US Army Corps
of Engineers
Baltimore District

DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT - APPENDIX B: PUBLIC AND AGENCY COORDINATION

MID-CHESAPEAKE BAY ISLANDS ECOSYSTEM RESTORATION PROJECT: JAMES ISLAND

DORCHESTER COUNTY, MARYLAND

MARCH 2024

Prepared by: U.S. Army Corps of Engineers, Baltimore District

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B1: Notice of Intent

Notice of Intent To Prepare a Supplemental Environmental Impact Statement for the Mid-Chesapeake Bay Islands Ecosystem Restoration Project at James Island

A Notice by the Engineers Corps on 11/07/2022

DOCUMENT DETAILS

Printed version:
PDF (https://www.govinfo.gov/content/pkg/FR-2022-11-07/pdf/2022-24164.pdf)

Publication Date:
11/07/2022 (/documents/2022/11/07)

Agencies:
Department of the Army, Corps of Engineers (https://www.federalregister.gov/agencies/engineers-corps)

Dates:
Comments and suggestions must be submitted by December 7, 2022.

Comments Close:
12/07/2022

Document Type:
Notice

Document Citation:
87 FR 67025

Page:
67025-67026 (2 pages)

Document Number:
2022-24164

DOCUMENT DETAILS

PUBLISHED DOCUMENT

AGENCY:

U.S. Army Corps of Engineers, DoD.

ACTION:

Notice of intent.

SUMMARY:

Pursuant to the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended, the Baltimore District of the U.S. Army Corps of Engineers (USACE), in partnership with the Maryland Department of Transportation's Maryland Port Administration, the non-federal sponsor, plans to prepare a supplemental Environmental Impact Statement (sEIS) for the Mid-Chesapeake Bay Island Ecosystem Restoration Project at James Island (Mid-Bay Island Project). The Mid-Chesapeake Islands Restoration Project recommends remote island restoration at James Island and Barren Island, both on the Eastern Shore of Maryland and in Dorchester County, MD, through the beneficial use of dredged material. The project addresses two needs: (1) the restoration of remote island habitat to benefit wildlife including a diverse assemblage of birds, fish, herpetofauna, and invertebrates; and (2) the beneficial use of dredged material from the maintenance of the approach channels to Baltimore Harbor. Remote islands, a critical ecosystem component in the Chesapeake Bay, are offshore landforms that provide isolation, lack of human disturbance, and few predators. These conditions uniquely support isolated nesting and foraging habitat for a diverse assemblage of wildlife. Extensive island habitat loss has occurred within the Mid-Chesapeake Bay, and James Island has nearly vanished. Sea level rise and related erosion, as well as land subsidence and wave action are the primary drivers of island loss. The project provides an opportunity to utilize 30 to 70 million cubic yards of clean dredged material over a 20-year period to restore 2,072 acres of remote island habitat at James Island including uplands and wetlands. The project would convert over 2,000 acres of shallow water habitat in the waters surrounding James Island to external dikes and island habitat. There are expected to be long-term changes to the aesthetics of the project area as an effect of the restoration of James Island in the landscape. The sEIS will update documentation for NEPA focused on the James Island component of the project. USACE is requesting to be provided any supporting information, analyses, and alternative identification relevant to the action being evaluated by this sEIS.

DATES:

Comments and suggestions must be submitted by December 7, 2022.

ADDRESSES:

Send written comments and suggestions concerning the scope of issues to be evaluated within the sEIS to Angie Sowers, Integrated Water Resources Management Specialist, U.S. Army Corps of Engineers, Baltimore District, Planning Division—Civil Project Development Branch, (CENAP–PLP), 2 Hopkins Plaza, Baltimore, MD 21201, or via email to *angela.sowers@usace.army.mil (mailto:angela.sowers@usace.army.mil)*.

FOR FURTHER INFORMATION CONTACT:

Questions about the overall Mid-Bay Island Project should be directed to Trevor Cyran, Project Manager at *trevor.p.cyran@usace.army.mil (mailto:trevor.p.cyran@usace.army.mil)* or at (410) 962–4999. Additional information is available on the project's web page: *https://www.nab.usace.army.mil/Mid-Bay (https://www.nab.usace.army.mil/Mid-Bay)*.

SUPPLEMENTARY INFORMATION:

1. Background

USACE-Baltimore received the authority to conduct the Mid-Chesapeake Bay Island Ecosystem Restoration Feasibility Study under the resolution of the Senate Committee on Environment and Public Works on 5 June 1997. The feasibility study recommended remote island restoration at James Island and Barren Island, both on the Eastern Shore of Maryland and in Dorchester County, through the beneficial use of dredged material. The study built upon the Federal and State's Dredged Material Management Plan (DMMP) planning efforts to identify beneficial use sites to meet dredged material capacity needs and habitat restoration goals. The feasibility study determined the technical, economic, and environmental feasibility of protecting, restoring, and creating aquatic, intertidal wetland, and upland habitat for fish and wildlife within the Mid-Bay Island Project study area using clean dredged material from the Upper Chesapeake Bay Approach Channels.

Section 7002 of the Water Resources Reform and Development Act (WRDA) of 2014 authorized the Mid-Bay Island Project, as described in the Chief's Report, (*https://planning.erdc.dren.mil/toolbox/library/ChiefReports/mid_chesapeake.pdf (https://planning.erdc.dren.mil/toolbox/library/ChiefReports/mid_chesapeake.pdf)*), dated August 2009, and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (IFR/EIS),* dated June 2009. The **Federal Register** notice (73 FR 56565 (/citation/73-FR-56565), September 29, 2008) for the EIS being supplemented is available at *https://www.govinfo.gov/content/pkg/FR-2008-09-29/pdf/E8-22764.pdf (https://www.govinfo.gov/content/pkg/FR-2008-09-29/pdf/E8-22764.pdf)*. The record of decision (ROD) was signed in July 2019 initiating the next phase of the study, Preconstruction Engineering and Design (PED). In March 2022, USACE published a supplemental Environmental Assessment (EA) with a signed finding of no significant impact (FONSI) to update NEPA compliance for the Barren Island component of the Mid-Bay Island Project. Acknowledging the scale of the James Island component of the project and the large-scale marine construction required to implement the project, a sEIS will be prepared.

The Mid-Bay Island Project recommended plan consists of restoring 2,072 acres of remote island habitat at James Island with a habitat proportion of 45% upland to 55% wetland, and an upland dike height of 20 ft MLLW.

Start Printed Page 67026

The Mid-Bay Island Project provides for the restoration of remote island habitat to benefit wildlife including a diverse assemblage of birds, fish, herpetofauna, and invertebrates; and the beneficial use of dredged material. Remote islands, a critical ecosystem component in the Chesapeake Bay, are offshore landforms that provide isolation, lack of human disturbance, and few predators. These conditions uniquely support isolated nesting and foraging habitat for a diverse assemblage of wildlife. Extensive island habitat loss has occurred within the Mid-Chesapeake Bay. James Island, historically at least 1300 acres, has dwindled in the past 20 years from three remnants totaling less than 100 acres to multiple remnants summing to approximately 3 acres. Sea level rise and related erosion, as well as land subsidence and wave action are the primary drivers of island loss. Simultaneously, the project provides an opportunity for the beneficial use of dredged material. More than 130 miles of dredged shipping channels serve the Port of Baltimore, and channel maintenance and improvement projects require that approximately 4 to 5 million cubic yards of sediment be dredged from the Federal and State channels each year, 3.2 mcy of which comes from the upper Chesapeake Bay approach channels and the southern approach channels to the C&D Canal. The project will provide approximately 90 to 95 mcy, or approximately 28 to 30 years of dredged material placement capacity to meet the annual need for maintenance dredging activity.

The purpose of the current effort is to update NEPA documentation for the James Island component of the Mid-Bay Island Project during the project's design phase. The NEPA coordination/review schedule for the project will be coordinated with the appropriate Federal and state resource agencies

2. Study Area

The project is located in estuarine waters adjacent to James Island in Dorchester County, MD. James Island is situated along the eastern shore of the Chesapeake Bay, outside the mouth of the Little Choptank River, and slightly northeast of Taylors Island.

3. USACE Decision Making

As required by the Council on Environmental Quality's Principles, Requirements and Guidelines for Water and Land Related Resources Implementation Studies (2013), alternatives to the proposed Federal action that meet the purpose and need will be considered in the sEIS. These alternatives will include no action, the recommended plan as authorized by Section 7002 of WRDA 2014, and minor adjustments to account for changing conditions since the feasibility report was completed in 2009. The measures to be evaluated will consider applicable public stakeholder and agency input received since the beginning of PED and through future outreach efforts.

4. Scoping/Public Participation

Prior scoping meetings were held as part of the feasibility study. Public outreach events were held in May and June 2021. An additional community outreach session is planned for Saturday, November 19, 2022 from 10 a.m. to 12 p.m. at the Hoopers Island Fire Department [2756 Hoopers Island Road, Fishing Creek, MD 21634]. Any additional scoping input can be provided at that meeting or provided to the contacts identified here within, for 30 days following the meeting until December 19, 2022. Public meetings will be conducted during the public review period of the draft sEIS.

5. Lead and Cooperating Agencies

USACE is the lead federal agency and the Maryland Department of Transportation's Maryland Port Administration is the nonfederal sponsor for the project. The preparation of the sEIS meets the requirements of the NEPA and its Implementing Regulations of the President's Council on Environmental Quality (40 CFR

1500–1508 (https://www.ecfr.gov/current/title-40/part-1500)). The U.S. Fish and Wildlife Service (FWS), the National Oceanic and Atmospheric Administration (NOAA), the U.S. Environmental Protection Agency (EPA), and the Maryland Department of Natural Resources (MDNR) have been invited to serve as cooperating agencies.

6. Alternatives To Be Considered

This sEIS evaluation will consider two alternatives: (1) No action, and (2) implementation of the feasibility study's recommended plan.

7. Study Schedule

The Draft sEIS is currently scheduled for distribution to the public in summer 2023, with a 45 day public review and comment period following release of the draft document.

8. Anticipated Impacts, Permits, and Authorization

The sEIS will analyze the full range of impacts, both beneficial and negative, of the alternatives. Potentially significant issues to be analyzed include impacts to waters of the United States, aquatic resources (including submerged aquatic vegetation), and endangered and threatened species and their habitats. Other impacts that will be analyzed include hydrology and water quality, air quality, navigation, cultural resources, aesthetics, environmental justice, and recreation. Anticipated permits and authorizations include water quality certification, Coastal Zone Consistency Determination, and a tidal wetlands license. In addition, many other federal, state, and local authorizations will be required for the Project. Applicable federal laws include the Endangered Species Act, Magnuson-Stevens Fishery Conservation and Management Act, Marine Mammals Protection Act, Rivers and Harbors Act, National Historic Preservation Act, Clean Water Act, and the Coastal Zone Management Act. USACE is also conducting government-to-government Tribal consultations.

Reinhard W. Koenig,

Programs Director, North Atlantic Division.

[FR Doc. 2022–24164 (/d/2022-24164) Filed 11–4–22; 8:45 am]

BILLING CODE 3720–58–P

PUBLISHED DOCUMENT

B2: Stakeholder Meetings

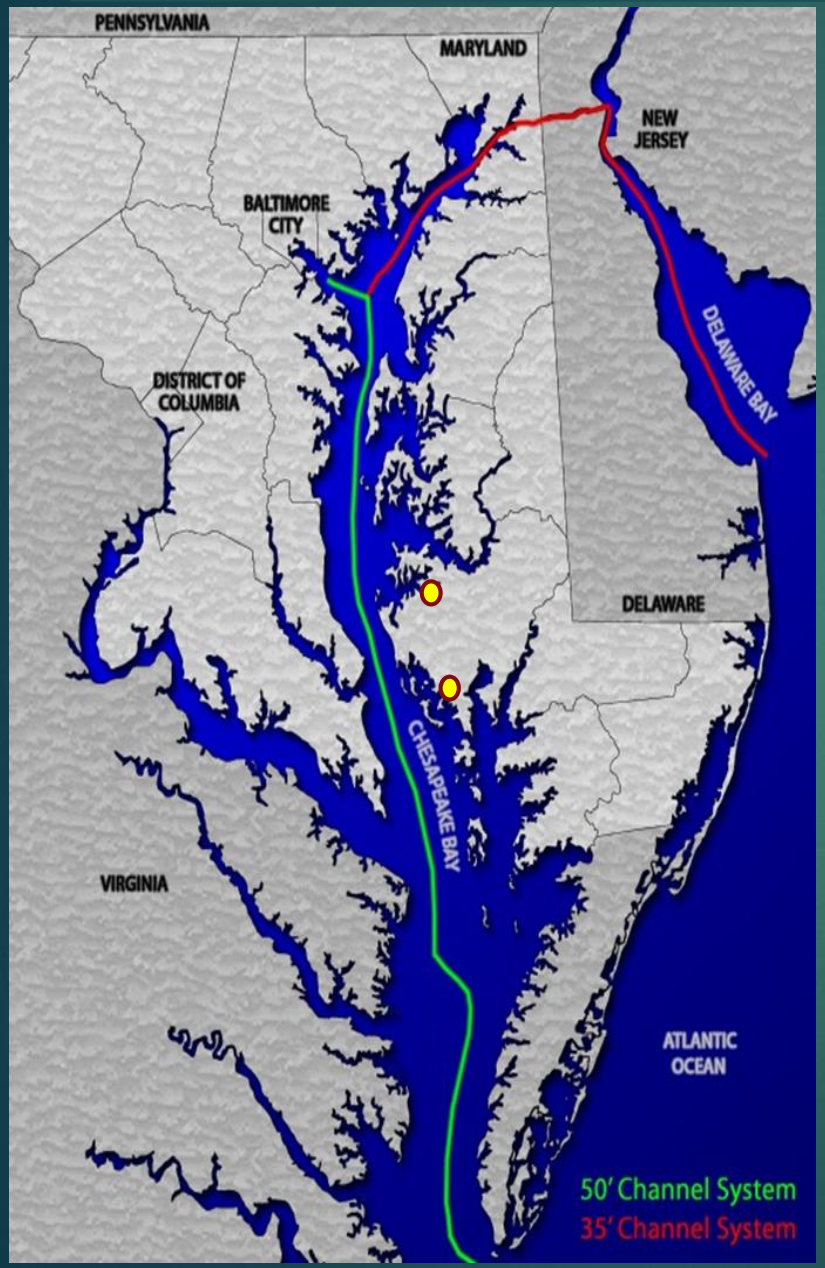
MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND PORT ADMINISTRATION

Mid-Chesapeake Bay Island Ecosystem Restoration Project Update

US Army Corps of Engineers ®
Baltimore District

Dorchester County Council December 17, 2019

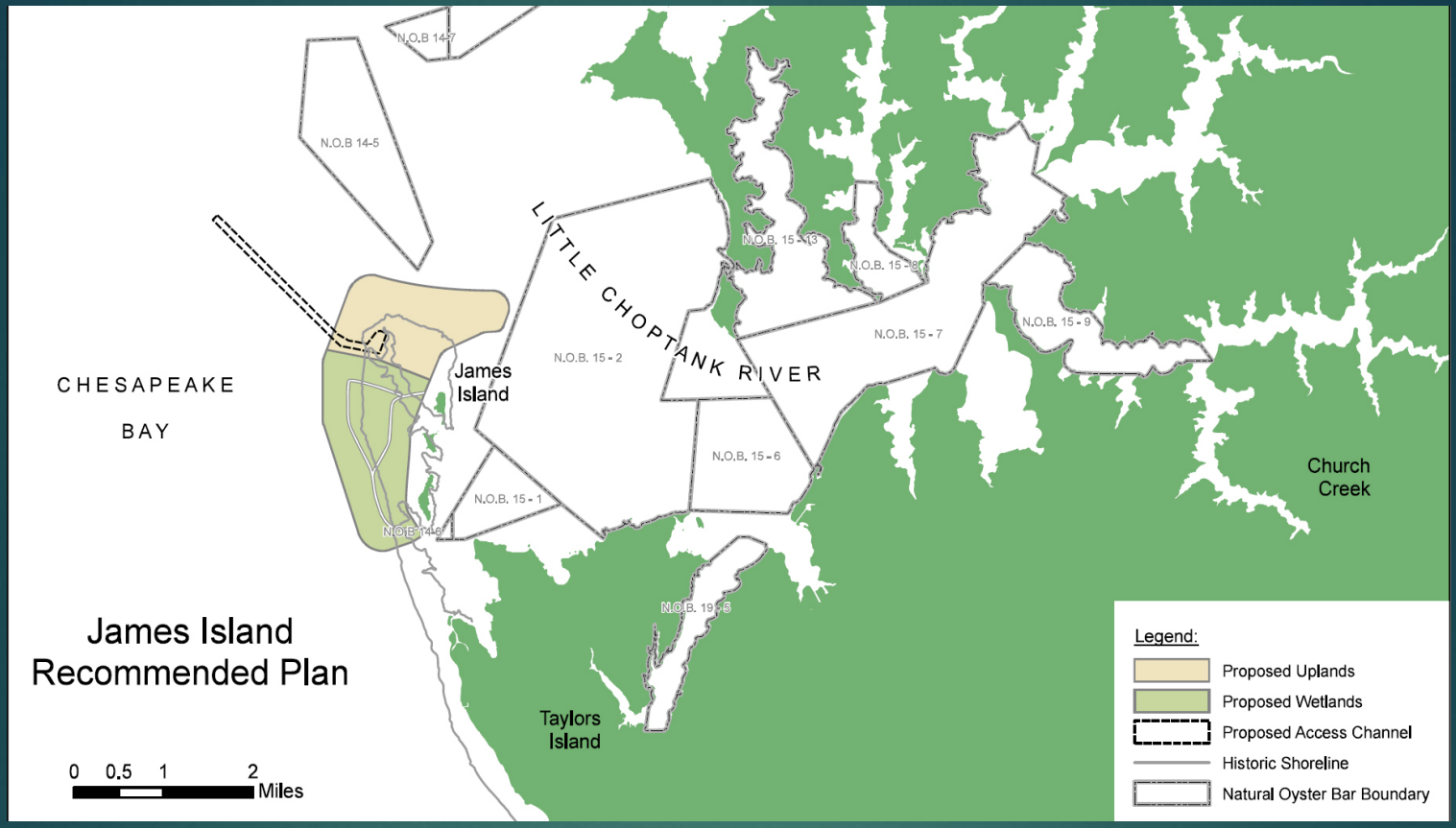
MD Navigational Channel System



- Maryland Department of Transportation Maryland Port Administration (MDOT MPA) is responsible for the waterborne commerce throughout the state
- Partnered with the US Army Corps of Engineers (USACE), the MDOT MPA maintains the depth of the Maryland channel systems through regular dredging
- The USACE and MDOT MPA maintain a 20-year Dredged Material Management Plan, which evaluated James and Barren Islands (Mid-Bay Project) as placement options, beneficially reusing materials for ecosystem restoration.

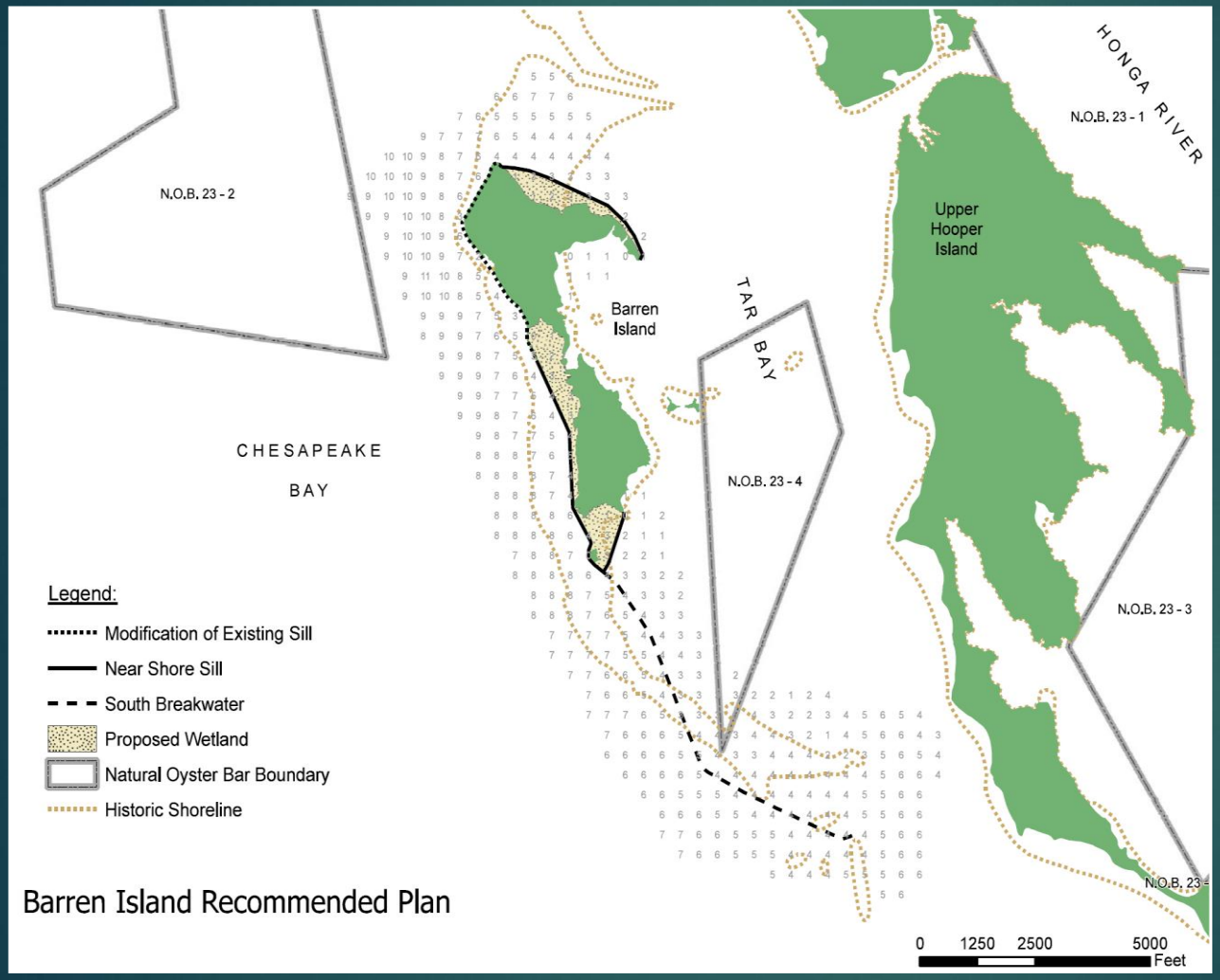
Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island

James Island – Recommended Plan



- Approximately 2,072 acres with ~55% wetlands and 45% uplands
- Final wetland percentages and design will be updated through the Preconstruction Engineering and Design (PED) process

Barren Island – Recommended Plan



Barren Island Recommended Plan

- Approximately 72 acres of wetlands restored and SAV
- Modification of Existing Sill
- Breakwater installation to the south
- Final design will be updated through the PED process

Mid-Bay Island Ecosystem Restoration Importance

- Provides >2,144 acres of remote island habitat (>1,000 acres of wetlands)
- Provides 90-95 million cubic yards of dredged material placement capacity over 45 years
- Protects >1,000 acres of submerged aquatic vegetation (SAV)
- No action would result in the complete loss of James and Barren Islands due to erosion

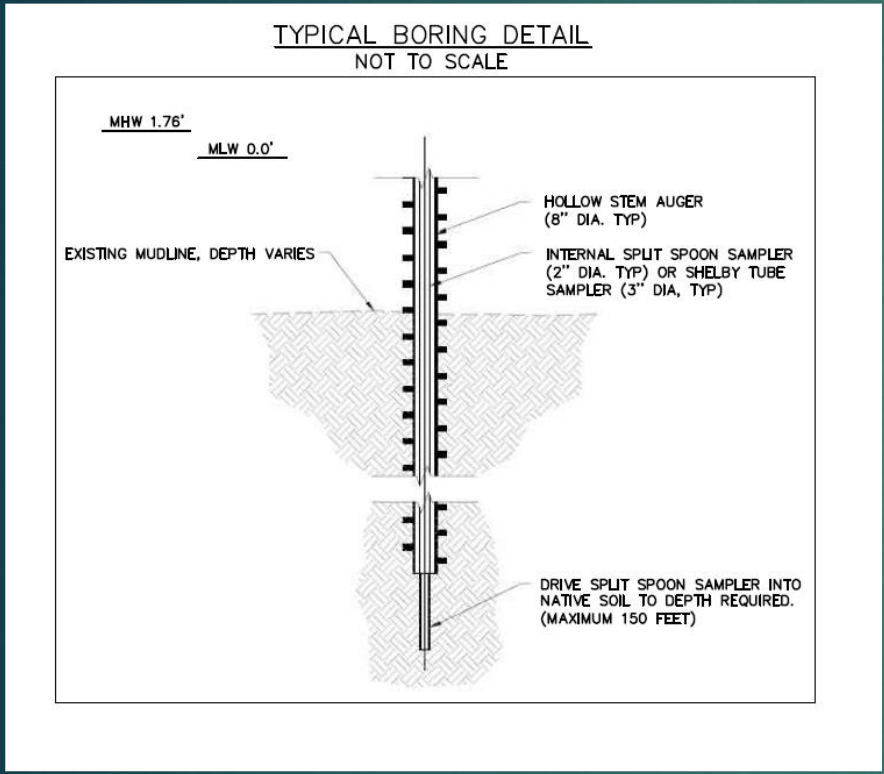
Mid-Bay Island Ecosystem Restoration Phases

1. Reconnaissance and Feasibility Studies
   - Identified Recommended Plans
   - Completed in 2008
2. **Preconstruction Engineering and Design**
   - **Current phase (completion ~ late 2023)**
3. Sill and Breakwater/Exterior Dike Construction
   - Following PED Phase & Funding Availability
   - Barren – ~2022-2024
   - James – ~2024-2028
4. Continued Construction (including habitat development) and Operations and Maintenance Activities
   - Barren - ~2024-2029 (including 5 yrs post-construction monitoring)
   - James - ~2028-2065 (including 5 yrs post-construction monitoring)

Mid-Bay Island Ecosystem Restoration PED Activities

- **Hydrology & Hydraulic Modeling (early 2020)**
- **Civil Engineering (early 2020)**
- **Geotechnical Engineering (early 2020)**
- Supplemental NEPA
- Real Estate Research
- Value Engineering Study
- Design Document Report
- Plans & Specification Development

Mid-Bay Island Ecosystem Restoration Geotechnical Boring/Drilling Activity



Typical Boring

Typical Drill Rig

- Investigations will be completed the first half of 2020 (schedule will be weather dependent) for Phase 1

Mid-Bay Island Ecosystem Restoration Contacts

- **MDOT MPA**

  Dave Blazer dblazer1@marylandports.com

  (410) 385-4465

- **USACE Baltimore District**

  Ray Tracey Raymond.M.Tracy@usace.army.mil

  (410) 962-6114


Maryland Department of Transportation Maryland Port Administration
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Learn more about the MPA's work for the economy, community, and environment:
· GreenPort website: www.marylandports.com/greenport
· Maryland Port Administration website: www.marylandports.com
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2021 MDOT MPA SPOTLIGHT SERIES

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND PORT ADMINISTRATION

Wednesday, May 19, 2021
5:30pm EST

Mid-Chesapeake Bay Island Ecosystem Restoration Project

This year marks the 20th anniversary of Maryland's Dredged Material Management Act, a tremendous effort which has guided how we manage dredged material successfully in ways that are good for our economy, our communities, and our environment. Join us for an informative discussion that will spotlight the Mid-Bay Ecosystem Restoration Project, a future dredged material placement site that will restore and expand beneficial island habitat in the Chesapeake. This will be hosted virtually, and is free and open to the public.

For more information click link below or go to **www.maryland-dmmp.com**

REGISTER HERE

FEATURED SPEAKERS

Holly Miller: MDOT MPA

Trevor Cyran: US Army Corps of Engineers

Angie Sowers: US Army Corps of Engineers

Chris Guy: US Fish and Wildlife Service

Moderated by Kristen Keene: MDOT MPA

PORT OF BALTIMORE 1706 Helen Delich Bentley

Dredged Material Management Act
Commemorating 20 Years
2001-2021

Maryland-DMMP.com

Project History and National Environmental Policy Act Compliance

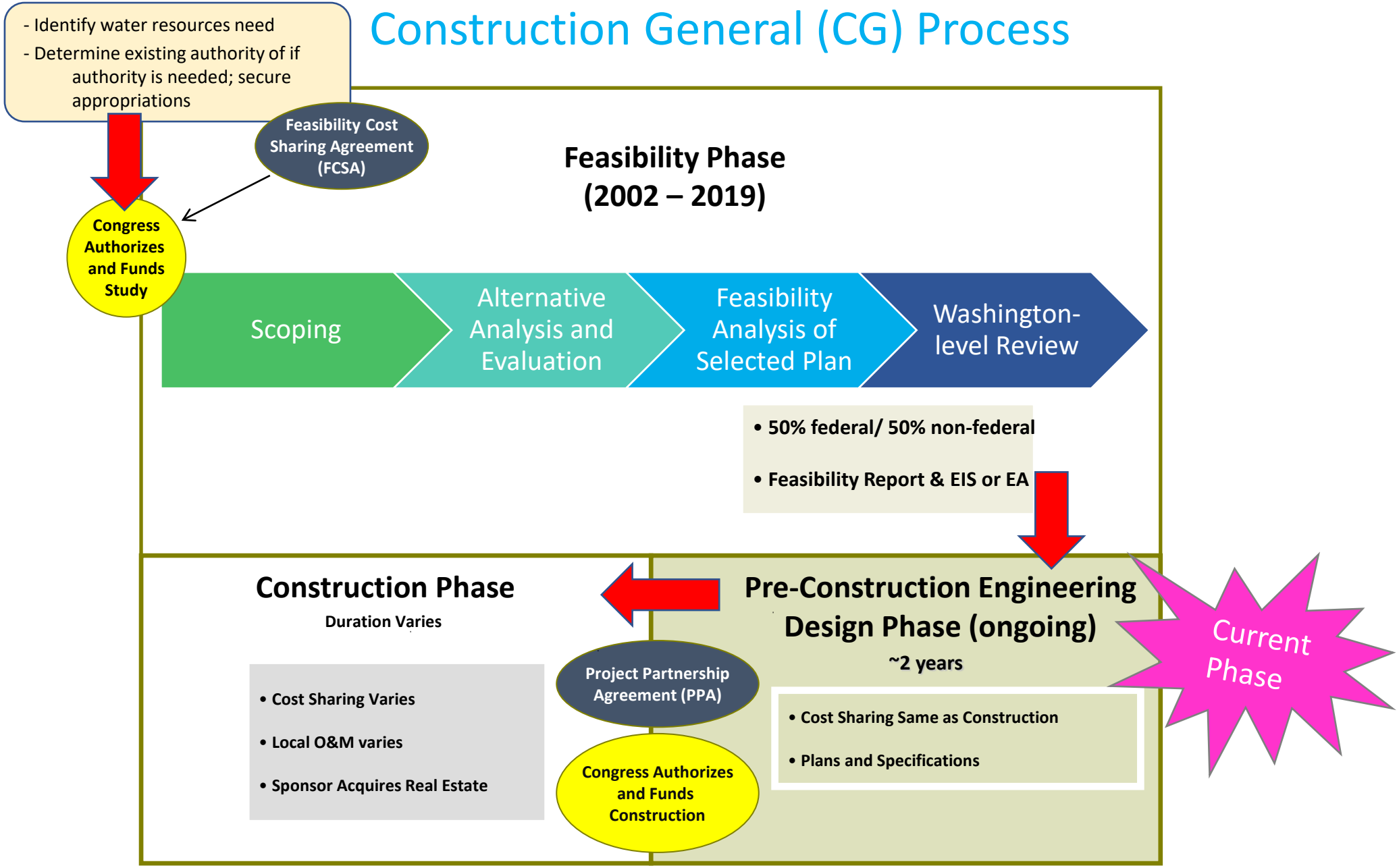
Mid-Bay
ISLAND ECOSYSTEM RESTORATION PROJECT

Angie Sowers, Ph D
USACE

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND PORT ADMINISTRATION

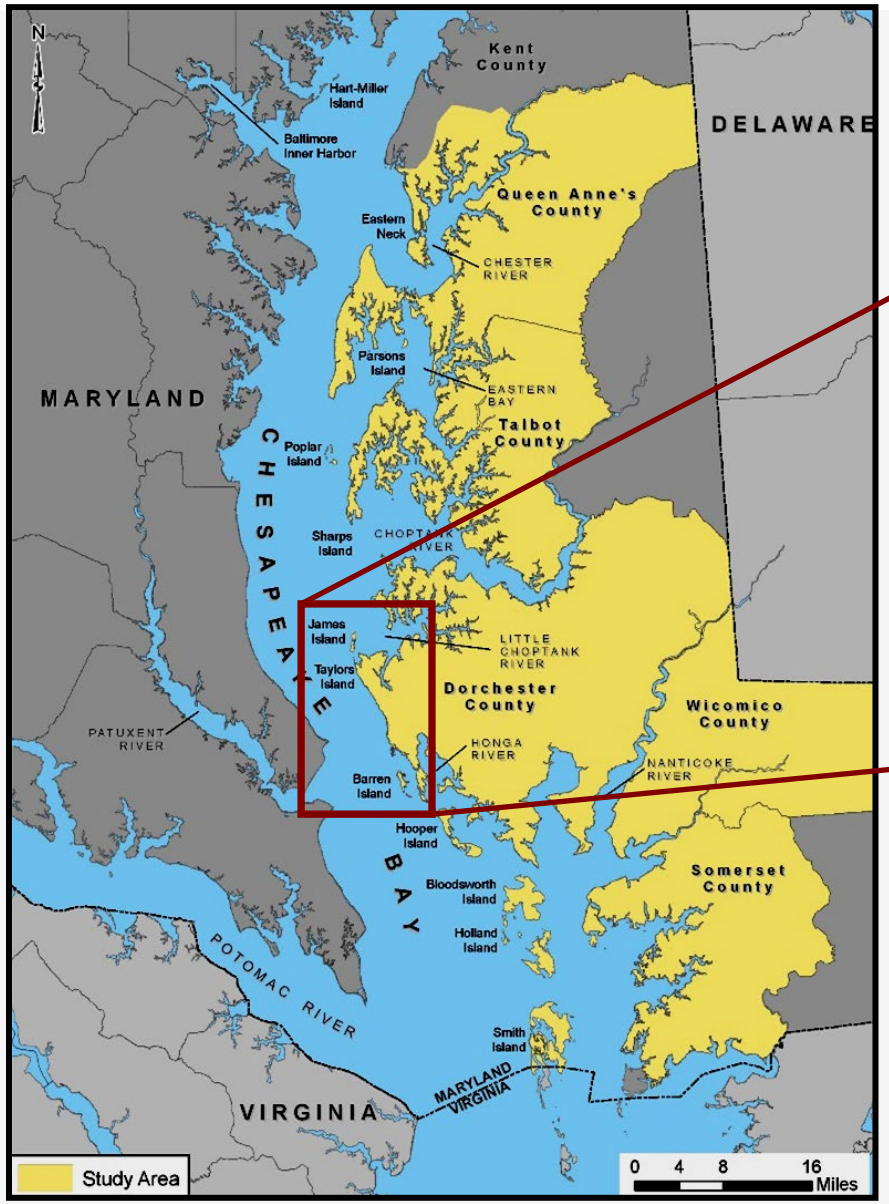
US Army Corps of Engineers ®
Baltimore District

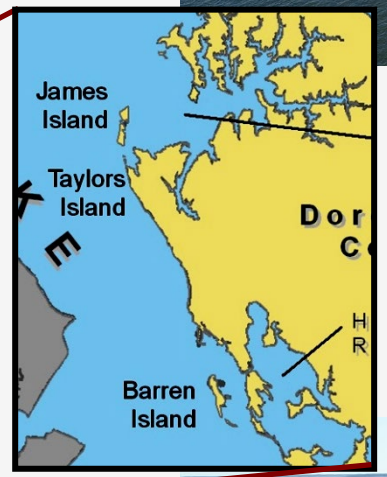
Civil Works General Investigation (GI)/ Construction General (CG) Process



Project History:
Feasibility Phase 2002 – 2019

Project Location





Project Purpose

- Restore and protect wetland, aquatic, and terrestrial remote island habitat for fish, reptiles, amphibians, birds, and mammals;
- Protect existing remote island ecosystems to prevent further loss of island and aquatic habitat;
- Provide dredged material placement capacity for Federal navigation channels;
- Increase wetlands acreage in the Chesapeake Bay watershed;
- Decrease local erosion and turbidity;
- Promote conditions to establish and enhance submerged aquatic vegetation; and
- Promote conditions that support oyster recolonization.

Mid-Bay Integrated Feasibility Report and Environmental Impact Statement (2009)

Mid-Bay Integrated Feasibility Report and Environmental Impact Statement

↓

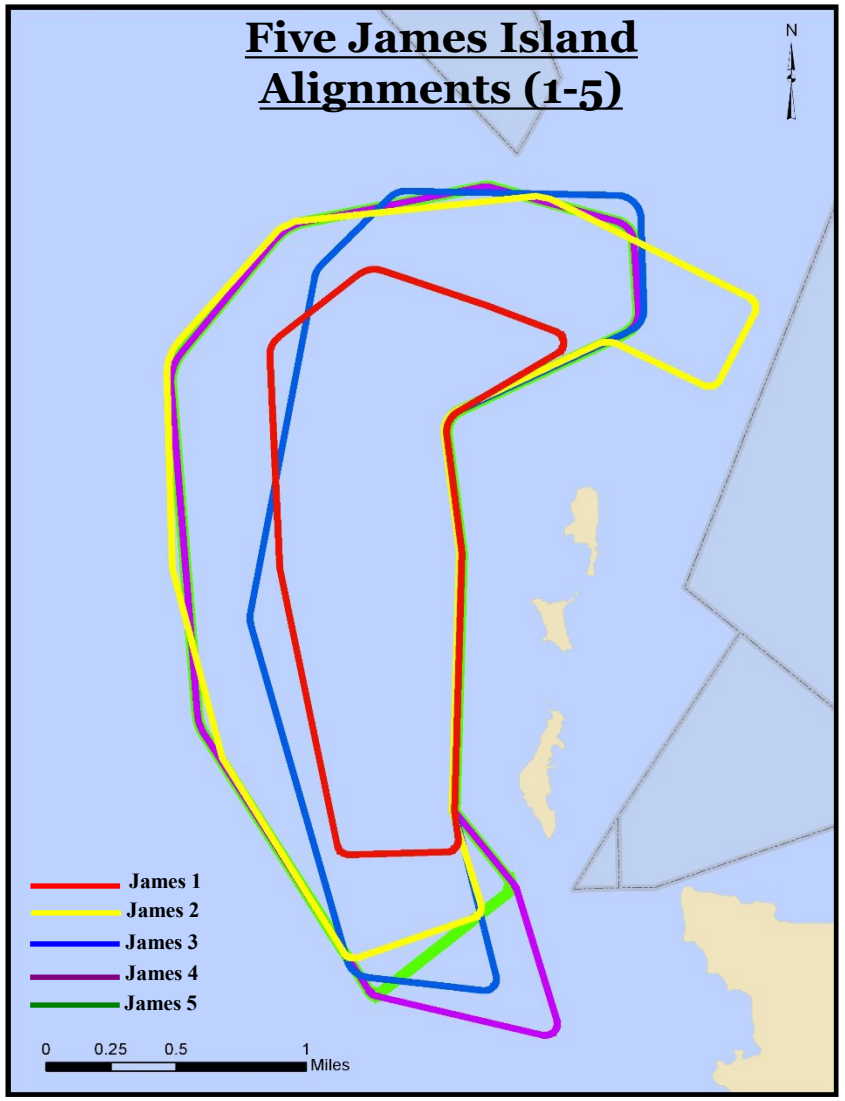
105 Potential Island Location → 2 Islands

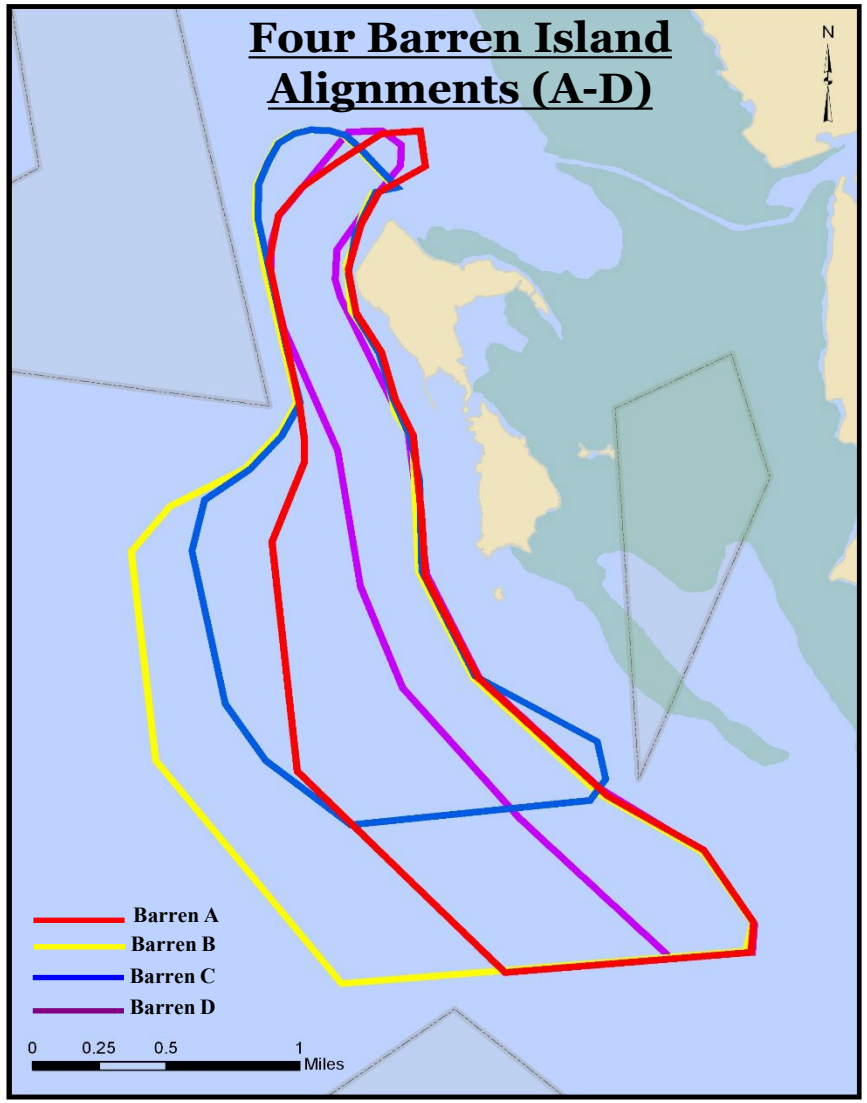
↓

2 Islands → 29 Alignments

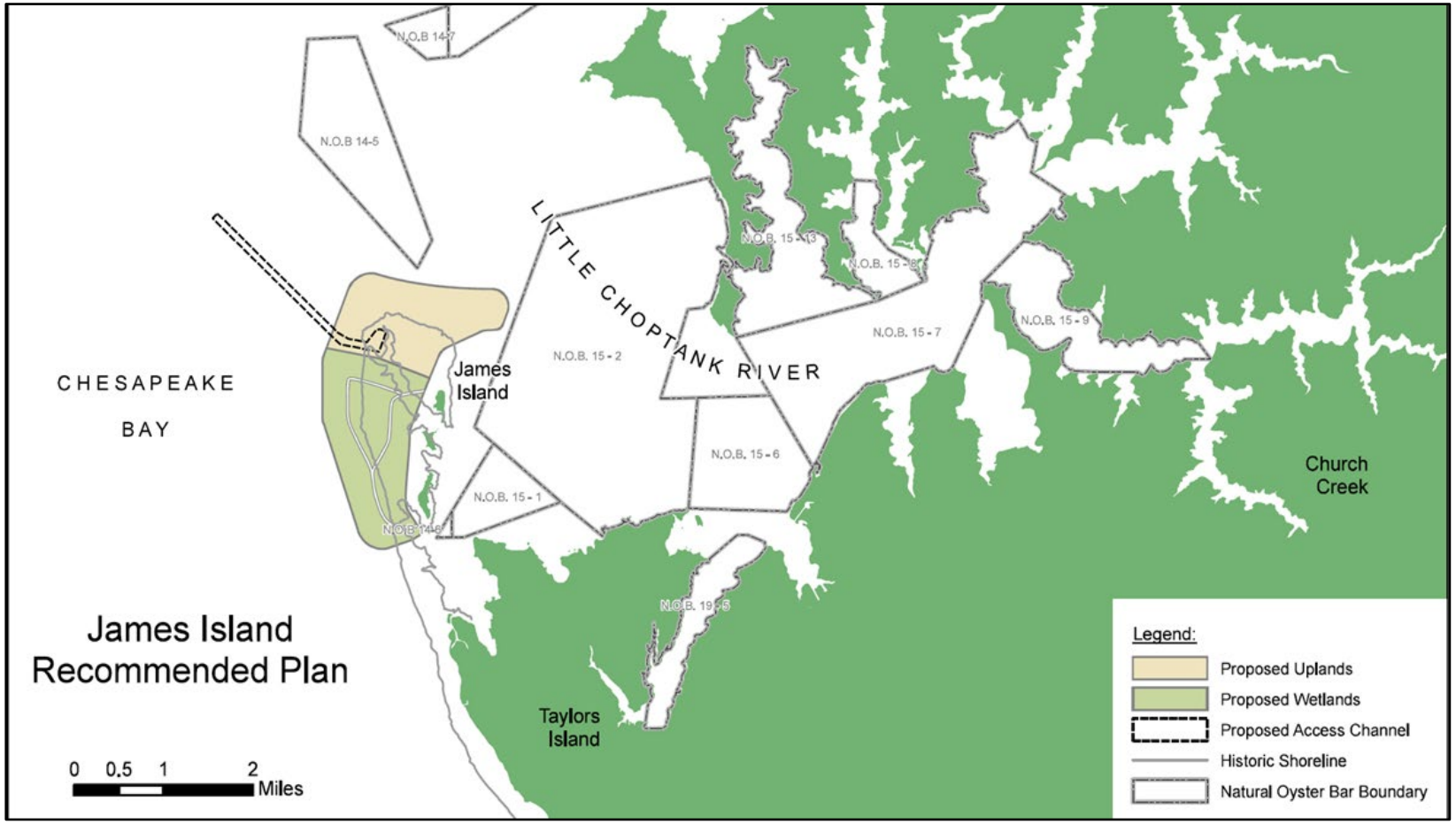
Mid-Chesapeake Bay Island Ecosystem Feasibility Phase Analysis

Alignments Evaluated



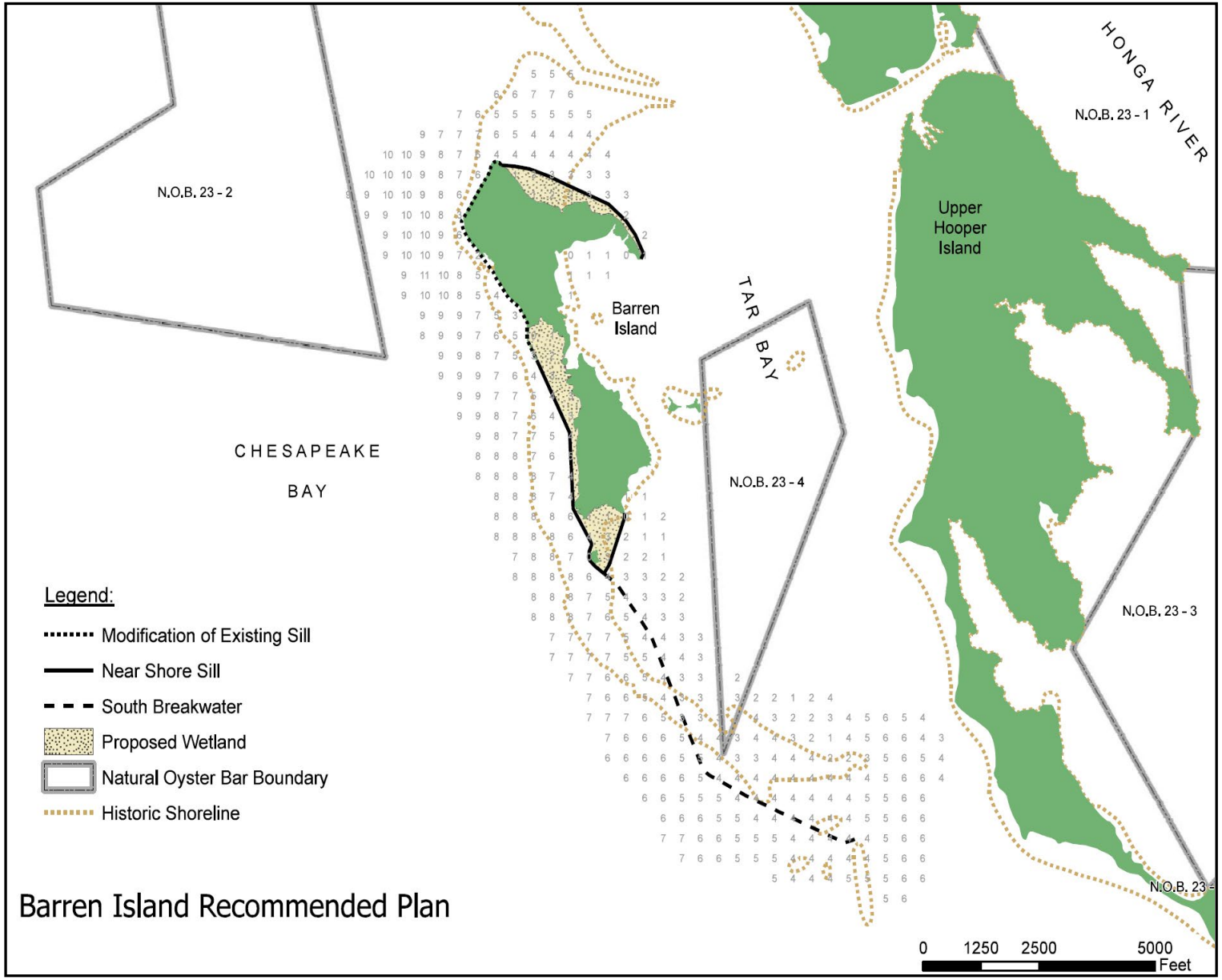


James Island – Recommended Plan (Feasibility)



- 2,072 acres
- 55% wetland, 45% upland
- Upland dike height: 20 ft
- Access Channel Dredging
- Capacity: 90-95 mcy
- Placement Duration: 30+ years
- Design Features
  - Tidal channels through wetlands
  - Freshwater ponds
  - Intertidal/unvegetated mudflats
  - Bird nesting structures

Barren Island – Recommended Plan (Feasibility)



- 72 acres of wetland restoration, plus protection of existing island remnants and seagrass beds
- Sill height: 4 ft
- Southern Breakwater height: 6 ft
- Design Features:
  - Existing sill modifications
  - Northern sill construction
  - Southern breakwater construction

THE RECOMMENDED PLAN FROM FEASIBILITY HAS BEEN UPDATED IN THE CURRENT PHASE.

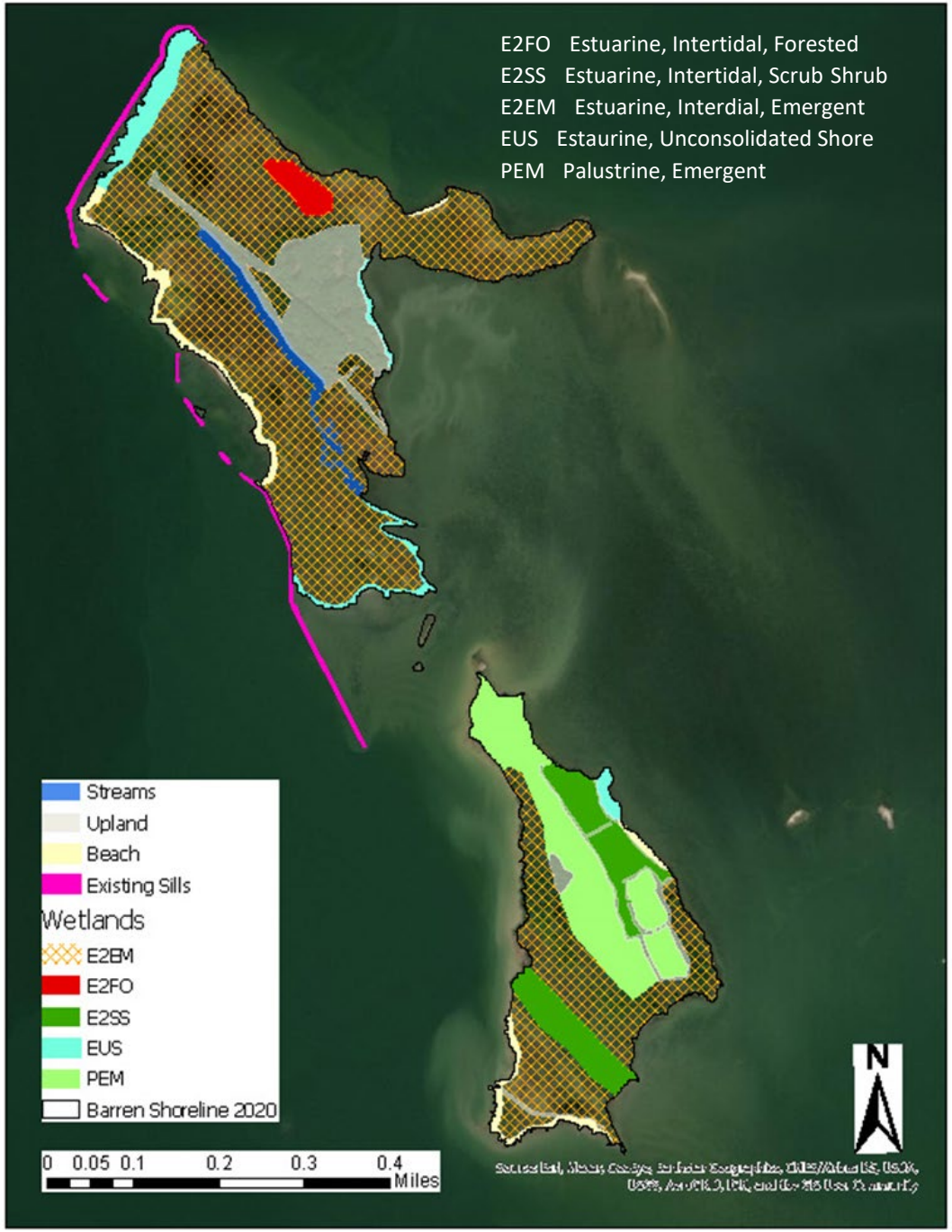
Project Overview:
Pre-Construction Engineering Design Phase 2020 - ongoing

BARREN ISLAND COMPONENT

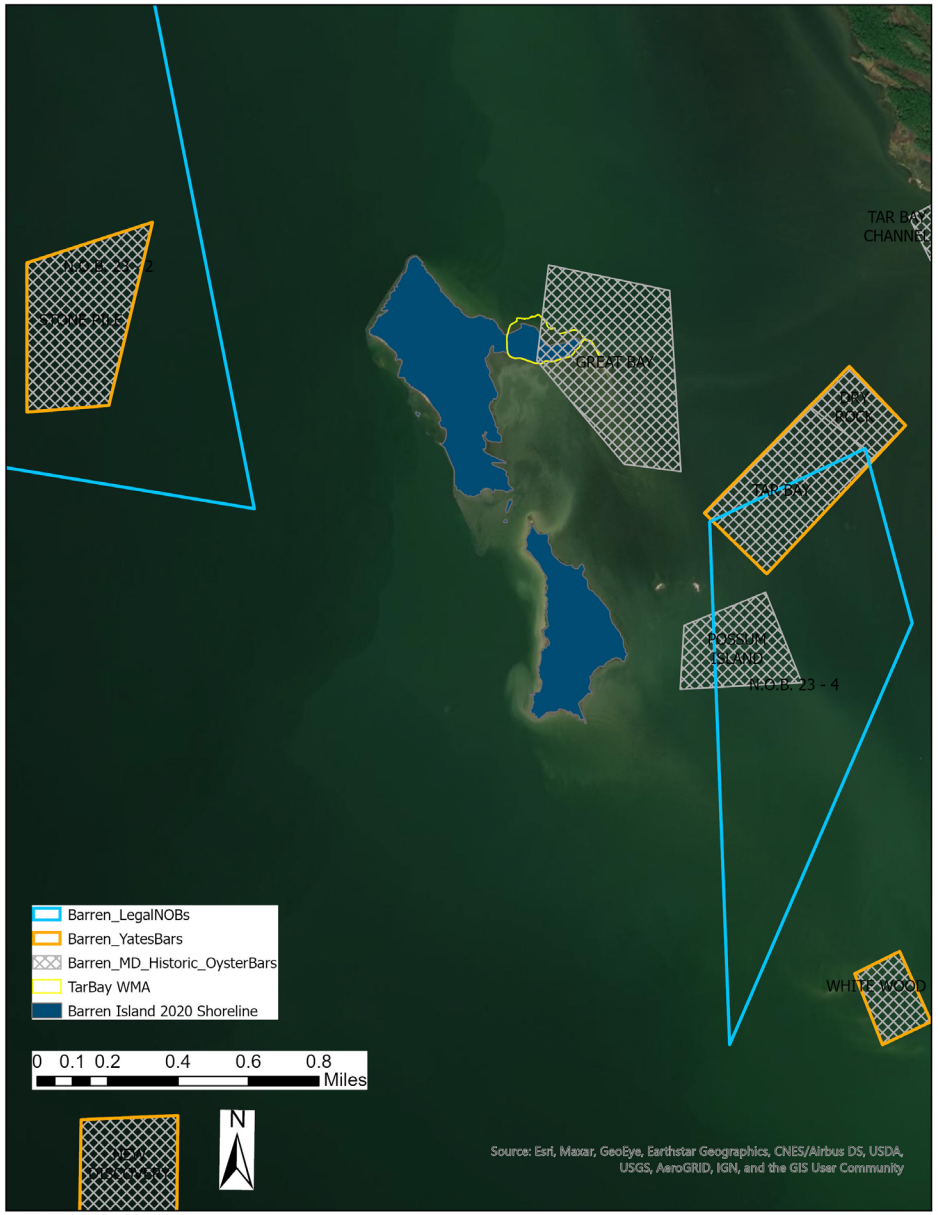
Barren Island: Current Conditions

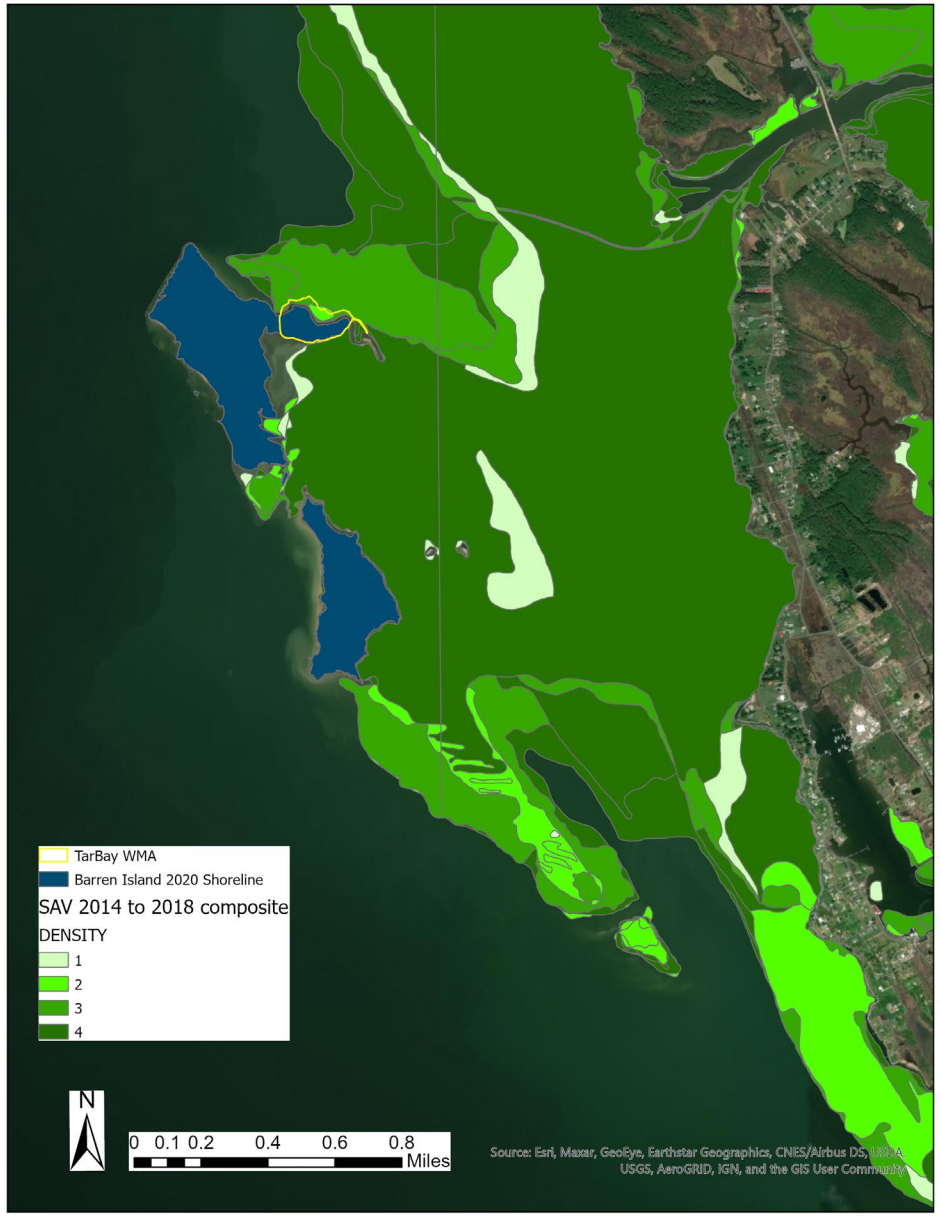
- 138 acres - primarily wetlands

- Variety of habitats including:
  - Unconsolidated shore
  - Wetlands
    - Emergent (75% of wetlands), shrub scrub, forested, and palustrine wetlands
    - Greater diversity of wetland types on southern remnant
  - Beach
  - Uplands
  - Existing sills to the west (protect previous shoreline restoration projects)



Current Conditions: Oysters and SAV





Barren Island Restoration Plan

- 13,023 linear feet of sill
- 4,620 linear feet of breakwater
- 2 bird island (8.5 acres total)
- Minimum of 72 acres of wetland and intertidal mudflats

NEPA Considerations (National Environmental Policy Act

Development of a supplemental Environmental Assessment

Environmental Compliance

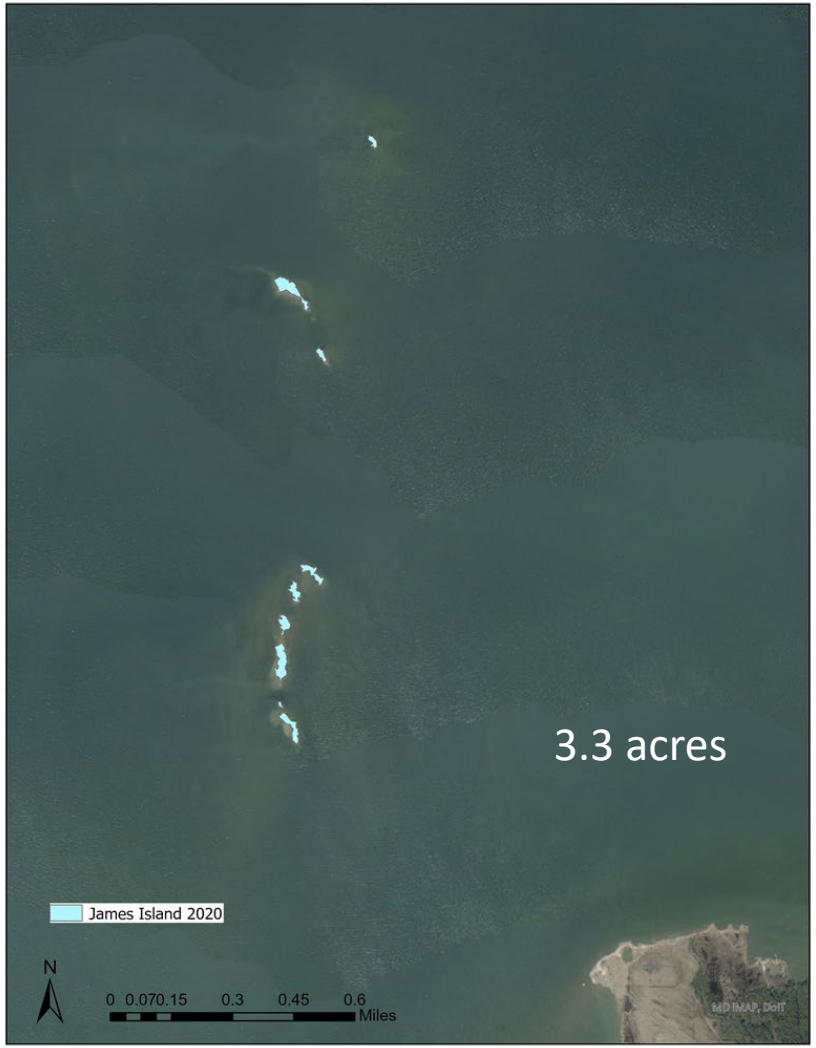
- Draft Feasibility Study/EIS was released in August 2006; Final – 2009; ROD signed 2019
- Received highest rating (lack of objections) from US Environmental Protection Agency
- No major objections or comments were received
- During process of updating NEPA in 2017 to enable the ROD to be signed, it was decided with relevant resource agencies to complete the update during this phase of the project
  - Magnuson-Stevens Act (Essential Fish Habitat)
  - Endangered Species Act
  - Fish and Wildlife Coordination Act
  - Clean Water Act – Section 401 and 404
  - National Historic Preservation Act
  - Critical Area Commission review

Environmental Surveys – Sampling Plan

- Surveys are being conducted summer 2020 through summer 2021 include:
  - Water quality
  - Benthic invertebrates
  - Submerged aquatic vegetation
  - Fisheries: Bottom trawl, beach seine, gillnet, and pop net
  - Soft-shell and razor clam
  - Pound net telephone survey
  - Commercial harvest data collection
  - Crab pot survey
  - Avian
  - Predatory mammals

James Island – some initial results

- No terrestrial habitat left – survey included shoreline, mudflat, salt marsh, and open water.
- Condition of remaining habitat resulted in changes to sampling locations from feasibility studies.
- Because of lack of habitat diversity, the species list was mostly water birds and shorebirds.
- Spring surveys identified nesting by American oystercatcher, Canada geese, and Great blue heron.



Barren Island – some initial results

- Habitats were more diverse –survey included shoreline, mudflat, salt marsh, and open water plus forest and scrub shrub
- Spring surveys identified red fox, river otter, racoon, deer, muskrat, box turtle, spotted turtle
- Marsh habitat
  - Hundreds of brown pelicans and double-crested cormorants
  - Shorebirds - sanderling, spotted sandpiper, and semipalmated plover
  - Terns, gulls, and raptors, plus some clapper rails and wading birds in the marshes
  - Terrestrial birds included migrant warblers, flycatchers, hummingbirds, resident brown-headed nuthatches, Carolina wrens, pine warblers, and cardinals

Barren Island NEPA Schedule

- Permitting – April 2021 – April 2022
- 35% Design Complete – April/May 2021
- 65% Design Complete – October 2021
- NEPA: sEA Public Review – December 2021
- Signed FONSI (Finding of No Significant Impact) – March 2022
- Construction Begins – Summer 2022

Questions?

Mid-Bay ISLAND ECOSYSTEM RESTORATION PROJECT

US Army Corps of Engineers ® Baltimore District

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND PORT ADMINISTRATION

Agenda

November 6, 2021
Madison Volunteer Fire Department
1154 Taylors Island Road
Madison, MD 21648

10:00 - 10:15 Sign-In and Light Refreshments *Inside Fire Hall*

10:15 - 10:20 Welcome and Introductions *Inside Fire Hall*

Kristen Keene MDOT MPA
Trevor Cyran USACE

10:20 - 12:00 Poster Sessions *Outside Lawn*

Station 1: Meet the Port of Baltimore

Kristen Keene MDOT MPA

Station 2: Meet U.S. Army Corps of Engineers - Baltimore District

Brittany Crissman USACE

Station 3: Dredging

Dave Bibo MDOT MPA

Station 4: James Island and Barren Island Restoration Plans & Benefits to the Community

Holly Miller MDOT MPA
Trevor Cyran USACE

Station 5: Mid-Bay Island Ecosystem Restoration Project Phases

Maura Morris MES

Station 6: A Success Story - Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island

Justin Callahan USACE
Katie Perkins USACE
Michelle Osborn MES

YOU'RE INVITED!

MID-BAY ISLAND ECOSYSTEM RESTORATION PROJECT

COMMUNITY POSTER SESSION

The Maryland Department of Transportation Maryland Port Administration (MDOT MPA) and U.S. Army Corps of Engineers, Baltimore District (USACE) would like to invite you to a Community Poster Session to provide general project updates and present information on the first phase of construction for Barren Island, which is anticipated to begin in Fall 2022.

The session will also provide Stakeholders an opportunity to provide comments to partners on the James Island component of the project, as we initiate a Supplemental Environmental Impact Statement (EIS) to update National Environmental Policy Act (NEPA) compliance.

NOVEMBER 19, 2022

10:00 AM- 12:00 PM

HOOPERS ISLAND FIRE DEPARTMENT

2756 Hoopers Island Road
Fishing Creek, MD 21634

QUESTIONS? CONTACT:

Rachael Gilde
Rgilde@marylandports.com

Additional information, visit: maryland-dmmp.com

US Army Corps of Engineers

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND PORT ADMINISTRATION

Mid-Chesapeake Bay Island

Ecosystem Restoration Project

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND PORT ADMINISTRATION

Funding was included in the U.S. Army Corps of Engineers (USACE) federal fiscal year 2020 work plan for the Mid-Chesapeake Bay Island Project, which will restore two eroding Chesapeake Bay islands, James and Barren. Sediment dredged from navigation channels will create more wildlife habitat and restore the ecosystem of these islands, providing protection from erosion by reducing wave heights. The federal work plan provides funding to continue planning and design. Construction funding is still needed for project implementation.

MAINTAINING SHIPPING CHANNELS HELPS RESTORE HABITAT

In September 2008, USACE, Baltimore District, released the Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report & Environmental Impact Statement (EIS). The study examined the feasibility of protecting and restoring aquatic, intertidal wetland, and upland habitat for fish and wildlife at James and Barren Islands utilizing dredged material from local navigation channels and the federal Chesapeake Bay approach channels serving the Port of Baltimore and the Chesapeake and Delaware Canal. After careful review and consideration of technical, economic, and environmental factors, as well as stakeholder input, it was determined that restoration of James Island and Barren Island was the preferred alternative.

LOCATION

James Island, located in Dorchester County directly adjacent to Taylors Island in the Chesapeake Bay

LOCATION

Barren Island, located in Dorchester County near Blackwater National Wildlife Refuge and directly adjacent to Upper Hooper Island in the Chesapeake Bay

2,144 ACRES

Total anticipated restoration footprint
Total anticipated capacity: 90-95 mcy

4-year engineering and design phase is underway

The entire project would provide more than 30 years of capacity, which will be critical when Poplar Island reaches capacity

If fully funded, James & Barren Islands could act as a buffer to protect nearby waterfront communities

NOVEMBER 2021

Mid-Chesapeake Bay Island

James Island

RESTORATION

The restoration of James Island, located in Dorchester County directly adjacent to Taylors Island in the Chesapeake Bay, will utilize dredged material from the Chesapeake Bay approach channels serving the Port of Baltimore to restore 2,072 acres of lost remote island habitat. Approximately 45% of the dredged material placement site will provide upland habitat and 55% wetland habitat.

The restoration of Barren Island, located in Dorchester County near Blackwater National Wildlife Refuge and directly adjacent to Upper Hooper Island in the Chesapeake Bay, will utilize dredged material from the Honga River to restore a minimum of 72 acres of remote island habitat. The restoration will also include the installation of stone sills and a large protective breakwater. The newly formed wetlands and structures will slow not only the erosion of Barren Island itself but also the adjacent land.

Barren Island

ACCESS

MDOT MPA will engage with local community stakeholders concerning access and recreation.

Given the success of the Poplar Island Ecosystem Restoration Project, the restored islands are expected to provide valuable habitat to a diverse array of wildlife while maintaining the economic viability of the Port of Baltimore. This will greatly aid in achieving the Chesapeake Bay Program's Vital Habitats Goal.

National Aquarium

"Keeping the community engaged and informed about this exciting project to restore James and Barren islands is our top priority. MDOT MPA is working closely with USACE, area residents, and community groups in Dorchester County to provide information and updates on the Mid-Bay project."

-MDOT MPA Director of Harbor Development Kristen Fidler

Mid-Bay
ISLAND ECOSYSTEM RESTORATION PROJECT

US Army Corps of Engineers ®
Baltimore District

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND PORT ADMINISTRATION

Phases & Timeline

Reconnaissance and Feasibility Studies

- Identified recommended plans
- Environmental Impact Statement (EIS) finalized in 2009
- National Environmental Policy Act (NEPA) completed by signing of the Record of Decision (ROD) in 2019

Preliminary Design

- Completion ~ 2025
  - Hydrology & Hydraulic Modeling
  - Civil Engineering
  - Geotechnical Engineering
  - Supplemental NEPA[1, 2]
  - Real Estate Research
  - Value Engineering Study
  - Design Document Report
  - Plans & Specification Development

Construction and Continued Design

- Contingent upon funding availability
  - Barren Island - ~ 2023-2026
    (may include first inflow of dredged material)
  - James Island - ~ 2025-2030

Continued Construction and Restoration Efforts

- Barren Island - Beginning in ~ 2027-2037
  - Restoration efforts depend on availability of material
  - Includes 5 years post-construction monitoring
- James Island - Beginning in ~ 2030-2067
  - Includes 5 years post-construction monitoring

1 Barren Island - Finalized Supplemental Environmental Assessment and Finding of No Significant Impact signed in March 2022.

2 James Island - Supplemental EIS Public Review in Summer 2023 and ROD/NEPA completed in Summer 2024.

SASSAFRAS RIVER

BREWERTON EASTERN EXTENTION

TOLCHESTER CHANNEL

SWAN POINT CHANNEL

BREWERTON CHANNEL

CUTOFF ANGLE

CRAIGHILL UPPER RANGE

CRAIGHILL ANGLE

CRAIGHILL CHANNEL

CRAIGHILL ENTRANCE

PATAPSCO RIVER

QUEEN ANNE'S COUNTY

ANNE ARUNDEL COUNTY

EASTERN BAY

POPLAR ISLAND

TALBOT COUNTY

CAROLINE COUNTY

CHESAPEAKE BAY

TILGHMAN ISLAND

CHOPTANK RIVER

CALVERT COUNTY

FUTURE JAMES ISLAND

TAYLORS ISLAND

CHURCH CREEK

DORCHESTER COUNTY

LEGEND

DREDGED MATERIAL SOURCED FROM THESE CHANNELS WILL POTENTIALLY BE USED FOR THE RESTORATION OF JAMES ISLAND.

MD BAY CHANNELS

C&D CANAL LOWER APPROACH CHANNELS

NOTE:

1. C&D CANAL AND ITS UPPER APPROACH CHANNELS WILL NOT HAVE DREDGED MATERIAL PLACED AT JAMES ISLAND UNLESS AND UNTIL PEARCE CREEK DMCF BECOMES UNAVAILABLE.
2. JAMES ISLAND RECOMMENDED PLAN SHOWN (PLEASE NOTE THE PLAN MAY BE MODIFIED IN THE PRECONSTRUCTION ENGINEERING AND DESIGN PHASE BASED ON DATA OBTAINED)

0 10,000' 20,000'

GRAPHIC SCALE

James Island Recommended Plan

Features

Design
- Upland dike height (20 ft)
- Access channel dredging
- Habitat design

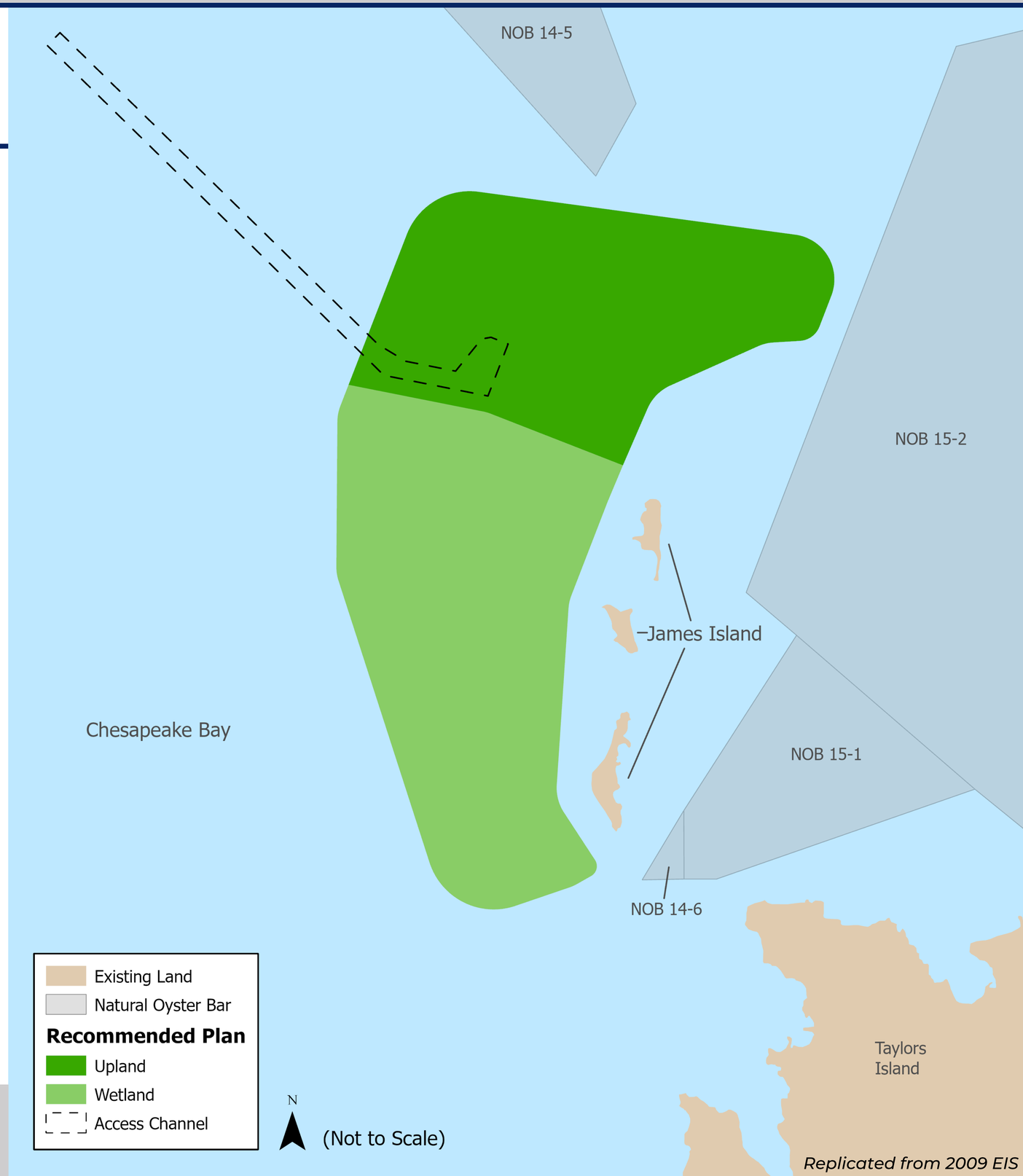
Acreage
- 2,072 acres

Wetlands
- 55% Wetlands

Uplands
- 45% Upland

Capacity
- 90- 95 million cubic yards (mcy)

Placement Duration
- 28- 30 years



Mid-Bay ISLAND ECOSYSTEM RESTORATION PROJECT

US Army Corps of Engineers® Baltimore District

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND PORT ADMINISTRATION

Mid-Bay
ISLAND ECOSYSTEM RESTORATION PROJECT

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Project Milestones - Barren & James Islands

Barren Island

- **2020** — Preliminary Design
- **2023** — Sill, Breakwater and Bird Island Construction & Continued Design
- **2027** — Continued Construction, Inflow & Restoration Efforts
- **Future**

James Island

- **2020** — Preliminary Design
- **2025** —
- **2026** — Containment Dike and Island Facility Construction & Continued Design
- **2030** —
- **2031** — Continued Construction, Inflow & Restoration Efforts
- **Future**





Environmental Impact Statement (EIS) Finalized in 2009

B3: Public Notice -- PLACEHOLDER FOR FINAL

B4: Agency Coordination/NEPA Meetings

Mid-Bay Island Ecosystem Restoration Project
Design Phase
Agency Coordination Kick-off Meeting

22 January 2020; 10:00 - 12:00 p.m.

1. Project background
2. Purpose of Design Phase and approach for two islands
3. Initial schedule
4. Current activities
    a. Scope development
    b. NEPA/Agency coordination
5. Review of Feasibility Phase biological surveys
6. Discussion of agency perspectives
    a. Identify Design Phase surveys and data needs
7. Path Forward and Action Items

Mid-Bay Island Ecosystem Restoration Project
Design Phase
Agency Coordination Kick-off Meeting

Meeting Minutes

22 January 2020; 10:00 - 12:00 p.m.

Participants:
USACE – Charles Leasure, Angie Sowers, Ray Tracy
MPA – Dave Bibo, Amanda Penefiel
MES – Cassandra Carr, Maura Morris
MDE – Heather Nelson, Mary Phipps-Dickerson
DNR – Dave Brinker, Roland Limpert
FWS – Robbie Callahan, Chris Guy, Matt Whitbeck
NMFS staff on phone – Kristy Beard, Karen Greene, Brian Hopper, Dave O'Brien

USACE (Sowers) provided a summary of the project, purpose of the design phase, two island approach, initial schedule, and status of current activities.

Current activities are focused on developing scope of works for various aspects of the project, and initiating NEPA and agency coordination.

Objectives of this meeting were to re-introduce the project to resource agencies, initiate agency coordination, receive initial input and direction from resource agencies as to tasks on which to focus NEPA update, and discuss survey and data needs. USACE (Sowers) provided a summary of Feasibility Phase biological surveys. Ensuing discussion is summarized below:

NMFS

1. Conditions have changed - have seen water temperature increases, possible change in species
2. Can check in with NCBO about current data that could characterize current conditions - contact Bruce Vogt
3. With respect to seasonality of future surveys - all four seasons are normally documented
4. SAV is more important to NMFS than island habitat
5. Focus SAV surveys where design will overlap SAV presence. Density will determine if it can be impacted (K. Beard).

FWS

1. Benthic invertebrates are a prime concern - very dynamic - will change seasonally - do all 4 seasons
2. It will be important to develop a success metric to lead data collection and future monitoring efforts
    a. For all data to be collected, think through how the data will be used and how the data will affect design.
    b. Metrics could be established to either 1) provide the conditions for habitat use or 2) to document use of a habitat by certain species

        i. For species present, the goal would be to sustain or improve populations. In these cases, need to know baseline conditions. e.g., stabilize or Improve heron habitat (shoreline restoration should do this). Perform a spring quantitative survey.
        ii. For species that do not currently inhabit the islands, the objective would be to set stage for use by providing sustainable habitat. In these cases, there is no baseline to document. e.g., provide nesting habitat for terns, etc. Habitat not used MAY NOT be a failure.
3. Survey for predatory mammals, but not others
4. Insects not necessary – don't expect to be a metric
5. Look at possibility of including intertidal/mudflat habitat within wetland design at breakwater – consider including as a success metric
    a. Design considerations
        i. Size: >1 ac, but the larger the better
        ii. Shape: better volume to edge ratio than long, narrow (Brinker)
    b. FWS (Callahan): At Poplar, don't design for mudflat, but do track presence because no one has the responsibility to maintain it as a mudflat
    c. USACE (Leasure): design idea - double breakwater with material confined between - would need to be maintained with SLR, and receive periodic replenishment of confined material; would need to be in lower dynamic environment
    d. FWS(Whitbeck): we should be cautious to develop design based on needing periodic material because Fishing Creek channel is not regularly maintained
6. Shorebirds - monitor only summer
7. Eastern narrow mouth toad – State listed as Endangered. Not observed at Barren recently

DNR

1. Don't see a need to do anything additional for waterfowl
2. Will be TOY and restrictions for working around colonial nesting waterbird rookery on southern end of island
3. Desire to see southern breakwater with backfilling on east side to provide benefits to nesting birds
    a. Common tern and royal tern nesting (state endangered species due to habitat loss) occurred on sandspit of southern end of Barren in 1980s
    b. Suggest creating a few (3) small islands (2-3 acres) amongst segmented breakwaters. Could add visibility and safety to breakwaters
    c. Mudflats/intertidal zone on east side of breakwaters could be valuable habitat for shorebird migrations
4. Opossum Island is gone, but could restore it fairly easily - it is in a low energy environment

MDE

1. Borings has generated public interest
2. Important to document existing water quality and track this overtime - this will promote/be needed for SAV
3. CWA - through State - authorization process and public hearing (needs to be advertised for at least 45 days) for construction plans; plan for timeline for WQC

4. MPA - will be leading public outreach - first meeting planned for spring
5. Wetland delineation - demarcate high vs low wetlands and identify impact to any existing habitat by type
6. Will want to see that design USACE presents has the least impacts and the work has been done to avoid and minimize impacts; provide input on modeling done and why certain decisions for design were made

SAV

1. FWS - avoid, minimize, and mitigate will apply; must demonstrate the impact we have is unavoidable
    a. There will be a regulatory mitigation process for loss of SAV changed to wetlands
    b. Priority would be island over SAV
    c. Need island to maintain SAV habitat
    d. SAV came in between island remnants after breakwater was built in 2009/2010
    e. Clammers have had negative impact on SAV in Poplar Harbor
2. NFMS - EFH perspective - SAV is priority/HAPC, but not saying it is against reclaiming some of Barren Island
    a. LOOK AT AVOIDANCE
    b. Can we adjust the design to avoid filling gap? Is the gap sustainable over the long-term?
3. Survey discussion
    a. FWS- qualitative surveys in spring and summer - a limited number of points to document species
    b. NMFS – may want to focus surveys in area where design overlaps with where SAV has moved in enable quantification of potential impacts. For most projects they are fine with using a 5 year composite density of VIMS data.
    c. MDE - recognize that we really only have one year of survey and how that could be factored in considering we have 5 year composite; also think about wanting to know the extent in non-impact area to document increase
    d. USACE - consider focusing on quiescent areas which could be identified by ERDC modeling
    e. Always realize that conditions are going to change from what we have considered during plans

High vs Low marsh

1. NMFS – wetlands valuable to resources of concern need to be within potential fish habitat range
2. FWS – target an elevation range at the highest of the local tide range to maximize sustainability with SLR of tidal marsh
3. High/Low Marsh ratios will be revisited but unclear of extent they can be changed

SUMMARY OF SURVEYS IDENTIFIED TO BE UNDERTAKEN:

1. Water quality – T, salinity, pH, etc. (as before)
2. Benthic species – clams, oysters, blue crab, horseshoe crab, macroinvertebrates/benthic community
3. Sediment characterization (covered by soils surveyed being scoped)

4. Plankton – phytoplankton and zooplankton
5. Fish – sample all four seasons - bottom trawling, beach seine, gillnetting, pop net
6. Avian
    a. Shorebirds (only summer); wading birds – spring quantitative survey
    b. Not needed - Waterfowl as current survey data available; song birds or raptors)
7. Terrestrial – predatory mammals
    a. Vegetative communities (will develop habitat map from aerial data and FWS transects),
    b. Not needed - invertebrates, insects (butterflies), amphibians, reptiles, non-predatory mammals
8. Wetlands – wetland delineations
9. SAV
    a. spring and summer to ID species; use 5 years of VIMS survey data to characterize extent
    b. Areas to consider for focus of surveys
        i. areas of potential habitat conversion (shallow water to wetland) along/between island remnants
        ii. areas bordering existing SAV beds to demonstrate positive impact/expansion of beds, and/or
        iii. areas identify as quiescent by ERDC modeling

ACTION ITEMS:

1. USACE – reach out to NCBO to identify whether there is current fish and benthics data available
2. Coordination letters to agencies from USACE
3. USFWS needs a letter addressed to the refuge
4. USACE - draft a scope for FWS for Fish and Wildlife Coordination Act activities
5. USACE - coordinate with NMFS to identify relevant EFH species
6. USACE PL/Env - discuss designs for modeling with ERDC
7. Define NEPA schedule
8. Define agency coordination check-points
9. Input for modelers
10. MES – review feasibility phase records for scopes of aquatic surveys

FUTURE DISCUSSION ITEMS:

1. Low/marsh ratio
2. Identify reference marshes

Mid-Bay Island Ecosystem Restoration Project
Design Phase
Agency Coordination Update

22 June 2020; 1:00 - 2:00 p.m.

1. Introductions
2. Schedule Update
3. Activities Completed since Kick-off Meeting
    a. Surveys
    b. NEPA and Agency coordination
    c. Biological Surveys
4. Next Steps
5. Wrap-up and Action Items

Mid-Chesapeake Bay Island Ecosystem Restoration Project
Design Phase
Agency Coordination Update Meeting
Minutes
22 June 2020; 1:00 - 2:00 p.m.

Participants:
USACE –Angie Sowers, Ray Tracy
MPA – Dave Bibo, Amanda Peñafiel, Holly Miller
MES – Cassandra Carr, Maura Morris
MDE – Heather Hepburn
DNR – Becky Golden, Roland Limpert, John Moulis
FWS – Chris Guy, Matt Whitbeck
NMFS – Brian Hopper, Jonathon Watson
Anchor – Karin Olsen

Agenda:
1. Introductions
2. Schedule Update
3. Activities Completed since Kick-off Meeting
    a. Surveys
    b. NEPA and Agency coordination
    c. Biological Surveys
4. Next Steps
5. Wrap-up and Action Items

USACE (Sowers) provided a project update including schedule, activities completed since January 22 meeting, and next steps. See slides for content.

MES (Morris) provided an update on the access channel for James Island and the overlap with a historic oyster bar. A meeting was held last week with DNR-Shellfish to discuss a possible path forward that would not result in relocating the access channel. The next step is for DNR to speak to the watermen that have harvested oysters on that bar. Depending on the watermen's input, the team will discuss next steps and if any surveys are needed. If there is an impact to the oyster bar, shell could be captured and relocated to another oyster bar.

FWS (Whitbeck) asked if winter hunting that occurs in December and January on set days at Barren Island would interfere with any of the biological surveys. He will provide the dates to MES to coordinate efforts. It is expected that the surveys can be conducted without interfering with hunting days.

Action Items:
1. Resource agencies – Provide feedback about Barren Spring 2021 surveys – Are all desired given that the information will likely not be available for inclusion in the EA? The information can be used to understand baseline conditions. Provide any additional agency check-points to track.
2. Sowers will be in touch to set a meeting date once initial H&H modeling is completed by ERDC.

Mid-Bay Island Ecosystem Restoration Project
Design Phase
Agency Coordination Update

24 September 2020; 10:00 - 11:30 a.m.

Call-in information: https://usace.webex.com/meet/angela.sowers
Meeting number: 960 786 356
Call-in number: 1-877-336-1828
Access code: 4495502
Security code (if asked): 4321

1. Introductions
2. Project status/schedule update - USACE
3. Summer field surveys update and Fall sampling preview - MES/Anchor
4. Discussion of Barren Island design formulation - USACE
    a. preview H&H modeling results and discuss how to evaluate for SAV habitat
5. Barren Island wetland design framework - USACE
6. Reference marsh identification - USACE
    a. Please be prepared to discuss suggestions for sites to use as reference marshes
7. Next Steps
8. Wrap-up and Action Items

Mid-Bay Island Ecosystem Restoration Project
Design Phase
Agency Coordination Update

6 December 2021
12:30 - 2:00 p.m.

Webinar information: https://usace1.webex.com/join/charles.w.leasure

Join by meeting number

Meeting number (access code): 1996 30 1563

Join by phone

+1-669-234-1177 US Toll

+1-844-800-2712 US Toll Free

Access code: 1996 30 1563

1. Introductions
2. Schedule
3. Status Update
4. Barren Island – 65% design
5. Biological Survey Results
6. Next Steps

Mid-Bay Island Ecosystem Restoration Project
Design Phase
Agency Coordination Update

6 December 2021; 12:30 - 2:00 p.m.

MEETING MINUTES

Participants
USACE: Angie Sowers, Charles Leasure, Chris Johnson, Trevor Cyran, Ben Fedor, AJ De Rosset
MPA: Dave Bibo, Amanda Penefiel
MES: Maura Morris, Cassandra Carr
ANCHOR QEA: Karin Olsen
MDNR: Dave Brinker, Roland Limpert, Becky Golden, Erik Zolokowitz, Becky Thur
USFWS: Robbie Callahan, Matt Whitbeck, Amy O'Donnell
MDE: Mary Phipps-Dickerson, Heather Nelson, Danielle Spendiff, Tammy Roberson, Jon Stewart
NOAA/NMFS: Jonathan Watson, Mary Andrews
Audobon: Dave Curson

A. Sowers presented the project update, reviewed the progress since the last meeting in February, the current (65%) design, the results of the biological surveys, and next steps. (See slide deck)

Discussion:

- B. Thur, MDNR will provide the locations of three oyster leases within the project vicinity to consider for potential impacts from sedimentation.
- E. Zlokovitz, MDNR suggested that the southern breakwater/bird island should be marked in some way for navigation and safety. A. Sowers responded that the team had discussed this previously and thought it was a good idea. The team will further consider and make a decision.
    - Erik also pointed out that the salinity conditions during the biological surveys would likely affect the results. That is, more species and diversity would be expected under higher salinity conditions during a dry year. Also, water clarity would be better during a dry year.
- M. Phipps-Dickerson, MDE clarified that a major modification to the permit will be needed to include the borrow area once the location is determined. The team concurred and is tracking this process.
- T. Roberson, MDE communicated that the date of January 2022 in the presentation for the permit and WQC is not consistent with the application schedule. The tidal license is currently out for public review and then needs to go to the Board of Public Works. The correct target date should be late spring. D. Bibo, MPA asked T. Cyran, USACE, asked how this would affect the Project Partnership Agreement (PPA) schedule. The WQC is required to complete the PPA. T. Cyran replied that late spring is still achievable, but the

permits must be received by that time. M. Morris, MES, clarified prior discussions with MDE regarding the WQC schedule. It is anticipated that the WQC could be provided prior to the TL. A. Sowers, USACE, added that receipt of the WQC in January/February is needed to enable the FONSI to be signed by the March target date.

- J. Watson, NMFS, asked for a further review of project features to enhance fisheries habitat. A. Sowers, USACE, replied that the following features are being considered or included:
    1. Rock reefs offshore of the bird island coves
    2. Eastern-oriented tidal channels into the northeast and central/south wetland cells
    3. Planting oyster seed or spat-on-shell on the eastern face of the northeast sill
- J. Watson asked about the northeast sill and the considerations being made regarding shortening the sill to address velocities. A. Sowers replied that the northeast sill is under consideration to be shortened due to 3 factors: 1. The modeling results for 2 of the modeled 25 storms indicate that velocities would exceed the metric established by the project team for suitable SAV habitat (100 cm/s) in waters to the east of the southern end of the northeast sill. There is a long fetch across shallow water off the northeast sill. The waves rebound off the modeled sill and increase velocities, potentially impacting SAV habitat. Shortening the sill would reduce the area potentially affected by increased velocities. 2. The northeast sill required foundation replacement and shortening its extent would minimize that impact from the project, and 3. The alignment currently shown in the design is from the feasibility study (2000s) when Tar Bar Wildlife Management Area (WMA) was more extensive in size. The alignment was drawn to wrap around the eastern shoreline of Tar Bay WMA. However, since that time, Tar Bay WMA has eroded and does not extend as far to the south. Therefore, a shortened sill could provide the desired shoreline protection sought while reducing impacts from foundation replacement and increased velocities.
- R. Limpert asked about the quantity of material needed to be supplied by the borrow area. A. Sowers replied that she did not have the number readily available but clarified that the full quantity would not be needed at one time. Sand is needed for bird island habitat development, interior wetland dikes, and foundation replacement. The plan is to dredge the sand as needed based on the phase of the project.

Agency Coordination Meeting
Mid - Chesapeake Bay Island Ecosystem Restoration Project
August 30, 2022 – 10 AM – 2:30
Hybrid Meeting
Virtual LINK (if calling in - Number: 443-842-5306 Passcode: 524908765#)

1. **Introductions (15 minutes)** **Amanda Peñafiel, MDOT MPA**

2. **Mid-Bay Status Update (25 minutes)** **Trevor Cyran, USACE and Amanda Peñafiel, MDOT MPA**
    a. Barren Island
        i. Construction
        ii. Continued design
        iii. Borrow area selection & schedule
    b. James Island
        i. Design

3. **Mid-Bay Stakeholder Engagement Plan for James and Barren (20 minutes)** **Trevor Cyran, USACE**

4. **Barren Island Adaptive Management Plan (1 Hour)** **MES**
    a. AMP organization, function, and history
    b. AMP layout
    c. Pre-construction monitoring needs
    d. Review schedule

Break/Networking: 30 minutes

5. **Barren Island Draft Master Plan (1 hour)** **Angie Sowers, USACE**
    a. Presentation of draft Master Plan
    b. Discuss unknowns/design features that need to be determined
    c. Path forward for wetland design
    d. Interactive GIS tool

6. **James Island sEIS (1 hour)** **Angie Sowers, USACE**
    a. Define Purpose and Need
    b. Presentation of draft PED and NEPA schedules and permitting timetable
    c. *Presentation of draft Master Plan and discussion/request for information*

Agency Coordination Meeting
Mid - Chesapeake Bay Island Ecosystem Restoration Project
August 30, 2022 – 10 AM – 2:30

Attendees:
Anchor QEA: Walt Dinicola, Karin Olsen*
Maryland Critical Areas Commission: Jennifer Esposito, Nick Kelly, Annie Sekerak*
Maryland Department of the Environment: Mary Phipps-Dickerson, Tammy Roberson*, Matt Rowe*, Danielle Spendiff*
Maryland Department of Natural Resources (DNR): Dave Brinker, Maggie Cavey, Heather Hayden, Gwen Gibson, Becky Golden, Johanna Guardado, Chris Homeister, Roland Limpert, Genine McClair*, John Moulis, Richard Ortt*, Tony Redman, Rebecca Thur, Erik Zlokovitz
Maryland Department of Transportation Maryland Port Administration (MDOT MPA): Dave Bibo*, Holly Miller, Amanda Peñafiel*
Maryland Environmental Service (MES): Maura Morris*, Christine Offerman*, Michelle Osborn*
Maryland Historical Trust: Troy Nowak
National Marine Fisheries Service (NMFS): David O'Brien, Bruce Vogt, Jonathan Watson*
National Oceanic and Atmospheric Administration: Brian Hopper
University of Maryland Center for Environmental Science (UMCES): Peter Goodwin
US Army Corps of Engineers: Trevor Cyran*, Ian Delwiche, Christopher Johnson, Charles Leasure*, Angie Sowers*
US Environmental Protection Agency (EPA): Megan Fitzgerald, Stephanie Jacobs, Carrie Traver, Tim Whitman
US Fish and Wildlife Service (FWS): Robbie Callahan, Sabrina Deeley*, Genevieve LaRouche, Marcia Pradines, Matt Whitbeck
US Geological Survey (USGS): Jeffrey Sullivan
(* - In person)

Action Items:
- MES will distribute meeting materials via email following the meeting. (*Complete*)
- Attendees will submit comments on the master plans for James and Barren Islands to Ms. Sowers by 9/30.
- Agencies will coordinate internally and provide Mr. Cyran the point person who will have access to add agency input and comments into the Mid-Bay interactive Geographic information system (GIS) tool.

1. Introduction
Ms. Peñafiel welcomed the attendees and stated that the meeting and future meetings will provide an opportunity for attendees to interact, engage and provide input for the Mid-Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay). Ms. Morris conducted roll call.

2. **Mid-Bay Status Update**
Mr. Cyran provided an overview of the Mid-Bay project, which is located in Dorchester County. The project includes the restoration of two islands in the Chesapeake Bay, Barren Island and James Island. The project is a 65%/35% cost share between the US Army Corps of Engineers (USACE) and Maryland Department of Transportation Maryland Port Administration (MDOT MPA), respectively. The purpose of the project is to restore 2,144 acres of remote island habitat; a minimum of 72 acres will be restored at Barren Island and 2,072 at James Island. Benefits of the project include protection of the existing

island remnants and submerged aquatic vegetation habitat, enhancing habitat of avian, marine and mammal species, and erosive protection for nearby shorelines. The project will also provide 90-95 million cubic yards (mcy) of dredged material placement capacity for Federal navigation channels.

Barren Island construction is broken down into three phases. Phase 1 is construction of the sills and breakwaters. Phase 2 is completion of the sills in the location of poor foundation in the northeast, construction of the bird islands, spillways, and dredged material containment. Phase 3 is dredged material placement and wetland development. Phase 3 of the project is dependent on material availability and funding; dredge funding is a separate mechanism and approval than the construction funding.

The Phase 1 contract was sent out for solicitation on 8/8 and bids are due 9/7; the USACE anticipate awarding the contract on 9/28 (update – the contract was awarded to Coastal Design and Construction, Inc on 9/26). The Project Partnership Agreement (PPA) was executed between the USACE and MDOT on 8/23. Currently, the USACE is developing the Master Plans, revising the northeast sill alignment due to unsuitable foundation material, and investigating potential sand borrow areas. The team is particularly focused on containment of the dredged material and the bird islands. The goal of containment is to ensure hydraulic conductivity between the remnant and restored wetlands. The team is also working to navigate legal and real estate challenges.

Ms. Peñafiel stated that Phase 2 of the Barren Island Project will require sand for construction use; MDOT MPA and USACE is currently trying to locate a borrow area in the vicinity of Barren Island that can be utilized as a source of suitable sand. Purchasing the sand if it could not be mined locally would increase the cost significantly. Based on local watermen input, the USACE performed local grab samples from the Honga River Navigation Channel and the area north of the channel (northern borrow area). The grab results show that the material is highly variable, and therefore unsuitable as foundation replacement, but it could potentially be used for the construction of the bird islands. Through formal geotechnical analysis in the 2009 Environmental Impact Statement (EIS), a good source of sand was identified in the area southwest of Barren Island (southern borrow area). The team will make every effort to prioritize the northern borrow area as a source where possible. To further delineate the sand, a more extensive geotechnical effort is currently underway. Current concerns for use of the borrow areas include impacts to cultural resources, which will be surveyed Fall 2022, and impacts to the benthic environments, which were surveyed the week of 8/15. Extensive coordination continues to occur with the local watermen.

The current Water Quality Certification (WQC) and Tidal Wetlands License (TWL) do not include the borrow area; once the field work has been completed, and the areas selected, a new WQC and major modification to the TWL will be required. Permitting of the borrow area would likely occur in 2023 and will include a 30-day notice for formal commenting. Additionally, the Supplemental Environmental Assessment (sEA) will require an addendum to include the borrow area. Kick-off will be initiated with the agencies in October; coordination will be provided on the sampling results and alignment of the selected borrow area in late 2022/early 2023. The team is targeting June 2023 for public review of the sEA and anticipating a final report and signed 'Finding of No Significant Impact' (FONSI) in September 2023. There would be a 60-day timeframe for this effort rather than a 30-day timeframe. Mr. Watson asked what quantities of material were needed for the foundation replacement and bird island construction. Mr. Cyran replied that the general quantity is estimated, and the number needs to be refined.

Mr. Cyran stated, regarding James Island, that the majority of the work conducted has been field data collection, such as geotechnical investigations, surveys, environmental data collection, etc. The primary focus at this time is to conduct storm modeling and life cycle cost analysis by the USACE Engineer Research and Development Center (ERDC). Additional field data collection will occur as the team continues to refine the interior of the island. The goal is to begin construction of James Island in summer 2025.

3. Mid-Bay Stakeholder Engagement Plan for James and Barren Islands

Mr. Cyran reviewed the Stakeholder Engagement Plan (SEP) which ensures the Project Delivery Team (PDT) is efficiently receiving stakeholders' input for the project's successful development. The SEP ensures stakeholders are receiving pertinent and accurate information from the PDT and regularly provides opportunities for stakeholder and PDT collaboration. It will define the teams, workgroups, processes, etc., that will be used for the duration of the project and is a living document that can be updated as necessary. The Project Coordination Team (PCT) is at the top of the hierarchy and includes the signatories of the PPA, followed by the PDT which include members from both the USACE and MDOT MPA. Next in the hierarchy is the Adaptive Management Team (AMT) and the Habitat Implementation Team (HIT). Finally, there will be the Monitoring, Wildlife Management, and Habitat Development Workgroups.

A review was provided of the workflow process for the various teams and workgroups. A vetting process will be put in place to assist with review of recommended concepts. During Phase 1 vetting the workgroup collaboratively to develop concepts. The workgroup score concepts to determine which will be presented to the HIT for consideration. An alternative Phase 1 vetting is conducted when the AMT or HIT present a preapproved concept to a workgroup; if it gains support from the workgroup, it would be passed to the PDT for development. Phase 2 vetting includes the team determining if the concept is able to be funded and supported by the project (i.e., within project scope, permit/policy compliance, legality, etc.). Phase 3 vetting includes determining if the concept is feasible and will have no substantiative impacts to the cost or schedule. Once the concept has been approved by the appropriate team, it can be further developed and implemented by the PDT. Mr. Rowe asked if there were mechanisms in place for the State or another entity to cover the cost of a concept that was vetted but found to be out of the budget and/or scope. Mr. Cyran replied that the appropriate mechanisms would still need to be determined for each scenario.

4. Barren Island Adaptive Management Plan

Ms. Osborn stated that the adaptive management process provides a structured approach to track the status of the project, access the progress towards meeting goals, and refine the specifics of permit requirements and legal obligations. Adaptive management is important because the initial project expectations may prove unrealistic in implementation and allows for continued input by resource agencies and updated science. As an example, there was no mention of sea-level rise (SLR) in the original Poplar Island guidance documents. Guiding documents include the TWL, WQC, which provide permit and legal obligations, and the EIS, supplemental EIS (sEIS), and sEA which help provide broad project goals. The Adaptive Management Plan (AMP) allows for tracking of the more focused and specific details and goals of a project.

The adaptive management process begins with defining the AMT to meet regularly to develop plans and manage the adaptive management process. The AMT will develop the AMP with specific goals; the AMP will be revised as necessary to reflect actual experience including corrective actions gained during implementation. The AMP is a tiered approach with a broad primary project goal followed by

a sub-goal, which is in support of the primary goal. Under the sub-goal would be an objective, which is an action task to be implemented and includes attributes which are specific, measurable aspects of the objective. Finally, there will be a target, which is the most desirable outcome, an acceptable boundary, a monitoring plan, an approach to measuring the attribute, and a schedule for conducting the measurements. Ms. Osborn provided an example from Poplar Island focused on the sub-goal of creating small nesting habitat for ground-nesting colonial waterbirds and reviewed the changes which were made over the years after implementation through monitoring data. Mr. Rowe asked about the process for developing goals. Ms. Osborn stated, for the Poplar Island Expansion, the AMT reviewed details pulled from the sEIS and permits. Discussions were held with the USACE regarding what was buildable. Then, the information was brought to the habitat workgroup to allow them to have input. Mr. Rowe asked how it was determined what is affordable in anticipating the various components. Mr. Cyran stated that the USACE has predetermined the cost of certain features but is unable to define the affordability of additional various components ahead of time.

Regarding SLR, the team is working on developing resilient wetlands. While SLR is not specifically called out in the AMP at Poplar, it is related to multiple attributes. The current approach includes a comprehensive assessment, which is drawing on 20 years of data from Poplar Island. Multiple models and investigations are underway to help determine how development (i.e., marsh, ponds, channels) and management (i.e., controlled burns) impact resiliency. Research is also underway from other wetlands. Recommendations will be made through the adaptive management process if change is warranted.

Many uncertainties exist when restoring ecological habitat on a large scale over a long period. Adaptive management allows for development of specific goals with the flexibility to make changes mid-course. Regular monitoring and assessments are necessary to ensure the project stays on-target. The AMP works best with collaborative input from a wide range of resource agencies with diverse backgrounds and expertise. Some questions are not easily answered; long-term monitoring and discussions may be needed before effective plans can be put into development.

Ms. Morris stated that the initial Mid-Bay AMP was developed using the goals and environmental parameters specified in the EIS. In 2010, the AMP was revised based on available habitat restoration literature, Poplar Island lessons learned, and professional judgement of the natural resource experts in the Mid-Bay Habitat Subgroup.

The primary project goal is to restore remote island habitat through the beneficial use of dredged material; several subgoals have already been determined. The subgoals include: restore and protect marsh, aquatic, and terrestrial island habitat for fish, reptiles, amphibians, birds, and mammals; protect existing island ecosystems, including sheltered embayments; decrease local erosion and turbidity; promote conditions to establish and enhance submerged aquatic vegetation; promote conditions that support oyster recolonization; increase wetlands acreage in the Chesapeake Bay watershed; and optimize the capacity for placement of dredged material (3.2 mcy per year). Constraints of the AMP include minimizing impacts to existing fisheries nursery, feeding, and protective habitats; minimizing impacts to rare, threatened, and endangered species and their habitat; minimizing impacts to existing commercial fisheries; and minimizing establishment of invasive species to maximum extent possible.

Ms. Morris briefly reviewed the objectives and attributes of each subgroup. When discussing the objectives under the subgoal “minimizing the impacts to existing fisheries nursery, feeding, and

protective habitats," it was recommended to remove examining bioaccumulation in benthic tissues. As the benthic population is stressed, removing the number of clams necessary to determine bioaccumulation would likely decimate the population and be more detrimental than helpful. Decades of bioaccumulation studies conducted at the other Dredged Material Containment Facilities (DMCFs) have shown no bioaccumulation within benthic population. She noted that sediment testing, and benthic monitoring would still occur.

Recommendations

Mr. Redman suggested, regarding Objective 6, changing the phrasing of "Construction will not increase sediment accumulation on oyster bars…". Mr. Redman recommended replacing 'not increase' with 'prevent.' Ms. Sowers noted that sediment accumulation could occur naturally. The objective could be changed to 'Prevent construction-related' to ensure the differentiation is understood. Mr. Rowe recommended brainstorming strategies related to preventing and handling Harmful Algal Blooms (HAB's), as they are present issues at other DMCFs.

Questions

Regarding Objective 9, Ms. Deeley asked if managing invasive species would be developed in the future or based on Blackwater National Wildlife Refuge management of invasive species. Ms. Morris stated that she believes Mr. Whitbeck has a plan in place that focuses on phragmites; the team will circle back and confirm that is the case. Ms. McClair asked if aquaculture was being considered. Ms. Morris confirmed this and stated that coordination with aquaculture lease holders is currently a special condition under the TWL. Mr. Vogt asked, if a decision process is in place that articulates how enhancements are implemented or partnerships developed to facilitate implementation if a design enhancement is outside of the project authorization. Ms. Morris stated that if an enhancement is outside the project, it will not be tracked by the AMP, however, the SEP is intended to allow open coordination between the agencies. Ms. Osborn reiterated that the project is limited by the scope in terms of funding, but additional discussions could be held outside of the project. Mr. Cyran stated that the concept catalogue houses the ideas brought forth and the ideas unable to be utilized within the project can be identified for further investigation for outside funding. Mr. Cyran recommended providing ideas early as it would allow the most flexibility for coordination and integration for a project needing outside partnering and funding for implementation.

Ms. Morris stated that the AMP will be distributed to the attendees once finalized; a month will be provided for review of the document. Comments will be discussed by the AMT and integrated as necessary. The goal is to have the AMP finalized by the end of this fall so that the team can have a clear path heading into construction.

5. Barren Island Draft Master Plan

Mr. Bibo asked for a definition of a functional marsh and a mature marsh. Ms. Sowers stated that a mature marsh is a functional marsh, but a functional marsh may not necessarily be a mature marsh. Mature marshes are identified using reference sites. Ms. Osborn stated that a marsh may be functional, but it may not support all life stages of fish that you would find in a reference mature marsh. Ms. Sowers stated that it is estimated to take about 5 years for a marsh to be deemed functional. Ms. Osborn stated that around 5 years is when a new marsh will uptake nitrogen in similar amounts to a reference marsh. Mr. Bibo stated that defining what is a 'functional' marsh is very important as that is the indicator of official handoff of the project to MDOT MPA for operations and maintenance.

Ms. Sowers stated that several NEPA activities are occurring. The Barren Island sEA was completed in spring 2022 and covered all impacts from the Barren Island restoration except for the borrow area. An addendum is planned to discuss this project component; activities will begin in fall 2022. For James Island, a sEIS is currently being developed.

Ms. Sowers provided the conceptual Master Plan for review. The USACE is seeking agency and stakeholder input to modify the design before the wetlands modeling effort begins. Along the northern remnant there is existing wetland habitat which the USACE does not want to impact. While in the south, the habitat is higher, and the shoreline is scarped which will allow for blending of the containment structures. For these reasons a tidal channel is proposed to run along the northern remnants of Barren Island separating the restored wetlands from the existing wetlands. For the wetland next to the southern remnants, wetlands are proposed to be directly adjacent to the shoreline. The USACE is still determining the containment methods (i.e., geotubes, sand dikes, etc.) for placed dredged material. The team reviewed the wetland concepts for the south, northwest, and northeast cells. Ms. Sowers noted that length of the northeast sill is still to be determined; if the sill is shortened the current concept design would change.

A cross section was provided of the bird islands; behind the breakwater a series of terraced berms is proposed to contain material and manage elevations. Appropriate elevations are still being determined as well as slope and substrate. The USACE would like some over wash to assist with vegetation management and asked the attendees for feedback on the design features. Mr. Zlokovitz asked if the presentations could be shared with the attendees; Ms. Sowers replied that all meeting materials will be provided to the group. A table will be provided to the group that will include habitat features, the metric to determine the features, relevant information from the EIS (2009), the Poplar Island application of the features, and a targeted timeframe for the decision for Barren Island implementation. The immediate concern for Barren Island is containment, as it will determine how much material will be needed from the borrow area and outside sources. For James Island, habitat features will be preliminarily identified this winter.

Regarding wetland design and reference marshes, Poplar Island is the only similar system, but reference marshes will still be in use. The US Geological Survey (USGS) has developed an unvegetated to vegetated ratio (UVVR) in which marshes with a UVVR <0.1 are stable and intact; 0.1 represents a tipping point where the marsh goes from surplus to deficit sediment supply. This ratio has been used to identify a sustainable marsh system in Fishing Bay. It was also determined that the Solomons Island tidal gauge represents Barren Island conditions. Future projection of elevations will be based on past SLR. The team evaluated the USACE SLR Tracker for the period of January 2003 through June 2022; the results are tracking the high SLR curve. Mr. Bibo asked, regarding wetland elevation, how would it be determined if and how often the marsh would need to be raised. Ms. Sowers replied that projections would be reviewed as well as the timeframe of the project and the habitat value anticipated for the timeframe. Ms. Osborn stated that the University of Maryland Center for Environmental Science (UMCES) conducts elevation measurements; at the appropriate wetland height, accretion would occur, and additional inputs would not be needed. Poplar Island is looking at accretion rates and where natural replenishment is occurring while also investigating areas that may need thin layer placement.

Ms. Sowers reviewed the interactive Geographic information system (GIS) tool (https://experience.arcgis.com/experience/7f02ec3415984936ac41348611180de2), which will allow

input on design ideas and commenting on ideas provided by others. The tool is currently live for Barren Island but is not yet available for James Island. Ms. Sowers noted that while anyone can view the webpage, there is a limited number of accounts allowed to provide input and comments. Ms. Sowers asked each agency to identify one primary contributor and a backup contributor to submit ideas and comments and provide the designated contributor information to the USACE.

6. James Island sEIS

Ms. Sowers reviewed the James Island sEIS schedule. The NEPA process has begun, and a Notice of Intent (NOI) is targeted for publication in September 2022. The goal is to have the Master Plan drafted by January 2023, which will be followed by a Value Engineering (VE) Study. The draft sEIS is anticipated to be completed for internal review in February 2023 and go out for public review in summer 2023. NEPA is anticipated to be completed by summer 2024 with the Record of Decision (ROD) signed at that time. The WQC and TWL permit applications will likely be submitted by summer 2024 and construction is anticipated to begin in summer 2025.

One Federal Decision (OFD) is a coordinated federal review that has concurrence points for an EIS such as Purpose and Need, Alternatives Analysis and Preferred Alternative. Agency Coordination letters are targeted for September 2022. The draft permitting timetable will be distributed fall 2022. Ms. Sowers provided the Purpose and Need for the James Island portion of the project and asked for feedback from the group – none was received.

Regarding the James Island Master Plan, the USACE is proposing three marsh complexes which will each include five wetland cells. The transition between the upland and wetlands needs to be determined; 400ft has been denoted in the master plan as a placeholder. The uplands will include freshwater ponds, meadows, forests, scrub shrubs, and freshwater wetlands. For the wetlands, there will be ponds, mudflats, beach, and hummocks. The team is looking for ideas related to tidal connections along the southern wetlands dike.
Next steps include distribution of the Adaptive Management Framework; the group will have a month to review the materials. Initial comments are requested by September 30, 2022 for the James and Barren Island Master Plans; this will not be the only time the group will have a chance to review and comment. The USACE will provide the group the elevations for the terraces and berms for the bird islands.

Upcoming meetings include NEPA meetings related to the Barren Island Borrow Area sEA kick-off, further scoping for James Island, and OFD Concurrence on the Alternative Analysis. The HIT and Habitat Development Working Group will meet to discuss wetland designs and Master Plan development. Finally, the AMT will meet to review input provided for the AMP and will then finalize the AMP. It was asked if the GIS suggestion tool was supplemental to feedback requested for the Master Plan; there was concern expressed regarding a limited amount of time for responding to comments. Ms. Sowers stated that initial suggestions are due by 9/30, but the process will be iterative, and will allow time for feedback to the initial comments. Mr. Bibo noted that it is unknown when Barren Island will be completed due to the dependency on the funding for small navigation dredging. Mr. Cyran stated that was correct; while dredging of the Honga River Navigation Channel was included in the Presidential Budget for 2023 and will most likely be appropriated, it is estimated to take 2-3 dredging cycles to complete Barren Island.

Mid-Bay Island Ecosystem Restoration Project

Agency Coordination Meeting - NEPA

22 November 2022; 1:30 - 3:30 p.m.

Meeting information:
Click here to join the meeting
https://teams.microsoft.com/l/meetup-join/19%3ameeting_MGNmNWViZGQtNzg4ZS00MDU4LTg3MjMtODljODViZmZlZDlk%40thread.v2/0?context=%7b%22Tid%22%3a%224c44e1cf-7dae-454f-a18f-c18a6a12f9d7%22%2c%22Oid%22%3a%226f2ecce7-76f4-402c-86c0-a17687c9fbb6%22%7d
Meeting ID: 289 362 348 939 Passcode: N8SXKZ
Or call in (audio only) +1 443-842-5306,,580617403#
Phone Conference ID: 580 617 403#

1. Introductions (10 minutes)

2. Barren Island Phase I Construction (15 minutes)

    a. Status and Construction Schedule
    b. On-going surveys
        i. H&H
        ii. oyster habitat

3. Barren Borrow Area supplemental Environmental Assessment (25 minutes)

    a. Schedule
    b. Array of Alternatives and Screening Criteria
    c. Next Steps

4. James Island supplemental EIS (25 minutes)

    a. NOI update
    b. Status of Coordination Letters and Cooperating Agency Letters
    c. Revised Purpose and Need Statement
    d. Array of Alternatives
    e. Permitting Timetable
    f. Next Steps

5. Barren and James Island Master Plans (35 minutes)

    a. Summary of agency input received
    b. Planned revisions – short and long-term/on-going considerations

6. Discussion and Wrap-up (10 minutes)

MID-BAY RESILIENCY WORKING GROUP (MB RWG)
Virtual Microsoft Teams Call
November 22, 2022, 1:30pm – 3:30pm

Attendees:
Anchor QEA: Walter Dinicola, Karin Olsen
Environmental Protection Agency: Carrie Traver
Maryland Department of the Environment: Mary Phipps-Dickerson, Matt Rowe
Maryland Department of Natural Resources: Becky Golden, Roland Limpert, John Moulis
Maryland Department of Transportation Maryland Port Administration (MDOT MPA): Dave Bibo, Amanda Peñafiel, Danielle Spendiff
Maryland Environmental Service (MES): Maura Morris, Christine Offerman, Michelle Osborn
Maryland Historical Trust: Troy Nowak
National Marine Fisheries Service (NMFS): Jonathan Watson
US Army Corps of Engineers Baltimore District (CENAB): Joe Chandler, Trevor Cyran, Angie Sowers
US Fish and Wildlife Service: Carl Callahan, Chris Johnson, Amy O'Donnell, Matt Whitbeck

A**ction Items:**
- Ms. Sowers will distribute the slides to the meeting attendees.

1.0 Barren Island Phase I Construction
- Ms. Sowers. Reviewed the Phase I Construction of Barren Island.
  - The contract was awarded to Coastal Design and Construction from Gloucester, Virginia; the notice to proceed was issued 10/25 for a period of performance of two years, and construction is anticipated to begin in February/March 2023.
  - As a reminder, Phase I construction includes the sills and breakwaters where foundation replacement is not needed, Phase II will be foundation remediation and construction of the sills in the northeast, and construction of the bird island structures and containment spillways, and Phase III will be dredged material placement and wetland development.
  - Three profilers were deployed in October to survey currents and waves; weather permitting, data will be collected from the profilers and batteries will be swapped in a few weeks.
  - Surveys of the oyster habitat will be conducted by the Department of Natural Resources (DNR) and Maryland Geologic Survey (MGS) in December 2022.
  - Side-scan sonar surveys as well as photos and videos will be collected pre-construction for documentation purposes.

2.0 Barren Island Supplemental Environmental Assessment
- Ms. Sowers stated that a supplemental Environmental Assessment (sEA) is being conducted for the potential borrow area(s), which is the areas being investigated to dredge sand for use in the restoration efforts at Barren Island.

  - The sand from the selected borrow area will be used in the northeast area for foundation replacement, internal containment for material placement, and construction of the bird islands.
  - Geotechnical and benthic surveys have been completed; a cultural survey will be conducted in January 2023.
  - The draft sEA will be ready for internal review in February 2023 and public review in June 2023.
  - The Finding of No Significant Impacts (FONSI) is anticipated in September 2023.
  - There are two areas under consideration, the northern borrow area above the Honga River, and the southern borrow area.
    - Alternatives include no action, use the northern area only, use the southern area only, use a combination of both areas, or use a land-based source such as a quarry.
    - Screening criteria include quality of material, quantity of material, impacts to commercial fisheries, cultural resources survey results, habitat impacts, and size of the impacted area.
- Ms. Sowers provided a review of the preliminary containment plan at Barren Island.
  - Preliminary modeling will be conducted of the various alignments for the northeastern sill and tidal channels.
- At the December Habitat Work Group (HWG) meeting, the team will review the results of the geotechnical and benthic surveys and discuss the evaluation of the potential borrow area sites.
  - The results of the cultural survey are anticipated in late January/early February 2022.
  - The HWG will be presented with the quantities needed for the project components as well as the alternative analysis and preliminary selected alternative.
- Mr. Watson asked if a temporal component will be identified for the borrow area (i.e. will the borrow material be used for the initial construction, or will the area be used for any additional future needs such as adaptive management).
  - Ms. Sowers replied that a time frame will be specified in the document as well as what material will be needed for each component and when it will be needed in the projected schedule.
- Mr. Watson asked if the material would be used solely for construction or if adaptive management would be specified in the document.
  - Ms. Sowers replied that specifying use for adaptive management has not been discussed; the intended focus is for use in construction.
  - The document will be clear on the life cycle of the borrow area.

3.0 James Island Supplemental EIS

- Ms. Sowers stated that a Notice of Intent (NOI) was published in the Federal Register on 11/7 for the supplemental Environmental Impact Survey (sEIS).
  - The agency coordination letters, and cooperating agency invitations will be sent out later today.
  - The Draft sEIS is anticipated to be ready for internal review in April 2023 and public review in August 2023.
  - The Record of Decision (ROD) is anticipated in May 2024 and the Water Quality Certification (WQC) and Tidal Wetlands License (TWL) approved in summer 2025.

  - The focus is updating the National Environmental Policy Act (NEPA) documents before the feasibility recommended plan.
  - Feedback was incorporated into the revised purpose and need statement; cooperating agencies will be asked to determine if they concur with the revised purpose and need statement.
  - The permitting timetable was provided to the meeting participants; Ms. Sowers requested that the attendees review the document for any timetables relevant to the various agencies and to forward any concerns or changes to the US Army Corps of Engineers (USACE).
- The array of alternatives includes No Action, or implementation of the Feasibility Recommended Plan.
  - Next steps include drafting the EIS document, conduct coordination for Essential Fish Habitat, Endangered Species Act, Fish and Wildlife Coordination Act, etc., conduct Engineer Research and Development Center (ERDC) storm modeling and life-cycle analysis modeling of exterior dikes, and continue to work through the Master Plan comments.
- Ms. Sowers noted that a poster session was held on 11/19 in Hoopers Island to allow the public the opportunity to provide comments on the James Island sEIS, as well as focus on the upcoming construction of Phase I at Barren Island.

4.0 Barren and James Island Master Plans

- Ms. Sowers stated that approximately 120 comments were received from various agencies on the James and Barren Island Master Plans. The USACE is working to consider all of them.
  - The comments sorted into short-term considerations and long-term considerations.
  - No further changes can be made to the Barren Island sills and breakwaters as the contract has already been awarded.
  - There are also limitations on the extent to which these projects can undertake Research and Development (R&D) testing.
  - It was noted that the intent for Mid-Bay is passive recreation.
- Ms. Sowers reviewed a few of the short-term and long-term responses for James and Barren Islands.
- Additional data such as oyster habitat, submerged aquatic vegetation (SAV), bathymetry access channel (James Island), borrow areas (Barren Island), and pound nets will be included in the Master Plans.
- Ms. Sowers shared a list of further considerations which are dependent on modeling.

5.0 Discussion and Wrap-up

- Ms. Sowers will distribute the slides to the meeting attendees.
- USACE has developed a spreadsheet which catalogues each comment, preliminary response and any action items to continue the consideration process.
- In December:
  - Cooperating agencies will receive a request for concurrence on the One Federal Decision #1 and #2 (Alternative Analysis).
  - ERDC will be conducting initial modeling for the tidal channels and containment at Barren Island.

    - The HWG will meet to review the borrow area survey data and discuss the alternatives evaluation, bird island design, and the Master Plan.
- In January meetings will be held for the Monitoring Work Group (MWG), Wildlife Management Work Group (WWG), and NEPA group.
- Ms. Phipps-Dickerson asked for clarification regarding comments made related to James Island not having high marsh adjacent to tidal channels.
    - Ms. Sowers replied that a follow up will occur for exact clarification of the comment, but it is assumed that low marsh would be needed between the tidal channels and high marsh.
- Ms. Phipps-Dickerson noted that any shortening of the breakwater for Barren Island should not be an issue from a permitting perspective, but a change to the footprint may need a modification of the permit.
    - Ms. Sowers stated that coordination will occur if there is a footprint change instead of a truncation.
- Mr. Watson asked, if the northeast sill was truncated, if the area would be conducive to placement of reef features which would help break up some of the laminar currents in that area.
    - Ms. Sowers replied that any structures placed in that area, including reef structures, would need foundation replacement.
    - Ms. Sowers noted that side-scan sonar may help identify the oyster habitat and maps of the SAV to understand how those two resources coexist in that area but currently there are no plans to place reefs along that area if the breakwater is truncated; the team will keep in mind the inclusion of a reef as the project moves forward.

Monitoring Workgroup Meeting
Mid - Chesapeake Bay Island Ecosystem Restoration Project
January 24, 2023 – 9 AM – 12 PM
Virtual Meeting
Virtual LINK (if calling in - Number: 443-842-5306 Passcode: 763516203#)

1. **Introductions (10 minutes)** **Maura Morris, MES**

2. **Monitoring Schedule (20 minutes)** **Maura Morris, MES**

3. **Detailed Look at 2023 and 2024 Monitoring (30 minutes)**
    a. *Turbidity*
    b. *Submerged Aquatic Vegetation*
    c. *Shellfish Bed Sedimentation*

4. **Discuss Additional Monitoring Needs (30 minutes)** **Group**

MID-BAY Monitoring WORK GROUP (MB MWG)
Virtual Microsoft Teams Call
January 24, 2023, 9:00am – 12:00pm

Attendees:
Anchor QEA: Karin Olsen
Environmental Protection Agency: Megan Fitzgerald, Tim Whitman
Maryland Department of the Environment: Mary Phipps-Dickerson, Matt Rowe
Maryland Department of Natural Resources: Dave Brinker, Maggie Cavey, Gwen Gibson, Anna Gillmor, Becky Golden
Maryland Department of Transportation Maryland Port Administration (MDOT MPA): Dave Bibo, Amanda Peñafiel
Maryland Environmental Service (MES): Maura Morris, Michelle Osborn, Alexa Poynter
National Marine Fisheries Service (NMFS): David Bruce, David O'Brien, Jonathan Watson
US Army Corps of Engineers Baltimore District (CENAB): Trevor Cyran, Ian Delwiche, AJ De Rosset, Angie Sowers
US Fish and Wildlife Service: Carl Callahan, Amy O'Donnell, Matt Whitbeck
US Geological Survey: Jeffery Sullivan

A**ction Items:**
- The Monitoring Schedule will be distributed to the MWG for review and comments.
- Maryland Environmental Service (MES) will investigate side-scan sonar to determine if it is appropriate at Barren Island to assess SAV.
- Ms. Gillmor will provide the oyster monitoring data to Mr. Watson for review.

1.0 Introductions
- Ms. Morris conducted roll call and welcomed everyone to the meeting.

2.0 Monitoring Schedule
- Ms. Morris reviewed the overall monitoring schedule for Barren Island.
    - The study elements indicate that the subgoals of the adaptive management plan (AMP) are being met or are required by permit.
    - The monitoring framework will be provided to the Monitoring Work Group (MWG) on an annual basis; new information will be highlighted for discussion.
    - The Monitoring Schedule will be distributed to the MWG for review and comments.
    - The current monitoring plan spans the next 10 years; some of the monitoring is dependent on either inflow or planting which is currently unknown and is denoted with a '?'.
    - Sediment quality will be conducted before inflow to obtain a baseline; sampling will occur yearly after inflow begins.
    - All of the wetland vegetation and wildlife monitoring will occur after planting and creation of habitat.

  - Exterior water quality will occur once inflow occurs and produces effluent; the focus will be on nutrients from late spring through early fall.
  - Turbidity monitoring is required by permit and will be conducted before and during construction.
  - Baseline benthic monitoring has been conducted; benthic monitoring will occur when effluent is produced.
  - Benthic tissues sampling will be removed as a sufficient population has not been found during other monitoring events; if a sufficient population is discovered, a baseline sampling event will occur.
  - Monitoring for fishery and wetland usage by wildlife will occur after development of the habitat.
  - Baseline sampling has already been conducted for submerged aquatic vegetation (SAV); future samplings field components may be reduced and include a yearly desktop study based on discussions from today's meeting.
  - The Shellfish Bed Sedimentation study will occur before construction commences; additional monitoring will occur after the completion of construction.
- Mr. Sullivan noted that on Poplar Island the birds were utilizing the stockpiled materials being used to create the habitat as well as partially created habitat.
  - Bird monitoring had to be implemented earlier than anticipated due to this and wanted the team to be aware of this possibility.
- Mr. Bruce asked for clarification regarding the lack of benthic community monitoring.
  - Ms. Morris stated that the borrow area was just examined for benthics and the information will be included in the addendum for the supplemental Environmental Analysis (sEA).
  - Benthics will be monitored every three years once placement of material begins.
- Mr. Rowe asked if there were thoughts on investigating the bathymetry around the posts and placed structures and how it is impacted along with the sediment dynamics.
  - Mr. Delwiche stated that surveys will need to occur once the sills are created, and a bathymetric survey can be conducted beyond the sills at that time.
  - Ms. Morris noted that modeling has been conducted as well.
  - Mr. Rowe stated that additional bathymetric studies may be more relevant at James Island.
  - Ms. Peñafiel noted that profilers have been deployed to track velocities around Barren Island as asked how it fits in to the current discussion.
    - Ms. Morris stated that drastic change is not anticipated; the velocities are shown to stay the same.
    - Ms. Peñafiel recommended the profiler data and velocities tracking should be included on the monitoring spreadsheet.
- Ms. Gibson noted that bathymetric studies may be helpful if local channels begin to gain sediment causing complaints from commercial fishermen not being able to use their historic channels.

- Ms. Gibson recommended utilizing bathymetry in this case as the island may be blamed if sedimentation gets worse.
- Ms. Morris stated that the modelling can assist with any future complaints.

3.0 Detailed Look at 2023 and 2024 Monitoring

- Ms. Poynter provided a review of the turbidity and total suspended solids monitoring for Barren Island with focus on Phase I construction.
  - Mr. Watson asked what depths the meters would be deployed at.
    - Ms. Poynter replied that data will be collected by boat.
  - Ms. Morris noted that a potential step down of sampling may be able to occur sooner if it can be proven that water quality standards are being met.
- Ms. Poynter provided an overview of the SAV monitoring.
  - At this time the final SAV monitoring plan is not available, but Barren Island has been identified as protecting over 1325 acres of SAV habitat.
  - Coordination is ongoing with the Maryland Department of Natural Resources (DNR) regarding finalization of the monitoring plan.
  - Ms. Poynter requested feedback from the group regarding monitoring frequency during construction.
    - Mr. Watson stated that a more targeted study with more frequency for the field survey may better assist the Virginia Institute of Marine Science (VIMS) data.
    - Mr. Rowe asked how the SAV sampling was conducted.
      - Ms. Golden replied that the surveys are conducted through snorkeling or self-contained underwater breathing apparatus (SCUBA); no biomass or core sampling is conducted.
    - Ms. Sowers asked if there was underwater imagery which could be utilized to assist the visual assessments.
      - Mr. Callahan stated that alternative methods have been investigated at Poplar Island utilizing a GoPro; the difficulties include the depths at Poplar Island as well as the number of good weather days.
    - Mr. Watson asked if side-scan sonar was a possibility.
      - Ms. Gillmor replied that the SAV reflects which can create murky results.
      - Maryland Environmental Service (MES) will investigate side-scan sonar to determine if it is appropriate at Barren Island to assess SAV.
- Ms. Gillmor reviewed the side-scan sonar monitoring effort for the oyster habitats.
  - Grab sampling will be utilized to confirm survey results.
  - It was noted that side-scan sonar was not ideal for distinguishing living oyster shell from shell hash; videography may be utilized to assist in identifying the habitat.
    - Mr. Watson asked if the data would be available for review.
      - Ms. Gillmor will provide the oyster monitoring data to Mr. Watson for review.

- Ms. Sowers recommended focusing on the Tar Bay bar area before construction begins due to the proximity to the construction site.

4.0 Discuss Additional Monitoring Needs

- Ms. Morris noted that terrapins have been mentioned in the comments for the AMP and requested feedback from the MWG.
  - While turtles are present on Barren Island there are challenges related to a robust monitoring program due to staff not being permanently on the island (i.e., no facilities).
  - Mr. Callahan also noted that there are small mammalian predators on Barren Island which would cause additional issues with tracking success metrics.
  - Ms. Osborn asked if there were plans for mammal control at Barren Island.
    - Mr. Callahan replied that small mammal removal may be necessary to protect the ground nesting birds; it is unknown if the removal would need to be a long-term program, or just need to occur in the early phases.
  - Ms. Sowers noted that any terrapin focused efforts may be limited to the bird islands as those locations should be predator free.
    - Terrapin monitoring could be limited to presence on site and coincide with the bird monitoring.
  - Ms. Peñafiel asked of there was currently small mammal control on Barren Island.
    - Mr. Callahan replied that there is currently no small mammal control on the island; the bird islands are being designed to be an appropriate distance to not need small mammal control.
    - If the bird colonies are experiencing failure due to predation the US Fish and Wildlife Service (USFWS) may request the implementation of small mammal removal.
  - Mr. Watson asked if there is any utility in evaluating how the project is affecting the existing wetlands and could it fit in with the current sampling paradigm.
    - Ms. Morris noted that it would need to be discussed between the USFWS and DNR and the access agreements.
    - The team is doing its due diligence to not affect the existing wetlands.
- Ms. Morris noted that as soon as the SAV and turbidity monitoring plans are available, the documents will be placed on the Google Drive to MWG review; the monitoring framework will also be made available.

Mid-Bay Island Ecosystem Restoration Project

Agency Coordination Meeting – NEPA

28 February 2023, 9:00 AM -11:00 AM

1. Introductions (10 minutes)

2. Barren Island Phase I (10 minutes)
    a. Status and Construction Schedule

3. Bird Island Design Update (15 minutes)

4. Barren Borrow Area supplemental Environmental Assessment Update (15 minutes)

5. Modeling Review (60 minutes)

    a. CSTORM
    b. StormSim
    c. Adaptive Hydraulics

6. Wrap-up and Action Items (10 minutes)

Mid-Bay Island Ecosystem Restoration Project
Agency Coordination Meeting - NEPA
Virtual Microsoft Teams Call
February 28, 2023, 9–11:30am

Attendees:

Anchor QEA	Karin Olsen
Maryland Department of Natural Resources (DNR)	Becky Golden, Gwendolyn Gibson, Roland Limpert, John Moulis, Lindsey Sestak
Maryland Department of the Environment (MDE)	Mary Phipps-Dickerson, Matt Rowe, Danielle Spendiff
Maryland Department of Transportation Maryland Port Administration (MDOT MPA)	Amanda Peñafiel, Dave Bibo
Maryland Environmental Service (MES)	Maura Morris, Christine Offerman, Michelle Osborn, Alexa Poynter
Maryland Historical Trust (MHT)	Troy Nowak
US Army Corps of Engineers Baltimore District (CENAB)	Joe Chandler, Ian Delwiche, Chris Johnson, Charles Leasure, Trevor Cyran, Angie Sowers
US Army Engineer Research and Development Center (ERDC)	Jeffrey Melby, Margaret Owensby, and Jennifer McAlpin
US Environmental Protection Agency (EPA)	Carrie Traver, Tim Witman
US Fish and Wildlife Service (USFWS)	Amy O'Donnell, Robbie Callahan
National Oceanic and Atmospheric Administration (NOAA)	Jonathan Watson, David Bruce

A**ction Items:**

- Ms. Sowers will provide the group with the meeting presentation, recording, and images of the articulated concrete feature on the bird islands. *(Documents were uploaded to the Mid-Bay Google Drive)*
- The USACE will develop a modeling schedule.
- The workgroups will begin discussing performance criteria for internal features.

1.0 Barren Island Phase I – Status and Construction Schedule – Angie Sowers (CENAB)

- Ms. Sowers gave a construction update: the contractor is preparing to mobilize and start within the next two weeks. An environmental walkthrough occurred onsite last week. The contractor is preparing to measure turbidity during construction, as outlined in the permit. US Army Corps of Engineers, Baltimore District (CENAB), is coordinating with the public on the 800-foot safety zone around the construction and with local pound net owners/users.
    - Phase I is the external stone sills and breakwaters (no sand) construction.
    - It was noted that the safety zone is not enforceable. The active work area will start in the center and will change depending on the environmental time of year restrictions and as portions are constructed and completed. High-visibility warning buoys will be lit in the area of active construction. The barge moorings will be in place for the duration of construction.
- Hydrologic and hydraulic (H&H) monitoring with profilers began on 10/6.
    - On 12/6–7 data was collected, and the equipment was redeployed.

- During 2/21−22, the profilers were retrieved, the sleds cleaned, the batteries exchanged, data was collected, and the profilers were redeployed with a second buoy marker as the lighted poles were lost.

- DNR has completed side-scan sonar surveys of Natural Oyster Bar (NOB) 23-2 and historic oyster bottom Great Bay Bar and NOB 23-4. Remaining work is in groundtruthing and bottom habitat image collection/documentation.
  - Ms. Sowers shared preliminary results from the February side-scan of NOB 23-2, which is west of Barren Island. Observations included some interesting habitat with small rocks, Miocene clay and iron concretion lumps with small *Mogula* (sea grape) colonies, scattered (sparse) old dead oyster shell and a few clam shells. No living oysters were retrieved in any samples nor were there any signs of active/dense oyster populations across the NOB. It is expected that any living oysters there would be scattered and sparse. Bottom images were acquired in some of the areas identified by side scan sonar as potential oyster habitat. The imaging captured an eelgrass bed but no oysters. Next is groundtruthing and an effort to focus on identifying potential shell habitat areas to investigate with a GoPro for visual confirmation
  - Great Bay Bar and NOB 23-4 are adjacent bars located to the east of Barren Island. Observations included: two large areas with submerged aquatic vegetation (SAV), two small areas suspected to contain oyster shell, and several more areas that may contain shell or may only be firmer substrate. The majority of the area is fine sand. All areas will be sampled to confirm the bottom material.
  - The objective of the surveys is to identify existing oyster habitat conditions and document it. Over time, surveys will track changes and ensure no negative impacts to habitat quality from the project.

2.0 Barren Island Phase 2 – Bird Island Design Update – Angie Sowers (CENAB)

- Ms. Sowers shared the Bird Island specification drawings.
  - Ms. Gibson asked when the Bird Islands are scheduled for construction. CENAB replied that the breakwaters are part of Phase I construction. Phase 2 will include the Bird Island construction behind the breakwater. It is anticipated that Phase 2 will be awarded winter 2024, and construction would start in the summer 2025.
  - DNR final concurrence is needed for the plans to be finalized. Ms. Gibson anticipated that a couple weeks and a pdf of the presentation would be sufficient for review.
    - Ms. Sowers will provide the group with the meeting presentation, recording, and images of the articulated concrete feature on the bird islands.
  - The CENAB detailed design report (DDR) is in development. The DDR is an internal report that documents engineering decision making and is not typically for habitat workgroup discussion. However, it can be shared for informational purposes. Ms. Gibson requested it for the workgroup to see the status of the design and the cooperative results.
  - Mr. Watson inquired further into the purpose and function of the articulated concrete apron.
    - It was noted that it is an erosion prevention approach. The objective of using the concrete apron is to maintain the slope along the cove shoreline, provide access between the water and the nesting surfaces, and reduce the risk of needing to

replenish the substrate. The island perimeters will be hardened because an unprotected, softer shoreline is not sustainable in this setting.
    - Ms. Morris added that the sand in the 12-inch cap of shell material over sand is a good foundation. Material is not expected to be lost and the intent is not to replenish the sand stock.
    - CENAB will share visuals of this practice from other projects.
  - Ms. Sowers noted that CENAB engineers consider the reefs offshore of the bird island more valuable as habitat than as protective measures and welcome input on their design.
  - Mr. Rowe requested the Bird Islands' plan view and dimensions. Ms. Sowers replied that they will be shared once complete. CENAB anticipates sharing the acreage of actual nesting habitat soon.
  - Mr. Rowe inquired into the purpose of the sill openings and the model results. Ms. Sowers replied that the origin was in the recommended plan – sill protection around the island and evaluate the need and form of a southern breakwater. Six different configurations were examined. The current design was the result; it provides some protection to maintain SAV conditions in the eastern waters; coordination with the Maryland Department of Natural Resources (DNR) informed the distance between segments for predator prevention.

3.0 Barren Borrow Area supplemental Environmental Assessment (sEA) Update – Angie Sowers (CENAB)

- The prior Environmental Assessment (EA) did not include use of a borrow area, so an supplemental EA (sEA)is being completed. Sand is needed for finishing the northeast sill where foundation remediation is required and constructing the Bird Islands and the dredged material containment structures (possibly geotubes) in Phase 2.
- The cultural survey results will be available in March. The full bathymetric survey was completed the week of 2/20 and results are expected in March. The revised 2023 timeline is: Draft for internal (CENAB) review in April, public review in August, and a signed finding of no significant impact (FONSI) in November.
- Geotechnical evaluation of the borrow area concentrated on identifying areas of sand with the ideal characteristics of low fines content (less than 20%) and homogeneity. Both the northern borrow area and the Honga River channel were ruled out because they did not meet those ideals. The southern borrow area is adequate and has two areas of about 40 acres each. The cultural and bathymetric surveys will provide the necessary information to choose which area to use. Additionally, the bathymetric data will be provided to the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS) to assess dredging depth and inform which area will be used.
- The benthic survey and grain size results were shared. The high evenness and Shannon-Wiener species diversity indices and low Simpson's dominance indices indicate that the benthic community surrounding Barren Island is diverse.
    - Bivalves and polychaetes were the dominant taxa in both the northern and southern borrow areas, with varying dominant species depending on location.
- The Benthic Index of Biotic Integrity (B-IBI) for the six sites in the northern borrow area were "Degraded" except for one, which "Meets restoration goals." The ten sites in the southern borrow area had opposite results – all sites were designated "Meets restoration goals' except for one "Degraded" site.

- The group discussed the need for sand, options regarding the borrow area, and options regarding dredged material containment internal to the project.
    - Ms. Sowers confirmed that the preferred southern borrow area is also the area with the best quality benthic habitat. Mr. Watson expressed appreciation for the baseline data and the opportunity to investigate recovery after disturbance. Mr. Watson also expressed appreciation for budgeting for a minimal amount of sand to construct the project. NOAA is interested in a shallow but wide dredge.
    - Ms. Gibson advised monitoring recovery, at a frequency of every few years, if the intention is to dredge the same area again. The concern is that recovery may begin but never actually occur if the borrow area is repeatedly dredged.
        - Ms. Sowers agreed that a future conversation will consider how the need for sand is addressed once the quantities are final and the full bathymetry is available. Dredging frequency and depth are not yet determined. CENAB is unlikely to stockpile material from the Honga channel, since the geotechnical data indicated the area did not have the ideal characteristics.
    - Ms. Sowers noted that the dredged material containment structure(s) (i.e. geotubes) would occur afterthe dredging was scheduled and appropriations in place. The full amount of sand would not be dredged immediately. Mr. Cyran added that the Honga River channel material is about 320,000 cubic yards. The initial containment will not be built beyond what is needed during the first round of dredging. The focus will be on whichever wetland cell will be accepting the material.
    - Mr. Watson noted that the National Environmental Policy Act (NEPA) document is for the borrow area. Mr. Watson asked if alternate sources of sand are allowed to be considered for future rounds of dredging, or if the chosen borrow area would be the required source. Ms. Sowers replied that a land-based quarry is a current alternative. If in the future a condition changes, there is room to reevaluate. Mr. Watson noted that it is not ideal to use old data when making an updated decision. Mr. Delwiche added that the future sand need is on the order of a couple tens of thousands of yards, if additional containment is needed.
    - Mr. Cyran confirmed that the intention is to hydraulically dredge and pump the sand from the borrow area to the project.
    - Ms. Sowers and Mr. Rowe reviewed the ongoing discussion about the method of containing the dredged material behind the sill stonework and how to prevent its migration into the present wetlands. The resiliency workgroup is working through determining the most conservative approach for containment. Currently, geotubes are the most conservative option – they require less sand and are less of a footprint than dikes. The Maryland Department of the Environment (MDE) is interested in any form of containment that performs the task. DNR and US Fish and Wildlife Service (USFWS) will already have input as property owners, but Mr. Rowe encouraged DNR and USFWS to also weigh in on nature-based containment alternatives. Ms. Gibson agreed that the conversation should involve the habitat stakeholders.
    - Mr. Limpert asked about the geotubes' positions. Ms. Sowers replied that the geotube placement is designed to mimic the shoreline and create a channel between the sill and the wetland remnants. Along the southern remnant's shoreline, the geotubes would be along the mean high-water line. Ms. Sowers confirmed that once wetland development is complete, the intention is to cut open the geotubes and grade the sand into the habitat.

ERDC has the initial parameters for the proposed geotube placement and is analyzing and modeling it.

4.0 Modeling Review for James Island – Jeffrey Melby, Margaret Owensby, and Jennifer McAlpin (ERDC)

- Dr. Melby introduced himself and the advancements in modeling since the feasibility study.
- The Coastal Hazards System (CHS) is a unique combination of a database of national storm responses.
    - The goal is to create a database of hazards that spans probability space (from high to very low frequency events), is high-resolution (spatially and statistically), and is accurate with regard to statistics and physics. Regions are studied repeatedly. The North Atlantic Coast Comprehensive Study (NACCS) is used for this site evaluation.
    - CHS assists the Federal Emergency Management Agency (FEMA) and the Nuclear Regulatory Commission in their risk estimates.
    - This resource is public and anyone can download the data.
- Dr. Melby described the summary of StormSim capabilities and the workflow for the Mid-Bay study.
    - ERDC will use the NACCS to conduct modeling trials and the optimal storm suite selections that will be spanning probability space for the area of Barren and James Islands.
    - Then, Ms. Owensby will conduct the CSTORM modeling, which is coupled wave and water level and circulation modeling in the area.
    - Multivariate storm hazard analysis is conducted from the CSTORM modeling. Those results are used to do structured design which includes geometry, structure elevation, seaside toe armor, main armor of these rubble mound structures, crest armor, and then the design is exposed to life-cycle (LC) simulations to determine the damage over the LC. After computing the present-worth costs, everything is reported out.
    - The workflow is similar to what was done for the feasibility study, except that the methodologies, each item of the workflow, has evolved to a higher fidelity, more rigorous multivariate statistical methods, and more consistency in accuracy between the structural analysis and the statistical methods.

a. Stochastic Storm Simulation System: StormSim

- StormSim originated as the FORTRAN model for the Mid-Bay feasibility study. It is a collection of the main MATLAB codes that have some modeling capabilities for typical coastal engineering projects that maintain the fidelity of both the physics and the multivariate statistics within the data source.
    - Uses the coastal hazard system data, the probability masses, and the uncertainty information to compute the hazard information in waves and water level statistics as well as coastal engineering responses (i.e. wave overtopping, runup, armor stone stability, armor stone damage, beach morphology, etc.). The environmental features, nature-based features, and hard structures are assessed for damage and cost in money.
    - There are two modes of computation – one is time-independent for a specific time and the other is LC simulation. This will generate present-worth cost and performance estimates.

- LC simulation begins with random sampling of storms from the tropical storm and extra-tropical storm datasets, which are statistically independent. Storms are randomly selected each year in a Poisson distribution. Once the number of storms per year are selected, project features/structures are exposed. With the passage of each year, damage accumulates. Repair and maintenance are also modeled.
- Epistemic uncertainty for both the hydrodynamics and the structural response models is also incorporated.

- There are two kinds of uncertainty – aleatory (natural variability) and epistemic (model error).
  - Hydrodynamic uncertainty for runup and overtopping, seaside armor stability and damage, toe berm stability, and crest armor stability and damage are all determined for the model. A mean curve with one standard deviation at the 84% confidence level is displayed with the modeling results.

b. Coastal Storm Modeling System (CSTORM)

- Ms. Owensby introduced the CSTORM modeling system to the attendees. CSTORM modeling is a part of the larger process described by Dr. Melby. Dr. Melby's team determines the storm scenarios through their probabilistic analysis and Ms. Owensby takes those inputs and runs them through models to generate hydrodynamic responses. That information is passed back to the StormSim team to do risk analysis. The structural and LC analysis can be informed by the CSTORM hydrodynamic results.
- CSTORM is a suite of highly skilled numerical models that simulate hydrodynamic responses to different storm events. The main driver of these models is the atmospheric forcing in the form of winds and pressure fields that are developed by Dr. Melby and his team, as well as deep water wave forcing for the wave models.
- CSTORM Dynamic Coupler – two models are typically run together. The different model components include:
  - water level and current model or surge model (ADCIRC) and
  - the near shore wave model (typically STWAVE).
  - The models are run in tandem and pass information to each other over the course of a simulation. This produces a more accurate hydrodynamic solution for the different storm events. For example, the ADCIRC model produces water levels that are passed to the STWAVE model to influence the solution that STWAVE is producing. Then once STWAVE computes its solution, it will then pass wave radiation stress information back to the ADCIRC model, which then is incorporated into the next solution that ADCIRC computes, etc.
- Regional scale studies are extremely useful. Products that were developed for the NACCS are adaptable to smaller-scale localized feasibility studies. The NACCS is the basis for the Mid-Bay modeling.
  - The NACC study area covered from roughly Maine to Virginia. A total of 1,050 synthetic tropical storms and 100 extratropical storms for a couple different tide and sea level rise scenarios were developed for that study by Dr. Melby and his team. More than 3,400 different high-resolution CSTORM simulations were modeled for winds, waves, and surge levels including sea level rise scenarios.
- The ADCIRC grid from the existing NACCS model was refined; resolution was added. The James Island project specifications, bathymetry, topography, and Manning's n values were updated.

  - To add resolution, the NACCS ADCIRC grid was adjusted – both the sizing of the element nodes and the alignment of the nodes. The nodes generate the results for water level and currents. After refinement, the minimum resolution is approximately 15 meters at the project site. The hydrodynamic information that's produced by the models inform some of the higher resolution modeling, like the ADH modeling and some of the structural analysis conducted by Dr. Melby and his team.
  - The grid also allows for the perimeter dike, which is represented as a hole in the mesh with a defined height.
- Nested STWAVE grids at a resolution of 17.5 meters will be run to model forcing from both the north and south. The grid will receive forcing conditions along the boundaries from a larger grid that covers the entire Chesapeake Bay at a resolution of 70 meters.
  - The model will not be forced from the east and west because the shorelines of the Chesapeake to the east and west are close to the boundaries of the wave grid and were judged to have minimal impacts from the fetch and the wind on the waves in this area compared to the fetch from the north and the south.
- Two major types of simulations will be conducted:
  - Two tides-only simulations for February and June 2018 will be run to generate boundary conditions for interior wetland modeling that's going to be conducted using the Adaptive Hydraulics (AdH) model.
  - 100 synthetic tropical storms from the NACCS storm suite with an estimated sea level for the year 2030. These storms were selected by Dr. Melby and his team to represent the different possible storms and conditions in this area, with variable tracks and angles of approach, varying maximum storm radius, and different speeds of propagation.
- CSTORM model results will be generated as two kinds of products:
  - Color maps with and without project conditions for the maximum water surface elevation, maximum current velocity and maximum significant wave height.
  - Time series for selected save point locations comparing with and without project results for water surface elevation, current velocity and significant wave height.

c. Interior Wetland Modeling with Adaptive Hydraulics (AdH)

- AdH uses the ADCIRC model to zero in on a section of the Chesapeake and model the details of the project's restoration features. AdH is a finite element code developed at ERDC CHL. AdH simulates interior wetland hydrodynamics transport of general constituents, temperature, salinity, or even sediment transport. AdH has been used to study many estuarine and riverine environments worldwide.
  - AdH models the typical functioning of the system under typical conditions. The purpose is to determine functionality of the wetland cell design, evaluate tidal exchange, examine how wet and dry the wetland is during tidal cycles, and refine the size of the main tidal channels and bay openings.
- Validation process: The ADCIRC results and the gauges that are in this vicinity are examined to ensure the model is replicating the system accurately, and that the separation of the mesh from the previous ADCIRC model is not artificially influencing what's happening in the area of interest.
- The AdH mesh is further refined from the ADCIRC mesh to a meter or foot resolution and includes the tidal channels, ponds, dikes, culverts, etc.

- The results from the CSTORM February and June 2018 time periods will be given to Dr. McAlpin to input boundary conditions, including riverine flows and the Potomac River. Dr. McAlpin will run month-long simulations for February and June 2018.
    - Both months have a large tidal amplitude, but a low elevation in February (average elevation of -0.2 meters NAVD88) and a high elevation in June (average of 0 meters).
    - These months feature a tidal range that allows for extreme wetting and drying of the project features, to assess to what extent they are wet.
- Performance criteria is in development
    - Inundation time of high and low marsh areas
    - Flushing time from internal wetland areas
    - Flow velocity within channels
    - Other examples: how wet and dry are the mudflats, or what is the exchange or the flushing from the farthest areas of the cell to the Bay?
- Two methods to analyze the system and judge what designs are more, or less, effective.
    - Residence time method
        - Generic constituent tracers move with the advection diffusion of the flow system to track how long it takes to reduce in concentration. Two references for assuming residence time are Marr and Kraus, which yields the time needed to flush.
        - Marr 2013 – 50% reduction in concentration
        - Kraus et al. 2006 – 63% reduction in concentration
        - If a performance criterion requires an exchange within a specific period of time, that may indicate a design change in channel width.
    - Wetted area and wetted time, over time
        - Can address whether the wetted area of the present wetlands in the system are maintained. throughout time, specifically to identify the wetted area, is it increasing or decreasing under these various conditions?
        - Can compare the base condition to the initial restoration to assess the change in wetted area over the course of the simulation.
        - Dr. McAlpin used the Barren Island results to demonstrate this method and asked whether this is the kind of information CENAB needs and if there are any particular points wanted for analysis.

5.0 Discussion/Questions/Wrap-Up and Action Items

- Mr. Rowe asked if the AdH model can be run to determine an optimal channel design, rather than just assess the current design?
    - Dr. McAlpin replied that it is faster to choose a few alternatives and assess them. If what is optimal can be defined, then the code can be set up to do that. It is also possible to input the sediment details to assess natural channel formation from tide and velocities. It is difficult to validate and ensure accuracy, but the model could be adjusted to generate an optimal design.
    - Primary productivity is the method used by Gary Brown to assess Louisiana marsh building. That model simulates sediment deposition by flow and vegetation growth at a certain elevation, and the effect of the vegetation growth on flow.

  - Ms. Gibson suggested that the agencies and habitat workgroup develop goals for tidal flushing and exchange in the parent and created marshes for ERDC, and adding those goals, if applicable, to the adaptive management plan (AMP).
  - Ms. Gibson requested any publications on the Louisiana studies.
- The group agreed that Poplar Island continues to be a model for Mid-Bay. Ms. Osborn noted that each Poplar Island wetland cell is modeled before construction, but each cell has different design and objectives; there is no goal or bounds for performance criteria and nothing is tracked in the Poplar Island AMP.
- The workgroups will begin discussing performance criteria for internal features.
- Regarding James Island, Mr. Delwiche noted that the final wetland design is about a decade away and the current focus is on a good conceptual design without major flaws. The main tidal channel and the tidal openings will be the first priorities (they will be built before the wetlands), but the modeling will be revisited before constructing a wetland. He also noted that the performance criteria and definition of wetland function are not inputs, but how to assess the model results.
- Regarding Barren Island, Ms. Sowers pointed out that the interior model is needed soon. Mr. Delwiche agreed and suggested that the same criteria be applied to James Island.
- Mr. Delwiche advised the group that prior to modeling, a definition of success or failure of design is necessary so that the data is useful.
- Mr. Rowe inquired about the engineering with nature modeling toolkit. Ms. Owensby replied that the toolkit is based on the ADCIRC model. The tools are for incorporating natural and nature-based features into the models, and are being expanded to AdH, some of the Coastal Modeling System (CMS) models and STWAVE.
- Mr. Rowe suggested a modeling workshop for CENAB, MDOT MPA, and the agencies because the models are critical to the ultimate design. He opined that a deeper understanding of how the model works and the design parameters would assist in incorporating as many nature-based features as possible. He posited that setting the model to drive more structural components with softer features that meet the engineering or design criteria could maximize the ecosystem benefit of the ultimate design.
  - Mr. Delwiche reminded the group that the AdH modeling is for interior features, the StormSim modeling of the exterior is focused on the stone and does not include nature-based features.
  - Mr. Cyran agreed, adding that integration with the engineering in nature toolkit will occur in a later stage. The feasibility study modeling was predicated on stone structure/stone dikes; that's the project starting point. The toolkit will be used to evaluate what, if anything, can be integrated from the softer side into the project design.
  - Ms. Owensby stated that ERDC is planning and discussing multiple future workshops where the engineering with nature toolkit and modeling will be covered to increase people's understanding and awareness:
    - a coastal storm risk management workshop at ERDC in April,
    - a summer workshop with Aquaveo, who develops a lot of the modeling interfaces, and
    - an end of summer toolkit workshop designed specifically for the district.
  - Dr. Melby used the example of overtopping and runup of a low-crested breakwater that was intended to be a nature-based feature – it could be modeled with a mesh model, like ADCIRC or STWAVE, but that is not the model to run 100,000 different events or

10,000 LCs to get the statistical variation. Typically, it would be modeled within StormSim (an empirical model). Or, ERDC could train a machine learning model, but it would be lower resolution and will not model responses on a mesh like ADCIRC, STWAVE, CMS-Wave, AdH, etc. Scenarios can be run with those models, but if a full LC in a statistical context is desired, then that necessitates empirical models. ERDC has empirical models for both hard structures and nature-based features, but they're very different and very separate modeling systems. The empirical models are run within a StormSim-like system and the big hydrodynamic models are run within a CSTORM-like system. CSHORE is a bit of both, it is a 1-D hydrodynamic model and its been built into StormSim so that you can run 10,000 realizations of CSHORE. ERDC can also train a machine learning model and run it inside of the StormSim statistical simulation to run 10,000 cases. ERDC can combine different modeling systems to look at a specific problem. Dr. Melby noted that for the feasibility study ERDC built nature-based features into the stochastic simulation model and all those physics were done with mostly empirical models.

  - He added that there are other models that are somewhere in-between, like CSHORE, which is a hydrodynamic model. It's run on a mesh but it's semi-empirical. It runs fast and can be run through lots of different statistical realizations. Decisions must be made whether to run specific realizations of a problem scenarios. Those can be run with a mesh model. But most of the mesh models, like ADCIRC and STWAVE, don't have the resolution to model, for example, overtopping and runup on a coastal structure – those are typically modeled with a StormSim-type model.
  - ERDC is familiar with mixing and matching different modeling systems and capabilities to meet different needs, especially as project stakeholders have different perspectives and request different kinds of results. There’s a very rich environment of modeling systems available, it just depends on which problem is being solved, how much realization, how much statistical fidelity, and whether the objective is to generate statistics, because ERDC isn’t running AdH in a stochastic simulation with 10,000 realizations. They’re going to run that with scenarios.

- Ms. Sowers advised that the next step is to determine timeframes. The group needs to understand how long modeling will take and when certain investigations would need to begin in order to achieve the group’s objectives.
  - The USACE will develop a modeling schedule.

Mid-Bay Island Ecosystem Restoration Project

Agency Coordination Meeting – NEPA and Habitat Working Group

28 March 2023; 9:00 am – 1:00 p.m.

Meeting information:
Microsoft Team Call

1. Introductions (10 minutes) – Maura Morris/MES

2. Barren Island Phase I Construction (10 minutes) – Angie Sowers/USACE

    a. Construction Update
    b. On-going surveys
        i. H&H – Initial monitoring data (October and November 2022)

NEPA

3. Barren Island Phase 2/3 Planning (30 minutes) – Angie Sowers/USACE
    a. Borrow Area supplemental Environmental Assessment
        i. Bathymetric survey results
        ii. Projected sand quantities needed by project component
        iii. Cultural surveys – ongoing
        iv. Bird islands – reef design considerations
    b. Projected Dredging Quantities/Funding Available Honga River Dredging for Placement and Prioritization of wetland cells for restoration

4. James Island sEIS (5 minutes) – Angie Sowers/USACE
    a. Update – OFD Concurrence Point #2 Completed; report drafting continues
    b. Cultural surveys – ongoing

Break (10 minutes)

Habitat Working Group

5. Wetlands Design Discussion
    a. Design metrics preview (10 minutes) – Angie Sowers/USACE
    b. Evolution of wetland design at Poplar Island (30 minutes) – Lori Staver/UMCES
        i. Elevation and elevation capital, and
        ii. Ongoing wetlands modeling to guide redefining the marsh ratio
    c. Hummock design guidance (15 minutes) – FWS
    d. Vegetation monitoring as it pertains to reference marsh identification (15 minutes) - FWS
    e. Path forward to establish design criteria (15 minutes) – elevation, low to high marsh ratio, channel metrics, use of reference sites – Angie Sowers/USACE

6. Discussion (1 hour)

7. Wrap up/Action Items

Mid-Bay Island Ecosystem Restoration Project
Agency Coordination Meeting - NEPA
Virtual Microsoft Teams Call
March 28, 2023, 9–1:00pm

Attendees:

Anchor QEA	Karin Olsen
Chesapeake Bay Foundation	Doug Myers
Maryland Critical Areas Commission (MD CAC)	Jennifer Esposito, Ann Sekerak
Maryland Department of Natural Resources (DNR)	Maggie Cavey, Becky Golden, Roland Limpert, John Moulis
Maryland Department of the Environment (MDE)	Mary Phipps-Dickerson, Matt Rowe, Danielle Spendiff
Maryland Department of Transportation Maryland Port Administration (MDOT MPA)	Amanda Peñafiel, Dave Bibo
Maryland Environmental Service (MES)	Maura Morris, Christine Offerman, Alexa Poynter
Maryland Historical Trust (MHT)	Troy Nowak
National Oceanic and Atmospheric Administration (NOAA)	David Bruce, Jonathan Watson
University of Maryland Center for Environmental Science (UMCES)	Dr. Peter Goodwin, Lorie Staver
US Army Corps of Engineers Baltimore District (CENAB)	Joe Chandler, Ian Delwiche, AJ De Rosset, Charles Leasure, Trevor Cyran, Angie Sowers
US Environmental Protection Agency (EPA)	Megan Fitzgerald, Tim Witman
US Fish and Wildlife Service (USFWS)	Robbie Callahan, Sabrina Deeley, Peter McGowan, Amy O'Donnell
US Geologic Service (USGS)	Jeffery Sullivan

A**ction Items:**

- MES will provide the group with the meeting presentation and meeting recording. *(Documents were uploaded to the Mid-Bay Google Drive)*
- Ms. Sowers will follow up with Mr. Bruce regarding the locations of the currently monitored reference wetlands.
- Ms. Staver or Ms. Poynter will send Mr. Bruce the year that the Cell 4D inlet was converted from metal pipes to an open inlet.

1.0 Introductions

- Ms. Morris conducted roll call and welcomed everyone to the meeting.
- Ms. Morris reviewed the outline of the meeting and noted that the meeting would be recorded.

2.0 Barren Island Phase I Construction – Angie Sowers [US Army Corps of Engineers (USACE)]

- Ms. Sowers provided a construction update.

  - Ms. Sowers noted that the Barren Island Construction Safety Figure was distributed on 3/10/2023.
  - Phase I Construction is underway at Barren Island and will focus on the installation of the new sills.
  - A meeting is scheduled with the watermen on 4/13/23 to discuss the safety figure, current construction updates, and the sand borrow area that will be utilized in Phase II Construction.
- Ms. Sowers provided a brief update on the profilers, which were deployed around Barren Island in October 2022.
  - Consistent water velocity information was collected from the three profilers deployed.
  - Data was downloaded from the profilers in December 2022 and February 2023.
  - T Additional buoys were deployed to mark the profilers for safety reasons.

3.0 Barren Island Phase II/III Planning – Angie Sowers (USACE)

Borrow Area

- Ms. Sowers explained the Barren Island supplemental Environmental Assessment (EA) did not include use of a borrow area, so an additional supplemental EA (sEA) is being completed.
  - Sand is required for foundation remediation in the northeast, constructing the Bird Islands, and the internal dredged material containment structures (possibly geotubes) during Phase II Construction.
- The current focus for Barren Island Phase II Construction is the evaluation of the borrow area.
  - Two smaller focus areas have been identified as the preferred alternative based on the geotechnical data and current evaluations.
    - Evaluations to locate a borrow area looked at the suitability of material (grain size), quantity of material available, impacts to commercial fisheries, impacts to habitats, size of impacted area, and overall costs.
    - Through coordination with watermen, the preference is to site the borrow area as far north as possible within the larger southern borrow area. Additional input may be received from stakeholders and natural resource agencies when the National Environmental Policy Act (NEPA) evaluation is put on public review.
  - Cultural surveys in the two smaller areas are underway.
  - The USACE is determining the best way to contract the borrow area dredging. Dredging contracts typically provide a maximum allowable depth for the contractor, and it is most efficient to dredge at least 5 feet of depth at a time, any shallower than 5 feet and the effort becomes less efficient.

Confinement Recommendation and Decisions

- Regarding dredged material containment, various recommendations have been received; the USACE has selected geotubes for this effort. Once the placed dredged material is stable geotubes will be opened and the sand will be graded into the wetlands.
  - Geotubes were selected in order to ensure material is retained to reach the desired elevations, maintain water quality during dewatering to stay within permitting

requirements, and ensure material is not lost to the existing wetlands or the open Bay.
    - This approach is anticipated to result in non-hardened channel shorelines within the wetland cells. Regarding channel formation, after reviewing lessons learned from Poplar Island and the USACE Engineering with Nature team, it was determined that main channels and most likely secondary channels would need to be mechanically formed; however, the lower order channels will likely be able to form naturally.
    - There may be flexibility in containment in southern wetlands due to the scraped edge. The USACE is determining if the existing shoreline could serve as internal containment, thus reducing the amount of sand and geotubes that will be necessary.

Sand Needs

- Estimates of sand needs were given for containment, foundation replacement and habitat creation.
- The current budget will allow dredging of about 200,000 cy from the Honga River. That material will be used to create wetland cells.
- Ms. Spendiff asked about the timeline of wetland creation in the south cell and suggested collaboration between agencies. Mrs. Sowers said that the timeline could vary but there will be opportunity for input.
- Mr. Watson expressed concerns about impacts to aquatic systems related to the dredging of the borrow area.
    - Mr. Delwiche explained that using material from the Honga River to create the bird islands, as originally discussed, would lead to more uncertainty. The material would not be free draining and may cause structural concerns.
    - It was explained that the USACE would continue to look for ways to reduce the amount of sand required.
    - Ms. Phipps-Dickerson explained that dredging deeper to impact less area within the borrow area could lead to permitting issues, if the permitted depth (5-7 feet) is surpassed.

Updates

- The plan is to have two reefs structures, hopefully made of reef balls, in front of the bird islands to enhance habitat value.
- Mr. Watson expressed support for reef ball habitat. Mr. Bruce expressed the importance of increasing the heterogeneity of the fish habitat.
- Doug agreed with the reef ball plan and mentioned potentially using a concrete formula that uses dredged material as a potential demonstration project. He noted, in order to support oysters, the reef balls would need to be at least 1/2 meter off the Bay floor.
- Mr. Callahan expressed concern for bald eagle and heron nesting habitat in the southwest area.
    - It was explained that all time of year restrictions would be followed. Coordination with natural resource agencies and Maryland Department of the Environment will be performed if impacts are anticipated.

4.0 James Island Supplemental Environmental Impact Statement (sEIS) – Angie Sowers (USACE)

- Ms. Sowers review actions for the James Island sEIS to date.
    - Notice of Intent was provided on 11/7/22.
    - Coordination Letter to Cooperating Agency was also sent in November 2022
    - Concurrence Point 1 – Purpose and Need – January 2023
    - Concurrence Point 2 – Alternatives – Initiated in March 2023, in progress
    - Cultural Surveys in progress.
    - Schedule
        - Draft sEIS for internal review – May 2023
        - Public Review – September 2023
        - Record of Decision – May 2024
        - Water Quality Certification/Tidal Wetlands License - Summer 2025

Habitat Development Workgroup

5.0 Wetlands Design Discussion – Angie Sowers (USACE)

- Ms. Sowers shared potential design parameters.
    - Geometry
    - Percent ponding on marsh surface
    - Sinuosity
    - Drainage Density
    - Channel length ratio
    - Bifurcation ratio
    - Channel distribution ratio
    - Hydroperiod
    - Tidal prism

Evolution of Wetland Design at Poplar – Lorie Staver [University of Maryland Center for Environmental Science (UMCES)]

- Ms. Staver explained that the Chesapeake Bay will experience sea level rise at a higher rate than the rest of the world and that rate is increasing. This needs to be kept in mind with marsh design.
- Marshes can respond to sea level rise through transgression, which is the lateral migration of the marsh and vertical accretion, which occurs via sediment trapping and organic matter deposition from macrophytic vegetation. Ms. Staver noted that organic matter deposition is the major contributor to accretion rates at Poplar Island.
    - Vegetation density can promote vertical accretion by allowing sediment trapping.
    - Macrophyte biomass production has a parabolic response curve to elevation. Biomass production is lower at elevation higher or lower than the optimal elevations. At lower elevations, biomass production will decrease in response to sea level rise (less “elevation capital”), while at higher elevations, biomass production will increase in response to sea level rise (more “elevation capital”).
        - To increase “elevation capital” higher initial elevations of each zone within the tidal range can be used or shifting of the high marsh/low mash ratio can be adjusted.

- The Poplar team is working with Mr. Jim Morris who created the Costal Wetland Equilibrium Model that examined different high marsh/low marsh ratios under different sea level rise scenarios. The main findings were move to a 50/50 high marsh/low marsh ratio based on survival and carbon sequestration results.
- Mr. Watson discussed the ratio of low versus high marsh and asked if the model allows us to know when intervention will be necessary to maintain the vegetated area. Ms. Staver said the model is capable of that, but data is not available to hindcast to validate the model. She suggested deferring to Mr. Morris for future discussion on this.
- Mr. Bruce expressed concern over the uniformity of channel widths around Poplar Island and letting the smaller channels form naturally. He asked what the dimensions are of the "natural channels" Ms. Staver says she has not observed natural channels development other than due to muskrat activity. Also, it can depend on how the sediment is handled. Natural channel formation could occur if the sediment is left wetter and not meant to be driven over.
- Mr. Bruce suggested mechanical methods to create smaller channels. Like farmers creating drainage in their fields.

Hummock Design Guidance – Peter McGowan [US Fish and Wildlife Service (USFWS)]

- Mr. McGowan began by showing a figure of the eight manmade hummocks in Poplar Island Cell 3C.
- Hummocks were proposed at Poplar Island at the end of 2011 to create habitat and topographical diversity within the marsh and focused on American black duck nesting habitat.
    - Construction of the eight hummocks in 2016.
    - A hummock monitoring plan that focused on wildlife usage was completed and initiated in spring of 2021.
- Hummock benefits were reviewed and include:
    - Increase plant and animal diversity.
    - Provide isolated areas within the marsh interior for wildlife use.
    - Important area for secretive marsh birds and American back duck that are easily disturbed by humans.
    - Nesting habitat for saltmarsh sparrow.
    - Can have a positive effect on hydrology and soil chemistry.
- The elliptical, 0.22-acre hummocks were constructed in the low marsh at an elevation of +3.5 - 4.0 feet.
- The hummock monitoring plan includes both wildlife monitoring and vegetation monitoring. Results will determine if hummocks are warranted in future wetland cells.
    - Wildlife monitoring
        - Small mammal live traps, game cameras, direct observation of wildlife presence.
        - Monitoring is conducted five consecutive days four times per year during the midpoint of each season.
    - Vegetation monitoring
        - Three transect lines were establish across each hummock.
        - Stem height, percent cover, percent abundance, species diversity were all measured.

    - Results for the 2 years of monitoring completed include the following:
        - 31 total animal species were observed (25 avian, 5 mammalian, and 1 herpetofauna species).
            - Seven avian nesting species, including gadwall.
        - 20 species of plants were observed (shrubs, forbs, and grasses).
            - None of the original forbs that were planted were found.
- Mr. McGowan review his final recommendations:
    - The elevation should be high enough to prevent overtopping by high tides.
    - Monitoring should occur the year planting takes place to record plant survival and wildlife damage.
    - Identify target wildlife species and plant accordingly.
- Ms. Morris asked if there were reference habitats used to select what was planted. Mr. McGowan said that reference hummocks were not used, but species that would tolerate the saltmarsh habitat were selected.
- Ms. Sowers asked about the size and slope of the hummocks between the high marsh and these habitats. Mr. McGowan stated that it is a gentle slope, and the hummocks are about 0.22 acres.
- Ms. Sowers asked if the hummocks should be located to the interior of a cell rather than near the dikes. Mr. McGowan confirmed that isolation is better to avoid disturbances, but added they should be near a channels. Ms. Sower asked if there should be any connectivity between hummocks. Mr. McGowan stated that they are less than 100 yards away from one another. Mr. McGowan suggested planting shrubs to 30-40% of the coverage if a target species is American black duck.
- Mrs. Poynter added that the Poplar Island supplemental EIS included the recommendation to include hommocks for waterfowl. In 2006, through adaptive management, they established the criteria of a target of approximately 1 acre and the vegetation target of about 40%. There are 1.5 acres in the developed wetland.
- The hummocks are made of a mix of dredged material and sand.
- Mr. Watson suggested varying the material makeup of the hummocks based on the nesting needs of terrapins versus ducks versus snakes, etc.
    - Ms. Poynter confirmed that there will be habitat features created specifically for terrapins (dune like habitat). She also confirmed that these hummocks are included in the low marsh acreage.
- Mr. Watson asked if Mr. McGowan has observed other species like killifish using the hummocks
    - Ms. O'Donnell said that there are ponding that could support these species. Killifish are observed in vegetated portions of the wetland.
- Ms. Morris asked Ms. Poynter when the nest dune type habitat will be constructed. Ms. Poynter confirmed that the next wetland cell would finish receiving inflow this winter. This dune habitat is adjacent to the existing terrapin habitat and would utilize a portion of a cross-dike. This cross-dike is to be removed and then some of the sand would be transferred adjacent to the inlet.
    - Terrapin monitoring would be conducted after construction.

Poplar Island Restored and Reference Marshes – Robbie Callahan (USFWS)

- Mr. Callahan stated marsh monitoring at Poplar Island is conducted annually for the first five years after a restored cell is planted.
- Reference marshes were first monitored in 1996. Beginning in 2003, they were monitored every four years.
- A survey based transect method that has four transects in each of the marsh areas is used. There are four sampling locations along each one of those transects (two in the low marsh and two in the high marsh) to get a marsh average.
    - Percent cover, stem length, and species diversity are determined and used for tracking adaptive management goals, current wetland management, and future wetland designs.
    - Marsh migration is also monitoring in the restored cells. All restored marshes, except for one are showing marsh migration. The low marsh is moving up into the high marsh by 2-10 meters on average.
- The original objective of reference marsh sampling was to determine a baseline marsh community and to gain a better understanding of how the natural processes are affecting the natural marshes and to look for any trends that may develop and document change or stability in the reference marsh vegetation. Mr. Callahan explained some of the challenges when using reference marshes.
    - The reference marshes are hundreds or thousands of years old, whereas the restored marshes are at most 20 years old.
    - The material composition is different.
    - Nutrient availability in restored marshes is high, which leads to a wave of boom/bust cycle of stem heights.
    - There is a difference in diversity levels due to age and limited planting stock.
    - There is a difference in marsh cover and accretion rates.
- Mr. Callahan reviewed his final recommendations:
    - Reference marshes have useful functions and data but direct comparisons to restored marshes are limited.
    - Comparing restored marshes from previous projects may prove to be more useful.
    - Reference marshes in projects area are a barometer for local conditions.
    - Consider having local and previously restored marshes as reference marshes for the project.
- Ms. Sowers asked if they had considered using seeds from other species rather than live rooted material when planting the wetlands. Mr. Callahan said there was limited success with this method; live rooted stock was more cost effective.
- Mr. Bruce suggested having reference marshes for James Island at locations in the Honga River or Little Choptank River. Mr. Callahan agreed.
- Ms. Poynter clarified that the Poplar EIS stated that the low marsh would be dominated by Spartina alterniflora and a percentage was specified in the tidal wetlands license. Although the percentage of other species recommended by USFWS has increased in recently developed cells, a target in the adaptive management plan of greater than 80% S. Alterniflora is listed.

6.0 Path Forward to Establish Design Criteria – Angie Sowers (USACE)

- Ms. Sowers reviewed future steps for establishing habitat design criteria.
    - Use reference sites with a primary focus on Poplar Island and Barren Island Wetlands. Other potential sites include Fishing Creek. Blackwater NWR, Swan Island, Deal Island.
        - Mr. Watson advised that Swan Island and Deal Island not be used as reference sites for low marshes.
        - Ms. Phipps-Dickerson said she believes it is important to include a naturally occurring wetland as a reference site. Mr. Watson and Mr. Callahan agreed.
        - Ms. Sowers asked Mr. Callahan where the reference marshes on his slides were located. He said that there is one reference marsh on Coaches Island and the rest are on the Eastern Shore starting north of Poplar Island and ending at south Tilghman Island. It was agreed that these are too far north to be referenced for James Island.
        - Ms. Sowers suggested using the USGS UVVR to identify potential reference marshes. Ms. Staver agreed for larger-scale marshes, but possibly not small-scale marshes.
        - Mr. Watson suggested considering the distance to higher marsh edge when selecting a good reference marsh and to consider edge erosion as a factor.
    - For Elevation – utilize data from Poplar Island, Barren Island, and Swan Island relating to elevations and vegetation type to identify target elevation under existing conditions. A planning trajectory for sea level rise should be included to identify target elevations for a future implementation point.
        - Ms. Staver suggested transects on Barren Island and Swan Island from the water line to upland edge. This could be fed into the coastal wetland equilibrium model.
        - Ms. Morris clarified that you need tidal date for that model, and they agreed that data from the tidal gauge at Solomon's island could be used.
    - Low to high marsh ratio: evaluate results of CWEM to determine if 50/50 is the most suitable ratio to balance need for sufficient low marsh resources and habitat value with high marsh capital to enable low marsh progression with sea level rise.
        - Ms. Morris confirmed that the model will be used to look at elevation and that ratio whereas the reference marshes will be used to look at how we are doing in the long run and to make comparisons to the natural environment.
        - Mr. Watson said that they will have concerns about less low marshes as we plan for sea level rise. He stated that creating more high marshes will not solve all the issues related to sea level rise, it needs to be managed.
        - Mr. Bruce suggested maintaining a creek edge habitat and open water pond habitat (within the low marsh complex) with the expected lessening of the low marsh due to sea level rise.
        - Ms. Poynter said that the Poplar team are in the process of calculating that water to marsh edge. That will be an attribute that is tracked in the

adaptive management plan moving forward so that we can capture the benefits to fish.

- Selecting design metrics: The Project Delivery Team will recommend metrics to the HWG for selection based on 1) applicability to the project, 2) the ability to design features into the project responsive to the metric, 3) the ability to incorporate into a modelling, 4) the ability to measure/monitor the metric, and 5) existing information available to inform setting targets. We also want to be able to evaluate the capability to apply adaptive management measures.
  - Mr. Bruce said that inlet outlet structure is important, either maximizing size or increasing the number. Ms. Sowers agreed.
  - Ms. Poynter added that the intention is to eventually remove the box culvert inlets at the developed wetland cells in the future. However, during the island's construction, you have to be able to maintain driving and equipment access throughout the island. Not all the wetland cells could have natural openings.
  - Ms. Staver mentioned that the original inlet of Cell 4D was metal pipes that later collapsed, and they were replaced with an open inlet. That could be used as a before and after if we have data throughout the whole time period. Mrs. Poynter said that the data is sporadic so we would need to look at specific years.
  - Mr. Bruce suggested increasing the complexity of quick creek networks, including increased stream order, size, higher heterogeneity in stream width, and amount of edge.
  - Mrs. Morris confirmed and expressed the importance of balancing all the needs of the group to get the best product.
  - Mr. Watson expressed striking a balance between natural formation and adaptive management versus engineered. Focusing on the function that we want, and then the means that will best get us there.
  - Ms. Sowers agreed.

- Mrs. Morris concluded the meeting.

Mid-Bay Island Ecosystem Restoration Project

Agency Coordination Meeting – NEPA and Habitat Working Group

29 June 2023; 9:00 a.m. – 11:30 p.m.

1. Introductions (15 minutes) – Maura Morris/MES

2. Barren Island Phase I Construction Update (15 minutes) – Angie Sowers, USACE

NEPA

3. Barren Island (30 minutes) – Angie Sowers, USACE
    a. Borrow Area
        i. sEA Schedule
        ii. Cultural Survey Results
        iii. Preferred Alternative
        iv. Dredging Design

4. James Island
    a. Modeling Update (15 minutes) Trevor Cyran and Ian Delwiche, USACE
        i. Schedule
        ii. Path Forward

Break (15 minutes)

Habitat Working Group

5. Barren Island Southern Wetland Discussion
    a. Updated Wetland Development/Design (15 minutes) – Angie Sowers, USACE
    b. Habitat Development Updates (15 minutes) – Michelle Osborn, MES

6. Discussion (30 minutes)

7. Wrap up/Action Items

Agency Coordination- NEPA and Mid-Bay Habitat Development Workgroup Meeting
Virtual Microsoft Teams Call
June 29, 2023, 9:00am – 11:30am

Attendees:
Chesapeake Bay Foundation (CBF): Doug Myers
Critical Areas Commission (CAC): Jennifer Esposito
Environmental Protection Agency (EPA): Carrie Traver
Maryland Department of the Environment (MDE): Mary Phipps-Dickerson, Matt Rowe, Danielle Spendiff
Maryland Department of Natural Resources (DNR): Gwen Gibson, Limpert,
Maryland Department of Transportation Maryland Port Administration (MPA): Dave Bibo, Amanda Peñafiel,
Maryland Environmental Service (MES): Maura Morris, Christine Offerman, Michelle Osborn
National Marine Fisheries Service (NMFS): Bruce Vogt, Jonathan Watson
University of Maryland Center of Environmental Science (UMCES): Peter Goodwin
US Army Corps of Engineers Baltimore District (USACE): Joe Chandler, Trevor Cyran, Ian Delwiche, Chris Johnson, Angie Sowers
US Fish and Wildlife Service (USFWS): Carl Callahan, Sabrina Deeley
US Geological Survey (USGS): Jeffery Sullivan

A**ction Items:**
- Ms. Sowers will provide her presentation to the Workgroup. (*Complete. All meeting materials are now available on google drive*).

1.0 Introductions – Maura Morris (MES)
- Ms. Morris conducted roll call and welcomed everyone to the meeting.

2.0 Barren Island Phase I Construction Update – Angie Sowers (USACE)
- Ms. Sowers provided an update on Barren Island construction.
    - Phase I construction began on 3/10 with completion targeted for October 2024
    - Approximately 12% of Phase I has been completed but work is not occurring sequentially due to various environmental time of year restrictions.
    - The profilers continue to monitor; data will be collected again in August 2023 and an update will be provided at the September 2023 meeting.

National Environmental Policy Act (NEPA) Update

3.0 Barren Island – Angie Sowers (USACE)
- The USACE is working on the supplemental Environmental Assessment (sEA) to evaluate the sand sources for Phase II and III construction.
        - Sand is needed for bird island construction, geotubes for containment of dredged material, and foundation replacement on the northeast side of Barren Island.

        - Public and agency review is anticipated in September 2023 with a signed Finding of No Significant Impacts (FONSI) in January 2024.
        - Solicitation of the Phase II/III contract is anticipated in late winter 2024 and award in April 2024.
    - The cultural surveys were completed for the southern borrow area; there were no areas of concern identified.
    - Ms. Spendiff asked for clarification regarding the sEA review in September.
        - Ms. Sowers clarified that the document will be available for a 30-day public and agency review; comments would be due at the end of the 30-day period.
        - Ms. Morris noted that a modification of the Tidal Wetlands License (TWL) is required as well as a new Water Quality Certification (WQC) to support the borrow area.
    - Ms. Sowers provided a preview of the preferred alternative of the southern borrow area which focuses on area 'B'.
        - The watermen would prefer shallow dredging (5 feet) and use of Focus Area B.
        - Focus Area A would only be utilized if material in Area B does not meet expectations.
        - The sEA covers impacts to both Focus Area A and B.
        - Ms. Sowers provided a summary of impacts and evaluations made when considering both the northern and southern borrow areas Honga river and quarry alternatives.
        - The USACE is investigating alternative options to provide sand reduction for the project such as coir logs deployed at Mean High Water (MHW) to provide containment.
        - Coordination is needed with USFWS as they are the property owners to determine the feasibility of some of the sand reduction efforts.
        - The USACE determined that a land-based source of sand would cost 13 times more than the dredging options.
        - The USACE determined that the use of Honga River channel material was not optimal due to the additional time needed to dewater the material, the confinement needed, as well as concerns regarding stabilization.
    - Mr. Rowe asked if there were options for additional sand reduction in the northern end of the island.
        - Ms. Sowers replied that the USACE is currently investigating options to reduce the amount of sand needed.
    - Mr. Watson noted that removal of productive crabbing bottom is not something that National Oceanic and Atmospheric Administration (NOAA) can support and expressed a concern regarding submerged aquatic vegetation (SAV) in the southern borrow area.
        - Ms. Sowers noted that there is no SAV located in the southern borrow area.
    - Mr. Watson asked if Focus Areas A and B were within the southern borrow area.
        - Ms. Sowers clarified that the Focus areas were within the southern borrow area.

- Mr. Limpert asked if the final depth after material removal will be connected to an existing contour depth.
  - Ms. Sowers replied that the material removed would follow the current contours and the slope would remain throughout the dredged area.
  - The plan is to dredge the area and not leave undisturbed areas as to provide enough material for the project from one location.
- Ms. Phipps-Dickerson asked for clarification of the Honga River being removed from consideration for dredging.
  - Ms. Sowers clarified that the Honga River was removed from consideration as a supply of sand, but the location will still be dredged for material to construct the wetlands.
- Mr. Watson expressed a concern regarding the borrow area becoming a hole.
- Ms. Phipps-Dickerson asked if dredging could be made deeper in shallower areas rather than deeper in deeper areas to minimize creating a hole.
  - Ms. Sowers replied that the plan is to contour with the existing bottom, but the team is open to ideas.
  - Mr. Delwiche stated that the area of impacts could be greatly minimized if the dredging went a lot deeper, but the USACE is trying to avoid the creation of a deep hole and create a relatively shallow hole of 5 feet.
  - Ms. Sowers suggested the group keep these ideas in mind when reviewing the sEA and to provide comments which can be discussed and taken into consideration.
  - Ms. Sowers reminded the group of the in-depth conversations held with the watermen who indicated they were comfortable with a 5-foot depth and believed it would infill naturally fairly quickly.

4.0 James Island – Trevor Cyran and Ian Delwiche (USACE)

- Mr. Cyran and Mr. Delwiche provided the NEPA modeling update for James Island.
  - Hydrodynamic (coastal/storm) modeling has occurred.
  - Currently the project is undergoing the lifecycle cost analysis which should be completed in August 2023.
    - The life cycle cost analysis is trying to determine a balance between upfront cost for the project and operations and maintenance costs of the lifetime of the project.
  - Once rock sizes are determined, the team can look towards incorporating nature-based features; a workshop can then be held to discuss the options followed by Engineering with Nature modeling to determine the feasibility of the suggestions.
  - The full design is the last step of the modeling process implementing engineering with nature (EWN) and nature-based features. This process should be completed by July 2025.
- Ms. Spendiff asked how the James Island modeling aligned with NEPA.
  - Ms. Sowers noted that the draft is under development and should be available during the August/September timeframe to discuss the findings/decisions within the document.

- Mr. Rowe asked if a collaboration was to occur to provide a reef structure or some structure outside of the James Island footprint to dampen the tidal effects; would the team be able to utilize smaller stone dikes or configure softer solutions.
    - Mr. Cyran stated that the EWN Toolkit has a modeling program which could apply the suggestion and determine the feasibility; the team would need to coordinate an optimal time to meet with the EWN modelers to investigate the suggestion.
- Mr. Rowe asked once the stone size is selected from the life cycle costs analysis; would the sizing be able to be re-evaluated after the EWN modeling is conducted.
    - Mr. Cyran replied that once the hydrodynamic modeling and life cycle cost analysis is completed, the design team will have an idea on the amount wiggle room allowed within the design for changes.
- Mr. Delwiche noted that the Hydrodynamic modeling determines the wave conditions, water levels for various storms (i.e. 10-year storm, 50-year storm, etc.).
    - The island does not impact the model; the same results would be received if the island was not present within the model. The results are used to determine the wave conditions to the perimeter of the island which allows the team to select stone sizes to prevent erosion.
- Ms. Peñafiel asked, in reference to a reef outside of the project footprint, would it be part of the authorized project.
    - Mr. Cyran replied that there may be room for its inclusion as its providing defense against wave energy; it would have to be investigated if the team decides on that course of action.
    - From a NEPA perspective, the footprint would be changed, which could cause other issues.
- Mr. Delwiche stated that reefs constructed offshore would be comprised of stone.
    - The benefit of the dike is it is comprised of mostly sand with the armored stone around it.
- Ms. Peñafiel noted that the risks determined are related to risk of the future and potential operation and management costs; the State of Maryland will be 100% responsible of the costs once the project is complete.
- Mr. Delwiche detailed the lifecycle cost analysis.
    - Lifecycle cost analysis is a tool used to determine the most cost-effective design for the project.
    - The lifecycle cost is the initial cost of constructing the project (first cost) plus the cost of fixing the project over its lifespan (maintenance cost).
    - Inputs to the lifecycle cost include storm modeling results (wave heights, wave periods, water levels), sea level rise scenarios, and project lifespan.
    - Design alternatives include dike alignments, top of dike elevation, stone size, toe dike elevation and slopes.
    - A series of design alternatives are selected; first costs and maintenance costs are determined for each scenario which are then used to determine the total cost.
        - For the first costs, in relation to severity of design criteria, the least costly design will have the smallest stone, but it will not be able to hold up to more severe storms, while the costliest design will have the largest stones and be able to hold up against the anticipated storms and longest times.

        - For the maintenance costs, the least costly design will have the largest stone as replacement of stone will not be as likely.
        - The design scenario outputs provide curves for the first and maintenance costs, which when combined, provide a curve for the total costs; the low point on the total costs curve provides the most cost-effective design.
    - Currently the USACE and Engineer Research and Development Center (ERDC) are interpreting the storm modeling data, performing quality control checks and preparing design alternatives.
    - Nature-based design alternatives and costs will be developed with the EWN group at ERDC after the costs for the stone alternatives are understood.
        - The biggest question for the nature-based solutions is where they would fall on the life cycle cost plot.
        - Nature-based solutions typically fall towards the left side of the plot for first costs denoting a low construction cost, but maintenance costs are anticipated to be greater.
        - Mr. Delwiche noted that nature-based designs are not as understood as stone design in relation to effects from future impacts.
- Ms. Phipps-Dickerson asked what is used to calculate the maintenance costs of the project.
    - Mr. Delwiche replied that the storm model results provide the team with wave conditions and water levels; the Monte Carlo modeling, which randomly selects storms, provides data regarding damages from the storms on the island.
    - From the damages seen during the Monte Carlo runs, the team reviews the costs to fix those damages and average costs of the simulations is used for the maintenance cost; this is completed for each design alternative.
- Ms. Phipps-Dickerson asked if the costs were current costs or included anticipated cost increases of the future.
    - Mr. Delwiche replied that one of the complexities is that costs increase over time.
    - An inflation rate is used as well as a discount rate; the discount rates are taken from Office of Management and Budget reports.
- Mr. Rowe asked if the maintenance costs of Poplar Island have been compared to the projected costs of the lifecycle analysis.
    - Mr. Delwiche replied that Poplar Island has been fortunate to have not had a lot of damages except for a dike breach from Hurricane Isabel; it is difficult to compare to predicted costs as the project is only a few years in and the 100-year predicted storm is only a 1% chance of occurring a year.
- Mr. Rowe also asked if there was accounting for the economic benefit of nature-based solutions.
    - Mr. Delwiche replied that it is difficult to quantify; the analysis assumes that all design alternatives serve the same function, which is to protect our wetlands in the in inside the islands.
    - Incorporating various benefits into the economic analysis introduces a new level of complexity.

  - Regarding the costs of nature-based solutions, construction costs are easily calculated but it adds much more complexity in determining the maintenance costs; the team will be working to determine the maintenance costs of the nature-based solutions.
- Ms. Phipps-Dickerson asked how much weight the cost analysis plays into making the final design.
  - Mr. Delwiche replied that the design is based on the cost analysis, but the lowest cost may not be the correct choice depending on current funding availability among other factors.
  - Mr. Cyran noted that once the cost analysis is complete the USACE and MPA will need to have a conversation regarding the optimal option between both parties regarding the funding responsibilities as the MPA is responsible for 100% of the maintenance costs.
  - Ms. Sowers noted that the team may determine a few design options that are suitable from a design and cost approach which will then be integrated with EWN options as feasible within the determined design constraints.
- Ms. Peñafiel asked at what point will discussions be held regarding risks to be taken with the design.
  - Mr. Cyran stated that if there is allowance for lesser sized stones to be used, that may be the point where CENAB would ask if there was interest in converting that feature to a nature-based solution; the EWN team would be consulted regarding what type of nature-based solution could be utilized to obtain the same protections as the stone.
  - It was noted that the process would be iterative.
- Mr. Rowe asked for clarification regarding the incorporation of suggestions from the Workgroup into the design and inclusion of nature-based features once the step with the EWN Group begins.
  - Mr. Delwiche replied that once the life cycle costs are completed, the design team will bring the results to the Workgroup for discussion and determine which nature-based solutions are desired for implementations.
  - CENAB will begin coordination with ERDC to determine the input process.
  - Mr. Cyran noted that ERDC will be looking at projects from all over the country to assist in determining which nature-based solutions would be feasible, but will be provided with the recommendations from the Workgroup for consideration.
- Mr. Rowe provided a comment and question in the chat before he signed off and it was not answered.
  - Has EWN been involved in these designs for Barren? [I don't believe the EWN ToolKit was used for Barren Island. With that said, softened shorelines and natural reefs (i.e. reef balls not just rock) should be examined during the channel and bird island design].
  - Mr. Rowe expressed a desire for a natural channel formation approach, so the channels naturally form and adjust according to waves/currents.

Mid-Bay Habitat Development Workgroup

5.0 Barren Island Southern Wetland Discussion

- Ms. Sowers reviewed the wetland cell development conceptual plans.

  - Estimated quantities of material was provides for each of the three wetland cells to be developed as well as estimated material available from the Honga River at various depths.
  - The current plan is to begin with development of the southern cell due to the amount of material available as well as to alleviate concerns of erosional effects impacting the colony of colonial waterbirds.
  - There is additional risk for wetland creation in the northern cells as the goal is to not impact the existing wetlands; additional time for consideration is needed to develop a solution.
  - The USACE is investigating the possible use of coir logs along the shoreline instead of geotubes; geotubes would still be needed in the gap between the northern and southern island remnants during wetland development and could then be removed for softer design approach.
  - Ms. Sowers provided an image of the 3rd order channel network design and inlet locations.
    - There are hummocks placed within the wetlands and 50/50 ratio for low marsh/high marsh.
    - Sand habitat and ponds are located at each inlet.
- Mr. Watson asked for clarification regarding the wetland cell heights.
  - Ms. Sowers replied that the goal is to raise, on average, the wetlands surface to +2 foot.
  - Ms. Sowers noted that consolidation of the material would occur.
- Mr. Watson noted that to complete the southern cell a 2-foot over depth would be needed when dredging the Honga River and could be taken into consideration as the NOAA would typically prefer only 1-foot over depth dredging.
- Mr. Watson noted that he is not comfortable with including the channel in the low marsh calculations.
  - Ms. Sowers stated that the low marsh can be calculated without the channel; the team was utilizing the same method done at Poplar Island.
- Mr. Watson asked if the hummocks were also calculated with the low marsh.
  - Ms. Sowers replied that the hummocks are calculated with the high marsh for the Barren Island southwestern cell.
- Mr. Watson asked if there would be two sub cells to split the high marsh and hammocks.
  - Ms. Sowers replied that is unknown at this time.
- Mr. Watson suggested that the design team keep transgression potential in mind as the wetland design is developed further.
- Mr. Watson noted that he supports the ponds and inlets and noted that those types of habitats are successful features at Poplar Island for fisheries habitat value.
- Dr. Goodwin asked if the inlets would require periodic maintenance.
  - Ms. Sowers replied yes, but that some internal rock may be placed to assist in stabilization.
- Mr. Rowe asked, regarding construction sequence, if the idea was to close off the cell, fill, allow for consolidation, sculpt the channels and then open it to flushing.
  - Ms. Sowers confirmed and noted that the containment that will prevent material from going on the existing island still needs to be determined.

- Mr. Bruce suggested using Poplar Island Cell 4A as a template for a future solution to the opening in the northern end of the cell and asked if the two creeks would be able to be connected in the future.
    - Ms. Sowers stated that findings at Poplar Island indicated that inlets with two openings caused the channels to fill in, but noted that there may be an option for a partial connection, at high tide for example.
- Ms. Osborn clarified, regarding low marsh/high marsh calculations, that currently a line separates the plantings which is why the channels are included in the low marsh calculations; if a hummock is placed in the low marsh platform, it would be included in the low marsh acreage.
- Ms. Osborn stated, regarding Poplar Island Cell 4D, that the inlet was opened after construction; the area is heavily armored with additional armoring inside to prevent scarping.
- Mr. Osborn recommended against a pond connecting the two channels as it would ultimately fill in; a second channel may be needed instead, or if the high marsh could be concentrated in the northern area and the channel opening remain in the southern area.
- Mr. Watson asked for clarification regarding the water in the low marsh calculation.
    - Ms. Osborn stated that all water is counted as low marsh as there are only two areas tracked for low marsh/high marsh tracking.
    - Ms. Watson suggested a third area of a mud flat or some other shallow water area to support fisheries habitat.
    - Ms. Osborn stated that these conversations can continue for Poplar Island as well.
- Mr. Callahan agreed with the suggestion of high marsh in the northern section and a larger and deeper channel in the southern section.
    - Ms. Sowers stated that a few scenarios could be modeled to determine viability.
    - Mr. Watson recommended concentrating the high marsh towards the existing upland to open up a nicer pathway.
- Mr. Callahan asked if the high marsh was connected to the island or if there was another waterway.
    - Ms. Sowers replied that the high marsh is connected to the island, the wetland is allowed to touch the existing land up to mean high water.
    - Ms. Peñafiel stated that the Maryland Port Administration (MPA) legal department is working out the logistics and the project does not intend to go above mean high water; the agreement should be available in the next month or so.
- Ms. Osborn provided habitat development updates.
    - The intent is to model Mid-Bay after the Poplar Island Cell 5D which is the most recent wetland cell at Poplar Island and has multiple constraints similar to James and Barren Islands.
    - The constraints include shallow areas outside of the inlet and high marsh located over previously what was a deep hole in the middle of the cell from a previous sand reclamation effort.
    - For Cell 5D the team looked at connecting the habitat types rather than channels since that would lead to shoaling and focused on creating terrapin habitat using vegetation rather than a hardened option to prevent the erosion of the sand dune areas.
    - For applications at Barren Island the development plan for Cell 5D provides a deeper look at how the channels are designed allowing for flexibility based on site constraints and protecting the sand habitat.

  - Assessments have been occurring regarding how changes to the 80/20 low marsh/high marsh ratio could impact resiliency as well as how the marsh functions in general, including impacts to aquatic resources.
  - Results of the modeling indicate that the 80/20 ratio is not ideal for the current rate of sea level rise and recommended a 50/50 ration which would extend the life of the wetland while also providing low marsh habitat functionality in real time.
  - Following the recent Poplar Island Habitat Working Group meeting and the suggestions of the group, the team started working with NOAA to look at the past monitoring data and identify any relationship that can be found between the marsh edge per acre and fish usage of the Poplar Island wetlands.
  - The model utilized for Poplar Island can be used for Mid-Bay utilizing site specific data.
  - The model can also be used to determine if thin lift placement is a possibility, and if used, what the schedule should be; the edge targets can also be used for the Mid-Bay channel designs.
- Mr. Watson stated that NOAA is happy to continue the conversations and evaluate the tradeoffs with adjusting the low marsh/high marsh ratios to ensure enhanced resiliency while preserving function.

Mid-Bay Island Ecosystem Restoration Project:
James Island

Natural and Nature-based Solutions Workshop

11 September 2023; 12:00 - 3:00 p.m.

1. Introductions
2. Workshop Purpose
3. Project Purpose
4. Modeling Progress / Path Forward
5. Preliminary Stone Size Overview
6. Potential EWN Solutions Discussion
7. Wrap Up / Action Items

Mid-Bay – James Island – Engineering with Nature Workshop

Focus: Island Perimeter

Concept	**(1) What are the positives about the concept?**	**(2) What are the negatives about the concept?**	**(3) What is environmentally beneficial about the concept?**	**(4) What is environmentally negative about the concept?**	**(5) What would you change (add, remove, etc.) about the concept?**
Stone Revetment					
Offshore Segmented Breakwaters (or alternate products such as reef ball, oyster castles, etc.*) *USACE can't specify brand name products					

Stone & Vegetated Revetment					
Vegetated Sand Revetment					
Agency Idea #1					

Agency Idea #2					
Agency Idea #3					
Agency Idea #4					

Mid-Bay Island Ecosystem Restoration Project

Agency Coordination Meeting – NEPA and Habitat Working Group

26 September 2023; 9:00 a.m. – 12:00 p.m.

1. Introductions (5 minutes) – *Maura Morris, MES*

2. Barren Island Phase I Construction Update (5 minutes) – *Angie Sowers, USACE*

NEPA (10 minutes)

3. James Island sEIS Update – *Angie Sowers, USACE*

4. Barren Island sEA Update – *Angie Sowers, USACE*

Habitat Working Group (1 hour 40 minutes)

5. Natural and Nature-Based Solutions
    a. Define goals/objectives – *Group*
        i. Protect the restored area
        ii. Maximize connectivity between habitats to enhance use by wildlife (ex. softened shorelines)
        iii. Provide heterogeneity in habitats (ex. reef balls/oyster reefs)
        iv. Additional goals?
    b. Define constraints – *Angie Sowers, USACE*
        i. *Legal/funding*
        ii. *Design*
    c. Discuss additional ideas – *Group*

Open Office Hour (time as needed)

6. Questions on Barren Island Borrow Area sEA (comments due by 10/9/23) – *Group*

Mid-Bay Agency Coordination – NEPA and Habitat Development Workgroup Meeting
Virtual Microsoft Teams Call
September 26, 2023, 9:00am – 11:30am

Attendees:
Anchor QEA: Karin Olson
Chesapeake Bay Foundation (CBF): Doug Myers
Critical Area Commission (CAC): Jennifer Esposito, Annie Sekerak
Environmental Protection Agency (EPA): Megan Fitzgerald, Katherine Kent, Carrie Traver
Maryland Department of the Environment (MDE): Danielle Spendiff, Jonathan Stewart
Maryland Department of Natural Resources (DNR): Gwen Gibson, Becky Golden, Roland Limpert, Lindsey Sestak, Rebecca Thur
Maryland Department of Transportation Maryland Port Administration (MDOT MPA): Dave Bibo
Maryland Environmental Service (MES): Benjamin Langer, Maura Morris, Michelle Osborn, Alexa Poynter
National Marine Fisheries Service (NMFS): David Bruce, Jonathan Watson
University of Maryland Center of Environmental Science (UMCES): Lorie Staver
US Army Corps of Engineers Baltimore District (CENAB): Trevor Cyran, Ian Delwiche, AJ De Rosset, Christopher Johnson, Angie Sowers
US Fish and Wildlife Service (FWS): Robbie Callahan, Amy O'Donnell, Sabrina Deeley
US Geological Survey (USGS): Jeffery Sullivan

A**ction Items:**
- Follow-up meeting materials will be provided to the Workgroup for review.
- Ms. Staver will provide a study on water elevations in relation to the draft target wetland platform elevations.

1.0 Introductions – Maura Morris (MES)
- Ms. Morris conducted roll call and welcomed everyone to the meeting.

2.0 Barren Island Phase I Construction Update – Angie Sowers (USACE)
- Phase I construction began on 3/10 with completion targeted for October 2024.
- Approximately 29% of Phase I has been completed; construction is not occurring sequentially due to various environmental time of year restrictions.
- The USACE in the process of determining if the colonial waterbird nest on the southern Barren Island remnant is active this year and asked the Workgroup to provide any available information.

National Environmental Policy Act (NEPA)

3.0 James Island Supplemental Environmental Impact Statement (sEIS) Schedule Update – Angie Sowers (USACE)
- The internal draft James Island sEIS is near completion. Internal reviews and updates associated with the developing engineering with nature (EWN) components are expected to occur from October 2023 through spring 2024.

- The USACE has tentatively allocated 30 acres beyond the island footprint for external EWN features.
- The public agency review is targeted for spring 2024 with a signed Record of Decision (ROD), to complete the NEPA review process, anticipated for October 2024.
- Permitting is anticipated to be completed in early to mid-2025 with construction following shortly after.

4.0 Barren Island Borrow Area supplemental Environmental Assessment (sEA) Schedule Update – Angie Sowers (USACE)

- The Barren Island Borrow Area sEA is currently undergoing public and agency review. The review period concludes on 10/9/23.
- Comments will be addressed, and internal review of the final document will be conducted from October through December 2023.
- The signed Finding of No Significant Impact (FONSI) document, to complete the NEPA process, and completed permitting is anticipated for January 2024.

5.0 Natural and Nature-Based Solutions - USACE

- EWN Formulation Update
  - The life cycle cost analysis was completed in September 2023. This analysis is used to help determine the perimeter dike stone sizes.
  - The first James Island EWN/Natural and Nature-Based Solutions Workshop was held on 9/11/23 to obtain stakeholder feedback and suggestions.
  - The USACE is currently working on developing and refining the stakeholder suggestions, interfacing with the Engineer Research and Development Center (ERDC) team and conducting evaluations and modeling.
  - A second workshop will be held in early 2024 to discuss any results of the evaluations and modeling and which EWN components will be incorporated into the design plans.
- Overview of the USACE Project Process
  - The feasibility study was conducted from 2002 to 2009. The USACE worked with a sponsor to evaluate the opportunities, constraints, and goals associated the project. Alternatives were documented, modeling was conducted, and the NEPA process was completed.
  - A Chief's Report was completed in 2009 and the recommended alternative was presented to and authorized by Congress for construction under the Water Resources Development Act (WRDA) of 2014.
  - The Barren Island Phase I design phase began in 2019, was completed in 2022, and has since progressed to the construction phase.
  - The remainder of the design will be conducted under the construction phase of the project.
- The authorized recommended plan components for James Island consists of:
  - Constructing a 2,072-acre island with a habitat proportion of 45% upland to 55% wetland
  - Constructing a +20-foot upland dike (the dike heights will be built higher than +20 feet in order to contain the dredged material prior to dewatering)
  - An option to reconfigure the wetlands and upland ratios during design

- Providing 90 to 95 million cubic yards (mcy) of capacity to place clean dredged material over more than a 30-year period
- Constructing approximately 45,000 linear feet of armored dikes, breakwaters, and/or other structures
- Creating an access channel and turning basin off the northwest corner of the island, and
- Constructing a personnel pier and facilities needed for site operation.

- James Island Construction Sequence
  - Phase one of the initial construction is anticipated to begin in 2025 and will consist of constructing the upland dikes and stockpiling sand from the upland borrow area. The second initial phase will consist of building the personnel pier and site facilities.
    - Mr. Myers inquired about the dredged material capacity obtained from dredging sand from the upland borrow area. Mr. Delwiche responded that approximately 15-20 mcy of sand is estimated to be within the borrow area; therefore, the borrow area could provide up to approximately 20 mcy of dredged material placement capacity.
  - The wetland cells are currently planned to be constructed from south to north.
    - Mr. Myers inquired about the sequencing for dredged material placement. Ms. Sowers responded that dredged material will be placed in the upland area after placement in the wetland cells.

Constraints

- Congressional authorization limits project alterations without undertaking a Limited or General Reevaluation Report, which takes a minimum of three years to complete.
  - The feasibility study does include flexibility for some features:
    - "Tidal Guts – Further hydrodynamic analysis will be conducted in the Pre-Construction Engineering and Design (PED) phase to determine if the entrances to the tidal gut from the Chesapeake Bay will require a limited reach of stone armor." Ms. Sowers stated that this allows the potential incorporation of offshore breakwaters and reef structures to soften the inlets as construction progresses.
    - "Habitat Enhancement – Design Details will be investigated during the next project phase, PED, which would likely enhance the habitat value of the proposed island. For example, NMFS suggested diversification of proposed shorelines to provide more habitat benefits to finfish using adjacent waters. Specifically, small coves lined with smooth cordgrass marsh would be attractive foraging habitat for juvenile summer flounder. The east side of James Island could be diversified with a series of small coves and/or crenulations. The cove should tie into the 9' to 10' depth contour, to increase its value to recreational fishing. The southern tip of the preposed James Island may also be suitable to a cove. Maximizing the number of tidal ports is another design element that would enhance the export of detritus and other energy from the wetland cells."
  - Regarding the perimeter feature only;
    - Solutions cannot cost more than the perimeter dike recommended to Congress.
    - Solutions cannot create operation and maintenance requirements above and beyond those estimated in the recommended plan to Congress ("2% or less of project cost", approximately $2M/year using 50-year life cycle).

        - Solutions are limited to the footprint of the recommended plan to Congress except for "shorelines to provide more habitat benefits for finfish using adjacent waters." There is also some flexibility with tidal gut entrance design.
    - Solutions must have a similar level of resiliency as the stone solution.
    - Upfront and maintenance costs must be able to be predicted over the life of the project.
    - Solutions must not utilize more sand resources than what are available. There are approximately only enough sand resources to implement the authorized plan.
    - Solutions must not reduce the island's dredge material capacity.
    - Solutions must provide for control of sediment during inflow.
    - All options should generally maintain the authorized project footprint.
    - The design process must maintain schedule to provide placement capacity as Poplar Island reaches capacity.
    - Access for construction (roadway) is required.
    - Ms. Sowers also noted the sand borrow area limits the location of wetlands, which has associated ramifications for connecting uplands and wetlands (constraint for internal habitat development).

Goals/Objectives

- Solutions must add habitat value (particularly for fisheries)
- Increase connectivity between fisheries to wetlands habitat, uplands to wetlands, and others.
- Provide capacity for high marsh to develop into low marsh as sea levels rise.
- Provide capacity for thin layer placement (TLP) at a future time(s) to maintain marsh elevation in face of sea level rise (SLR).
- It was asked what the purpose/goals were for reducing the hard structures.
    - Mr. Watson stated that softening shorelines complements the goal of increasing connectivity by creating a steppingstone of suitable habitats for larger fishes and aquatic life to enter into the island. The goal should be to maximize the ecological utility of the interior and exterior of the island to ensure the productivity of the wetland cells are exported into the Bay and thereby benefitting aquatic life and offsetting some of the impacts associated with filling 2,000 acres of Bay bottom.
    - Mr. Myers stated that another purpose of reducing hardscape would be to lower portions of the dike to a bathymetry that would support oyster reef development. This could be conducted in a later phase so as not to impact inflow and consolidation requirements. The hardscape could be removed/reused as oyster habitat.
        - Ms. Gibson stated that Mr. Chris Judy and Ms. Jodi Baxter of DNR Fisheries were provided with the James Island bathymetry map to identify optimal locations for oyster habitat enhancements. Ms. Sowers stated that the recent harvest for the oyster bars surrounding James Island has been added to the master plan.
        - Mr. Callahan asked if the toe dike for the stone revetment would act as a reef structure and naturally colonize oysters. Ms. Sowers responded that all the toe dike depths should be suitable for spat set and added that she has high hopes for natural colonization of oysters from the Little Choptank River and other restored tributaries in the area. Mr. Watson added that increasing the heterogeneity of the homogeneous nature of stone revetments would increase spat set.
        - Ms. Staver stated that her colleague and a graduate student have modeled oyster larvae dispersal in the Choptank and Little Choptank Rivers. Based on this model

and the changes to the hydrodynamics due to island construction, certain areas of the island would be better candidates for subtidal rock structures for oyster settlement.
        - Mr. Cyran asked how softening large portions of the stone dikes would support marine species. Mr. Watson responded that softening the dike would increase the chance for marsh and shoreline-oriented species to colonize the interior of the island and increase nektonic assemblages.
- Other goals/objectives:
    - Maximize the heterogeneity, aquatic habitat complexity created by exterior containment structures.
    - Maximize the overall function of the island as an ecological system of interconnected habitats and its hydrologic connection to the aquatic environment.
    - Mr. Watson provided a link (https://www.sesync.org/resources/audio-interview-socio-environmental-resilience) to a podcast regarding three core characteristics of healthy systems from an ecological perspective; connectivity, disturbance regime, and heterogeneity. NMFS would appreciate approaches that take these concepts into consideration.

Proposed Ideas

- Diversify exterior dike to add heterogeneity utilizing structures such as reef balls and or stone reefs.
- Incorporate oysters into the dike matrix and exterior of the island; create stone reef complexes similar to the offshore rock pile adjacent to Poplar Island Cell 2C in 9-10' depths.
- Greater hydrologic connection of James Island with the Bay, including using living shorelines and natural materials in exterior containment design.
- Provide for TLP at a future time; maintain an upland cell to source material.
- Design the main inlets to be natural from the start, with weirs confined to areas inside the project footprint; if not possible, utilize large weirs for inlets.
- Incorporating trees and hardwood into the dike matrix.
    - Mr. Watson provided this comment after the meeting ended: [While the value in woody debris as estuarine fish habitat has been described in the literature (for a local example - Everett and Ruiz 1992), we are not advocating for its use on the exterior of the project. Our perspective is that it is not a structural component of a shoreline project in a high-energy setting (i.e., max fetch > 1 mile) and that the benefits are not equivalent to those observed in more quiescent sub-estuaries. They should be considered to add structured habitat in internal pond areas.]

James Island Master Plan Updates

- Ms. Sowers presented a revised version of the James Island master plan incorporating prior feedback as well as EWN ideas. The changes made to the plan include:
    - A fourth inlet on the southern portion of the island
    - Moving the channel network eastward in order to connect the high marsh habitat
    - Adding an array of 300' by 100' stone reefs set 300' apart along the western shoreline with reef balls set in-between
    - Offshore structures in front of the inlets
    - Vegetated islands in some of the channels

- Other design features under development and therefore not included in the current plan include adding intricate design features, such as hummocks, mudflats, and beach habitats, redesigning the channels to have a sinuosity between 1.7 and 2.2, and shifting the northern main channel layout to enable a higher swath of high marsh habitat.
- Ms. Staver asked if Dr. Peter Goodwin's suggestion regarding self-design for the tidal creeks was considered. Ms. Sowers responded that the lowest order channels will be allowed to self-design. Ms. Morris added that after coordination with the EWN staff at ERDC it was determined that enabling the entire channel network to self-design may lead to a failed wetland due to the low grain size of the dredged material not lending towards a more natural stream process.
- Mr. Bruce asked if there are hydrological constraints that prohibit conductivity between the lower order channels, i.e. connecting all the channels together. Ms. Morris responded that some interior dikes were removed at Poplar in order to connect the lower order streams. This resulted in a dropout or settling of material between the connected channels and the channels began to shoal in. For Mid-Bay, it was decided to focus on the connectivity of habitat types instead, i.e., connecting the low marsh habitats.
    - Mr. Watson provided this comment after the meeting ended in regard to Mr. Bruce's question and the answer provided regarding Poplar: [It seems possible that the same phenomenon is not guaranteed to occur at James. Factors that may drive a different response include channels connecting at different aspects of the project shoreline (and therefore differential "pressures" - see Bernoulli principle) and differences in channel size. We request that this question be addressed through modeling. I think some of the modeling work that William Nardin has completed at Poplar would be insightful if adapted to James.]
- Ms. Osborn stated that she is concerned that four inlets will not be enough to flood the low marsh and asked if the number of inlets and associated flooding will be modeled in advance of determining the number of inlets needed. Ms. Sowers responded in the affirmative and stated that the first modeling the USACE will be conducting will be to investigate channel sizing and flushing.
- Mr. Watson provided this comment after the meeting ended: [The channel network and marsh schematic looked generally good, and NMFS appreciates the attention to channel design, with sinuosity as an emphasis. NMFS also agrees that the high marsh to upland connectivity should be maximized, including connections to any surface water features (e.g., freshwater wetlands). While I know that fine-scale habitat features (e.g., hummocks) will be added later, we encourage your team to work toward greater heterogeneity along the platform. For example, the figures presented in Joe Smith's presentations (for example, see: https://www.youtube.com/watch?v=72eY20U7PX8&t=3s , minute 13) indicate that interior ponds and high (relative) relief are common on (unditched) marsh platforms - these would be good to emulate to the maximum extent possible. Joe has frequently remarked that ponds on the interior of large high marsh platforms help to maintain marsh hydrology in dry periods (and provide suitable habitat for black rail). A connection with the uplands could also help to maintain this hydrology and establish more heterogeneous salinity regimes.]
    - Ms. Sowers stated that the follow-up meeting materials will include a timeframe for the group to provide feedback. Ms. Sowers asked the group to provide feedback on location, size, material, and configuration/orientation of the stone reefs and reef ball structures,

how much impact area we want to have, and accumulatively how much of this habitat we want to provide; a placeholder of 30 acres is currently in the sEIS but this amount can be revised. Ms. Sowers added that we want to make sure the sEIS captures all of the footprint impacts for NEPA.

- Mr. Watson provided this comment after the meeting ended: [NMFS supports the inclusion of reefs and believe that some study of broad hydrodynamic conditions should be considered in siting these structures/complexes. This likely deserves additional discussion among a variety of regional biologists. We can work to put together a meeting sometime this fall. Is there a deadline for this feedback, or will the placeholder in the draft James sEIS document suffice for now? The results of the ADCIRC modeling along with any model outputs illustrating anticipated current velocities (similar to those generated for Barren Island) will also be helpful to inform that discussion.]

- The USACE will continue to investigate ideas for softening the eastern shoreline.
- The initial island parameters for the project and a matrix of parameters were shown to the Workgroup and will be provided for review. The initial proposal for the first round of modeling for James Island will use the following parameters: Inlet width between 150' and 200', inlet depth at existing depth, channel width of 150' for 3rd order, 50' for 2nd order, and self-design for 1st order. Wetland elevations are based on Poplar Island data and relationship of WLM, LHM, and HMU breaklines to MLLW, the Barren Island digital elevation model from 2020 LiDAR, and tidal datum projected to 2022 using high sea level curve. Based on this, the platforms at Barren Island ranges between 1.05' and 1.82' for low marsh and 1.82' and 4.31' for existing high marsh. Ms. Sowers asked for input regarding draft target elevations for the James Island marsh platforms.
  - Ms. Morris inquired about the process for determining the Poplar Island marsh platform elevations. Ms. Osborn responded that the initial elevations were determined at design but increased with each new wetland cell due to new data.
  - Ms. Morris asked if UMCES has or knows of any applicable research. Ms. Staver responded in the affirmative and stated that she will provide the research to the Workgroup.
  - Mr. Watson provided this comment after the meeting ended: [NMFS agrees that marsh platform height should be set based on the estimated tidal datum at the time of wetland development (i.e., initial planting). I think the final elevation could be set through some kind of adaptive management approach, given the timescale of the project. It sounds like Ms. Staver has references to provide and I suspect she can direct you to colleagues at VIMS or UMCES for this technical information. We can also reach out to our colleagues at the National Center for Coastal and Ocean Science. If that would be helpful, please let me know.]
- Mr. Stewart provided a comment on behalf of Mr. Matt Rowe based on discussions between the MDE Director's Office and Secretary's Office: MDE may be requiring mitigation for the James Island project due to approximately 2,000 acres of impacts to the Bay bottom. Ms. Spendiff added that the need for mitigation may be dependent on the incorporation of some of the proposed features to the master plan.
  - Mr. Myers asked if mitigation funding was included in the authorized project. Ms. Sowers responded in the negative. Mr. Myers asked who would be responsible for funding any

required mitigation. Ms. Osborn responded that the State would be responsible for funding the mitigation as the USACE will not pay for mitigation for a restoration project.

- Wrap Up/Next Steps
    - The USACE will be discussing ideas regarding EWN with ERDC to determine if any additional analyses or modeling are needed and will continue to develop EWN features/approaches.
    - A second EWN Workshop will be held in late 2023 or early 2024.
    - The USACE will be working to complete the public review for the Barren Island Borrow Area sEA, initiating internal review of the James Island sEIS, continue permitting efforts with the Barren Island Borrow Area, and conducting an initial channel/wetlands modeling for James Island focused on channel sizing to provide sufficient hydrologic connectivity.

6.0 Questions on Barren Island Borrow Area sEA

- Ms. Sowers asked the group if there were any questions or comments on the Barren Island Borrow Area sEA.
    - Ms. Spendiff stated that MDE's comments will be provided by the deadline (10/9/23) and may include mitigation for impacts associated with the borrow area.
    - Mr. Waston stated NMFS would provide a letter with concerns by the October deadline.
    - Mr. Myers asked if borrow area dredging would occur in one cycle or several. Ms. Sowers responded that the borrow area will have three purposes, first to provide material for foundation replacement under the northeast sill, second for the bird islands, and third for any geotube containment structures. Additional material will most likely be needed as material cannot be stockpile on the island. These additional dredging(s) will be from a different location than the original dredging but will still be within the borrow area. Mr. Myers asked if the material in the geotubes will be reused after consolidation. Ms. Sowers responded that the material in the geotube will be reused to grade the shorelines.

Mid-Bay Island Ecosystem Restoration Project

Agency Coordination Meeting – NEPA and Habitat Development Workgroup

14 November 2023; 12:30 p.m. – 2:30 p.m.

1. Introductions (5 minutes) – *Maura Morris, MES*

2. Barren Island Phase I Construction Update (5 minutes) – *Angie Sowers, USACE*

NEPA (20 minutes)

3. James Island sEIS Update – *Angie Sowers, USACE*

4. Barren Island sEA Update – *Angie Sowers, USACE*

Habitat Development Workgroup (1 hour)

5. Natural and Nature-Based Solutions/EWN – *USACE*
    a. Schedule
    b. Constraints and proposed alternatives

Wrap Up (30 minutes)

6. 2024 Meeting Schedule (4th Tuesday) – *Maura Morris, MES*
    a. January 23rd – MWG
    b. Winter (TBD – Holding 2/27) – EWN Workshop
    c. March 26th – HWG/NEPA
    d. June 25th – HWG/NEPA
    e. September 24th – HWG
    f. Fall (TBD– Holding 11/19) – Annual Meeting
7. Action Items and Questions – *Group*

Mid-Bay Habitat Development Workgroup (MB HWG)
Virtual Microsoft Teams Call
November 14, 2023, 12:30pm – 2:30pm

Attendees:
Chesapeake Bay Foundation (CBF): Doug Myers
Critical Area Commission (CAC): Annie Sekerak
Environmental Protection Agency (EPA): Carrie Traver
Maryland Department of the Environment (MDE): Mary Phipps-Dickerson, Matt Rowe
Maryland Department of Natural Resources (DNR): Maggie, Cavey, Gwen Gibson, Becky Golden, Roland Limpert, John Moulis, Tony Redman, Lindsey Sestak, Rebecca Thur
Maryland Environmental Service (MES): Maura Morris, Michelle Osborn, Alexa Poynter
Maryland Historical Trust (MHT): Troy Nowak
Maryland Port Administration (MPA): Dave Bibo, Amanda Peñafiel
National Marine Fisheries Service (NMFS): Bruce Vogt, Jonathan Watson
University of Maryland Center of Environmental Science (UMCES): Lorie Staver
US Army Corps of Engineers Baltimore District (CENAB): Trevor Cyran, Charles Leasure, Angie Sowers
US Fish and Wildlife Service (USFWS): Robbie Callahan
US Geological Survey (USGS): Jeffery Sullivan

A**ction Items:**
- The USACE will provide the natural and nature-based solutions screening matrix to the agencies for review.
- MES will send meeting invites for the 2024 meetings.

1.0 Introductions – Maura Morris (MES)
- Ms. Morris conducted roll call and welcomed everyone to the meeting.

2.0 Barren Island Phase I Construction Update – Angie Sowers (USACE)
- Phase I construction began on 3/10/2023 with completion targeted for October 2024.
- Approximately 33% of Phase I has been completed; construction is not occurring sequentially due to various environmental time of year restrictions.

NEPA Update – Angie Sowers (USACE)

3.0 James Island Supplemental Environmental Impact Statement (sEIS) Update
- The draft James Island sEIS was completed and internal review has commenced.
- Public agency review is scheduled to occur in spring 2024.

4.0 Barren Island Borrow Area supplemental Environmental Assessment (sEA) Update
- The public and agency review period ended in early October 2023.
- The USACE is currently working to address the 69 comments received from the EPA, MDE, MDNR, NOAA/NMFS, USFWS, MD State Clearintghouse, and CBF and revise the sEA.

- The signed Finding of No Significant Impact (FONSI) document, which will complete the NEPA process, is anticipated for January 2024. Once signed, contracting can commence.
- Comments received on the sEA included:
    - Provide further explanation on how potential borrow areas were identified.
        - Ms. Sowers explained that the borrow areas were identified through the 2001 reconnaissance investigation conducted for several of the potential island alignments and refined in order to avoid submerged aquatic vegetation and oyster habitat and their protective buffers.
        - Ms. Thur added that there are aquaculture leases south of Barren Island, within the upper portion of Long Cove, and in the Honga River near the southernmost portion of the Upper Hoopers Island peninsula.
    - Clarify why the focus is on the Honga River versus other local navigation channels.
    - Clarify dredging plans and timing/frequency.
    - Develop a monitoring plan to determine impacts and track recovery of benthics within the borrow area.
    - Provide further justification regarding conclusions made on noise impacts from dredging.
    - Concerns with impacts to commercial watermen who use the area (crabbing).
    - Use of geotubes for containment are likely unnecessary.
        - Ms. Sowers stated that geotubes will still be used as alternatives such as a hay bale containment, similar to those used at Deal Island for the Wicomico River Channel dredging placement, were not successful.
        - The USACE had to issue a contract modification to repair the hay bale containment before dredging started as it was damaged by the wave climate from tropical storm Ophelia. The USACE is issuing another contract modification to repair the hay bale containment now that dredging has started because the inflow is actively deteriorating the containment.
    - Avoid dredging previously undisturbed bottom to source sand; if this can't be avoided, leave undisturbed bottom within the dredging area.
        - Ms. Sowers provided a proposed dredging plan for Focus Area B which would leave the central ~10 acres undisturbed by the first dredging effort. Approximately 15 acres on either side of this central area will be dredged; the total estimated area of impact is ~20-30 acres. This first dredging equates to ~ 90% of the sand needed for the southern wetland containment geotubes, northeast foundation replacement, and the bird islands. At a future time, remaining sand needs would be obtained from either the central area or other options could be considered (other options would need to be documented in the NEPA assessment) to provide sand for the northeast and northwest containment.
        - Mr. Watson asked if the undisturbed central area could be aligned with the existing shoal and if the undisturbed area could be interspersed to leave an artificial area of ridges consistent with the original bathymetry. Ms. Sowers responded that the plan would be revised to adjust the alignment of the undisturbed area but, based on

feedback from the engineers, interspersed narrow strips of undisturbed areas are not feasible.

- Mr. Rowe inquired about woody debris found during dredging operations and downed trees along the Barren Island shoreline and asked if the wood could be reused. Mr. Cyran responded that all large debris that halts dredging operations are typically placed in a separate scow to be disposed of but the contractor could be directed to segregate woody debris for reuse; the USACE would need to know how/where the debris should be used/placed. Downed trees along the shoreline are not moved unless they interfere with the geotube placement. Ms. Sowers asked the group to provide any feedback or guidance regarding how to utilize the woody debris.
  - Mr. Rowe suggested the USACE develop a plan to reuse woody debris as a part of engineering with nature (EWN) if the other agencies think it feasible. Mr. Cyran responded that the engineers would not want to use the woody debris for the initial dike as an organic anomaly would potentially cause a dike failure. The debris could be collected for future use at a later stage of the project, but storing the wood could be a challenge.
  - Mr. Callahan stated that woody debris is not typically found while dredging and is not expected to be found during the James Island construction. Woody debris washes up on the rocks at Poplar Island above the waterline and some below the water line that does provide some structure.
  - Ms. Osborn informed the Workgroup that the wood placed in ponded areas within Cell 5AB at Poplar floated away and washed up in areas that the wood was not wanted.
  - In lieu of recovering and using woody debris for shoreline habitat creation, Mr. Vogt suggested putting more effort/resources towards oyster restoration and utilizing reef balls for shoreline stabilization.
  - Ms. Traver added that if woody debris is used in the design, the debris would need to be anchored to prevent it from moving.
- Better document the connection between benthic habitats and higher trophic levels in the food web.
- Continue to look for ways to minimize sand needs.
- Consider more expansive oyster habitat restoration.
- Limit over dredge depths to one foot rather than two feet.
  - Ms. Sowers stated that the two foot over dredge will remain as decreasing the over dredge would increase the likelihood of additional sand being needed from another location.
- Avoid dredging during warmer months.
- Consider other potential sand sources – York Spit channel material, which is placed at Wolf Trap, Focus Area A. Draw out timeframe to use sand generated from future channel dredging or from the James Island footprint, if excess exists.

        - Ms. Sowers stated that transportation costs are prohibitive for using material dredged from the York Spit channel, Focus Area A will be a borrow area option at a future time.
    - Support for selection of southern borrow area as it avoids oysters and SAV habitat.
    - Agreement on the shallow depth of dredging as it will not require mitigation and is not expected to lead to anoxic conditions.
    - USFWS concurrence on not likely to affect determination during the Endangered Species Act (ESA) consultation and it is not necessary to re-initiate ESA with NOAA.
    - Time-of-year restrictions for dredging within 500 yards of oyster bars.

Habitat Development Workgroup

5.0 James Island – Natural and Nature-Based Solutions/EWN

- Schedule
    - Round 1 of the Life Cycle Cost Analysis was completed in October 2023. The modeling was run without cost data to expedite the determine of which, if any, cross sections would experience damage. Based on the results, only dikes using stone sized for the 10-year event or smaller received damage. Therefore, the 20 and above year storm models do not need to be re-run with cost data. The next step is to review the data to determine which sections of the dike received damage.
    - The USACE is currently in the process of determining which softer EWN features will work in lieu of stone revetments. In collaboration with Engineer Research and Development Center (ERDC) EWN staff, a constraints matrix was developed in order to determine which solutions to move forward with modeling, the next modeling process, and design steps. During this process, it was discovered that the EWN Tool Kit can only determine if the EWN features can obstruct a wave attack. An additional model or other method will be needed to determine if the EWN features will survive a wave attack.
        - Mr. Myers asked if overtopping the EWN features is an option instead of the feature needing to obstruct the wave and if the EWN Tool Kit can model soft solutions and incorporate operation and maintenance to upkeep the soft solutions. Mr. Cyran responded that EWN features can be overtopped as long as the feature does not get destroyed and stated that the EWN Tool Kit was designed for flood risk management and if the tool kit cannot be utilized to model soft solutions than a different model or method for analyzing the EWN features will be needed.
    - Round 2 of the Life Cycle Cost Analysis is anticipated to be conducted in January 2024 in order to re-run modeling with cost data for specific cross sections and softer EWN solutions.
    - The 2nd EWN Workshop will be held in February 2024 to discuss design and modeling outcomes/results.
- Constraints and Proposed Alternatives
    - Authority Constraints
        - The initial cost of the solution is in-line with the recommended project initial cost.
        - Operation and maintenance cost of the solution is in-line with the recommended project O&M cost.

        - Solution can be built within the recommended project footprint with little to no deviation.
        - Solution does not reduce the recommended project's dredged material capacity.
        - Mr. Myers inquired about the feasibility of utilizing geotubes to protect a sand dike solution. Mr. Cyran responded that the consistency of the channel dredged material being placed at James would not be conducive to geotubes; dredged material with a higher sand content would be needed.
        - Solution can provide the same level of protection as the recommended project.
            - Ms. Phipps-Dickerson asked for clarification regarding the 'same level of protection'. Mr. Cyran responded that the solution would need to have minimal risk of failure during a 50-year storm event. Ms. Sowers suggested modifying the header to be more intuitive.
            - Mr. Myers asked if all portions of the dike must have an equal level of protection of if the level of protection differs depending on the portion of the dike in question. Mr. Sowers responded that the level of protection is unique to each portion of the dike.
    - Design/Environmental Constraints
        - O&M costs of the solution are predictable/can be determined.
        - Solution does not require additional sand resources.
        - Solution does not allow for the egress of sediment during inflow.
    - Mr. Rowe asked if ecological benefits could be prioritized. Ms. Sowers stated that habitat/environmental opportunities could be added to the matrix to determine if the solutions have any overlap of benefits.
    - Ms. Gibson asked if the matrix can be provided for agency review/comment prior to ERDC. Ms. Cyran responded that the matrix can be provided for agency review while ERDC is working on it in order to keep on schedule.
    - Mr. Callahan stated that the Poplar expansion has a stone revetment exterior with internal sand dikes to divide up the area into separate cells. While this area is very protected with little fetch, wind, and wave energy, one of the berms has blown out and the other berms within the cells are experiencing massive erosion. The only portions of the expansion not experiencing erosion are at the rock-lined spillway. Mr. Callahan recommended that, in terms of long-term sustainability and ecological uplift, the island's protection be prioritized in order to safeguard the future interior ecological habitat.
    - Mr. Myers inquired about who would be developing the variables associated with the solutions to be used in modeling. Mr. Cyran responded that the USACE Baltimore District will develop 10% concept designs for the solutions that make it through the screening matrix. In regard to offshore breakwaters, Mr. Myers requested that the depth of the structures be included in the 10% concept designs for modeling.

6.0 Wrap Up

- 2024 Meeting Schedule (4th Tuesday):
    - January 23rd – MWG
    - Winter (Holding 2/27) – EWN Workshop
        - Ms. Morris stated that the date for the 2nd EWN Workshop will be based on when the cost analysis modeling results are received.

- March 26th – HWG/NEPA
- June 25th – HWG/NEPA
- September 24th – HWG
- Fall (TBD – Holding 11/19) – Annual Meeting

- Next Steps:
  - Revise and send the Barren Borrow Area sEA draft Final document through internal reviews to achieve a signed FONSI in January 2024.
  - Continue to work through the internal review process for the Janes Island sEIS.
  - Coordinate initiating modeling/evaluation of EWN measures with ERDC and the engineering team.

Monitoring Workgroup Meeting
Mid - Chesapeake Bay Island Ecosystem Restoration Project
January 23, 2024 – 9 AM – 11 AM
Virtual Meeting

1. **Introductions (5 minutes)** **Maura Morris, MES**

2. **Monitoring Schedule Discuss Additional Monitoring Needs (35 minutes)** **Maura Morris, MES**
    a. Borrow Area Benthic Monitoring
    b. Nesting Monitoring to Support TOYR

3. **Detailed Look at 2023 and 2024 Monitoring (60 minutes)**
    a. Turbidity – Kiersten Miller, EA
    b. Submerged Aquatic Vegetation – Rebecca Golden, DNR
    c. Shellfish Bed Sedimentation – Anna Gilmor, MGS
    d. Profiler Monitoring – Angie Sowers, USACE

4. **Discuss 2024 and 2025 Activities (20 minutes)** **Maura Morris and Alexa Poynter, MES**
    a. AMP Updates
    b. Monitoring Framework