continue to find ways to innovatively reuse dredged material. There may be research opportunities for MDOT MPA regarding the carbon sequestration impact of beneficial use projects and the study of constructed wetlands' adaptations to sea level rise.

MDE has a contract with the Virginia Institute of Marine Science to develop a living shoreline suitability tool that can be applied to additional Maryland counties. MDOT MPA could assist with these targeting tools to develop a Chesapeake Bay-wide living shoreline suitability analysis mapping tool. Other bold approaches to scale-up pilot projects around the state, such as Poplar Island Expansion, will be required to handle large-scale projects in the future and will require collaborations, partnerships, leveraging funds, and formal agreements. Mr. Rowe recommended that instead of creating new groups to coordinate solutions to climate change, MDOT MPA should continue to coordinate and expand the efforts between existing groups, such as the Maryland Commission on Climate Change (MCCC), the Maryland Silver Jackets, and local governments. Mr. Rowe added that it is also important to find ways to expand upon current efforts to design projects using the innovative reuse and beneficial use of dredged material.

Nicole Carlozo - Natural Resource Resiliency Planner, DNR

Ms. Carlozo stated that there are many opportunities to leverage existing state resiliency initiatives to plan projects that provide both climate resiliency and navigational benefits. Maryland communities are experiencing the impacts of climate change from sea level rise to storm-impacted flooding and erosion. DNR is at the forefront of efforts to assist with resiliency planning and address the risks of climate change. One method of addressing the impacts is using natural and nature-based features such as tidal wetlands, coastal forests, oyster reefs, and living shorelines. The beneficial use of clean dredged material in these projects is a component that can be utilized to progress these projects more effectively and with a cost savings. The beneficial use of dredged material has become a DNR priority because it provides a needed and valuable restoration material and a cost savings opportunity.

Ms. Carlozo stated that DNR has developed multiple tools and data resources to assist with the planning and coordination of restoration projects, which can take up to two years to accomplish. The [Coastal Resiliency Assessment](#) tool is available on DNR's Coastal Atlas. The data from this tool is used in project screening and implementation solicited through DNR's assistance programs. Historically there has been success with DNR's Living Shoreline program, which offers zero interest loans and technical assistance to local communities to implement living shoreline practices. More recently, DNR launched the Resiliency through Restoration Initiative program, which offers community grants to address adaptation to climate change and promote coastal resiliency through nature-based projects. There is an upcoming effort by DNR through the MCCC to develop a water quality and climate change portfolio that will identify a suite of restoration activities that optimize water quality benefits and climate change resiliency.

Ms. Carlozo stated that the Beneficial Use: Identifying Locations for Dredge ([BUILD](#)) online tool is another method used by DNR to visualize pairing upcoming restoration project needs with upcoming dredging projects. The BUILD tool also helps to identify the barriers to implementing these projects, which can include the pumping distance, sediment quality and quantity, and ensuring the restoration project is permitted and available at the appropriate time that the dredged material is accessible. The restoration projects that are most successful are those where the dredging location and frequency are known as well as the dredged material quality and quantity.

Ms. Carlozo stated that there are multiple demonstration projects underway or nearing completion that represent the beneficial use of dredged material. Hurst Creek in Dorchester County is an example of a site that was not a regularly dredged navigation channel, but there was a local dredging and resiliency need. DNR paired the needed restoration with the planned dredging using the local sandy dredged material in the restoration project. DNR collaborated with the Chesapeake Bay National Estuarine Research Reserve and UMCES to implement monitoring at the site. Hurst Creek is one of many sites

where DNR is working to implement monitoring before and after restoration to track the project's effectiveness and any adaptive management activities that may be needed.

Kent Narrows in Queen Anne's County is another beneficial use of dredged material project example. The project used approximately 16,000CY of dredged material from a navigation channel that is dredged every five years on a 41-acre marsh that provides habitat, recreation and coastal protection benefits to Barry Point Park. The restoration project paired the need to buffer the commercial and residential infrastructure south of the restoration site with the dredging need, which saved approximately \$1.4 million through reduction in transportation and fill costs. DNR seeks to identify upcoming restoration needs to replicate the Barry Point Park project for cost savings in future dredging operations in Queen Anne's County.

DNR is designing a TLP restoration project at the Chesapeake Bay Environmental Center. The project is currently in the permitting process and is estimated to be ready for dredged material placement when the next cycle of dredging happens in the Kent Narrows channel in 2023.

Sandy Hertz - Assistant Director, The Secretary's Office of Environment, MDOT

Ms. Hertz stated that the Secretary's Office of Environment (TSO) interacts with all MDOT Transportation Business Units (TBUs), including MDOT MPA, MDOT SHA, the Aviation Administration, the Transit Administration, the Motor Vehicle Administration, and the Maryland Transportation Authority. MDOT TBUs are aligned with the overall MDOT mission, which is to deliver "safe, sustainable, intelligent, and exceptional transportation solutions in order to connect our customer's to life's opportunities".

Ms. Hertz stated that the Maryland Transportation Plan through 2040 includes a goal to ensure a safe, secure, and resilient transportation system. In early 2020, MDOT TSO added a risk and resilience function to lead synergy and collaboration across TBUs on this mission. There are many ongoing initiatives at MDOT across TBUs that are critical to system-wide resiliency.

In 2019, MDOT prepared a Strategic Asset Management Plan (SAMP). The SAMP is a living document and is focused around four main concepts that create a customer-focused "One-MDOT" risk-based approach with data-driven decisions. The SAMP's goals and strategies focus on addressing seven critical MDOT assets: facilities, pavement, structures, tunnels, rail, vehicle fleet and equipment, and major information technology systems. To better understand potential risks, MDOT must develop a clear picture of system-wide assets and potential vulnerabilities. MDOT needs to be proactive in understanding, identifying, prioritizing, and managing asset-related risks including safety, reliability, and risks related to finance, performance, and climate. This includes understanding the condition and criticalness of existing assets and developing lifecycle maintenance and replacement strategies that result in long-term reliability and resiliency.

Ms. Hertz stated that the MDOT SHA Climate Change Vulnerability Viewer is an example of a long-term resiliency planning strategy. It focuses on two of the seven identified critical assets, which are pavement and structures such as bridges and culverts. MDOT SHA leveraged existing models from the Federal Highway Administration and others to assess the vulnerability of these assets and current and future risks associated with climate change, such as sea level rise, extreme weather events, and precipitation. Predictive models were developed using recent light detection and ranging (LIDAR) data and Hazus modeling. Hazus modeling was developed by Federal Emergency Management Agency

(FEMA) and is a GIS-based software model used to estimate potential losses from floods, hurricanes, earthquakes, and tsunamis by visualizing those hazards' effects.

Ms. Hertz stated that the pilot study had Tier I and Tier II evaluation levels. In the Tier I analysis, in addition to LIDAR and Hazus model data, MDOT SHA determined the "Climate Change Impact Zone" which was created by overlaying the future scenario 2100 mean higher high water sea level, the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model for a Category 3 hurricane, and the 100-year FEMA floodplain. The SLOSH model is a computerized numerical model developed by the National Weather Service to estimate storm surge heights resulting from historical, hypothetical, or predicted hurricanes by considering the atmospheric pressure, size, forward speed, and track data. This overlaid layer was then buffered by 50 feet. Anything outside of the buffer area was considered low exposure risk to the selected climate stressors.

In the Tier II analysis, assets that fell within the risk area went through a more quantitative assessment. Bridges were evaluated using the US Department of Transportation Vulnerability Assessment Scoring Tool and identified roads were evaluated using the Hazard Vulnerability Index. This information was combined into an ArcGIS Online application that can be used by MDOT designers and engineers to make better siting and design decisions for highway projects. The next step will be to continue to incorporate other MDOT critical assets and to make the Climate Change Vulnerability accessible and useful to all MDOT TBUs.

Ms. Hertz stated that the 2020 updates made to the Coast Smart Construction Program were vetted by MDOT and DNR and include specific requirements for the siting and design of new highway facilities, and updated guidance for siting and design of facilities. MDOT has been incorporating resiliency measures per this guidance into all applicable transportation projects.

MDOT continues to identify and pursue strategic partnerships to deliver on much needed data and tools for statewide resiliency. The Atlas 14 update was a pooled fund solicitation entered into through the National Cooperative Highway Research Program's Transportation Pooled Fund Program. MDOT has partnered with North Carolina, Virginia, and Delaware to update the Mid-Atlantic region precipitation data. The Baltimore Coastal Storm Risk Management Feasibility Study with USACE is another MDOT strategic partnership. This feasibility study is intended to investigate coastal flooding problems, needs, and potential solutions for key Baltimore coastal locations included in the study area. In 2020, MDOT partnered with MDE to apply through the Maryland Emergency Management Administration for the FEMA Building Resilience Infrastructure Communities Grant Program. If funded, the main proposal outcome will be a robust toolkit of resources that will help the state and local governments understand climate vulnerabilities. The suite of tools would be hosted on the [Maryland Resiliency Partnership](#) website.

Ms. Hertz stated that Maryland needs to continue to identify and pursue innovative reuse opportunities for dredged material. If restoration projects average 50,000 CY per project, it would take 100 projects per year to meet the supply of the 5 MCY dredged annually from main harbor channels. One example of an upcoming innovative reuse opportunity is the recent approval from the Board of Public Works (BPW) for MDOT MPA to study the feasibility of using dredged material for manufacturing bricks and pavers. Additionally, the DMMP needs to identify other ways to beneficially use dredged material, beyond exclusively harbor channel material. This would include exploring the limitations that exist for placement around the perimeter of the Chesapeake Bay. As mentioned by Dr. Goodwin, several recent studies support the claim that soft shorelines reduce the amplification of storm surges and coastal



flooding. MDOT should investigate how dredged materials can be effectively transported and used to build nature-based solutions to protect MDOT coastal infrastructure around the Chesapeake Bay.

The DMMP needs to continue to optimize strategic partnerships, whether it is working together with regulatory agencies to approve the application of dredged material or working with the private sector to resolve the issues of transporting dredged material for *in-situ* or landside applications. Dredging is vital to the maintenance of the POB's "Marine Highway". To ensure sustainable growth of waterborne commerce in Maryland, the DMMP needs to collaborate on solutions that not only maintain the existing "Marine Highway," but that support productivity and recover capacity at existing dredged material containment facilities (DMCFs). The DMMP also needs to continue to promote statewide successes such as Poplar Island, Swan Island, and Smith Island, ongoing partnerships like the DMMP and the interagency teams that have been delivering these projects, and recent advances in innovative reuse.

Dr. Goodwin opened the discussion to DMMP Executive Members to share thoughts on collective goals or specific ways that the DMMP could consider 2021 recommendations.

Ms. Hertz agreed with the statement from Ms. Szimanski's presentation that one of the largest obstacles faced by MDOT is cost, whether through technical or policy requirements. MDOT lacks a way to value ecosystems and living shoreline applications in Maryland. One of the things that is critical to continuing to promote living shoreline and other innovative reuse applications of dredged material is to find a way to quantify the value of ecosystems and to demonstrate the cost benefit analysis so that these efforts can be pursued. Ms. Hertz is interested in hearing from USACE and other partners to develop methods for an approach to ecosystem evaluation and cost benefit analysis.

Mr. Brennan stated that the USACE is currently exploring opportunities through several existing partnerships with non-federal sponsor authorities. USACE encourages the cooperation between authorities and will work within USACE's abilities to meet non-federal sponsor requests including the valuation of ecosystems.

Ms. Fidler stated that the DMMP continues to advance outreach, advocacy, and messaging efforts related to the multi-decade long Mid-Chesapeake Bay Island Restoration Project (Mid-Bay). A key component of how MDOT MPA communicates the project's importance to a variety of stakeholders, such as nearby residents, industry partners, and other governmental agencies, is through the identification and valuation of the near-term benefits. MDOT MPA will be collaborating with scientists and economists from UMCES to develop ways of giving value to ecosystem and community engagement benefits. As these calculations are vetted, approved, and verified to address the specific Mid-Bay models, they can be extrapolated to be applied to other projects. It is also important to examine the cost of inaction.

Ms. Wainger stated that there are ongoing USACE conversations to include the value of ecosystems. A recent report published by ERDC was titled *A Proposed Ecosystem Services Analysis Framework for the U.S. Army Corps of Engineers* ([Wainger et al., 2020](#)).

Mr. Foster added that another alternative to the valuation of ecosystems is through an asset management approach, which could assess the value of assets protected through projects such as roads, rail-lines, and ports. The protection of these assets is complementary to ecosystem services and can also be considered through larger scale protective activity. One example would be the ways living shorelines around the bay would impact storm surges and prevent potential damage.



Ms. Carlozo stated that DNR is interested in integrating coastal resiliency into their Ecosystem Services Framework. DNR is working with George Mason University and the Nature Conservancy on a project to monitor and model wave attenuation and flood reduction benefits of wetlands and subaquatic vegetation. This type of work would be valuable for cost benefit analyses which are needed for federal funding opportunities.

Dr. Goodwin stated that there is language being drafted by the US Congress in the Water Resources Development Act (WRDA) that would overtly include the importance of beneficial use and ecosystem restoration into cost benefit evaluations.

Sec. Grumbles stated that the benefits of ecosystem restoration and the beneficial use of dredged material is often undervalued. With the incoming Biden administration, he believes that there will be an emphasis on the social cost of carbon. There also should be an emphasis on the social benefits of dredged material. The beneficial use of dredged material in ecosystem restoration is a key component of climate and coastal resiliency. The DMMP leadership needs to keep in mind that the Maryland Governor's Commerce Subcabinet has established sustainable materials management as one of its six priorities. Sec. Grumbles encouraged the DMMP Executive Committee to engage in outreach and partnership with the business sector through the Sustainable Materials Management Maryland (SM3) group.

Mr. Lindquist stated that he believed the USACE Coastal Resiliency study for Baltimore, which was defunded by the Trump administration, was an important step towards protecting Baltimore waterfront communities from increased coastal flooding due to climate change. He asked if it would be re-funded under the Biden administration. Ms. Hertz replied that she does not believe there is a definitive answer regarding whether the funding will be restored and suggested reaching out to Trevor Cyran (USACE).

Dr. Goodwin stated that the panel members' presentations represent the value in seeking to evaluate all potential risks as mentioned in the [2020 DMMP Annual Report](#). Dr. Goodwin stated that two major international events on the topic of climate change and coastal resiliency occurred on December 14, 2020 the European Green Deal and Nature Based Solutions virtual conference and a United Nations International Health Regulations meeting, which had 14,000 participants from around the world discussing climate change and coastal resiliency. Dr. Goodwin emphasized Maryland's history of working towards these goals and the importance of building upon existing efforts to take advantage of upcoming opportunities.

Sec. Slater thanked panel participants and stated that the DMMP will have to find ways to work together, leverage resources, and ensure infrastructure and resiliency plans are able to face the current challenges of climate change.

### **3.0 Dredged Material Management Act of 2001**

**Dave Blazer, MDOT MPA**

Mr. Blazer stated that MDOT MPA would like to acknowledge the 20-year DMMA anniversary because the DMMA built a strong foundation for the DMMP. In 2001, the Maryland General Assembly enacted the DMMA and established the DMMP to ensure that federal navigation channels in the Chesapeake Bay and Baltimore Harbor remain safe and efficient for waterborne commerce. The DMMP is managed by committees that account for the POB dredging needs through a 20-year plan, and benefits from the input of citizens, regulatory agencies, and business partners. The DMMP uses a mixture of strategies including wetland restoration, island recreation, upland placement, construction of engineered containment facilities, and the innovative reuse of dredged material. The DMMA requires the DMMP to continue to plan 20 years into the future.

Mr. Blazer played [a video](#) to commemorate the anniversary that included interviews with people involved in DMMP issues throughout the 20 years of its existence. Mr. Blazer thanked the video participants for their continued involvement in the DMMP.

#### **4.0 Harbor Development Updates**

**Kristen Fidler, MDOT MPA**

Ms. Fidler stated that over the past 20 years, MDOT MPA has engaged with stakeholders, connected on shared goals, took risks, and discovered new solutions to face challenges. The successes of Poplar Island, HMI, Masonville Cove, and Cox Creek are representative of the benefits of partnerships. As new challenges arise due to the COVID-19 pandemic, MDOT MPA will have to shift priorities and address funding needs while focusing on the future and the MDOT MPA mission in a way that remains inclusive to the economic, social, and environmental prosperity for all Marylanders. MDOT MPA will be guided by the principles in the [2020 DMMP Annual Report](#). MDOT MPA has a unique opportunity to engage and partner with sister agencies and stakeholders to address Chesapeake Bay challenges such as restoration, proactively responding to climate change, and reviving Maryland's economy.

#### Hart-Miller Island Intergovernmental Agreement (HMI IGA)

The set-to-expire IGA between MDOT MPA and DNR represents the success of an existing five-year agreement outlining the roles and responsibilities involved in collectively opening the HMI South Cell to the public as a DNR State Park. The five-year agreement is nearing expiration, and MDOT MPA is looking to the future development of the HMI North Cell, which is still in the final restoration design phase. The renewed MDOT MPA and DNR IGA will reiterate a shared goal of establishing a plan for low operation/maintenance and cost while also providing a highly engaging recreational experience.

#### Virginia Bay Enhancement Working Group

The maintenance dredged material removed from the York Spit channel is placed in the Wolf Trap Alternate Placement Site (WTAPS) every three to five years. The Virginia Marine Resources Commission (VMRC) has expressed concerns regarding the protection of overwintering crab populations in the WTAPS resulting from the placement of dredged material. MDOT MPA, USACE, and the VMRC are coordinating a Virginia Bay Enhancement Working Group (BEWG) with scientific, regulatory, and technical managers to identify potential alternative solutions in advance of the Corps' next York Spit channel dredging cycle anticipated for Spring/Summer 2024.

#### 2021 DMMP Education and Outreach Planning

MDOT MPA is building upon lessons learned in 2020 with a pivot to virtual outreach and education. MDOT MPA is developing a more efficient mission-driven approach to information sharing and public meetings. There will be mission and topic-specific meetings in 2021 using webinars and the new [microsite](#) to create engaging and accessible communications tools to reach a broader and more diverse audience.

#### Innovative Reuse Request for Proposals

The Innovative Reuse Request for Proposals was advertised in November 2019. To date, there have been 10 proposals with a diverse array of technologies and products: two projects were rejected, three proposals are in review, two proposals are under contract, one contract will be submitted to the BPW on December 16 for consideration, and two contracts have already been executed. The first executed contract is with Belden-Eco Products to conduct industrial-scale testing using Cox Creek dredged material for the commercial production of ceramic bricks and permeable pavers. The second executed

contract is with Northgate Environmental Management to study the use of Cox Creek dredged sediment for the manufacture of concrete traffic barriers for local transportation projects and of structures to protect shorelines. Engagement with the SM3 group has allowed MDOT MPA to attract new potential partners.

**5.0 Comments from the DMMP Executive Committee Secretary Gregory Slater, MDOT**  
Sec. Slater opened the discussion to questions and comments from DMMP Executive Committee members.

Mr. Myers stated that if committee members would like to comment on the [Maryland State Programmatic General Permit-6 \(MDSPGP-6\) from the USAC Baltimore District](#) there are new sections on living shorelines and the beneficial use of dredged material. Comments must be provided by December 23.

Mr. Denney stated that he believed it would be beneficial to have a timeframe in place for the climate and coastal resiliency program to occur alongside the DMMP. It is important to impress upon industry that there is a long-term plan to bring big ships to the POB, which is environmentally sensitive. Mr. Denney stated that he believed the private sector would agree that climate and coastal resiliency are essential to the continued growth and success of the POB and encouraged the DMMP to collaborate with the Marine Institute of Technology and Graduate Studies ([MITAGS](#)) to start modeling of bow waves caused by cargo ships in the Chesapeake Bay. He believes there may be pushback from waterfront landowners on each side of the Bay regarding the impact of waves on their shorelines caused by big ships moving through the bay at 15 knots.

Mr. Rowe stated that he is interested in investigating the use of dredged material to minimize the heat load or urban heat island effect by providing an alternative to asphalt in collaboration with MDOT SHA. Ms. Hertz stated that in addition to Mr. Rowe's comment, being able to successfully demonstrate other ways to re-imagine dredged material as an asset instead of a waste material is essential for moving forward. Ms. Keene stated that MDOT SHA has a Recycled Materials Task Force (RMTF), which is evaluating the potential usage of dredged material in highway materials. Ms. Keene will discuss the topic of using dredged material to prevent heat load or urban heat island effect at the December 16 MDOT SHA RMTF meeting.

**6.0 Adjourn Secretary Jeannie Haddaway-Riccio, DNR**  
Sec. Slater thanked committee members for the active discussion and for continuing to work collaboratively in a rapidly changing environment. The 2021 Executive Committee meeting schedule will be announced soon, with a meeting anticipated in May or June and a second in November or December.

Sec. Haddaway-Riccio thanked presenters and committee members for their attendance and adjourned the meeting.