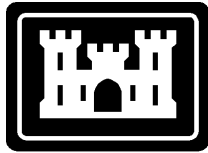


**MID-CHESAPEAKE BAY ISLANDS ECOSYSTEM
RESTORATION PROJECT: BARREN ISLAND
BORROW AREA**

**APPENDIX B:
PUBLIC AND AGENCY COORDINATION**

APPENDIX B1: Public Notice and Notice of Availability



**US Army Corps
of Engineers**
Baltimore District

11 January 2023

Planning Division
Public Notice

Mid-Chesapeake Bay Islands Ecosystem Restoration Project at Barren Island – Barren Island Borrow Area, Dorchester County, Maryland

All Interested Parties: The U.S. Army Corps of Engineers (USACE), Baltimore District in partnership with the Maryland Department of Transportation Maryland Port Administration (MDOT MPA), the project's non-federal sponsor, is preparing a supplemental environmental assessment (sEA) for the Barren Island Borrow Area component of the Mid-Chesapeake Bay Islands Ecosystem Restoration Project. Barren Island is an element of the U.S. Fish and Wildlife Service (USFWS) Chesapeake Marshlands National Wildlife Refuge Complex. The Mid-Chesapeake Bay Islands Ecosystem 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. Section 7002 of Water Resources Reform and Development Act of 2014 authorized the Mid-Chesapeake Bay Islands Ecosystem Restoration Project, as described in the U.S. Army Corps of Engineers Chief's Report, dated August 24, 2009 (https://planning.erdc.dren.mil/toolbox/library/ChiefReports/mid_chesapeake.pdf) and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated September 2008 (and updated in April 2009). The Record of Decision was signed in July 2019 initiating the next phase of the study, Preconstruction, Engineering, and Design (PED). As part of the PED effort, USACE prepared and completed a supplemental EA on March 7, 2022, to update documentation for the National Environmental Policy Act (NEPA) of 1969, as amended, focused on the Barren Island component of the project. A supplemental Environmental Impact Statement is underway for the James Island component.

The authorized project consists of restoring approximately 83 acres at Barren Island in combination with the restoration of James Island (2,072 acres), with a habitat proportion of 45 percent upland to 55 percent wetland and an upland dike height of 20 feet above mean lower low water. The project will restore a combined 2,144 acres of remote island habitat, while also protecting approximately 1,325 acres of potential submerged aquatic vegetation (SAV) adjacent to Barren Island. Restoration of the islands will occur by the beneficial use of approximately 90 to 95 million cubic yards (MCY) of dredged material over a period of more than 30 years. The sources of the dredged material for placement at James Island are the federal navigation channels in the Maryland portion of the Chesapeake Bay serving Baltimore Harbor and the southern Chesapeake and Delaware Canal approach channels. The source of dredged material to be placed at Barren Island will be local federally-maintained navigation channels. Detailed information on the specific components of the project can be found in the recommended plan section and engineering appendix of the *Final Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report & Environmental Impact Statement (EIS)*, dated September 2008 (and updated in April 2009). These documents, as well as additional information about the project, are available online at www.nab.usace.army.mil/mid-bay.

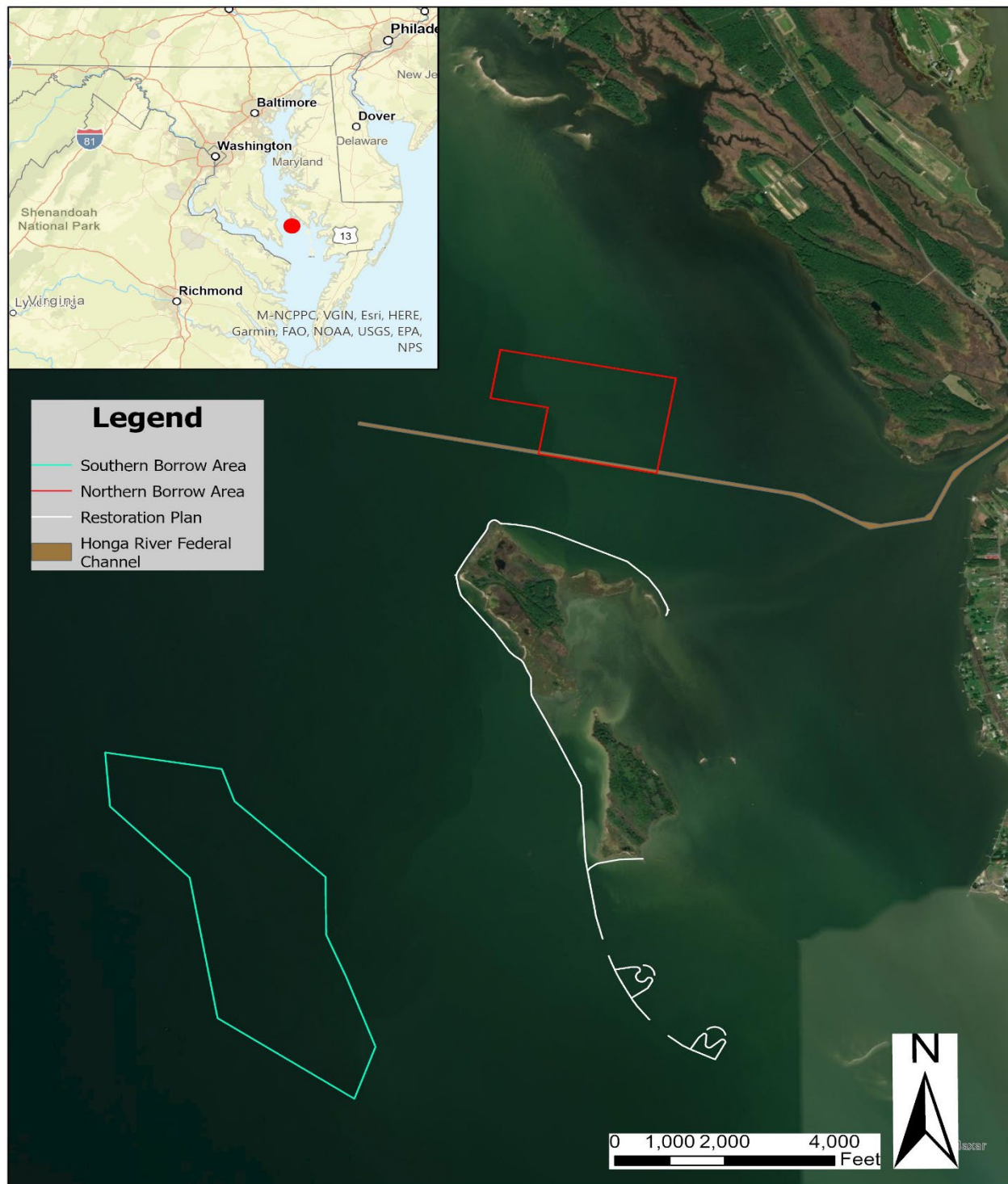
The purpose of this notice is to inform the public of the start of a supplemental EA specifically focused on identifying a borrow area from which to dredge sand for use in restoration efforts as part of the overall restoration at Barren Island. Two locations, a northern and a southern borrow area are being considered (enclosure). USACE is requesting any information that may affect the planning and design efforts being conducted to evaluate the Barren Island borrow areas. We request that federal and state agencies provide information concerning interests within your organization's area of responsibility or expertise, and the public provide information which may be pertinent to this project, within 30 days from the date of this notice to the point of contact listed below. A timely review of the enclosed information and a written response will be greatly appreciated and will assist us with preparation of the supplemental EA.

Additionally, we are requesting interested stakeholders to provide an email address to enable future electronic communications. Any email addresses provided will be used solely to communicate project information. If you have any questions regarding this project, please contact Angela Sowers by phone at (410) 962-7440, or by e-mail at angela.sowers@usace.army.mil. Subject: Mid-Chesapeake Bay Islands Ecosystem Restoration: Barren Island Borrow Area sEA. If you would like to provide an email address to be included in the project stakeholder list, please complete the form on the Mid-Chesapeake Bay Islands Ecosystem Restoration Project website - www.nab.usace.army.mil/mid-bay.



Enclosure

Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch



Barren Island Potential Borrow Areas



**US Army Corps
of Engineers**
Baltimore District

September 7, 2023

Planning Division

Notice of Availability

Mid-Chesapeake Bay Islands Ecosystem Restoration Project at Barren Island – Barren Island Borrow Area, Dorchester County, Maryland

All Interested Parties: The U.S. Army Corps of Engineers (USACE), Baltimore District in partnership with the Maryland Department of Transportation Maryland Port Administration (MDOT MPA), the project's non-federal sponsor, has prepared a draft supplemental environmental assessment (sEA) for the Barren Island Borrow Area component of the Mid-Chesapeake Bay Islands Ecosystem Restoration Project. Barren Island is an element of the U.S. Fish and Wildlife Service (USFWS) Chesapeake Marshlands National Wildlife Refuge Complex. The sEA is specifically focused on identifying a borrow area from which to dredge sand for use in restoration efforts as part of the overall restoration at Barren Island. Two locations, a Northern and a Southern Borrow Area were considered (enclosure). It is proposed, based on public and federal and state agency's input, environmental analysis, and material sampling, that the Southern Borrow Area would be used to provide material for the restoration of Barren Island. The proposed action would involve dredging approximately 300,000 cy of material from a Focus Area within the Southern Borrow Area for the restoration of Barren Island.

The Mid-Chesapeake Bay Islands Ecosystem Restoration Project recommends remote island restoration at James Island and Barren Island, both on the Eastern Shore of Maryland and in Dorchester County, Maryland, through the beneficial use of dredged material. Section 7002 of Water Resources Reform and Development Act of 2014 authorized the Mid-Chesapeake Bay Islands Ecosystem Restoration Project, as described in the U.S. Army Corps of Engineers Chief's Report, dated August 2009 and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated September 2008 (and updated in April 2009). The Record of Decision was signed in July 2019 initiating the next phase of the study, Preconstruction, Engineering, and Design (PED). As part of the PED effort, USACE prepared and completed a supplemental EA on March 7, 2022, to update documentation for the National Environmental Policy Act (NEPA) of 1969, as amended, focused on the Barren Island component of the project. A supplemental Environmental Impact Statement is underway for the James Island component.

The authorized project consists of restoring approximately 83 acres at Barren Island by constructing stone sills and breakwaters, modifying existing sills, and restoring 2 bird islands in combination with the restoration of James Island (2,072 acres). The source of dredged material to be placed at Barren Island will be local federally maintained navigation channels. A borrow area is being evaluated to provide sand to construct containment for dredged material placement, bird island restoration, and to enable construction of a portion of the sill where the existing foundation is unsuitable. Detailed information on the specific components of the project can be found in the

March 2022 sEA and the recommended plan section and engineering appendix of the *Final Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report & Environmental Impact Statement (EIS)*, dated September 2008 (and updated in April 2009). These documents, as well as additional information about the project, are available online at www.nab.usace.army.mil/mid-bay.

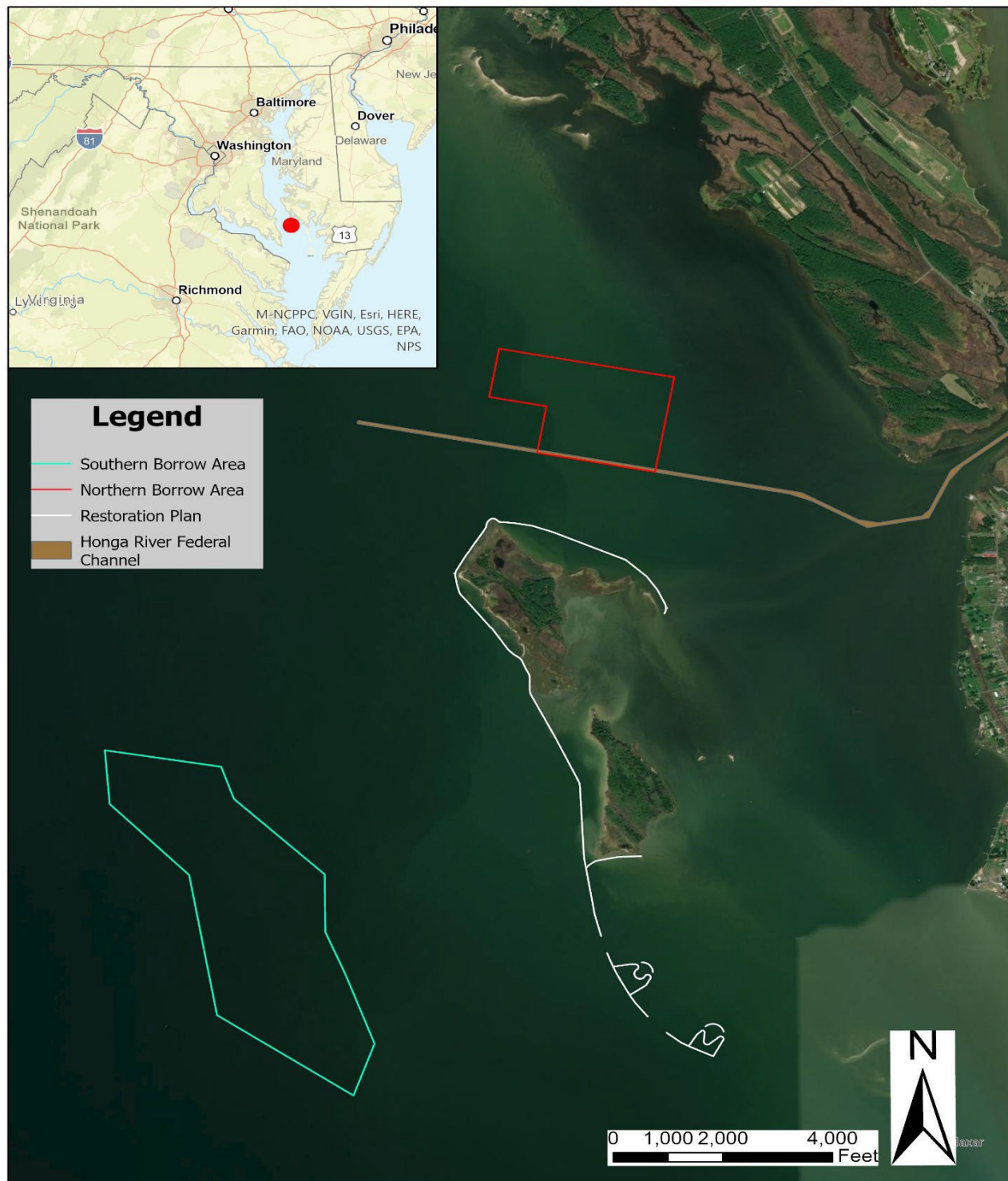
In compliance with the National Environmental Policy Act (NEPA), USACE and MPA have prepared this draft sEA and evaluated potential effects on the natural, cultural, and human environment. All applicable environmental laws have been considered.

The purpose of this notice is to inform the public of the availability of the sEA for their review and comment. USACE and MPA request comments regarding the draft sEA by October 9, 2023. For federal and state agencies receiving a copy of this notice, we request that you provide comments concerning your responsibilities. The draft sEA is available at the USACE website: <https://www.nab.usace.army.mil/Mid-Bay/>. Comments can be submitted electronically to: midbayislands@usace.army.mil. Written comments can be sent to U.S. Army Corps of Engineers, Attn: Angie Sowers, Planning Division, 10th Floor, 2 Hopkins Plaza, Baltimore, MD 21201. If you have any questions, please contact Angie Sowers by telephone at (410) 962-7440 or by email at the address above.



Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch

Enclosure



Barren Island Potential Borrow Areas

APPENDIX B2: Correspondence Records

MARYLAND DEPARTMENT OF NATURAL RESOURCES

From: [Leasure, Charles W CIV USARMY CENAB \(USA\)](#)
To: tony.redman@maryland.gov
Cc: lori.byrne@maryland.gov; [Roland Limpert -DNR-](#); [Dave Brinker -DNR-](#); tim.larney@maryland.gov; john.moulis@maryland.gov; [Gwendolyn Gibson -DNR-](#); [Sowers, Angela M CIV USARMY CENAB \(USA\)](#); [Johnson, Christopher A CIV USARMY CENAB \(USA\)](#)
Subject: Dorchester County, MD - Barren Island Restoration
Date: Friday, January 13, 2023 4:06:34 PM
Attachments: [Barren Island Borrow Area Coordination Letter MDNR 12Jan2023.pdf](#)

Mr. Redman,

USACE – Baltimore District would like to re-initiate coordination with your office for our Barren Island Restoration project.
Specifically, USACE and the Maryland Port Administration will be drafting a sEA for the borrow of material for the restoration efforts.

We look forward to continuing our dialog with your office.

Thank you,
Charles

Charles W. Leasure, AICP
Environmental Policy Advisor
US Army Corps of Engineers
Baltimore District - Planning Division
Civil Project Development Branch

2 Hopkins Plaza
10th Floor Planning - 10-E-06
Baltimore, MD 21201

410-962-5175 - Office
410-829-9664 - Cell

Charles

410-962-5175 – Office
410-829-9664 – Cell



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
2 HOPKINS PLAZA

REPLY TO
ATTENTION OF

13 January 2023

Planning Division

Mr. Tony Redman
Maryland Department of Natural Resources
580 Taylor Avenue
Tawes State Office Building
Annapolis, Maryland 21401

Dear Mr. Redman,

The U.S. Army Corps of Engineers, Baltimore District, (USACE) is reinitiating coordination with the Maryland Department of Natural Resources (DNR) for the Mid-Chesapeake Bay Island Ecosystem Restoration Project. The Mid-Chesapeake Bay Island 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. Section 7002 of Water Resources Reform and Development Act of 2014 authorized the Mid-Chesapeake Bay Island Project, as described in the Chief's Report ([https://planning.erdc.dren.mil/toolbox/library/Chief Reports/mid_chesapeake.pdf](https://planning.erdc.dren.mil/toolbox/library/Chief%20Reports/mid_chesapeake.pdf)) dated August 24, 2009, and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated September 2008 (and updated in April 2009). The Record of Decision (ROD) was signed in July 2019 initiating the next phase of the study, Preconstruction Engineering and Design (PED). As part of the PED effort, USACE prepared and completed a supplemental Environmental Assessment (sEA) on March 7, 2022, to update National Environmental Policy Act (NEPA) of 1969, as amended, focused on the Barren Island component of the project. A supplemental Environmental Impact Statement is underway for the James Island component.

The purpose of this letter is to inform your agency of the start of a sEA specifically focused on evaluating a borrow area from which to dredge material for use in restoration efforts as part of the overall restoration of Barren Island. Following coordination with stakeholders USACE identified two potential borrow areas. USACE has completed geotechnical soil borings in those two proposed areas. Based on the results of the geotechnical investigation and potential impacts to submerged aquatic vegetation (SAV), it has been determined that the northern borrow area will not meet the needs of the project, and USACE is now focusing on the southern borrow area (see enclosure).

Please provide any information or concerns that your agency may have that will assist USACE with the preparation of the sEA, within 30 days of the date of this letter. If you have any questions regarding this matter, please contact Ms. Angie Sowers, Ph.D., at (410) 962-7440.

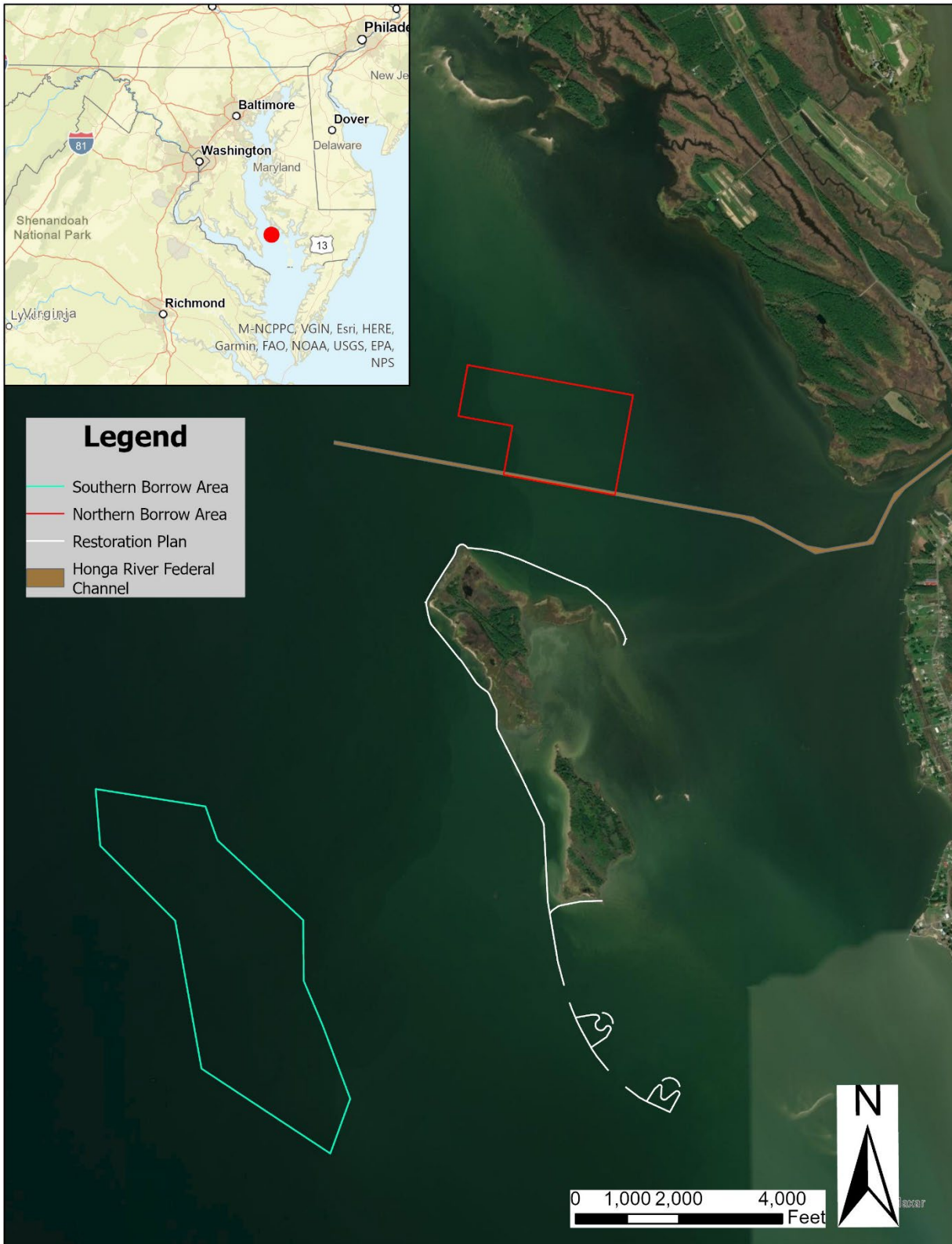
Sincerely,

A handwritten signature in blue ink, appearing to read "D. Bierly", with a stylized flourish at the end.

Daniel M. Bierly, PE

Chief, Civil Project Development Branch

cc: Lori Byrne, (lori.byrne@maryland.gov)
Roland Limpert, (roland.limpert@maryland.gov)
Dave Brinker, (dave.brinker@maryland.gov)
Tim Larney, (tim.larney@maryland.gov)
John Moulis, (john.moulis@maryland.gov)
Gwen Gibson, (gwendolyn.gibson@maryland.gov)



Barren Island Potential Borrow Area Locations



Wes Moore, Governor
Aruna Miller, Lt. Governor
Josh Kurtz, Secretary
David Goshorn, Deputy Secretary

Angie Sowers, Ph.D., WRCP
Integrated Water Resources Management Specialist
U.S. Army Corps of Engineers
2 Hopkins Plaza, 10-E-04
Baltimore, MD 21201

October 31, 2023

Subject: DNR Review - Barren Island Borrow Area sEA

Dear Dr. Sowers,

Maryland DNR has reviewed the Draft Supplemental Environmental Assessment for the Mid-Chesapeake Bay Islands Ecosystem Restoration Project: Barren Island Borrow Area dated August 2023. Please see DNR's comments to the Barren Island Borrow Area Draft Supplemental Environmental Assessment (sEA) documents below:

DNR requests the following concerns and recommendations be fully incorporated into the review of the proposed activities:

1. DNR is not opposed to the Southern Borrow Area (Alternative 3) as the proposed alternative as described in the Barren Island Borrow Area Draft sEA.
 - o The Southern Borrow Area is not in close proximity to any existing or pending shellfish leases. Please continue to coordinate with DNR as design progresses.
 - o There does not appear to be direct impacts to SAV habitat for the Southern Borrow Area (Alternative 3). Activities within the Northern Borrow Area (Alternative 2), the Hoga River channel (Alternative 4) and the combination of sites would directly impact SAV habitat.
2. The Southern Borrow area is a heavily crab-potted area, with the peak usage occurring between July and September, inclusive, during any year. Minimizing impacts to commercial crabbing and other commercial and recreational fisheries is a priority to DNR.
3. Care should be taken during dredging to avoid the creation of new hypoxic areas or expansion of existing hypoxic areas in the borrow area to minimize impacts to benthic communities.

Time of Year Restriction Comments:

1. To protect Natural Oyster Bar 23-2, no hydraulic or mechanical dredging should be conducted within 500 yards of the boundary of Natural Oyster Bar 23-2, during the period of June 1 through September 30 of any year.

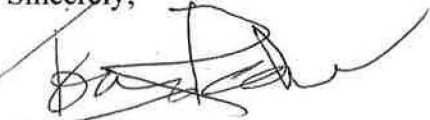
2. To protect Natural Oyster Bar 23-2, no mechanical dredging should be conducted within 500 yards of the boundary of Natural Oyster Bar 23-2, during the period of December 16 through March 14 of any year.

Section 5.5 Coastal Zone Management Act of 1972 Comments:

1. Regarding the coastal consistency determination, DNR will defer to MDE review during the modification of the Tidal Wetlands License.

Thank you for the opportunity to review and comment on these documents. DNR requests to review updates to project designs as they are available.

Sincerely,



Tony Redman
Director, Environmental Review Program
Department of Natural Resources
Tawes State Office Building, B-3
Annapolis, MD 21401

NOAA - NMFS

ENDANGERED SPECIES ACT

From: [Leasure, Charles W CIV USARMY CENAB \(USA\)](#)
To: jennifer.anderson@noaa.gov
Cc: brian.d.hopper@noaa.gov; [Sowers, Angela M CIV USARMY CENAB \(USA\)](#); [Johnson, Christopher A CIV USARMY CENAB \(USA\)](#)
Subject: Dorchester County, MD - Barren Island Restoration
Date: Friday, January 13, 2023 4:16:07 PM
Attachments: [Barren Island Borrow Area Coordination Letter NOAA ESA 12Jan2023.pdf](#)

Ms. Anderson,

USACE – Baltimore District would like to re-initiate coordination with your office for our Barren Island Restoration project.
Specifically, USACE and the Maryland Port Administration will be drafting a sEA for the borrow of material for the restoration efforts.

We look forward to continuing our dialog with your office.

Thank you,
Charles

Charles W. Leasure, AICP
Environmental Policy Advisor
US Army Corps of Engineers
Baltimore District - Planning Division
Civil Project Development Branch

2 Hopkins Plaza
10th Floor Planning - 10-E-06
Baltimore, MD 21201

410-962-5175 - Office
410-829-9664 - Cell



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

REPLY TO
ATTENTION OF

13 January 2023

Planning Division

Jennifer Anderson
National Marine Fisheries Service
Greater Atlantic Region Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930

Dear Ms. Anderson,

The U.S. Army Corps of Engineers, Baltimore District, is reinitiating coordination with National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), Protected Resource Division (PRD) for the Mid-Chesapeake Bay Island Ecosystem Restoration Project. The Mid-Chesapeake Bay Island 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. Section 7002 of Water Resources Reform and Development Act of 2014 authorized the Mid-Chesapeake Bay Island Project, as described in the Chief's Report (https://planning.erdc.dren.mil/toolbox/library/ChiefReports/mid_chesapeake.pdf), dated August 24, 2009, and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated September 2008 (and updated in April 2009). The Record of Decision (ROD) was signed in July 2019 initiating the next phase of the study, Preconstruction Engineering and Design (PED). As part of the PED effort, USACE prepared and completed a supplemental Environmental Assessment (sEA) on March 7, 2022, to update National Environmental Policy Act (NEPA) of 1969, as amended, focused on the Barren Island component of the project. A supplemental Environmental Impact Statement is underway for the James Island component.

The purpose of this letter is to re-engage NOAA PRD to coordinate with your agency on Section 7(a)(2) of the Endangered Species Act and the Fish and Wildlife Coordination Act. USACE is beginning a sEA specifically focused on evaluating a borrow area from which to dredge material for use in restoration efforts as part of the overall restoration of Barren Island. Following coordination with stakeholders USACE identified two potential borrow areas. USACE has completed geotechnical soil borings in those two proposed areas. Based on the results of the geotechnical investigation and potential impacts to submerged aquatic vegetation (SAV), it has been determined that the northern borrow area will not meet the needs of the project, and USACE is now focusing on the southern borrow area (see enclosure).

Based on prior coordination, it was determined that the following species and critical habitat are under NOAA PRD jurisdiction in the action area:

- 5 Distinct Population Segments (DPS) of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) (77 FR 5880 and 77 FR 5914)
 - Gulf of Maine DPS - Threatened
 - New York Bight DPS - Endangered
 - Chesapeake Bay DPS - Endangered
 - Carolina DPS - Endangered
 - South Atlantic DPS - Endangered
- Shortnose sturgeon (*Acipenser brevirostrum*) - Endangered (32 FR 4001; Recovery plan: NMFS 1998)
- Kemp's ridley sea turtle (*Lepidochelys kempii*) - Endangered (35 FR 18319; Recovery plan: NMFS *et al.* 2011)
- Leatherback sea turtle (*Dermochelys coriacea*) - Endangered (35 FR 849; Recovery plan: NMFS & USFWS 1992)
- North Atlantic DPS of green sea turtle (*Chelonia mydas*) - Threatened (81 FR 20057; Recovery plan: NMFS & USFWS 1991)
- North Atlantic DPS of loggerhead sea turtle (*Caretta caretta*) - Threatened (76 FR 58868; Recovery plan: NMFS & USFWS 2008)

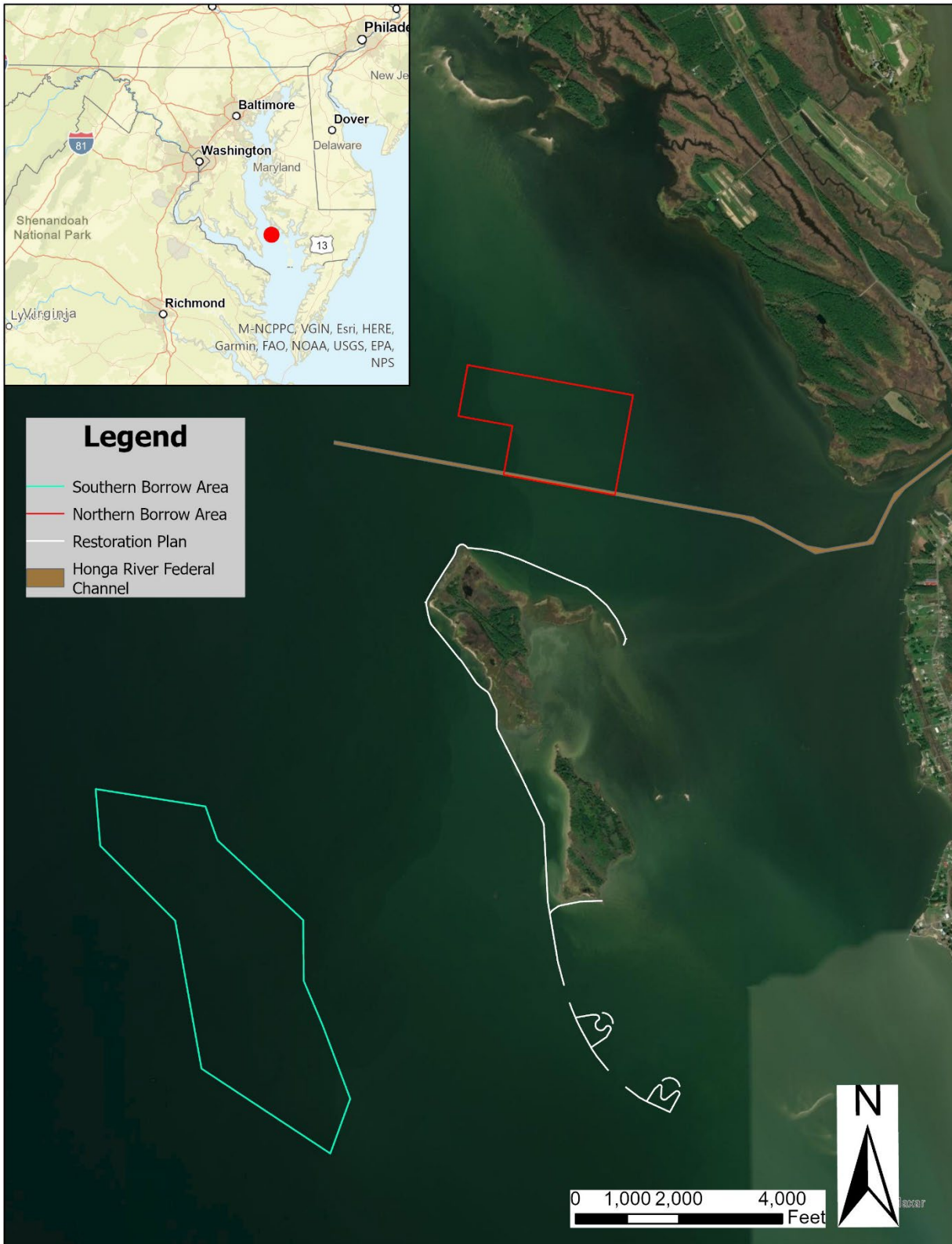
Please provide any information or concerns that your agency may have that will assist USACE with the preparation of the sEA within 30 days of the date of this letter. If you have any questions regarding this matter, please contact Ms. Angie Sowers, Ph.D., at (410) 962-7440.

Sincerely,



Daniel M. Bierly, PE
Chief, Civil Project Development Branch

CC: Brian Hopper, NMFS CBFO, brian.d.hopper@noaa.gov



Barren Island Potential Borrow Area Locations

From: [Brian D Hopper - NOAA Federal](#)
To: [Sowers, Angela M CIV USARMY CENAB \(USA\)](#)
Subject: Re: [URL Verdict: Neutral][Non-DoD Source] Re: Dorchester County, MD - Barren Island Restoration
Date: Tuesday, October 3, 2023 8:54:52 AM

Hi Angie,

Thanks for the update. We reviewed your request and based on the effect analysis from the previous consultation on the project, the information that you have provided indicating no changes to the project description, and the fact that no new listed species or designated critical habitat overlap with the action area, it is not necessary to re-initiate the consultation we completed on February 5, 2018.

Regards.
-Brian

On Thu, Apr 20, 2023 at 4:01 PM Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil> wrote:

Hi Brian,

I apologize. I am not sure that I ever responded to your question. We will be using hydraulic dredging which should not be a change to any prior plans. However, the use of a borrow area at Barren Island was not in the 2009 Feasibility Study, and we intentionally did not include it in the 2022 supplemental EA as the plans were already in the works for this targeted supplemental EA. We are working to prepare the draft document for public review this summer. Please let me know if you need any further information prior to that review.

Thanks,
Angie

From: Brian D Hopper - NOAA Federal <brian.d.hopper@noaa.gov>
Sent: Tuesday, January 17, 2023 9:41 AM
To: Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil>
Subject: [URL Verdict: Neutral][Non-DoD Source] Re: Dorchester County, MD - Barren Island Restoration

Hi Angie,

I feel like we considered dredging impacts in the original consultation, has there been any change to the dredging method?

Thanks!

-Brian

P.S. Oh, in the future, please remember to use the dedicated section 7 email for correspondence related to section 7 consultations: nmfs.gar.esa.section7@noaa.gov

On Fri, Jan 13, 2023 at 4:17 PM Leasure, Charles W CIV USARMY CENAB (USA) <Charles.W.Leasure@usace.army.mil> wrote:

Ms. Anderson,

USACE – Baltimore District would like to re-initiate coordination with your office for our Barren Island Restoration project.

Specifically, USACE and the Maryland Port Administration will be drafting a sEA for the borrow of material for the restoration efforts.

We look forward to continuing our dialog with your office.

Thank you,

Charles

Charles W. Leasure, AICP

Environmental Policy Advisor

US Army Corps of Engineers

Baltimore District - Planning Division

Civil Project Development Branch

2 Hopkins Plaza

10th Floor Planning - 10-E-06

Baltimore, MD 21201

410-962-5175 - Office

410-829-9664 - Cell

--

Brian D. Hopper
Protected Resources Division
NOAA Fisheries
Greater Atlantic Regional Fisheries Office

200 Harry S Truman Parkway

Suite 460

Annapolis, MD 21401

240-628-5420

Brian.D.Hopper@noaa.gov

<http://www.greateratlantic.fisheries.noaa.gov/>



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Brian D. Hopper
Protected Resources Division
NOAA Fisheries
Greater Atlantic Regional Fisheries Office
200 Harry S Truman Parkway
Suite 460
Annapolis, MD 21401
240-628-5420
Brian.D.Hopper@noaa.gov
<http://www.greateratlantic.fisheries.noaa.gov/>



NOAA/NMFS - MAGNUSON AND STEVENS CONSERVATION AND MANAGEMENT ACT and FISH AND WILDLIFE COORDINATION ACT

From: [Leasure, Charles W CIV USARMY CENAB \(USA\)](#)
To: lou.chiarella@noaa.gov
Cc: karen.greene@noaa.gov; [Sowers, Angela M CIV USARMY CENAB \(USA\)](#); [Johnson, Christopher A CIV USARMY CENAB \(USA\)](#)
Subject: Dorchester County, MD - Barren Island Restoration
Date: Friday, January 13, 2023 4:13:01 PM
Attachments: [Barren Island Borrow Area Coordination Letter NMFS EFH 12Jan2023.pdf](#)

Mr. Chiarella,

USACE – Baltimore District would like to re-initiate coordination with your office for our Barren Island Restoration project.
Specifically, USACE and the Maryland Port Administration will be drafting a sEA for the borrow of material for the restoration efforts.

We look forward to continuing our dialog with your office.

Thank you,
Charles

Charles W. Leasure, AICP
Environmental Policy Advisor
US Army Corps of Engineers
Baltimore District - Planning Division
Civil Project Development Branch

2 Hopkins Plaza
10th Floor Planning - 10-E-06
Baltimore, MD 21201

410-962-5175 - Office
410-829-9664 - Cell



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

REPLY TO
ATTENTION OF

13 January 2023

Planning Division

Lou Chiarella
Assistant Regional Administrator for Habitat Conservation
National Oceanic and Atmospheric Administration/National Marine Fisheries Service
(NOAA/NMFS)
Greater Atlantic Region Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930

Dear Mr. Chiarella,

The U.S. Army Corps of Engineers, Baltimore District, (USACE) is reinitiating coordination with National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) for the Mid-Chesapeake Bay Island Ecosystem Restoration Project. The Mid-Chesapeake Bay Island 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. Section 7002 of Water Resources Reform and Development Act of 2014 authorized the Mid-Chesapeake Bay Island Project, as described in the Chief's Report (https://planning.erdc.dren.mil/toolbox/library/ChiefReports/mid_chesapeake.pdf), dated August 24, 2009, and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated September 2008 (and updated in April 2009). The Record of Decision (ROD) was signed in July 2019 initiating the next phase of the study, Preconstruction Engineering and Design (PED). As part of the PED effort, USACE prepared and completed a supplemental Environmental Assessment (sEA) on March 7, 2022, to update National Environmental Policy Act (NEPA) of 1969, as amended, focused on the Barren Island component of the project. A supplemental Environmental Impact Statement is underway for the James Island component.

The purpose of this letter is to re-engage NMFS to coordinate with your agency on Section 305(b)(2) Magnuson-Stevens Conservation and Management Act and the Fish and Wildlife Coordination Act. USACE is beginning a sEA specifically focused on evaluating a borrow area from which to dredge material for use in restoration efforts as part of the overall restoration of Barren Island. Following coordination with stakeholders USACE identified two potential borrow areas. USACE has completed geotechnical soil borings in those two proposed areas. Based on the results of the geotechnical investigation and potential impacts to submerged aquatic vegetation (SAV), it has been determined that the northern borrow area will not meet the needs of the project, and USACE is now focusing on the southern borrow area (see enclosure).

Based on prior coordination for the Barren Island sEA in August 2021, it was determined that the proposed project at Barren Island lies within waters designated as EFH for the following species and their life stages: windowpane flounder (*Scophthalmus aquosus*), juvenile and adult stages; bluefish (*Pomatomus saltatrix*), juvenile and adult stages; summer flounder (*Paralichthys dentatus*), larvae, juvenile and adult stages; Atlantic butterfish (*Peprilus triacanthus*), eggs, larvae, and adult stages; black sea bass (*Centropristis striata*), juvenile and adult stages; scup (*Stenotomus chrysops*), juvenile and adult stages; and cleannose skate (*Raja eglaneria*), juvenile and adult stages. Please confirm that the EFH assessment should remain focused on these species.

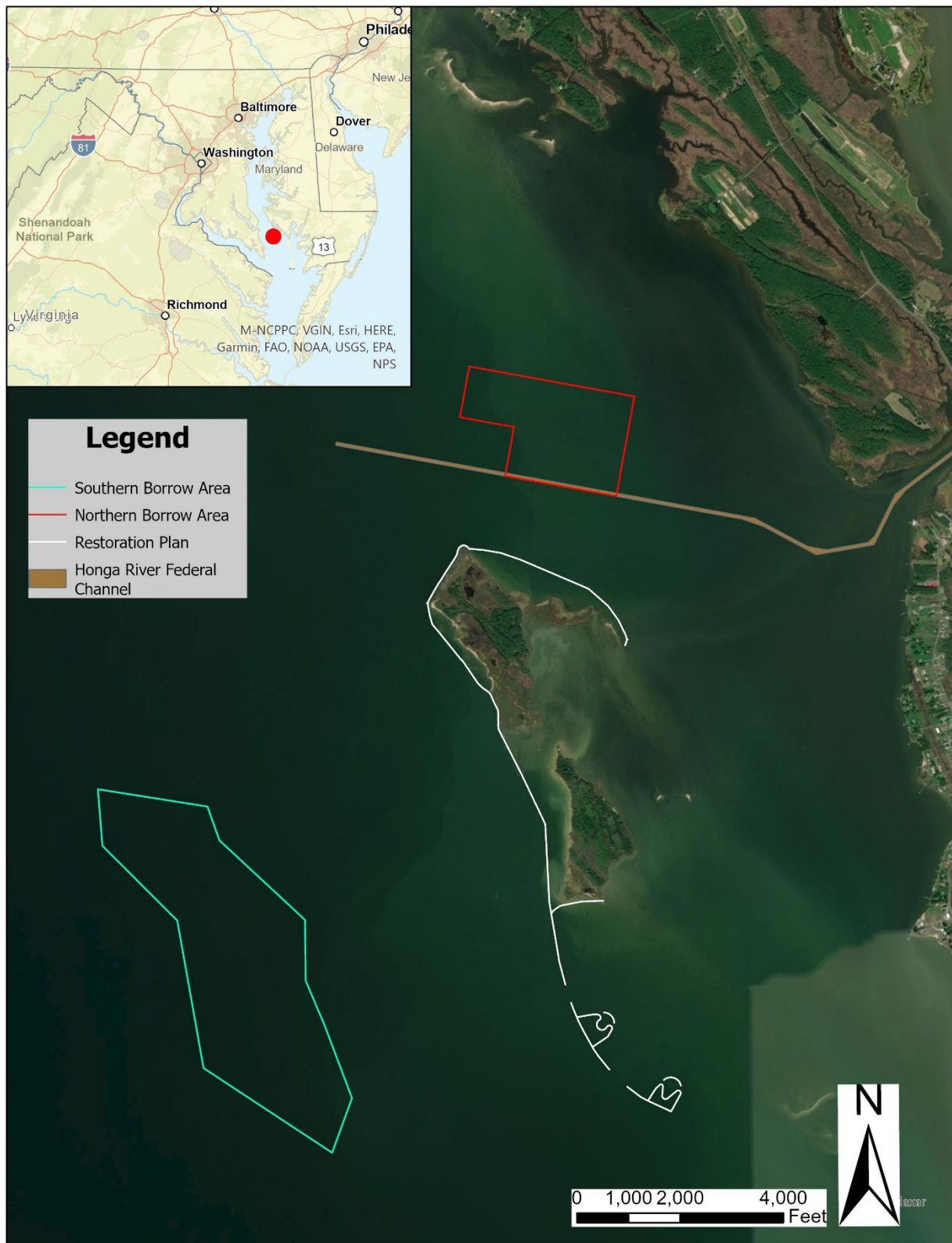
Please provide your agency's feedback and any relevant input to assist with updating the EFH assessment within thirty (30) days of the date of this letter. If you have any questions regarding this matter, please contact Ms. Angie Sowers, Ph.D., at (410) 962-7440.

Sincerely,

A handwritten signature in blue ink, appearing to read 'D. Bierly', with a stylized flourish at the end.

Daniel M. Bierly, PE
Chief, Civil Project Development Branch

CC: Karen Greene, NMFS CBFO, (karen.greene@noaa.gov)



Barren Island Potential Borrow Area Locations



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930

February 10, 2023

Daniel M. Bierly, Chief
Civil Project Development Branch
Baltimore District
U.S. Army Corps of Engineers
2 Hopkins Plaza
Baltimore, MD 21201-2930

Dear Mr. Bierly:

Thank you for your January 13, 2023, letters notifying us that you are preparing a supplemental Environmental Assessment (sEA) to describe the impacts of dredging estuarine bottom as part of the Barren Island portion of the Mid-Chesapeake Bay Island Ecosystem Restoration Project (henceforth, Mid-Bay Project) in Dorchester County, Maryland. Your letters also indicated that you are re-initiating coordination with us under the Magnuson Stevens Fishery Conservation and Management Act (MSA) and Section 7 of the Endangered Species Act (ESA). The Baltimore District (the District) is developing this project in partnership with the Maryland Department of Transportation Maryland Port Administration (MDOT MPA). This sEA is being prepared in accordance with the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.) and will describe the impacts associated with sand dredging to support the construction of certain elements of the Barren Island component of the Mid-Bay Project.

Project History

In 2009, the Mid-Bay Feasibility Report was released. Subsequently, the Mid-Bay Project was authorized under Section 7002 of the Water Resources Reform and Development Act of 2014. The record of decision was signed in 2019, thus initiating the Preconstruction Engineering and Design (PED) phase of the study. Most recently, the District prepared a sEA for the Phase 1 construction of Barren Island on December 20, 2021, which described impacts associated with the majority of the proposed stone dike and sill structures to be constructed around the perimeter of the island for the eventual containment of maintenance dredging material. We provided comments and Essential Fish Habitat (EFH) conservation recommendations following our review of this document in our January 26, 2022, letter.

The recent sEA for Phase 1 construction at Barren Island did not describe impacts associated with the full length of the northeast sill, which requires foundation remediation (i.e., dredging existing bottom and replacing with suitable substrate), nor did it address the designs for colonial nesting waterbird habitat islands proposed at the southern terminus of the Barren Island breakwaters. The District is now considering obtaining the sand needed to construct these project elements through borrow area dredging and is in the process of developing an additional sEA detailing alternatives to source suitable material and disclose impacts, pursuant to NEPA. We are concerned that the sourcing of dredged sand from previously un-impacted benthic habitat to



create uplands elsewhere in the Mid-Bay Project represents a dual impact to our trust resources through both dredging and filling of productive aquatic bottom. This letter serves as our technical assistance to inform the initial development of the sEA as well as a request to work together during its development to ensure that all impacts to our trust resources are avoided, minimized, mitigated, or otherwise offset.

Magnuson Stevens Fishery Conservation and Management Act

The MSA requires federal agencies, such as the U.S. Army Corps of Engineers, to consult with us on any action or proposed action authorized, funded, or undertaken, by such agency that may adversely affect EFH identified under the MSA. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in the consultation process. The level of detail in an EFH assessment should be commensurate with the complexity and magnitude of the potential adverse effects of the action. A complete description of the proposed action, including a description of the direct, indirect, and synergistic consequences of the action, is a critical piece of this assessment and necessary for us to determine the potential impacts to federally managed fish, their habitats, prevalent prey species, and other NOAA trust resources.

Essential fish habitat is defined as, "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." For the purpose of interpreting the definition of EFH:

- "waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate;
- "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities;
- "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem;
- "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

The EFH final rule published in the Federal Register on January 17, 2002 defines an adverse effect as "any impact which reduces the quality and/or quantity of EFH." The rule further states that:

An adverse effect may include direct or indirect physical, chemical or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat and other ecosystems components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from action occurring within EFH or outside EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

The EFH final rule also states that the loss of prey may be an adverse effect on EFH and managed species. As a result, actions that reduce the availability of prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat may also be considered adverse effects on EFH.

Based on the information provided through your letter and during recurring interagency meetings, the dredging of previously undisturbed sand bottom along with the subsequent use of this sand as fill to create uplands will adversely affect EFH through the disturbance (dredge) and permanent loss (fill) of productive benthic habitats used by our trust resources. We are concerned that sufficient effort has not been undertaken to avoid, minimize, mitigate, or otherwise offset impacts to these habitats, pursuant to the MSA.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA), requires that all federal agencies consult with us when proposed actions might result in modifications to a natural stream or body of water. The FWCA also requires that federal agencies consider the effects that these projects would have on fish and wildlife and must also provide for improvement of these resources. Under this authority, we work to protect, conserve and enhance species and habitats for a wide range of aquatic resources such as shellfish, diadromous species, and other commercially and recreationally important species. As discussed here and in our previous letters associated with the Mid-Bay project, a wide variety of resources we conserve under this authority are present in the project area. As a result, the updated feasibility study and EA should evaluate the effects of the proposed actions on these resources as well as evaluating the impacts to EFH. For example, testimony offered by local watermen during a public meeting held by the District on June 16, 2021, indicated that the proposed site of borrow area dredging represents a productive area for the harvest of blue crab (*Callinectes sapidus*). This fishery is the most valuable in the Chesapeake Bay and supports a large proportion of the fishing industry in the state. The blue crab population is also currently under evaluation by state and federal fisheries managers due to recent historic low abundances described by the Bay-wide Blue Crab Winter Dredge Survey. Blue crabs are an important food resource for predatory fish and birds (Bain et al. 2007, Waldman 2008). Steimle et al. (2000) has documented that juvenile blue crabs are a food source for several state and federally managed fish species including winter flounder (*Pseudopleuronectes americanus*), little skate (*Leucoraja erinacea*), winter skate (*Leucoraja ocellata*), scup (*Stenolemus chrysops*), and summer flounder (*Paralichthys dentatus*). As such, any action which could temporarily or permanently diminish the productivity of this habitat should be evaluated and measures to avoid, minimize, mitigate, or otherwise offset impacts should be fully described.

Technical Assistance

Regarding the species with designated EFH in the project area, we agree that the list provided reflects the federally managed fish species and corresponding life stages that are likely to be present in the project area. For reference, those species and life stages are:

- Windowpane flounder (*Scophthalmus aquosus*) - juveniles, adults
- Summer flounder (*Paralichthys dentatus*) - larvae, juveniles, adults
- Bluefish (*Pomatomus saltatrix*) - juveniles, adults
- Atlantic butterflyfish (*Peprilus triacanthus*) - eggs, larvae, juveniles, adults
- Black sea bass (*Centropristis striata*) - juveniles, adults
- Scup (*Stenolemus chrysops*) - juveniles, adults
- Clearnose skate (*Raja eglanteria*)- juveniles, adults

Aside from federally managed fish species with designated EFH in the project area, your analyses should also include consideration of impacts to prey species and their habitats. The proposed borrow area also serves as productive habitat for many other NOAA trust resources including blue crab, Atlantic croaker (*Micropogonias undulatus*), spot (*Leiostomus xanthurus*), menhaden (*Brevoortia tyrannus*) and bay anchovy (*Anchoa mitchilli*). These fishes and benthic organisms found in sand bottom habitat provide a valuable food source for many commercially and recreationally valuable species such as striped bass (*Morone saxatilis*), summer flounder, weakfish (*Cynoscion regalis*), and windowpane flounder.

Submerged aquatic vegetation (SAV) may also be present in the proposed project area. SAV has been designated as a habitat area of particular concern (HAPC) for summer flounder by the Mid-Atlantic Fishery Management Council. HAPCs are subsets of EFH identified based on one or more of the following considerations: 1) the importance of the ecological function; 2) extent to which the habitat is sensitive to human-induced degradation; 3) whether and to what extent, development activities are stressing the habitat type; and/or 4) rarity of habitat type (50 CFR 600.815(a)(8)). In addition, the U.S. Environmental Protection Agency has designated SAV as a special aquatic site under Section 404(b)(1) of the federal Clean Water Act (CWA) because of its important role in the marine ecosystem for nesting, spawning, nursery cover, and forage areas for fish and wildlife. It is a priority habitat for us for the same reasons. While your letter indicated that SAV will be avoided through the potential selection of the southern borrow area as the preferred alternative, any impacts to this habitat considered under other alternatives should be described as part of the forthcoming study.

Based on our involvement in the project thus far, it is likely that the District will propose to dredge approximately 350,000 cubic yards of sand from the designated southern borrow area. Several studies have described the impacts of dredging on benthic habitats, with recovery rates ranging from several months to several years (see reviews by ASMFC 2002; USACE 2015). In certain cases, benthic disturbance may be permanent if the hydrodynamic environment, and hence benthic sediment characteristics, are permanently altered by the activity. This is particularly true of relic sand shoals, for which a source of sand is not available to replenish the mined sand (ASMFC 2002). As part of your assessment, we recommend that you evaluate approaches to avoiding/minimizing impacts to previously un-dredged benthic habitat, including consideration of alternative upland or previously (i.e., maintenance) dredging sources. Should dredging of previously undisturbed bottom be proposed, minimization approaches could include preserving areas within the broader dredging footprint to facilitate recolonization of benthic organisms while also increasing habitat heterogeneity (Cutter et al. 2000). However, monitoring would be necessary to demonstrate the efficacy of this approach. We are also concerned that dredging to depths that typically exhibit hypoxia in the middle Chesapeake Bay could permanently degrade the existing habitats. Approaches to minimizing this risk should also be addressed. We are willing to work with your staff to develop such approaches that minimize negative impacts of sand mining, should that continue to represent the preferred alternative for the District.

Finally, due to the variety of aquatic resources and habitats likely present in the project vicinity and the complexity of food web interactions with the greater mid-Chesapeake Bay ecosystem,

the final EFH assessment contained in the sEA document should fully describe the anticipated temporary (e.g., turbidity) and permanent (e.g., hydrodynamic changes, habitat conversion) impacts to habitats used by federally managed fish species and their prey. The results from recent surveys should also be included to fully describe the resources present in the project location. Should dredging of previously unimpacted bottom be proposed, we would expect this action to be accompanied by robust pre- and post-impact monitoring of a suite of characteristics (e.g., sediment, benthic infauna) to evaluate the effects and monitor benthic recovery. This monitoring plan should be detailed in your sEA. Furthermore, approaches to avoid, minimize, mitigate, or otherwise offset impacts to these resources should also be thoroughly considered and documented, pursuant to the MSA. These details along with a complete description of the proposed action, including any subsequent dredging for sand material should be included in your assessment or in the accompanying sEA.

Endangered Species Act

On January 13, 2023, we received a letter requesting re-engagement with NOAA Protected Resources Division (PRD) to coordinate with us on Section 7(a)(2) of the Endangered Species Act. The District specifically focused on evaluating a borrow area from which to dredge material for use in restoration efforts as part of the overall restoration of Barren Island. On February 5, 2018, we completed informal consultation with the USACE on the proposed action, which concluded that the action is not likely to adversely affect listed species under our jurisdiction. Threatened or endangered species under our jurisdiction including the threatened loggerhead (*Caretta caretta*) and the endangered Kemp's ridley (*Lepidochelys kempii*), green (*Chelonia mydas*) and leatherback (*Dermochelys coriacea*) sea turtles, shortnose sturgeon (*Acipenser brevirostrum*), and Atlantic sturgeon (*Acipenser oxyrinchus*) may be present in the project area. We are currently reviewing your request in order to make a determination regarding re-initiation of consultation. Should you have any questions about the section 7 consultation process, please contact Brian Hopper at brian.d.hopper@noaa.gov.

Conclusion

Thank you for your close coordination and formal notification for the preparation of this sEA. We have provided extensive comments throughout the development of the Mid-Bay Project and will continue to work with you as additional NEPA documents are developed. We look forward to working with you to complete the required EFH consultation under the MSA and coordination under Section 7 of the ESA. If you have questions or would like to discuss this further, please contact Jonathan Watson in our Annapolis field office at jonathan.watson@noaa.gov or (978) 675-2180 for information regarding essential fish habitat and Brian Hopper at brian.d.hopper@noaa.gov for information regarding threatened or endangered species.

Sincerely,

Karen M. Greene
Mid-Atlantic Branch Chief
Habitat and Ecosystem Services Division

cc:

C. Leasure, A. Sowers (USACE)

A. Peñafiel (MPA)

B. Hopper (NMFS - PRD)

S. Corson (NMFS - CBO)

S. Deeley, A. O'Donnell (USFWS)

T. Roberson (MDE)

R. Limpert; G. Gibson (MDNR)

Works Cited

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930

October 11, 2023

Daniel M. Bierly, Chief
Civil Project Development Branch
Baltimore District
U.S. Army Corps of Engineers
2 Hopkins Plaza
Baltimore, MD 21201-2930

Re: Draft Supplemental Environmental Assessment for Mid-Chesapeake Bay Islands Ecosystem Restoration Project at Barren Island - Borrow Area Dredging.

Dear Mr. Bierly:

We have reviewed the draft supplemental Environmental Assessment (sEA), including the enclosed essential fish habitat (EFH) assessment and associated materials, provided on September 12, 2023, which examines potential sources of sand needed to construct elements of the Barren Island component of the Mid-Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay Island Project) in, Dorchester County, Maryland. The goal of the Mid-Bay Island Project is to restore and create remote island habitat in the Chesapeake Bay using sediments dredged from area navigation channels. The District is developing this project in partnership with the Maryland Department of Transportation Maryland Port Administration (MDOT MPA).

The Baltimore District (the District) prepared this sEA in accordance with the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.) to assess the potential environmental impacts from the proposed action. The following comments and recommendations are intended to guide the District toward approaches of island restoration that fully considers the benefits for, and adverse impacts to existing aquatic habitats and undertake measures to avoid, minimize, mitigate, or otherwise offset those impacts.

Project History

In 2009, the Mid-Bay Feasibility Report was released. Subsequently, the Mid-Bay Project was authorized under Section 7002 of the Water Resources Reform and Development Act of 2014. The record of decision was signed in 2019, thus initiating the Preconstruction Engineering and Design (PED) phase of the study. Most recently, the District prepared a sEA for the Phase 1 construction of Barren Island on December 20, 2021, which described impacts associated with the majority of the proposed stone dike and sill structures to be constructed around the perimeter of the island for the eventual containment of maintenance dredging material. We provided comments and Essential Fish Habitat (EFH) conservation recommendations following our review of that document in our January 26, 2022, letter.



While many aspects of the external containment structures were specified, the recent sEA for Phase 1 construction at Barren Island did not describe impacts associated with the full length of the northeast sill, which requires foundation remediation (i.e., dredging existing bottom and replacing with suitable substrate), nor did it fully describe designs for colonial nesting waterbird habitat islands proposed at the southern terminus of the Barren Island breakwaters. Similarly, the development of internal wetland features, including sand containment dykes, has not yet been formally evaluated pursuant to NEPA. The District is now considering alternatives for obtaining approximately 300,000 cubic yards (cu yds.) of sand needed to construct these project elements. The designated preferred alternative (Alternative 3) includes dredging previously un-dredged sand bottom from the Southern Borrow Area, which is proposed to be established for this project. The draft sEA also describes alternatives to source suitable material and disclose impacts, pursuant to NEPA. We are concerned that the sourcing of dredged sand from previously un-impacted benthic habitat to create uplands elsewhere in the Mid-Bay Project represents a dual impact to our trust resources through both dredging and filling of productive aquatic bottom.

Ultimately, this draft sEA examines one component of the overall Mid-Bay Island Project. The supplemental Environmental Impact Statement for James Island is currently under development. That component of the Mid-Bay Island Project includes creating an approximately 2,200 acres marsh/upland island complex in shallow waters of the Chesapeake Bay using stone along with fine-grained sediment dredged from the Baltimore Harbor approach channels and other regional Federal navigation channels. We note that analyzing the potential impacts of the overall impacts under several different NEPA documents presents significant challenges to understanding the direct, indirect, individual, and synergistic effects of the complete action. Similarly, while our comments here are focused on those elements described in this draft sEA, we maintain a perspective focused on the project in its entirety to ensure that impacts to our Nation's fisheries and their supporting habitats are sufficiently balanced among the goals of this extensive island habitat creation/restoration effort.

Magnuson Stevens Fishery Conservation and Management Act

The MSA requires federal agencies, such as the U.S. Army Corps of Engineers, to consult with us on any action or proposed action authorized, funded, or undertaken by such agency that may adversely affect EFH identified under the MSA. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in the consultation process. A complete description of the proposed action, including a description of the direct, indirect, and synergistic consequences of the action, is a critical piece of this assessment and necessary for us to determine the potential impacts to federally managed fish, their habitats, prevalent prey species, and other NOAA trust resources. While the EFH assessment provided did consider the species with designated EFH in the project vicinity, we are concerned that it also contained several inaccurate and/or unsupported statements in support of the District's assertion that this action will have only minor and transient consequences for aquatic resources.

As you are aware, the project area contains designated EFH for seven species of fish, including bluefish (*Pomatomus saltatrix*), summer flounder (*Paralichthys dentatus*), black sea bass (*Centropristis striata*), windowpane (*Scophthalmus aqueous*), butterfish (*Peprilus triacanthus*),

clearnose skate (*Raja eglanteria*), and scup (*Stenotomus chrysops*). These species use the shallow waters around Barren Island as forage, nursery, and refuge habitat. Based upon the information provided in Appendix C, the dredging of productive benthic habitats and subsequent placement of dredged sediments in these areas will have a direct adverse effect on EFH for several species and their prey by disturbing benthic food webs and their supporting habitats as well as converting shallow-water habitats to uplands. The data presented in that survey indicates that federally managed species such as bluefish and summer flounder use this habitat seasonally and that estuarine-resident prey species (e.g., bay anchovy *Anchoa mitchilli*) are present throughout much of the year. This area also likely serves as seasonal foraging ground for other recreationally and commercially valuable species (e.g., striped bass *Morone saxatilis*) due to the documented presence of preferred prey items such as menhaden (*Brevoortia tyrannus*) and structured habitats (e.g., SAV, oyster bars). The EFH assessment provided should more strongly link the productivity of benthic habitats to that of the rest of the estuarine food web (for example, see Mitchel et al. 2013), including federally managed species.

As described in your EFH assessment, the majority of the resulting impacts to EFH associated with this action will occur through the proposed dredging as well as permanent conversion of subtidal shallows to uplands. Compensatory mitigation has not been proposed to offset this loss of habitat and associated ecological functions. In this draft sEA, the District has indicated that the project impacts are negligible at a regional scale due to the potential benefits of the project as well as the cumulative loss of tidal wetlands and uplands due to sea level rise (SLR). Nevertheless, the MSA guides us to offer recommendations to avoid, minimize, mitigate project impacts to productive fish habitats associated with a particular action. Where there is a net loss of aquatic habitat function we are required to recommend measures to offset proposed losses. Nearshore habitat enhancement (e.g., natural oyster bar restoration) beyond the scope of what was described in this draft sEA is needed to ensure that the proposed impacts to aquatic resources associated with the Mid-Bay project, in its entirety, are adequately offset.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA), requires that all federal agencies consult with us when proposed actions might result in modifications to a natural stream or body of water. The FWCA also requires that federal agencies consider the effects that these projects would have on fish and wildlife and must also provide for improvement of these resources. Under this authority, we work to protect, conserve and enhance species and habitats for a wide range of aquatic resources such as shellfish, diadromous species, and other commercially and recreationally important species. As discussed here and in our previous letters associated with the Mid-Bay Island Project, a wide variety of resources we conserve under this authority are present in the project area.

As noted in your draft sEA, the proposed borrow areas provide productive habitat for blue crab (*Callinectes sapidus*). This fishery is the most valuable in the Chesapeake Bay and supports a large proportion of the fishing industry in the state. The blue crab population is also currently under evaluation by state and federal fisheries managers due to recent historic low abundances described by the Bay-wide Blue Crab Winter Dredge Survey. Blue crabs are an important food resource for predatory fish and birds (Bain et al. 2007, Waldman 2008). Steimle et al. (2000) has

documented that juvenile blue crabs are a food source for several state and federally managed fish species including winter flounder (*Pseudopleuronectes americanus*), little skate (*Leucoraja erinacea*), scup, and summer flounder. As such, any action which could temporarily or permanently diminish the productivity of this habitat should be evaluated and measures to avoid, minimize, mitigate, or otherwise offset impacts should be fully pursued.

Project Impacts and Recommended Mitigation Measures

As stated in our February 10, 2023, technical assistance letter, we anticipate that the proposed dredging of approximately 300,000 cu yds. of sand from 40 acres of previously un-dredged bottom will present adverse impacts to our trust resources through behavioral disturbance, entrainment mortality, and localized food web degradation. Furthermore, we are concerned that the proposed dredging is not currently accompanied by formalized measures to describe those impacts (i.e., monitoring plan) or benthic enhancement measures to ensure that regional aquatic habitat productivity is not diminished by the actions described in this draft sEA. Long-term benthic impacts associated with subaqueous sand mining activities were well described in the review cited in the draft sEA (Michel et al. 2013), though nearly all studies cited therein focus on activities in coastal ocean waters. There is a paucity of data from estuarine settings given the infrequent occurrence of subaqueous sand mining in these productive habitats. In their review, Michel et al. (2013) generally note a two-year recovery time for sand bottom disturbance, though this depends largely on site-specific conditions such as depth and sedimentation patterns which can lead to changes in sediment character. Consideration also must be given to the metrics examined to describe functional recovery (Wan Hussin et al. 2012, Michel et al. 2013).

Several overarching principles are clear from the literature and likely apply in this instance. First, the frequency of disturbance determines whether benthic communities are able to fully recover to pre-dredging conditions (Newell et al. 1998, Bilkovic 2011, Michel et al. 2013). In this case, the dredge depth is proposed at 5 – 7 feet below existing bottom depths (i.e., proposed elevations range from –16 to –22 feet NAVD88). Due to this depth of cut and the site location distant from actively eroding areas, we do not anticipate significant changes to bottom substrates following dredging. Monitoring will be necessary to describe the geomorphic and benthic organism response. Analyses and sample frequencies other than what is presented in this draft sEA are needed to more appropriately describe this proposed disturbance and subsequent response (for example, see Texeira et al. 2008, Wan Hussin et al. 2012, Michel et al. 2013). Finally, we are concerned that this draft sEA does not confirm that these sand mining operations are to occur only once. Given the likelihood of future need for sand associated with operations and maintenance of the Mid-Bay Island Project, we are concerned that this document will be used to pursue future sand mining activities. Comprehensive monitoring of the effects of the initial dredging and the benthic and geomorphic response and recovery over time should be evaluated prior to the consideration of any future sand mining activities

As we previously discussed and stated in various correspondence, we recommend that the District avoid dredging previously undisturbed bottoms to source the sand needed for these project components. However, based on the information presented in the draft sEA, it appears you have determined other sources to be unsuitable either due to cost or engineering limitations. If the District intends to move forward with mining sand from the designated Southern Borrow

Area, we recommend that dredging be undertaken in a manner that maintains areas of undisturbed bottom interspersed among the dredged area to speed benthic recovery and create bottom heterogeneity. Should it be necessary, we can provide renderings further illustrating this approach. While it has not been explicitly tested in the Chesapeake Bay, studies from other geographies (e.g., de Jong et al. 2014, Borland et al. 2022) indicate that dredging designs that increase bottom heterogeneity can enhance bottom productivity for benthic organisms and demersal fishes. Furthermore, this approach may preserve refugia from future shallow-water hypoxic events that have been described in the Chesapeake Bay. While this approach will entail dredging in a larger overall area, potentially including both “Area A” and “Area B” as designated in the draft sEA, we anticipate that the cumulative impacts on benthic communities will be reduced. Furthermore, given the lack of a suitable upland stockpile area, we understand that dredging will occur in two or three discrete events, associated with each project component which requires sand - the bird island fill (211,000 cu yds.), northeast sill foundation remediation (37,000 cu yds.), and the interior containment dikes (up to 49,000 cu yds.). Since the largest sand need (approximately 70%) is associated with construction of the upland bird islands and our understanding is that this will be undertaken first, we recommend that this dredging approach be pursued to source sand from “Area B” and that the impacts be studied to determine whether this approach should be repeated for future sand needs described in this draft sEA.

The entirety of the Mid-Bay Island Project entails substantial filling of aquatic habitats to restore island habitat. In the case of James Island, the area is far in excess of historical island extent. The particular action described in this draft sEA associated with components of the Barren Island project entails clear impacts to our trust resources without any corresponding measures to offset the anticipated degradation. While we acknowledge that several habitat enhancements associated with this project should restore eroded marsh habitats and tidal channels, we are concerned that the net result of the Mid-Bay Island Project will be a loss of aquatic habitat functions. We are also concerned that mining sand from productive benthic habitats to create uplands sets a precedent for future project proponents to recreate eroded habitats and we would recommend measures to avoid, minimize, mitigate, or otherwise offset impacts in those instances. For these reasons, we recommend that you pursue measures to minimize sand mining impacts, including minimizing sand quantities needed and pursuing approaches that increase bottom heterogeneity. We also recommend that you work with the engaged state/federal agency partners to develop a restoration plan for suitable area oyster bars to present a net benefit for our nation’s fisheries resources in the Chesapeake Bay.

EFH Conservation Recommendations

We recommend pursuant to Section 305(b)(4)(A) of the MSA that you adopt the following EFH conservation recommendations to minimize adverse impacts on EFH:

- (1) To the maximum extent practicable, avoid dredging previously un-dredged bottom for the purpose of mining sand for any project component. This could include more thorough consideration of Alternative 6.
- (2) Should mining from the Southern Borrow Area be pursued, dredge in a manner that approximates ridge bedforms and, as a result, leaves undisturbed areas interspersed with disturbed areas.

- (3) Limit over dredge depths to one foot, for a maximum depth of cut at 6 feet throughout the project
- (4) To the extent practicable, avoid dredging during warmer months (i.e., April to November) to minimize impacts during periods of peak biological activity in the Chesapeake Bay and speed the rate of benthic recovery.
- (5) Monitor the results of the dredging on benthic geomorphology, fish assemblages, and benthic macroinvertebrate recovery to fully describe the effects of the proposed action. Work with state and federal resource agencies to develop a monitoring plan following the development of the final dredging plan. Pursue semi-annual monitoring for at least five years following the proposed dredging activity.
- (6) Reinitiate consultation with NMFS should you pursue additional dredging beyond what is currently described for this initial project.
- (7) Work with state and federal resource agencies to develop a comprehensive plan to offset the cumulative impacts to productive estuarine bottom through expanded oyster bar restoration efforts in the vicinity of both Barren and James islands.

Please note that Section 305(b)(4)(B) of the MSA requires you to provide us with a detailed written response to these EFH conservation recommendations, including a description of measures adopted by you for avoiding, mitigating, or offsetting the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, Section 305(b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects pursuant to 50 CFR 600.920(k). This response must be provided within 30 days after receiving our EFH conservation recommendations and at least 10 days prior to the issuance of a Finding of No Significant Impact (FONSI).

Please also note that further EFH consultation must be reinitiated pursuant to 50 CFR 600.920(j) if new information becomes available, or if the project is revised in such a manner that affects the basis for the above determination.

Endangered Species Act

On January 13, 2023, we received a letter requesting re-engagement with NOAA Protected Resources Division (PRD) to coordinate with us on Section 7(a)(2) of the Endangered Species Act. The USACE specifically focused on evaluating a borrow area from which to dredge material for use in restoration efforts as part of the overall restoration of Barren Island. On February 5, 2018, we completed informal consultation with the USACE on the proposed action, which concluded that the action is not likely to adversely affect listed species under our jurisdiction. Threatened or endangered species under our jurisdiction including the threatened loggerhead (*Caretta caretta*) and the endangered Kemp's ridley (*Lepidochelys kempii*), green (*Chelonia mydas*) and leatherback (*Dermochelys coriacea*) sea turtles, shortnose sturgeon (*Acipenser brevirostrum*), and Atlantic sturgeon (*Acipenser oxyrinchus*) may be present in the project area. We reviewed your request and based on the effect analysis from the previous consultation on the project, the information that you have provided indicating no changes to the

project description, and the fact that no new listed species or designated critical habitat overlap with the action area, it is not necessary to re-initiate the consultation we completed on February 5, 2018. Should you have any questions about the section 7 consultation process, please contact Brian Hopper at brian.d.hopper@noaa.gov.

Conclusion

As always, we are available to coordinate with your staff so that this project can move forward efficiently and expeditiously as possible while still meeting our joint responsibilities to protect and conserve aquatic resources. If you have any questions or need additional information, please contact Jonathan Watson in our Annapolis field office at jonathan.watson@noaa.gov or (978) 675-2180.

Sincerely,



Louis A. Chiarella
Assistant Regional Administrator
for Habitat and Ecosystem Services

cc:

USACE – T. Cyran, A. Sowers, J. Peters
NMFS HESD – K. Greene; D. O'Brien
NMFS PRD – B. Hopper
FWS – R. Li, S. Deeley, R. Callahan, A. O'Donnel
EPA – M. Fitzgerald, C. Traver, C. Mazerella
MDE – T. Roberson, M. Phipps-Dickerson
MDNR – T. Redman; R. Ort
MAFMC – C. Moore
NEFMC – C. O'Keefe
ASFMC – R. Beal

Works Cited

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DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

REPLY TO
ATTENTION OF

13 November 2023

Planning Division

Lou Chiarella
Assistan Regional Administrator
for Habitat Conservation
National Oceanic and Atmospheric Administration/National Marine Fisheries Service
(NOAA/NMFS)
Greater Atlantic Region Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930

RE: MID-CHESAPEAKE BAY ISLAND ECOSYSTEM RESTORATION PROJECT
USACE RESPONE TO NOAA/NMFS CONSERVATION RECOMMENDATIONS

Dear Mr. Chiarella:

USACE-Baltimore District has reviewed the Conservation Recommendations provided by National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) on October 11, 2023 specific to the Mid-Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay): Barren Island Borrow Area draft supplemental Environmental Assessment (sEA) and Essential Fish Habitat (EFH) Assessment and associated materials. The documents examine potential sources of sand needed to construct elements of the Barren Island component of the Mid-Bay Project in, Dorchester County, Maryland, and have been prepared in accordance with the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.) to assess the potential environmental impacts from the proposed action. USACE is developing this project in partnership with the Maryland Port Administration (MPA).

As required by Section 305(b)(4)(B) of the Magnuson-Stevens Conservation and Management Act (MSA), USACE is required to provide detailed written responses to the EFH conservation recommendations, including a description of measures adopted for avoiding, mitigating, or offsetting the impact of the project on EFH. In the case of a response that is inconsistent with your recommendations, USACE has provided an explanation as to the reason for not following the recommendations pursuant to Section 305(b)(4)(B) of the MSA. The following section provides the EFH conservation recommendations to minimize adverse impacts on EFH and USACE's response:

- (1) To the maximum extent practicable, avoid dredging previously un-dredged bottom for the purpose of mining sand for any project component. This could include more thorough consideration of Alternative 6.

RESPONSE: During feasibility, the expectation was that the Honga River channel material would have a sufficient sand content to make containment unnecessary and to enable the

material to be used as fill for the bird island. However, current geotechnical investigations have shown that is not the case. USACE has taken actions to limit sand needs for the project such as using geotubes for containment rather than sand dikes and will continue to look for opportunities to reduce the area of un-dredged bottom impacted by the project. Recent experience working with fine-grained dredged material in Wicomico County has further illustrated the need for containment when developing wetlands from similar sediments; and therefore, geotubes and the associated sand need remains part of the current plan. USACE also undertook the investigation into a northern borrow area after conversations with local watermen in order to avoid impacts to crabbing grounds, but that material also has a high fine content making it unsuitable for use in geotubes or as fill for the bird islands. Further, a substantial portion of the northern borrow area fell within SAV habitat with associated impacts. In order to implement the project, dredging sand from the borrow area has been determined to be necessary. A spatial analysis within the 3-mile zone from Barren Island identifies the waters to the west as having the fewest impacts due to its avoidance of SAV and oyster bars. (Three miles is the limit within which material can be pumped to a beneficial use site.) Alternative 6 was evaluated within the sEA as a potential way to efficiently put available material to use for project implementation while avoiding or minimizing the use of a borrow area. Unfortunately, due to the high fines content of the material available at the northern borrow area and within the Honga River Channel, Alternative 6 is not viable. USACE/MPA will continue to look for opportunities to minimize the quantity of sand needed to be dredged as the design is finalized and construction commences.

- (2) Should mining from the Southern Borrow Area be pursued, dredge in a manner that approximates ridge bedforms and, as a result, leaves undisturbed areas interspersed with disturbed areas.

RESPONSE: The draft dredging plan has been revised to include an area that will be undisturbed by the initial dredging activity as well as providing a post-dredging bottom topography that mirrors the current topography to provide heterogeneity by removing an even depth across the existing bottom. USACE is proposing to leave a section [~300 feet (ft) wide, totaling ~ 10 acres]] untouched by the first dredging event in 2024/2025. The first dredging event would acquire ~90% of the sand needed for the project from an area in the northwest portion of Focus Area B and an area to the southeast within Focus Area B. These two areas are each ~ 15 acres in size. Depending on the consistency of the sand content of the dredged material and losses during construction, it is estimated that 20 to 30 acres would be impacted within these two areas during the first dredging event. In the event that pockets of unsuitable material (>20% fines) are found during dredging, that bottom would also remain unimpacted within the dredging area, adding further untouched bottom to aid recolonization. The scientific literature referenced in your comment letter have been reviewed. In de Jong et al. (2014), approximately 1% (0.81%) was left undisturbed as a ridge bedform. The proposed approach for Focus Area B would leave 25% undisturbed by the initial dredging event.

Subsequent dredging at a future time would acquire sand from the central area in Focus Area B that was not dredged during the initial event. At this time, this area would be in Focus Area B, but Focus Area A could be utilized based on future conditions and the preference of stakeholders/resource agencies. Based on coordination with watermen, USACE wants to contain dredging impacts to Focus Area B rather than spread the impacts across Focus Areas A and B, but conditions in the future may dictate another decision. USACE will also continue to consider other means to acquire the remaining 10% of sand needed for the project at a future time, as compliant with the Mid-Bay NEPA assessments. It may not be cost-effective

at that future time to dredge the remaining quantity needed. Other options that could be implemented are to source the sand from the borrow area within the James Island footprint if quantities permit or reuse sand from prior containment efforts at Barren Island. Note that impacts from dredging sand from within the James Island footprint are being evaluated by the James Island sEIS. USACE welcomes further input on the dredging plan through the Habitat Development Workgroup and agency outreach.

- (3) Limit over dredge depths to one foot, for a maximum depth of cut at 6 feet throughout the project.

RESPONSE: USACE does not concur with limiting dredging to a maximum depth of 6 ft rather than 7ft. Limiting dredging to 6 ft would reduce the spatial impact by ~4 acres, but would reduce the contingency in the plan in the event that pockets of unsuitable material are found or other issues arise that affect dredging quantities. Following conversations with the watermen's community and concern for impacts to commercial crabbing grounds, USACE is striving to minimize spatial impacts to crabbing grounds while conducting a shallow dredging depth. It is expected that dredging to 5 ft with an over depth of 2 ft (a maximum of 7 ft) enables impacts to be contained within Focus Area B and not spread across Focus Area A and B, while not creating deep pockets susceptible to anoxia.

- (4) To the extent practicable, avoid dredging during warmer months (i.e., April to November) to minimize impacts during periods of peak biological activity in the Chesapeake Bay and speed the rate of benthic recovery.

RESPONSE: USACE concurs with this recommendation with one adjustment. Following coordination with local watermen, USACE plans to limit dredging activity in the borrow area to October 16 through April 14, to align with typical SAV and hydraulic dredging (within 500 yards of oyster bars) time of year restrictions and avoid the primary crabbing season. It is currently projected that less than 30 days is needed to dredge the material needed.

- (5) Monitor the results of the dredging on benthic geomorphology, fish assemblages, and benthic macroinvertebrate recovery to fully describe the effects of the proposed action. Work with state and federal resource agencies to develop a monitoring plan following the development of the final dredging plan. Pursue semi-annual monitoring for at least five years following the proposed dredging activity.

RESPONSE: USACE agrees to monitor the borrow area to determine impacts and recovery. USACE will utilize the Mid-Bay Monitoring Workgroup to determine the specifics of the monitoring program including what surveys to undertake, metrics, and timeframes.

- (6) Reinitiate consultation with NMFS should you pursue additional dredging beyond what is currently described for this initial project.

RESPONSE: USACE estimates needing 300,000 cy to implement the full project. The current plans and project timeline will require dredging approximately 90% of the sand in one event in 2024/2025. The remaining quantity needed for containment (geotubes) in the northwest and northeast wetland cells would be dredged at a future time. That sand would not be dredged until Congress appropriates funding to dredge a local federally-maintained navigation channel to provide dredged material for wetland development. As there is no ability to stockpile sand at Barren Island National Wildlife Refuge, the sand must be acquired

when funding is provided, and in alignment with projected quantities of dredged material for placement. Therefore, there is a possibility that the northeast wetlands cell and northwest wetland cell will not be able to be completed at one time, but would require separate actions to construct. The timeline for these future dredging efforts is unknown. Subsequent future dredging would acquire sand from a non-dredged location in Focus Area B, or other previously non-dredged, suitable area within the south borrow area, per the sEA. The sEA will be revised to clarify that the south wetland cell will be constructed first with the smaller northern cells following at a later time. USACE/MPA will also continue to consider other means to acquire the remaining 10% of sand needed for the project at a future time. It may not be cost-effective at that future time to dredge the remaining quantity needed. USACE is committed to continuing to work with the resource agencies through the entirety of the project to coordinate these events. However, USACE does not agree that there should be a need to formally reinstate consultation under the MSA at each point in the future when Congressional funding is appropriated to complete another wetland cell.

- (7) Work with state and federal resource agencies to develop a comprehensive plan to offset the cumulative impacts to productive estuarine bottom through expanded oyster bar restoration efforts in the vicinity of both Barren and James islands.

RESPONSE: USACE is committed to working with state and federal resource agencies to incorporate features to enhance oyster habitat as feasible within the project scope and welcomes further conversations to that end. USACE is working to design two oyster reef complexes at the bird island coves and plans to monitor the stone sills and breakwaters for spat set and development of reef communities. Authorized design of the southern breakwater during the Planning and Engineering Design Phase permitted inclusion of the reef complexes at the bird island coves. However, USACE does not agree that a comprehensive plan to offset cumulative impacts is necessary. Further, there are limitations to undertaking more extensive oyster restoration efforts in the lower mainstem Bay.

USACE, in partnership, with MDNR and the Virginia Marine Resources Commission developed the Chesapeake Bay Oyster Recovery: Native Oyster Restoration Master Plan in 2012. Based on that evaluation, the waters surrounding Barren (and James) Island were included in the Lower Maryland Mainstem tributary and designated as a Tier 2 tributary. Tributaries were identified as Tier 2 if there were known biological or physical limitations to undertaking large-scale oyster restoration efforts. The area was viewed as limited with regards to the potential for larval retention, but does have conditions to support high spat sets. Further, none of the oyster habitat near Barren Island falls within a designated sanctuary. Lack of designated sanctuary habitat would currently limit USACE-led restoration efforts based on the federal determination that reefs restored using federal funds need to be protected from harvests in perpetuity. One further consideration for expanding oyster bar restoration in the waters around Barren Island are the extensive SAV habitat throughout Tar Bay. Any actions to restore oyster reef habitat within Tar Bay would likely require SAV habitat to be converted to oyster reef. Geotechnical investigations have also shown that much of the bottom is soft and unable to support the weight of material that would need to be placed to restore oyster reef habitat. The waters to the east of Barren Island are limited by SAV habitat, unsuitable bottom, and lack of sanctuary area. Due to the reasons stated above (larval retention, protection from harvest) and conflicts with other waterways users such as commercial crabbers the waters to the west of Barren Island also have constraints that would impact restoration.

Utilization of the stone sill structures as well as inclusion of reefs with the bird islands are supported as feasible measures to take to increase oyster habitat and resources in the Barren Island vicinity. The stone sills are expected to serve as good oyster setting habitat in years where there are good spat sets, and provide a measure of protection from harvests. Monitoring could determine if conditions support the development of these natural spat sets into sustainable reef colonies. Development of reef colonies on the stone sills would be a strong indication that broader restoration efforts should be pursued.

To that end, Section 704(b) of the Water Resources Development Act of 1986 (as amended) provides USACE the authorization to investigate oyster restoration opportunities in the Chesapeake Bay and could be utilized by a non-federal sponsor to partner with USACE to undertake a cost-shared oyster restoration project in the project area.

Please contact Ms. Angie Sowers, Ph.D., at (410) 962-7440 if you'd like to discuss these responses further.

Sincerely,



Daniel M. Bierly, PE
Chief, Civil Project Development Branch

Cc: Karen Greene, NMFS (karen.greene@noaa.gov)
Jonathan Watson, NMFS CBFO (jonathan.watson@noaa.gov)

SECTION 106 of NATIONAL HISTORIC PRESERVATION ACT

From: [Leasure, Charles W CIV USARMY CENAB \(USA\)](#)
To: elizabeth.hughes@maryland.gov
Cc: [Sowers, Angela M CIV USARMY CENAB \(USA\)](#); [Johnson, Christopher A CIV USARMY CENAB \(USA\)](#)
Subject: Dorchester County, MD - Barren Island Restoration
Date: Friday, January 13, 2023 4:09:50 PM
Attachments: [Barren Island Borrow Area Coordination Letter MHT 12Jan2023.pdf](#)

Ms. Hughes,

USACE – Baltimore District would like to re-initiate coordination with your office for our Barren Island Restoration project.

Specifically, USACE and the Maryland Port Administration will be drafting a sEA for the borrow of material for the restoration efforts.

We look forward to continuing our dialog with your office.

Thank you,
Charles

Charles W. Leasure, AICP
Environmental Policy Advisor
US Army Corps of Engineers
Baltimore District - Planning Division
Civil Project Development Branch

2 Hopkins Plaza
10th Floor Planning - 10-E-06
Baltimore, MD 21201

410-962-5175 - Office
410-829-9664 - Cell



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

REPLY TO
ATTENTION OF

Planning Division

13 January 2023

Elizabeth Hughes, SHPO
Maryland Historical Trust
100 Community Place, 3rd
Floor Crownsville, MD 21032

Dear Ms. Hughes:

The U.S. Army Corps of Engineers, Baltimore District, (USACE) is reinitiating coordination for the Mid-Chesapeake Bay Island Ecosystem Restoration Project. The Mid-Chesapeake Bay Island Project recommends remote island restoration at James Island and Barren Island, both on the Eastern Shore of Maryland in Dorchester County, through the beneficial use of dredged material. Section 7002 of Water Resources Reform and Development Act of 2014 authorized the Mid-Chesapeake Bay Island Project, as described in the Chief's Report (https://planning.erdc.dren.mil/toolbox/library/ChiefReports/mid_chesapeake.pdf), dated August 24, 2009, and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated September 2008 (and updated in April 2009). The Record of Decision (ROD) was signed in July 2019 initiating the next phase of the project, Pre-construction Engineering and Design (PED). As part of the PED effort, USACE prepared and completed a supplemental Environmental Assessment (sEA) on March 7, 2022, to update National Environmental Policy Act (NEPA) of 1969, as amended, focused on the Barren Island component of the project. A supplemental Environmental Impact Statement is underway for the James Island component.

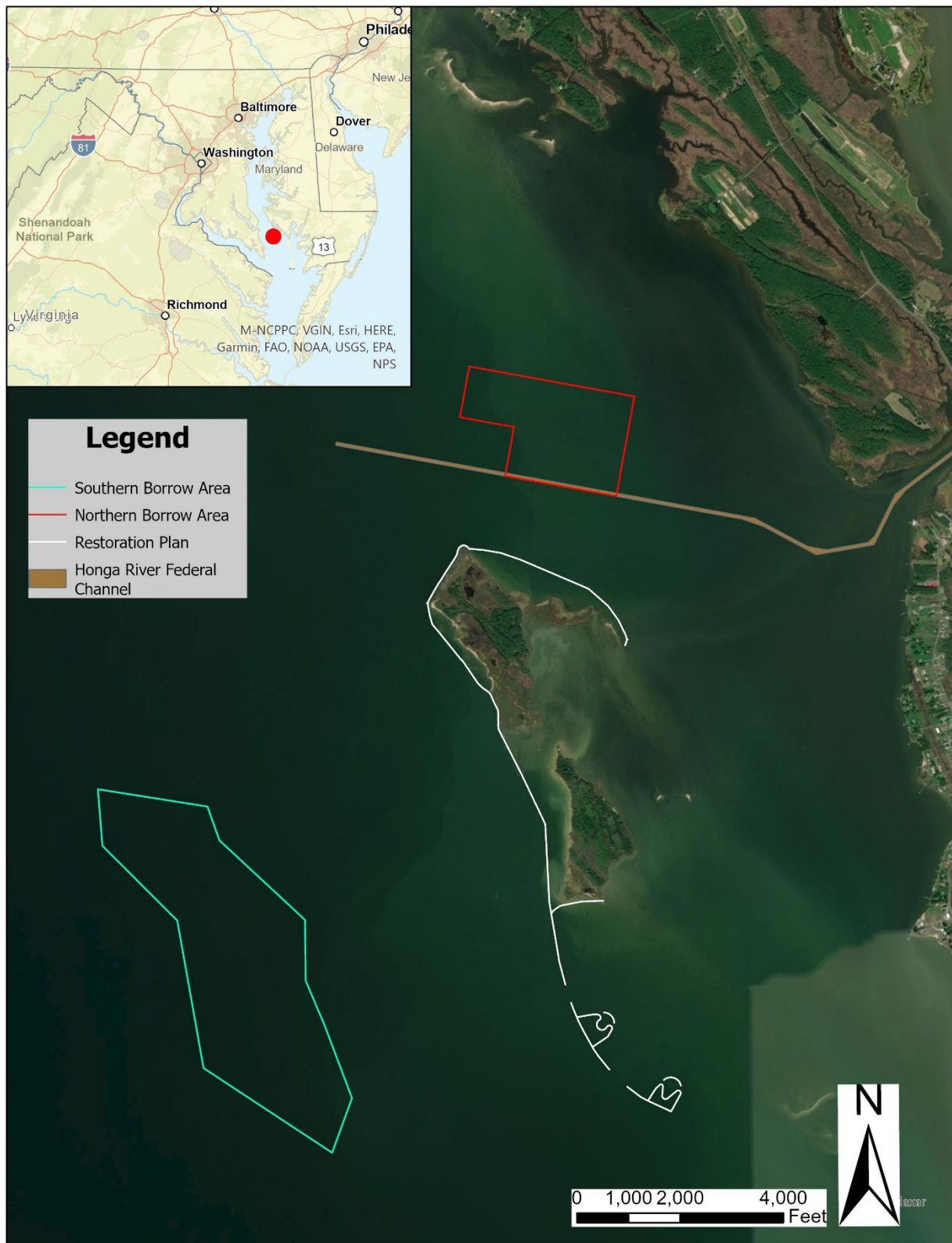
The purpose of this letter is to inform your agency of the start of a sEA specifically focused on evaluating a borrow area from which to dredge material for use in restoration efforts as part of the overall restoration of Barren Island. Following coordination with stakeholders USACE identified two potential borrow areas. USACE has completed geotechnical soil borings in those two proposed areas. Based on the results of the geotechnical investigation and potential impacts to submerged aquatic vegetation (SAV), it has been determined that the northern borrow area will not meet the needs of the project, and USACE is now focusing on the southern borrow area (see enclosure).

Please provide any information or concerns that your agency may have that will assist USACE with the preparation of the sEA within 30 days of the date of this letter. If you have any questions regarding this matter, please contact Ms. Angela Sowers, Ph.D., at (410) 962-7440.

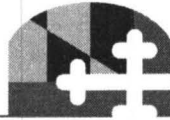
Sincerely,

A handwritten signature in blue ink, appearing to read "D. Bierly", with a stylized flourish at the end.

Daniel M. Bierly, PE
Chief, Civil Project Development Branch



Barren Island Potential Borrow Area Locations



Maryland
DEPARTMENT OF PLANNING
MARYLAND HISTORICAL TRUST

January 24, 2023

Daniel M. Bierly, PE
Chief, Civil Project Development Branch
Baltimore District, U.S. Army Corps of Engineers
2 Hopkins Plaza
Baltimore, Maryland 21201

Sent via email to Charles.W.Leasure@usace.army.mil

Re: Mid-Chesapeake Bay Island Ecosystem Restoration Project - Barren Island Borrow Areas

Dear Mr. Bierly:

Thank you for your letter dated 13 January 2023 reinitiating Section 106 consultation between the Maryland State Historic Preservation Office, the Maryland Historical Trust (MHT), and the U.S. Army Corps of Engineers (USACE) for the Mid-Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay).

MHT understands USACE is in the process of developing a Supplemental Environmental Assessment (sEA) which evaluates potential borrow areas for use in restoration of Barren Island and that the area formerly described as the Northern Borrow Area will not meet the needs of the project. USACE's evaluation is now focusing on and refining the boundaries of the Southern Borrow Area. According to MHT records, archaeological surveys or other efforts to identify historic properties within the Southern Borrow Area have not been undertaken and the Southern Borrow Area has potential to contain submerged historic properties.

MHT is aware from attendance at Mid-Bay NEPA coordination meetings that USACE plans to complete identification efforts involving use of marine geophysical remote sensing tools within the boundaries of the selected borrow area(s), which likely will be located within the larger area currently known as the Southern Borrow Area.

We await additional coordination related to that effort(s) as project planning proceeds.

Please contact me via email if you have any questions, troy.nowak@maryland.gov.

Sincerely,

Troy Nowak
Asst. Underwater Archaeologist
Maryland Historical Trust

Wes Moore, Governor
Aruna Miller, Lt. Governor



Rebecca L. Flora, AICP, LEED ND / BD+C, Secretary
Elizabeth Hughes, MHT Director and
State Historic Preservation Officer

Maryland DEPARTMENT OF PLANNING MARYLAND HISTORICAL TRUST

December 5, 2023

Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch
Planning Division
U.S. Army Corps of Engineers
Baltimore District
Sent via email to: ethan.a.bean@usace.army.mil

Re: Mid-Bay Island Ecosystem Restoration Project – *Draft Cultural Resources Investigation of a Proposed Borrow Area, Access Channel, and Turning Basin for the Mid-Bay Island Ecosystem Restoration Project, Barren Island and James Islands, Maryland*

Dear Mr. Bierly:

Thank you for continuing consultation with the Maryland State Historic Preservation Office, the Maryland Historical Trust (MHT), regarding historic preservation review of the above-referenced project in accordance with Section 106 of the National Historic Preservation Act.

MHT examined the report *Draft Cultural Resources Investigation of a Proposed Borrow Area, Access Channel, and Turning Basin for the Mid-Bay Island Ecosystem Restoration Project, Barren Island and James Islands, Maryland* which describes “reasonable and good faith” identification efforts within the proposed Barren Island Dredged Material Borrow Area and the proposed James Island Access Channels and Turning Basins.

The report reviews the geological, historical, and archaeological contexts of these areas, describes methods, and provides recommendations. Field methods included collection and interpretation of electronic remote sensing data from a suite of instruments including a magnetometer, a side scan sonar, and a sub-bottom profiler. The authors interpret none of the anomalies or contacts recorded during field survey as potential submerged archaeological historic properties but interpret four sub-bottom reflectors as part of a previously identified relict channel and margin system which exhibits potential to contain archaeological deposits. The authors recommend avoidance of these reflectors, or additional investigation to determine their archaeological potential, as well as implementation of an unanticipated discoveries plan.

Daniel M. Bierly

Review of Draft Cultural Resources Investigation of a Proposed Borrow Area, Access Channel, and Turning Basin for the Mid-Bay Island Ecosystem Restoration Project

December 5, 2023

Page 2 of 3

MHT generally concurs with these recommendations; exceptions are noted below. Report review did not include scrutiny of format, style, grammar, identification of typographical errors, or comparison to the scope of work for this project.

A few factors hindered assessment of the authors' recommendations. These include data gaps, presentation of remote sensing data, and interpretative methods:

- Survey work was performed while construction barges were moored within the Barren Island Dredged Material Borrow Area. This resulted in data gaps and made magnetometer data collected adjacent to each mooring site unsuitable for archaeological interpretation.
- Although marked as 1:6,000, maps were printed at a scale of roughly 1:12,000, and magnetic anomalies and sonar contacts were not labeled on all maps to allow referencing of data in corresponding tables.
- Interpretations of magnetic data appear to have been based on comparisons with verified magnetic signatures of shipwrecks, but the authors recognized that the magnetic signatures of ancient and small wooden watercraft will not necessarily match verified examples because of their age and the varied types and quantities of iron used in their construction, fittings, and equipment. Locally built sailing watercraft which operated throughout the Chesapeake between the mid-17th and the late-19th centuries also will not necessarily match verified examples.
- Side scan sonar contacts were presented as 1 5/8 in. images at various scales and resolutions; the authors describe most as 'unknown' with no additional interpretation.

Barren Island - Dredged Material Borrow Area

MHT recommends avoidance of areas where no survey work was conducted and areas where magnetometer data suitable for archaeological interpretation are lacking. If avoidance of these areas is not possible, MHT recommends further coordination to determine next steps, which might include additional site assessment or monitoring depending on feasibility. Development of an unanticipated finds plan is recommended for all work in the Barren Island Dredged Material Borrow Area.

James Island - Access Channels and Turning Basins

The report recommends avoidance of a relict channel and margin system represented by four sub-bottom reflectors. An earlier report describing similar nearby features, *Phase II Cultural*

Daniel M. Bierly

Review of Draft Cultural Resources Investigation of a Proposed Borrow Area, Access Channel, and Turning Basin for the Mid-Bay Island Ecosystem Restoration Project

December 5, 2023

Page 3 of 3

Resource Investigation of a Proposed Access Channel for the Mid-Bay Island Ecosystem Restoration Project at James Island, Dorchester County, Maryland, concluded they were likely subaerially exposed during times of past human occupation and recommended avoidance or coordination with appropriate consulting parties to minimize or mitigate potential adverse effects to historic properties. All likely represent the same submerged and buried relict landscape.

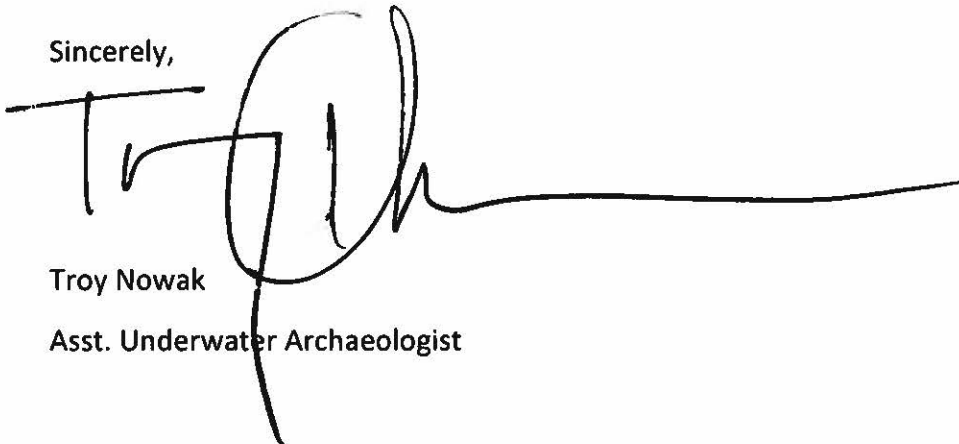
MHT understands avoidance is likely not feasible and suspects additional investigation of the sub-bottom features identified within the present study areas will result in data and recommendations similar to those outlined in the earlier report. In lieu of additional archaeological work, MHT recommends coordination with appropriate consulting parties and consultation with MHT regarding mitigation options. Development of an unanticipated finds plan is recommended for all work in the proposed James Island Access Channels and Turning Basins.

We appreciate the U.S. Army Corps of Engineers' good faith efforts to identify historic properties as part of the Mid-Bay Island Ecosystem Restoration Project and look forward to receiving two bound copies of the final report for our library.

If you have questions about MHT's recommendations or need further assistance, please contact Troy Nowak at troy.nowak@maryland.gov.

Thank you for your ongoing cooperation and assistance.

Sincerely,

A handwritten signature in black ink, appearing to read 'Troy Nowak', with a long horizontal flourish extending to the right.

Troy Nowak

Asst. Underwater Archaeologist

TJN/202303177

U.S. ENVIRONMENTAL PROTECTION AGENCY

From: [Leasure, Charles W CIV USARMY CENAB \(USA\)](#)
To: Nevshehirlian.Stepan@epa.gov
Cc: [Sowers, Angela M CIV USARMY CENAB \(USA\)](#); [Johnson, Christopher A CIV USARMY CENAB \(USA\)](#)
Subject: Dorchester County, MD - Barren Island Restoration
Date: Friday, January 13, 2023 3:52:36 PM
Attachments: [Barren Island Borrow Area Coordination Letter EPA_12Jan2023.pdf](#)

Mr. Nevshehirlian,

USACE – Baltimore District would like to re-initiate coordination with your office for our Barren Island Restoration project.
Specifically, USACE and the Maryland Port Administration will be drafting a sEA for the borrow of material for the restoration efforts.

We look forward to continuing our dialog with your office.

Thank you,
Charles

Charles W. Leasure, AICP
Environmental Policy Advisor
US Army Corps of Engineers
Baltimore District - Planning Division
Civil Project Development Branch

2 Hopkins Plaza
10th Floor Planning - 10-E-06
Baltimore, MD 21201

410-962-5175 - Office
410-829-9664 - Cell



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

REPLY TO
ATTENTION OF

13 January 2023

Planning Division

Mr. Stepan Nevshehirlian
U.S. Environmental Protection Agency,
Mid-Atlantic Region, Region 3
1600 John F. Kennedy Boulevard
Philadelphia, Pennsylvania 19103-2852

Dear Mr. Stepan Nevshehirlian,

The U.S. Army Corps of Engineers, Baltimore District, is reinitiating coordination with the U.S. Environmental Protection Agency (EPA) for the Mid-Chesapeake Bay Island Ecosystem Restoration Project. The Mid-Chesapeake Bay Island 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. Section 7002 of Water Resources Reform and Development Act of 2014 authorized the Mid-Chesapeake Bay Island Project, as described in the Chief's Report, dated August 24, 2009, ([https://planning.erdc.dren.mil/toolbox/library/Chief Reports/mid_chesapeake.pdf](https://planning.erdc.dren.mil/toolbox/library/Chief%20Reports/mid_chesapeake.pdf)), and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated September 2008 (and updated in April 2009). The Record of Decision was signed in July 2019 initiating the next phase of the study, Preconstruction Engineering and Design (PED). As part of the PED effort, USACE prepared and completed a supplemental Environmental Assessment (sEA) on March 7, 2022, to update National Environmental Policy Act (NEPA) of 1969, as amended, focused on the Barren Island component of the project. A supplemental Environmental Impact Statement is underway for the James Island component.

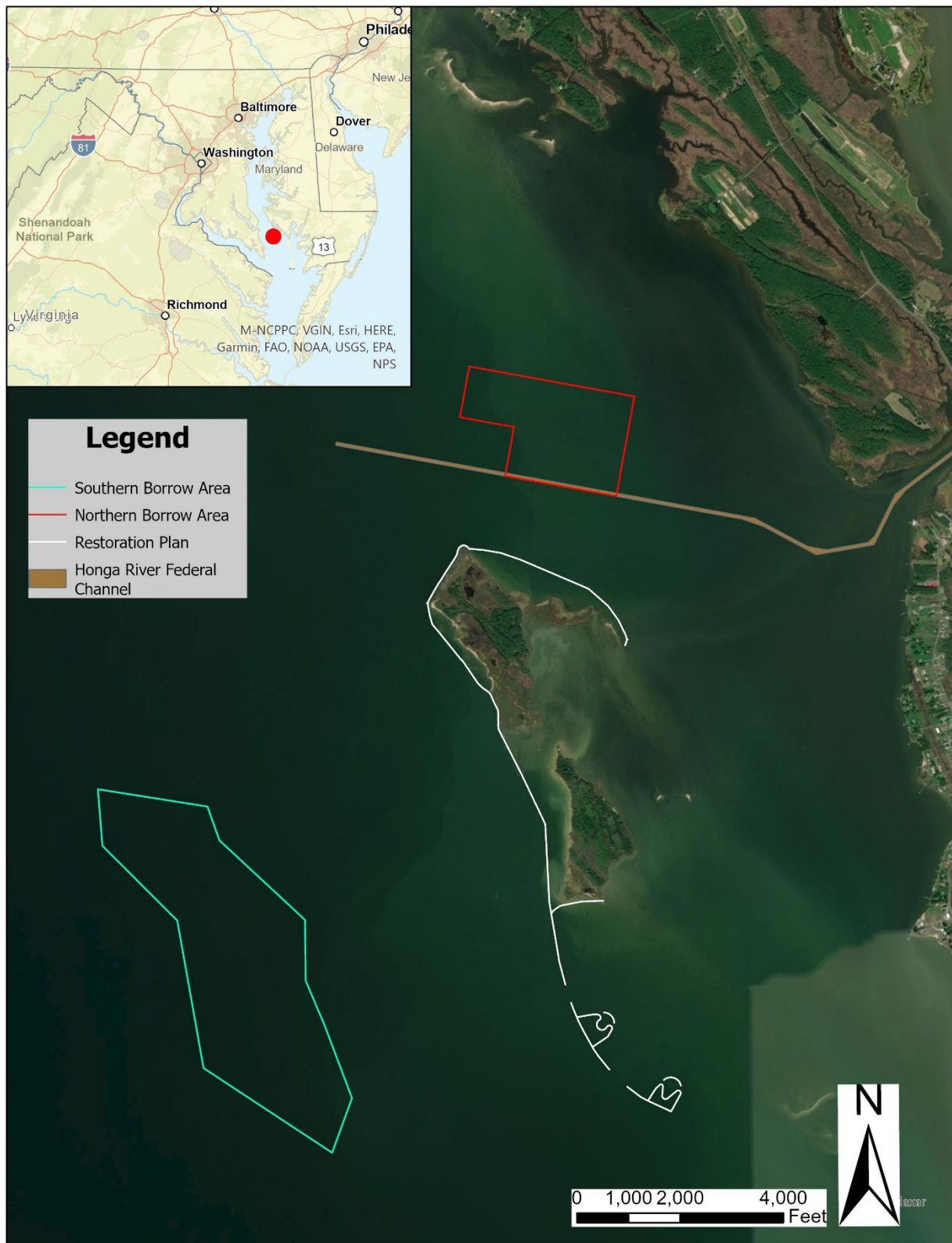
The purpose of this letter is to inform your agency of the start of a sEA specifically focused on evaluating a borrow area from which to dredge material for use in restoration efforts as part of the overall restoration of Barren Island. Following coordination with stakeholders USACE identified two potential borrow areas. USACE has completed geotechnical soil borings in those two proposed areas. Based on the results of the geotechnical investigation and potential impacts to submerged aquatic vegetation (SAV), it has been determined that the northern borrow area will not meet the needs of the project, and USACE is now focusing on the southern borrow area (see enclosure).

Please provide any information or concerns that your agency may have that will assist USACE with the preparation of the sEA, within 30 days of the date of this letter. If you have any questions regarding this matter, please contact Ms. Angie Sowers, Ph.D., at (410) 962-7440.

Sincerely,

A handwritten signature in blue ink, appearing to read 'D. Bierly', is positioned above the printed name and title.

Daniel M. Bierly, PE
Chief, Civil Project Development Branch



Barren Island Potential Borrow Area Locations

From: [Witman, Timothy \(he/him/his\)](#)
To: [Sowers, Angela M CIV USARMY CENAB \(USA\)](#)
Cc: [Johnson, Christopher A CIV USARMY CENAB \(USA\)](#); [Nevshehirlian, Stepan](#); [Leasure, Charles W CIV USARMY CENAB \(USA\)](#); [Traver, Carrie](#)
Subject: [Non-DoD Source] EPA Scoping Comments - Dorchester County, MD - Barren Island Restoration
Date: Friday, February 3, 2023 11:30:25 AM
Attachments: [image007.png](#)
[image008.png](#)
[image009.png](#)

Dear Dr. Sowers:

Thank you for the opportunity to engage early in the NEPA process and supplemental Environmental Assessment (sEA) for the Mid-Chesapeake Bay Island Ecosystem Restoration Project at Barren Island. The sEA is focused on the borrow area for the Barren Island restoration.

EPA has been involved with the NEPA process for both the James and Barren Island, Mid-Chesapeake Bay Island Restorations. As part of the Mid-Chesapeake Bay Island Restorations EPA provided scoping comments on the supplemental Environmental Impact Statement for the James Island Restoration and is providing similar comments to be considered for the sEA at the Barren Island Restoration borrow area.

Climate Change and Greenhouse Gas Emissions

EPA recommends that the sEA include an estimate of greenhouse gas (GHG) emissions associated with the dredging, construction, and maintenance of Barren Island. The sEA should describe relevant climate change impacts, analyze reasonable alternatives, and/or identify practicable mitigation measures to reduce project related GHG emissions. Specifically, we recommend evaluating alternatives for dredge material location, movement, and placement that may reduce GHG emissions, if practicable.

EPA recommends that GHG emissions associated with the proposal and its alternatives be estimated. Example tools for estimating and quantifying GHG emissions can be found on CEQ's NEPA.gov website <https://ceq.doe.gov/guidance/ghg-tools-and-resources.html>. The estimated GHG emissions can serve as a reasonable proxy for climate change impacts when comparing the proposal and alternatives. Recognizing that climate impacts are not attributable to any single action but are cumulative from a number of small actions, we do not recommend comparing GHG emissions from a proposed action and alternatives to U.S. or global emissions.

Environmental Justice, Children's Health, and Other Sensitive Receptors

In accordance with Executive Orders 12898 and 13045, any affected communities living with environmental justice (EJ) concerns should be identified and given an opportunity to provide input into the remainder of the NEPA process, including proposed mitigation. The sEA should include information describing what was or will be done to inform these communities about

the project and the potential impacts it will have on their communities, what input has been received to date from the communities, and how that input was or will be used in decision-making.

EPA's environmental justice screening tool, EJSCREEN, can be utilized for screening of potential areas of EJ concern. EJSCREEN can be accessed at: <https://www.epa.gov/ejscreen>. Providing maps in the NEPA document is a highly effective means of conveying demographic data for potentially impacted communities and where they are located relative to the proposed action.

You may also find helpful information in the Council on Environmental Quality Environmental Justice; Guidance Under National Environmental Policy Act, December 1997, found at https://www.epa.gov/sites/default/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf. This guidance includes six principles for environmental justice analyses to determine any disproportionately high and adverse human health or environmental effects to low-income, minority, and tribal populations.

Recreation/Navigation

We suggest the sEA include a discussion of any likely effects on recreation or commercial use, including potential impacts to fishing, boating, or shipping during construction. We recommend addressing how any potential impacts or closures will be communicated to the public.

We request that you share the draft sEA with EPA and recommend coordination with applicable agencies prior to release of the draft to ensure that any concerns regarding assessment types, methodologies, or data collection are addressed early in the planning process.

Thank you for the opportunity to review this project and for considering our comments as you prepare the sEA. Feel free to contact me at (215-814-2775 or witman.timothy@epa.gov) or Carrie Traver (215-814-2772 or traver.carrie@epa.gov) should you have any questions.

Timothy Witman

Environmental Assessment Branch
Office of Communities, Tribes and Environmental Assessment
Phone: (215) 814-2775
Email: Witman.Timothy@EPA.GOV

USEPA - Mid-Atlantic Region

Four Penn Center
1600 John F. Kennedy Boulevard
Philadelphia, PA 19103-2852

From: Nevshehirlian, Stepan <Nevshehirlian.Stepan@epa.gov>

U.S. FISH AND WILDLIFE SERVICE

From: [Leasure, Charles W CIV USARMY CENAB \(USA\)](#)
To: [Sowers, Angela M CIV USARMY CENAB \(USA\)](#); [Johnson, Christopher A CIV USARMY CENAB \(USA\)](#)
Subject: FW: Dorchester County, MD - Barren Island Restoration
Date: Friday, January 13, 2023 4:20:25 PM
Attachments: [Barren Island Borrow Area Coordination Letter FWS 12Jan2023.pdf](#)

From: Leasure, Charles W CIV USARMY CENAB (USA)
Sent: Friday, January 13, 2023 3:56 PM
To: genevieve_larouche@fws.gov
Cc: marcia_pradines@fws.gov; sabrina_deeley@fws.gov; matt_whitbeck@fws.gov
Subject: Dorchester County, MD - Barren Island Restoration

Ms. LaRouche,

USACE – Baltimore District would like to re-initiate coordination with your office for our Barren Island Restoration project.
Specifically, USACE and the Maryland Port Administration will be drafting a sEA for the borrow of material for the restoration efforts.

We look forward to continuing our dialog with your office.

Thank you,
Charles

Charles W. Leasure, AICP
Environmental Policy Advisor
US Army Corps of Engineers
Baltimore District - Planning Division
Civil Project Development Branch

2 Hopkins Plaza
10th Floor Planning - 10-E-06
Baltimore, MD 21201

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DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

REPLY TO
ATTENTION OF

13 January 2023

Planning Division

Genevieve LaRouche
Field Supervisor
U.S. Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis, MD 21401

Dear Ms. LaRouche,

The U.S. Army Corps of Engineers, Baltimore District (USACE), is reinitiating coordination with the U.S. Fish and Wildlife Service (FWS) for the Mid-Chesapeake Bay Island Ecosystem Restoration Project. The Mid-Chesapeake Bay Island Project recommends 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. Section 7002 of Water Resources Reform and Development Act of 2014 authorized the Mid-Chesapeake Bay Island Project, as described in the Chief's Report, dated August 24, 2009 (https://planning.erdc.dren.mil/toolbox/library/ChiefReports/mid_chesapeake.pdf), and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated September 2008 (and updated in April 2009). The Record of Decision (ROD) was signed in July 2019 initiating the next phase of the study, Preconstruction Engineering and Design (PED). As part of the PED effort, USACE prepared and completed a supplemental Environmental Assessment (sEA) on March 7, 2022, to update National Environmental Policy Act (NEPA) of 1969, as amended, focused on the Barren Island component of the project. A supplemental Environmental Impact Statement is underway for the James Island component.

The purpose of this letter is to re-engage FWS to coordinate with your agency on Section 7(a)(1) and 7(a)(2) of the Endangered Species Act and the Fish and Wildlife Coordination Act (FWCA) for the start of a sEA specifically focused on evaluating a borrow area from which to dredge material for use in restoration efforts as part of the overall restoration of Barren Island. Following coordination with stakeholders USACE identified two potential borrow areas. USACE has completed geotechnical soil borings in those two proposed areas. Based on the results of the geotechnical investigation and potential impacts to submerged aquatic vegetation (SAV), it has been determined that the northern borrow area will not meet the needs of the project, and USACE is now focusing on the southern borrow area (see enclosure).

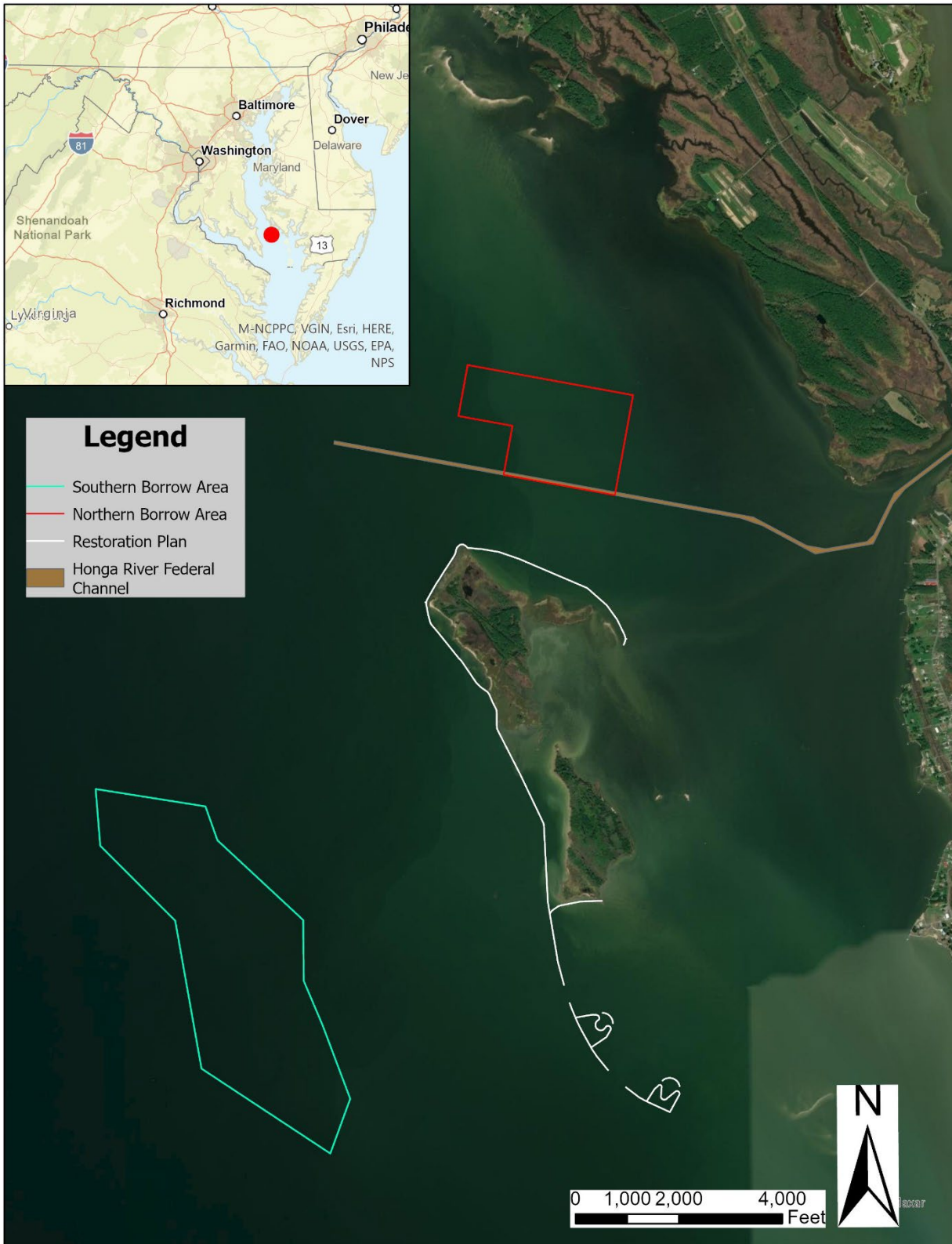
Please provide any information or concerns that your agency may have that will assist USACE with the preparation of the sEA, within 30 days of the date of this letter. If you have any questions regarding this matter, please contact Ms. Angie Sowers, Ph.D., at (410) 962-7440.

Sincerely,



Daniel M. Bierly, PE
Chief, Civil Project Development Branch

Cc: Marcia Pradines, Chesapeake Marshlands Wildlife Refuge (marcia_pradines@fws.gov)
Sabrina Deely (sabrina_deeley@fws.gov)
Matthew Whitbeck (matt_whitbeck@fws.gov)



Barren Island Potential Borrow Area Locations

From: [O'donnell, Amy W](#)
To: [Bierly, Daniel M CIV USARMY CENAB \(USA\)](#); [Leasure, Charles W CIV USARMY CENAB \(USA\)](#); [Sowers, Angela M CIV USARMY CENAB \(USA\)](#)
Cc: [Callahan, Carl R](#); [Deeley, Sabrina M](#); [Thompson-Slacum, Julie](#); [LaRouche, Genevieve](#)
Subject: [Non-DoD Source] RE: [EXTERNAL] Dorchester County, MD - Barren Island Restoration
Date: Tuesday, January 24, 2023 1:10:19 PM

Good afternoon,

After reviewing the proposed southern borrow area to be used for dredge material for the Mid-Bay project, while we have concluded dredging in the proposed area will not have detrimental effects on the Service's resources, our comments would reiterate what was written in the draft of the planning aid report previously submitted to US Army Corps. Best management practices should be implemented to avoid impacts to aquatic resources, this includes considering time of year restrictions for dredging operations and abiding by regulations regarding dredging near known or historic shellfish/oyster areas. The action of dredging disrupts sediments and is expected to remove or bury macroinvertebrates which would temporarily negatively impact anadromous and catadromous fishes; dredging is also expected to disturb sea birds using that area, however both of these are temporary impacts and not expected to have long term effects. We would recommend consulting with NOAA regarding essential fish habitat and propensity for marine mammals and marine threatened or endangered species using the area, as dredging is known to have an effect on these species. Thank you for reinitiating the FWCA with our office, we appreciate the opportunity to provide input regarding Fish and Wildlife resources and look forward to continue working together on this project!

Thanks,
Amy O'Donnell

From: Thompson-Slacum, Julie <julie_thompson-slacum@fws.gov>
Sent: Tuesday, January 17, 2023 10:52 AM
To: Deeley, Sabrina M <sabrina_deeley@fws.gov>; Callahan, Carl R <Carl_Callahan@fws.gov>; O'donnell, Amy W <amy_odonnell@fws.gov>
Subject: Fw: [EXTERNAL] Dorchester County, MD - Barren Island Restoration

Julie A. Slacum
Division Chief, Strategic Resource Conservation
177 Admiral Cochrane Drive
Annapolis, MD. 21401
410-573-4595 Office
410-215-0260 Cell

From: LaRouche, Genevieve <Genevieve_LaRouche@fws.gov>
Sent: Tuesday, January 17, 2023 9:52 AM
To: Thompson-Slacum, Julie <julie_thompson-slacum@fws.gov>

From: [Callahan, Carl R](#)
To: [Sowers, Angela M CIV USARMY CENAB \(USA\)](#)
Cc: [O'donnell, Amy W](#); [Whitbeck, Matt](#)
Subject: [Non-DoD Source] Re: [EXTERNAL] RE: FWS Response to sEA
Date: Monday, November 13, 2023 2:23:42 PM

Yes, coordination is complete.

Carl (Robbie) Callahan
U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
Biologist
177 Admiral Cochrane Drive
Annapolis, MD 21401
Phone-410-573-4524

From: Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil>
Sent: Monday, November 13, 2023 9:41 AM
To: Callahan, Carl R <Carl_Callahan@fws.gov>
Cc: O'donnell, Amy W <amy_odonnell@fws.gov>; Whitbeck, Matt <matt_whitbeck@fws.gov>
Subject: [EXTERNAL] RE: FWS Response to sEA

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Robbie, Amy, and Matt,

Thank you. Can you confirm that coordination is concluded for FWCA in addition to the ESA that is documented below?

Thanks,
Angie

From: Callahan, Carl R <Carl_Callahan@fws.gov>
Sent: Thursday, November 9, 2023 10:16 AM
To: Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil>
Cc: O'donnell, Amy W <amy_odonnell@fws.gov>; Whitbeck, Matt <matt_whitbeck@fws.gov>
Subject: [Non-DoD Source] FWS Response to sEA

The Service has reviewed the draft supplemental Environmental Assessment (sEA). The selection of Alternative 3 (Southern Borrow Area) should avoid submerged aquatic vegetation

(SAV) and oyster habitat impacts, but may have a large impact to benthic habitat. Impacts to the benthic habitat should be temporary and resolve over time. Dredging and deepening of the area may have minor impacts to migratory wintering waterfowl if dredging occurs in late fall and winter. However, these effects are anticipated to be minor and temporary displacement of the birds will not likely cause large population impacts. Dredging should avoid impacts to marine mammals and abide by the Marine Mammals Protection Act (MMPA). Time of year restrictions (TOYR) should be adhered to for SAV, oysters, bald eagles, and colonial nesting waterbirds. We concur the dredging is not likely to adversely affect (NLAA) endangered species, but should endangered species occur during the project, adherence to the endangered species act (ESA) should occur. Thank you for allowing us the opportunity to comment and look forward to our continued collaboration on this project.

Carl (Robbie) Callahan
U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
Biologist
177 Admiral Cochrane Drive
Annapolis, MD 21401
Phone-410-573-4524

MARYLAND DEPARTMENT OF THE ENVIRONMENT

From: [Leasure, Charles W CIV USARMY CENAB \(USA\)](#)
To: [Sowers, Angela M CIV USARMY CENAB \(USA\)](#); [Johnson, Christopher A CIV USARMY CENAB \(USA\)](#)
Subject: FW: Dorchester County, MD - Barren Island Restoration
Date: Friday, January 13, 2023 4:20:56 PM
Attachments: [Barren Island Borrow Area Coordination Letter MDE 12Jan2023.pdf](#)

From: Leasure, Charles W CIV USARMY CENAB (USA)
Sent: Friday, January 13, 2023 3:59 PM
To: H.Nelson@maryland.gov
Cc: Mary.Phipps-Dickerson@maryland.gov
Subject: Dorchester County, MD - Barren Island Restoration

Ms. Nelson,

USACE – Baltimore District would like to re-initiate coordination with your office for our Barren Island Restoration project.
Specifically, USACE and the Maryland Port Administration will be drafting a sEA for the borrow of material for the restoration efforts.

We look forward to continuing our dialog with your office.

Thank you,
Charles

Charles W. Leasure, AICP
Environmental Policy Advisor
US Army Corps of Engineers
Baltimore District - Planning Division
Civil Project Development Branch

2 Hopkins Plaza
10th Floor Planning - 10-E-06
Baltimore, MD 21201

410-962-5175 - Office
410-829-9664 - Cell



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

REPLY TO
ATTENTION OF

13 January 2023

Planning Division

Ms. Heather Nelson
Maryland Department of the Environment
Wetlands and Waterways Program
1800 Washington Boulevard
Baltimore, Maryland 21230

Dear Ms. Nelson,

The U.S. Army Corps of Engineers, Baltimore District, (USACE) is reinitiating coordination with the Maryland Department of the Environment for the Mid-Chesapeake Bay Island Ecosystem Restoration Project. The Mid-Chesapeake Bay Island 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. Section 7002 of Water Resources Reform and Development Act of 2014 authorized the Mid-Chesapeake Bay Island Project, as described in the Chief's Report, dated August 24, 2009 (https://planning.erdc.dren.mil/toolbox/library/ChiefReports/mid_chesapeake.pdf), and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated September 2008 (and updated in April 2009). The Record of Decision (ROD) was signed in July 2019 initiating the next phase of the project, Preconstruction Engineering and Design (PED). As part of the PED effort, USACE prepared and completed a supplemental Environmental Assessment (sEA) on March 7, 2022, to update National Environmental Policy Act (NEPA) of 1969, as amended, focused on the Barren Island component of the project. A supplemental Environmental Impact Statement is underway for the James Island component.

The purpose of this letter is to inform your agency of the start of a sEA specifically focused on evaluating a borrow area from which to dredge material for use in restoration efforts as part of the overall restoration of Barren Island. Following coordination with stakeholders USACE identified two potential borrow areas. USACE has completed geotechnical soil borings in those two proposed areas. Based on the results of the geotechnical investigation and potential impacts to submerged aquatic vegetation (SAV), it has been determined that the northern borrow area will not meet the needs of the project, and USACE is now focusing on the southern borrow area (see enclosure).

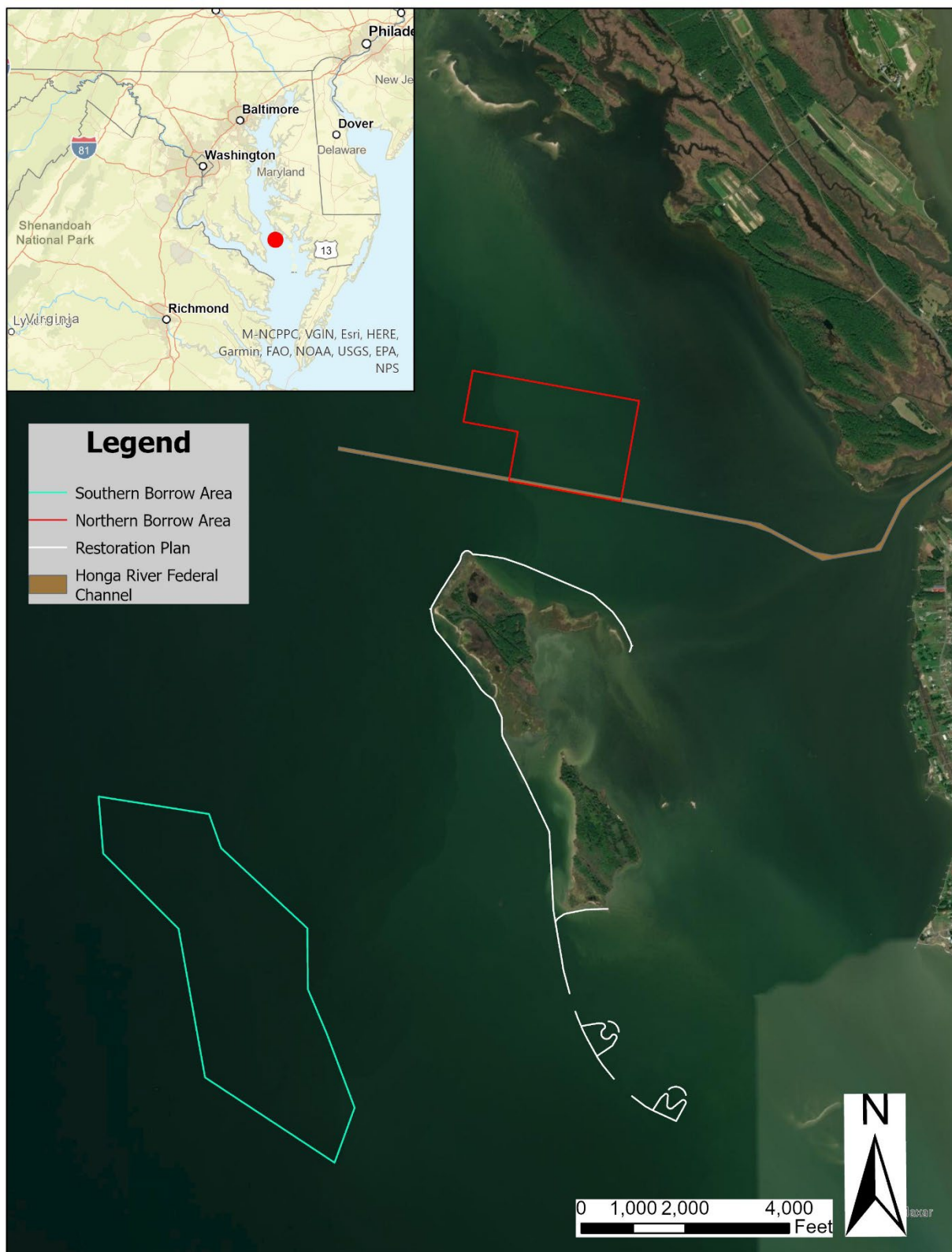
Please provide any information or concerns that your agency may have that will assist USACE with the preparation of the supplemental EA, within 30 days of the date of this letter. If you have any questions regarding this matter, please contact Ms. Angie Sowers, Ph.D., at (410) 962-7440.

Sincerely,

A handwritten signature in blue ink, appearing to read "D. Bierly", with a stylized flourish at the end.

Daniel M. Bierly, PE
Chief, Civil Project Development Branch

CC: Mary Phipps-Dickerson, MDE Wetlands and Waterways Program Reviewer,
Dorchester County, mary.phipps-dickerson@maryland.gov



Barren Island Potential Borrow Area Locations

Cc: Michelle Osborn <mosborn@menv.com>

Subject: [Non-DoD Source] Re: Barren Island -Borrow Area MOD

Hi Trevor - See below. We can discuss next week.

From: Mary Phipps-Dickerson -MDE- <mary.phipps-dickerson@maryland.gov>

Sent: Friday, October 20, 2023 2:49 PM

To: Maura Morris <mmorris@menv.com>

Cc: Michelle Osborn <mosborn@menv.com>; Amanda Peñafiel <apenafiel@marylandports.com>

Subject: Re: Barren Island -Borrow Area MOD

Maura,

Tammy and I discussed the potential need for a WQC for this Modification and have agreed that a separate WQC will not be necessary.

Happy Friday,

Mary

On Tue, Oct 17, 2023 at 4:08 PM Maura Morris <mmorris@menv.com> wrote:

Mary,

We will provide you with the dredging cross section and potential pipeline routes ASAP. Please note, dredging will have a varied bottom, and will likely not include undisturbed areas. This is to limit the potential of using both borrow areas, thus having the least amount of impacts to the watermen and benthics in the area.

When will the decision be made on the WQC? I want to make sure we are setting the appropriate date for the public hearing. If you are aiming for 11/1 for posting the public notice, does that mean the soonest it could be posted in the paper is 11/3 (ie. the soonest we could have a meeting is 11/17 if a WQC isn't required)?

Thank you, Maura



Maura Morris

Lead Environmental Specialist

259 Najoles Road, Millersville, MD 21108

mmorris@menv.com | menv.com

410.729.8369 (office)



From: Mary Phipps-Dickerson -MDE- <mary.phipps-dickerson@maryland.gov>

Sent: Tuesday, October 17, 2023 12:46 PM

To: Maura Morris <mmorris@menv.com>

Cc: Michelle Osborn <mosborn@menv.com>; Amanda Peñafiel <apenafiel@marylandports.com>

MARYLAND DEPARTMENT OF PLANNING

Wes Moore, Governor
Aruna Miller, Lt. Governor

Rebecca L. Flora, AICP, Secretary



Maryland DEPARTMENT OF PLANNING

September 21, 2023

Ms. Angela Sowers, PH.D.
Water Resources Management Specialist, Civil Project Development Branch
U.S. Army Corps of Engineers, Baltimore District
2 Hopkins Plaza
10-E-04
Baltimore, MD 21203-1715

STATE CLEARINGHOUSE REVIEW PROCESS

State Application Identifier: MD20230918-0770

Reply Due Date: 10/24/2023

Project Description: Environmental Assessment (EA): Mid-Chesapeake Bay Islands Ecosystem Restoration
Project at Barren Island – Barren Island Borrow Area, Dorchester County, Maryland

Project Location: Dorchester County

Clearinghouse Contact: Rita Pritchett

Dear Ms. Sowers:

Thank you for submitting your project for intergovernmental review. Your participation in the Maryland Intergovernmental Review and Coordination (MIRC) process helps to ensure that your project will be consistent with the plans, programs, and objectives of State agencies and local governments.

We have forwarded your project to the following agencies and/or jurisdictions for their review and comments: the Maryland Departments of Transportation, the Environment, and Natural Resources; Dorchester County; and the Maryland Department of Planning including the Maryland Historical Trust. A composite review and recommendation letter will be sent to you by the reply due date. Your project has been assigned a unique State Application Identifier that you should use on all documents and correspondence.

Please be assured that we will expeditiously process your project. The issues resolved through the MIRC process enhance the opportunities for project funding and minimize delays during project implementation.

Ms. Angela Sowers, PH.D.

Page 2

State Application Identifier #: MD20230918-0770

If you need assistance or have questions, contact the State Clearinghouse staff noted above at 410-767-4490 or through e-mail at rita.pritchett@maryland.gov. Thank you for your cooperation with the MIRC process.

Sincerely,

A handwritten signature in blue ink, appearing to read "Myra A. Barnes", is written over a horizontal dashed line.

Myra Barnes, Lead Clearinghouse Coordinator

MB:RP

23-0770_NRR.NEW2.docx

MD20230918-0770

FINANCIAL ASSISTANCE

U.S. Army Corps of Engineers, Baltimore District

Environmental Assessment (EA): Mid-Chesapeake Bay Islands Ecosystem
Restoration Project at Barren Island – Barren Island Borrow Area,
Dorchester County, Maryland

Ms. Angela Sowers, PH.D.

Water Resources Management Specialist, Civil Project Development Branch

U.S. Army Corps of Engineers, Baltimore District

2 Hopkins Plaza

10-E-04

Baltimore, MD 21203-1715



Maryland DEPARTMENT OF PLANNING

September 21, 2023

Ms. Angela Sowers, PH.D.
Water Resources Management Specialist, Civil Project Development Branch
U.S. Army Corps of Engineers, Baltimore District
2 Hopkins Plaza
10-E-04
Baltimore, MD 21203-1715

STATE CLEARINGHOUSE REVIEW PROCESS

State Application Identifier: MD20230918-0770

Reply Due Date: 10/24/2023

Project Description: Environmental Assessment (EA): Mid-Chesapeake Bay Islands Ecosystem Restoration
Project at Barren Island – Barren Island Borrow Area, Dorchester County, Maryland

Project Location: Dorchester County

Clearinghouse Contact: Rita Pritchett

Dear Ms. Sowers:

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Ms. Angela Sowers, PH.D.

Page 2

State Application Identifier #: MD20230918-0770

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Sincerely,

A handwritten signature in blue ink, appearing to read "Myra A. Barnes", is written over a horizontal dashed line.

Myra Barnes, Lead Clearinghouse Coordinator

MB:RP

23-0770_NRR.NEW2.docx

MD20230918-0770

FINANCIAL ASSISTANCE

U.S. Army Corps of Engineers, Baltimore District

Environmental Assessment (EA): Mid-Chesapeake Bay Islands Ecosystem
Restoration Project at Barren Island – Barren Island Borrow Area,
Dorchester County, Maryland

Ms. Angela Sowers, PH.D.

Water Resources Management Specialist, Civil Project Development Branch

U.S. Army Corps of Engineers, Baltimore District

2 Hopkins Plaza

10-E-04

Baltimore, MD 21203-1715

PUBLIC COMMENTS



CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

October 1, 2023

U.S. Army Corps of Engineers,
Attn: Angie Sowers, Planning Division
10th Floor, 2 Hopkins Plaza
Baltimore, MD 21201

Submitted electronically to: midbayislands@usace.army.mil

RE: Barren Island Borrow Area, Dorchester County, Maryland Supplemental Environmental Assessment

Dear Ms. Sowers:

Thank you for the opportunity to submit comments on Mid-Chesapeake Bay Islands Ecosystem Restoration Project at Barren Island – Barren Island Borrow Area, Dorchester County, Maryland Supplemental Environmental Assessment (sEA). As you know, CBF has supported the funding and design of the Mid-Bay project as the next generation of dredged material beneficial use after the successful and highly regarded project at Sarbanes National Wildlife Refuge.

In addition, CBF staff received numerous briefings on constraints for the Barren Island Borrow Area component of the Mid Chesapeake Bay Islands Ecosystem Restoration Project through Mid-Bay working group meetings convened by Maryland Port Administration, the local sponsor. We understand that Barren Island is an element of the U.S. Fish and Wildlife Service (USFWS) Chesapeake Marshlands National Wildlife Refuge Complex, and as such, the project seeks to support myriad fish and wildlife habitats in its design.

The sEA is specifically focused on identifying a borrow area from which to dredge sand for use in restoration efforts as part of the overall restoration at Barren Island. A Northern and a Southern Borrow Area were considered, but a combination of inadequate sand fraction from Pre-Construction Engineering and Design (PED) borings and opposition to sand dredging in certain areas by local watermen deemed the Northern sand borrow area infeasible. The current proposal: **Southern Borrow Area would be used to provide material for the restoration of Barren Island** makes sense from that standpoint, but the full scope of the authorized design may need to be reconsidered.

The proposed action would involve dredging approximately 300,000 cubic yards of material from Focus Area A (40 acres) to a maximum depth of -7 feet NAVD88 within the Southern Borrow Area for the restoration of Barren Island. Most of that sand is needed for bird islands and the remainder of the sand for foundation remediation for the northeast sill (not yet fully designed) and temporary containment dykes (also still in design).

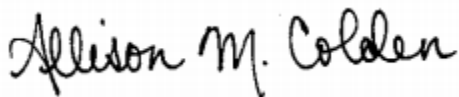
CBF is concerned about dredging previously undisturbed bottom for the purpose of obtaining sand to build bird islands at Barren if there is insufficient sand to do the sill and dyke construction and bird islands as designed. The constraints of sand quantity and watermen's opposition that excluded the Northern borrow area from consideration were not foreseen in the initial design that included bird islands.

Unlike the proposed approach in this sEA, sand for Poplar Island was mined from within the project footprint following construction of the dykes. As we understand, wetland cells from which sand was mined have also proven difficult to develop into wetlands, as they've experienced excessive settling and instability. Therefore, we understand the rationale for incorporating dredged sand from outside sources in the design. It is unclear from the sEA, however, whether sand from the Southern borrow area would need to be dredged repeatedly to obtain the volumes for the bird islands or only for initial construction. Without the sand from the Northern borrow area, it is questionable as to whether there is enough sand to support both components of the project. Regardless of the volume removed, the potential damage to shallow water habitats and benthic species from repeated dredging is unacceptable and should be avoided.

The sEA must consider contingencies for prioritizing structural elements of the project necessary for dredged material containment in temporal sequence and perhaps consider construction of bird islands at a future adaptive phase of the project when sand excavated from a future tidal inlet through the containment dyke to one or more marsh cells would occur. Alternatively, consideration should be given to obtaining the rest of the sand material from Focus Area B or another location. Currently, material from the York Spit channel is disposed of at an open-water disposal site at Wolf Trap. This practice has previously raised concerns over impacts to water quality and aquatic life, particularly overwintering blue crabs. During review of the environmental assessment to establish the alternate disposal area at Wolf Trap, experts from the Virginia Institute of Marine Science encouraged the development of alternative beneficial uses of material dredged from the York Spit channel. If suitable, this material could provide an alternative to disturbing areas not currently dredged.

Again, thank you for the opportunity to provide comments. We understand the technical constraints of this project have been frustrating and continue to be. The vicinity of Barren Island supports rich biodiversity both above and below the waterline. We encourage the Corps to maintain that balance throughout the development of this project.

Sincerely,

A handwritten signature in black ink that reads "Allison M. Colden". The signature is written in a cursive, flowing style.

Allison M. Colden, Ph.D.
Maryland Executive Director
Chesapeake Bay Foundation

**APPENDIX B3: Agency Coordination/NEPA
Meeting Records**

**Agency Coordination/NEPA Meeting #1 -
Kick-off (November 22, 2022)**



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-](https://teams.microsoft.com/l/meetup-join/19%3ameeting_MGNmNWViZGQtNzg4ZS00MDU4LTg3MjMtODljODViZmZlZDlk%40thread.v2/0?context=%7b%22Tid%22%3a%22c44e1cf-7dae-454f-a18f-c18a6a12f9d7%22%2c%22Oid%22%3a%226f2ecce7-76f4-402c-86c0-a17687c9fbb6%22%7d)

[join/19%3ameeting_MGNmNWViZGQtNzg4ZS00MDU4LTg3MjMtODljODViZmZlZDlk%40thread.v2/0?context=%7b%22Tid%22%3a%22c44e1cf-7dae-454f-a18f-c18a6a12f9d7%22%2c%22Oid%22%3a%226f2ecce7-76f4-402c-86c0-a17687c9fbb6%22%7d](https://teams.microsoft.com/l/meetup-join/19%3ameeting_MGNmNWViZGQtNzg4ZS00MDU4LTg3MjMtODljODViZmZlZDlk%40thread.v2/0?context=%7b%22Tid%22%3a%22c44e1cf-7dae-454f-a18f-c18a6a12f9d7%22%2c%22Oid%22%3a%226f2ecce7-76f4-402c-86c0-a17687c9fbb6%22%7d)

Meeting ID: 289 362 348 939 Passcode: N8SXXZ

Or call in (audio only) [+1 443-842-5306](tel:+14438425306), [580617403](tel:+1580617403)#

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-CHESAPEAKE BAY ISLAND ECOSYSTEM RESTORATION PROJECT, DORCHESTER COUNTY, MD

Agency Coordination/NEPA Meeting

November 22, 2022

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AGENDA



1. Barren Island Phase I Construction
2. Barren Island Borrow Area supplemental Environmental Assessment
3. James Island supplemental Environmental Impact Statement
4. Barren and James Island Master Plans
5. Wrap-up and Action Items



BARREN ISLAND PHASE I CONSTRUCTION



Status Update

- Contract awarded to Coastal Design & Construction from Gloucester, VA
- Preparing to mobilize in Feb/Mar 2023 timeframe

Construction Schedule

- Notice to Proceed issued on 25 Oct 2022
- Period of Performance is 730 days (two years)





Phase 1

- Sills & Breakwater

Phase 2

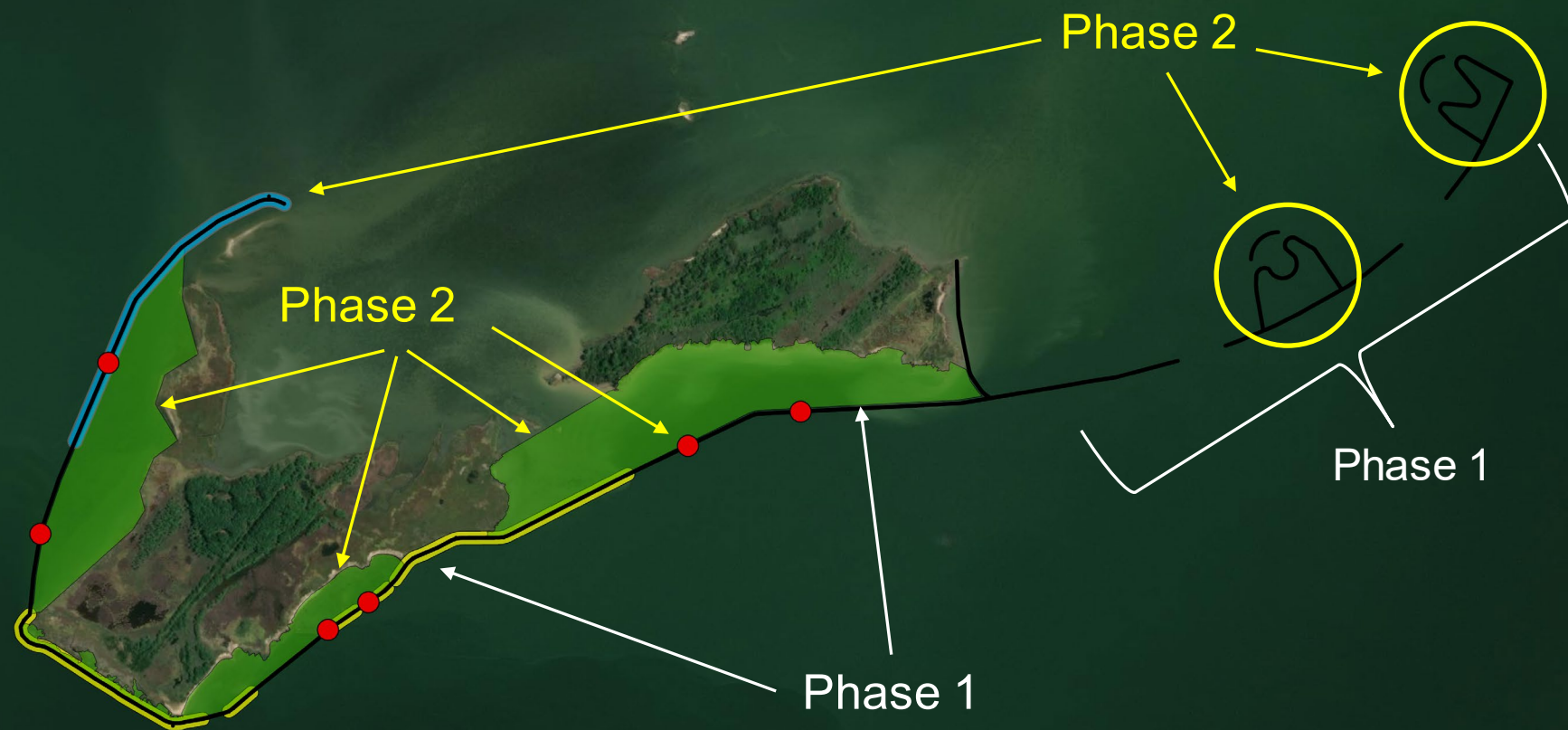
- Complete Sill (where foundation remediation required)
- Bird Islands
- Spillways²
- Dredge containment²

Phase 3²

- Dredge placement
- Wetland development

² Dependent on FY23 dredging appropriations

BARREN ISLAND RESTORATION PLAN



Phase 3: Shaded Wetlands Areas

- Proposed Outfalls
- Stone Sill Alignment
- Wetlands
- Existing Sill
- Foundation Remediation



BARREN ISLAND – ON-GOING SURVEYS



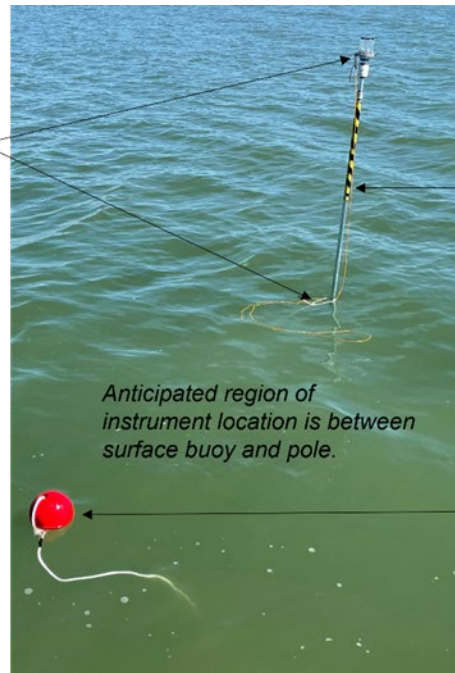
5

H&H Monitoring

- Objective – collect pre-, during, and post-construction conditions in SAV beds to evaluate project effects
- Deployed 3 profilers in October 2022
- Collecting current, water level, and waves
- Work being conducted by USACE/MES/ERDC



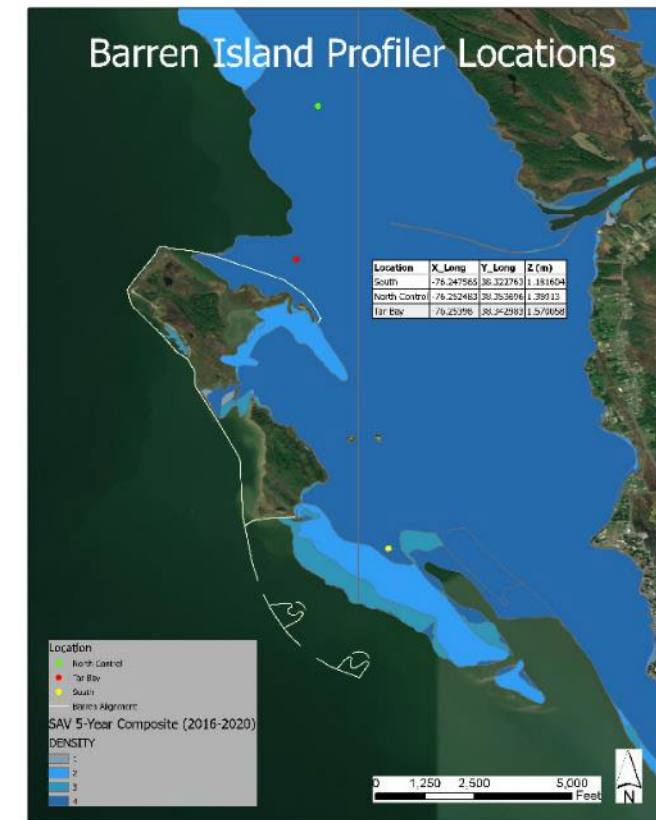
Paracord (yellow) attached top of pole and to weighted line to bottom mount for retrieval.



Pole with navigation light marks instrument location and warn boaters of potential hazard

Anticipated region of instrument location is between surface buoy and pole.

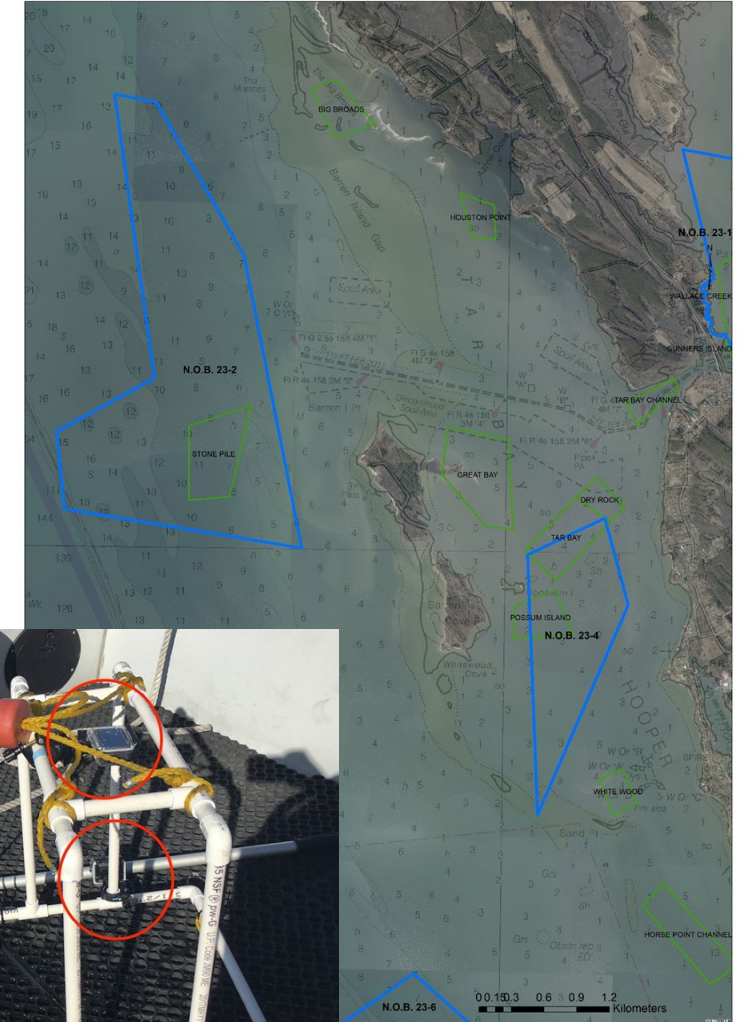
Surface buoy attached to bottom mount and mushroom anchor for additional instrument location marking.



BARREN ISLAND – ON-GOING SURVEYS

Oyster Habitat

- Work is being conducted by DNR-MGS
- Objective – Evaluate current condition of oyster habitat surrounding Barren Island and track conditions over shell habitat pre- and post-construction
- Acoustic side-scan survey of N.O.B. 23-2 and 23-4, and Great Bay Bar (MD Historic Bar)
- Ground-truthing of bottom type- collection of surface samples
- Photo and video documentation of shell habitat
- Side-scan and first photo imaging planned for end of 2022





BARREN ISLAND – BORROW AREA sEA



Purpose – Identify a location to dredge sand for use in restoration efforts at Barren:

1. Foundation replacement under a section of the NE sill
2. Internal containment for material placement
3. Bird island development

Schedule

- Complete surveys – geotechnical (complete) and benthic (data collection complete) – December 2022, and cultural – January 2023
- Draft for internal review – February 2023
- Public review – June 2023
- FONSI – September 2023

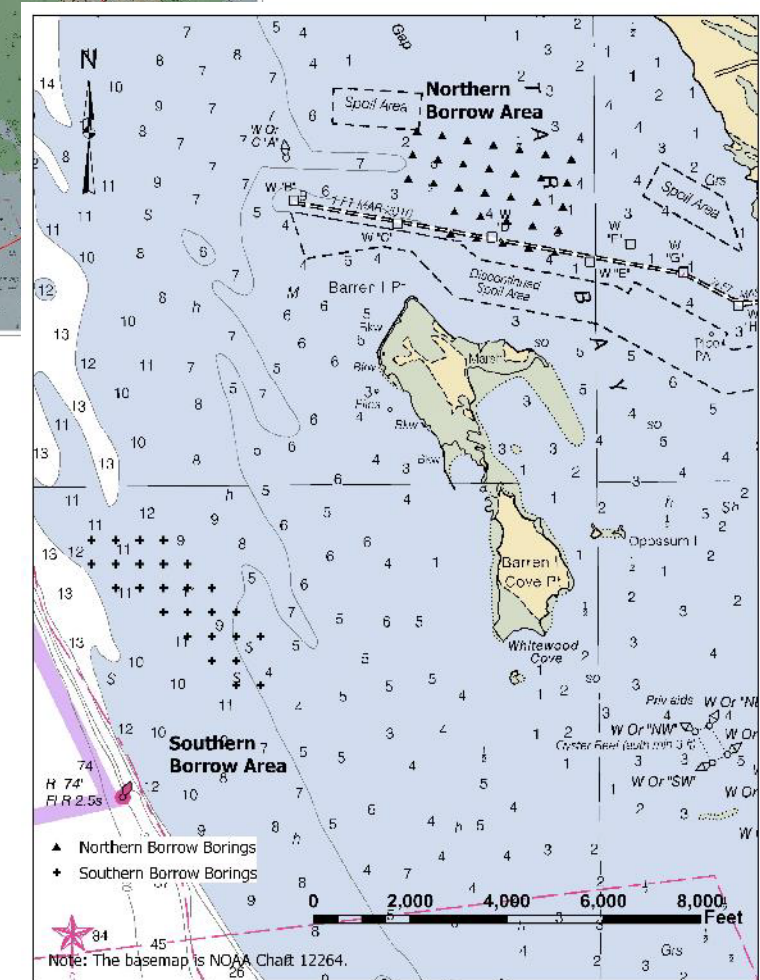
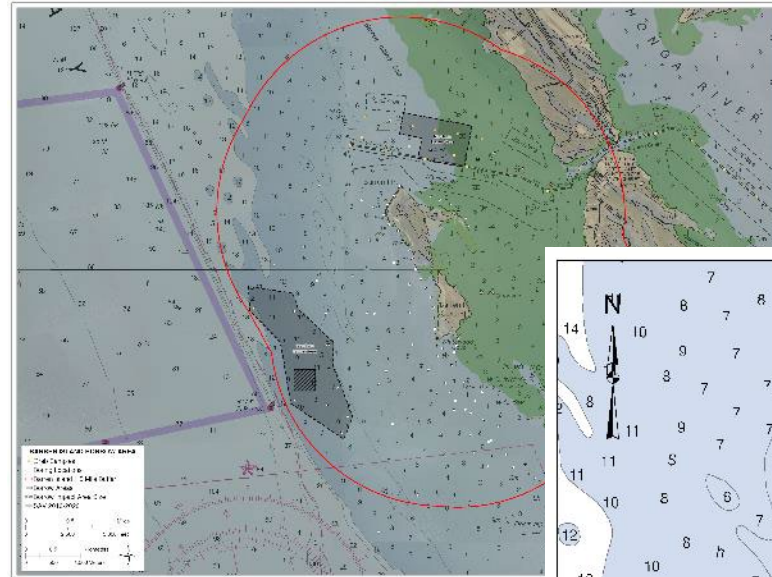
BARREN ISLAND – BORROW AREA sEA

Alternatives

1. No action
2. North borrow area
3. South borrow area
4. Combination of north and south borrow areas
5. Land-based (quarry) source

Screening Criteria

1. Quality of material
2. Quantity available
3. Impacts to commercial fisheries
4. Cultural resources survey results
5. Habitat impacts – SAV, benthics
6. Impact area





BARREN ISLAND – PRELIMINARY CONTAINMENT PLAN



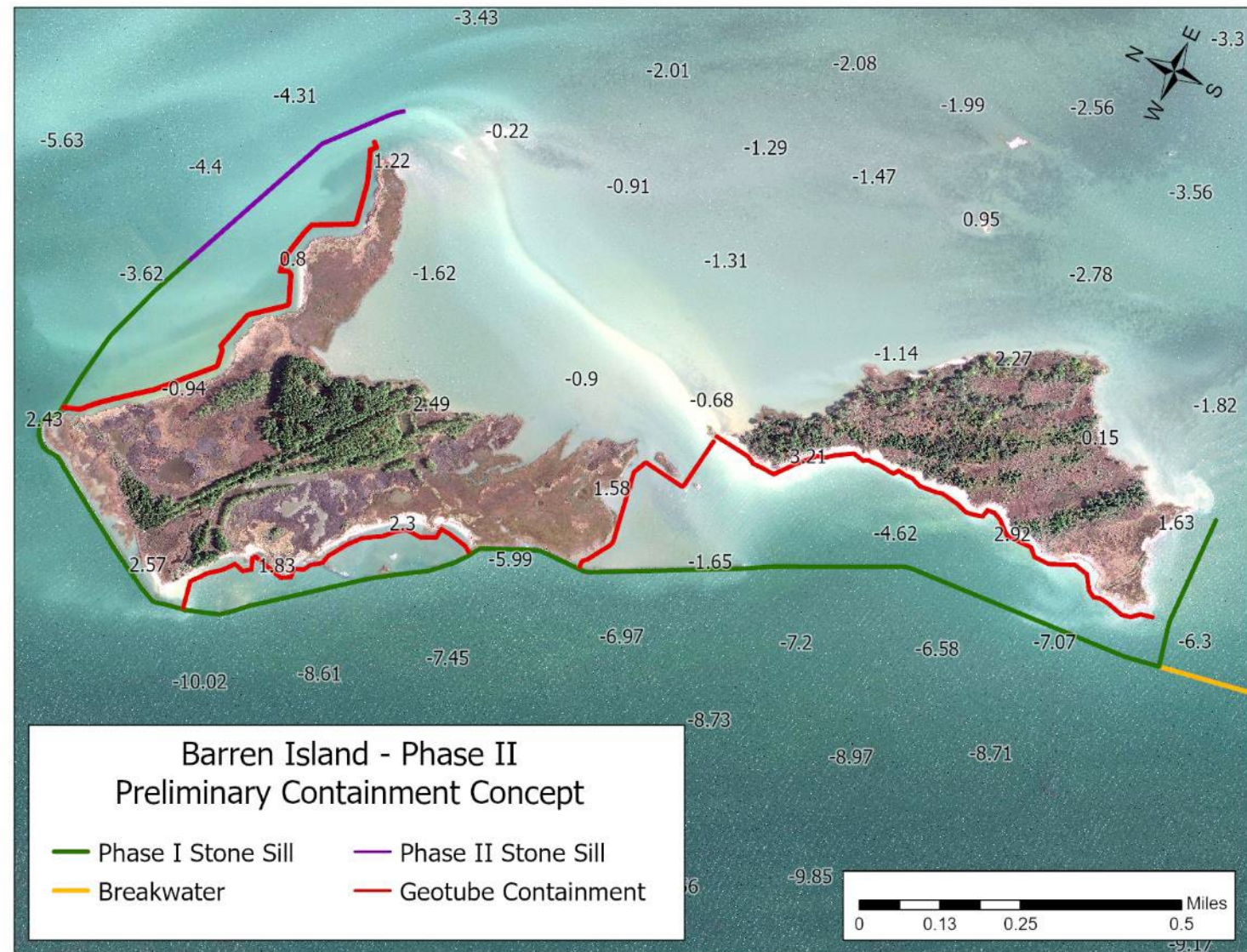
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Containment is:

- 1) Stone structure modified with a filter to prevent migration of fines
- 2) Geotube placed from -3 ft NAVD88 to just below MHW, filled to a design elevation of 4 ft NAVD88
 - In areas where depth drops below -3 ft NAVD88 or where geotube alignment abuts the stone structure there will be a tie in
- 3) Outlet structures to be designed/constructed by Phase 2 Contractor

NE and NW cells - distance between containment and island is ~40 ft

S cell – geotube is placed just below MHW





BARREN ISLAND – BORROW AREA sEA



NEXT STEPS:

1. December HWG meeting to review results of geotech and benthic surveys; discuss evaluation of potential sites
2. Expect results from cultural surveys in late January or early February
3. Presentation of quantities needed for project components
4. Presentation of alternative analysis and preliminary selected alternative

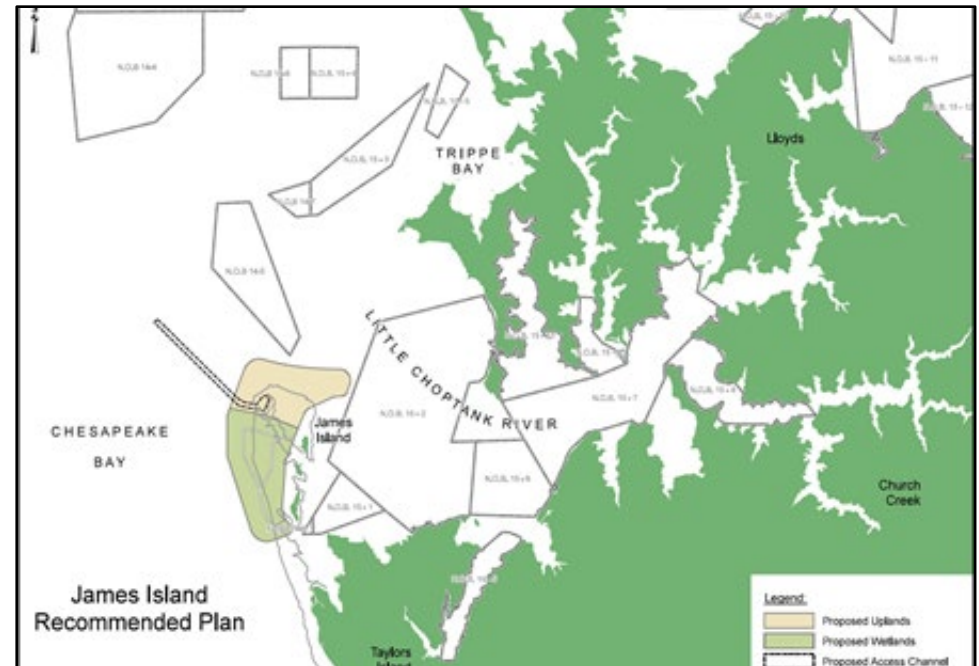


JAMES ISLAND sEIS

- NOI Published 7 November 2022
- Coordination Letters and Cooperating Agency Pending

Schedule

- Draft sEIS for internal review – April 2023
- Public Review – August 2023
- ROD - May 2024
- WQC/TWL – summer 2025





JAMES ISLAND sEIS – REVISED PURPOSE AND NEED STATEMENT



- Revised based on feedback received from EPA –
 - revised to draw distinction between purpose and need of project and purpose of NEPA action;
 - Clarified record of loss of James Island
- No other comments received.
- Revised statement provided to meeting participants via email

PERMITTING TIMETABLE

- Drafted and provided to meeting participants via email
- Spans development of draft EIS; agency review; ESA, EFH, and FWCA milestones; OFD concurrence points; Section 106, etc.



JAMES ISLAND sEIS – ARRAY OF ALTERNATIVES



1. No Action
2. Implement the Feasibility Recommended Plan

NEXT STEPS:

1. Draft EIS document
2. Conduct coordination for EFH, ESA, FWCA, etc.
3. ERDC storm modeling and life-cycle analysis modeling of exterior dikes
4. Continue to work through Master Plan comments



MASTER PLAN DEVELOPMENT



Summary of Input Received

- Input received was thorough and extensive - ~120 comments
- USACE is working to consider comments
 - Short-term and long-term considerations
- No further changes can be made to the Barren Island sills and breakwaters configuration – contract has been awarded
- There are limitations on the extent to which the project can undertake R&D/testing
- Recreation is a very minimal part of the MidBay project; intent is for passive recreation

Short-term responses:

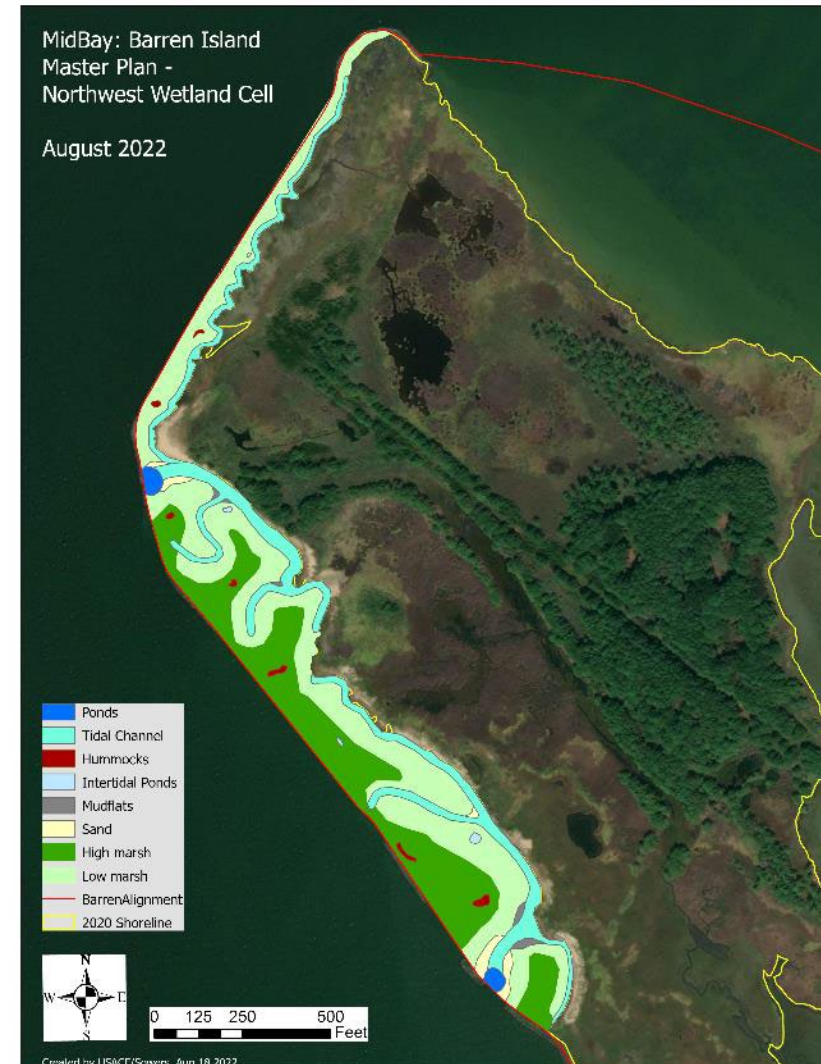
Adjustments to Barren Master Plan→

1. Northwest Wetlands – connect two tidal channels, remove placement behind the sill along north shoreline
2. Northeast Wetlands – straighten channel as it enters cell, add inlet in the north, consider if sand beach can be added around inlet in Tar Bay, shorten length of sill over Great Bay Oyster Bar
3. Southern Wetlands – add sinuosity to main channel, add inlet in south, consider if beach habitat can be added for horseshoe crabs and terrapins, how can tidal inlet be softened



NW WETLAND CELL

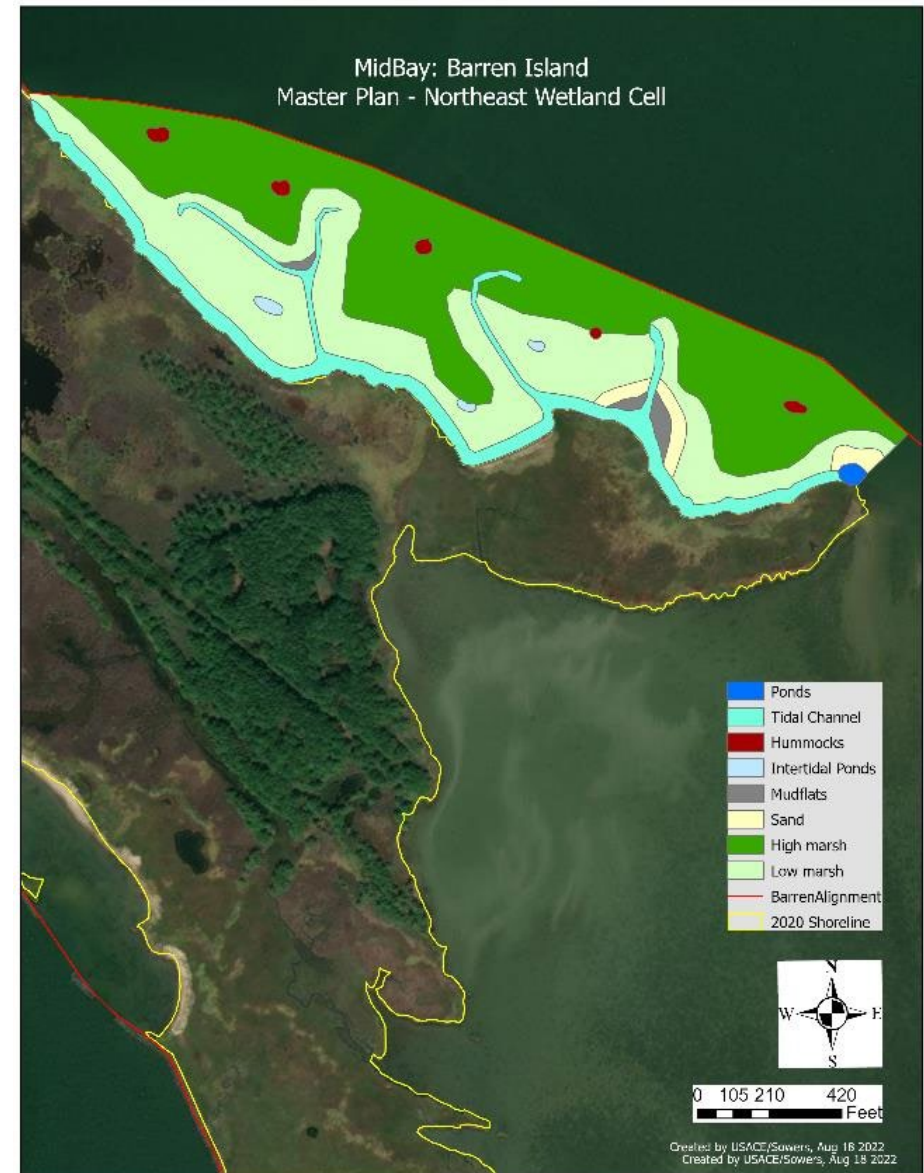
1. Connect two tidal channels,
2. Remove placement behind the sill along north shoreline
3. Align inlets with sill windows where applicable





NE WETLAND CELL

1. Straighten channel as it enters cell,
2. Add inlet in the north,
3. Consider if sand beach can be added around inlet in Tar Bay,
4. Shorten length of sill over Great Bay Oyster Bar





SOUTHERN WETLAND CELL

1. Add sinuosity to main channel,
2. Add inlet in south,
3. Consider if beach habitat can be added for horseshoe crabs and terrapins,
4. Consider approaches to soften tidal inlet





MASTER PLAN DEVELOPMENT



Adjustments to James Island Master Plan →

1. Uplands – orient habitats from NW to SE, consider removing sand habitats adjacent to forest, develop transition zone based on a sequence of habitats (provided)
2. Wetlands – shift main channel so it falls within only one cell, add sinuosity to the main channel, remove large pond at back of central cell, reconfigure unvegetated islands to furthest distance from uplands, add vegetated islands in all cells, add tidal inlet on southern border, add transition from dikes into high marsh

Add the following data to the Master Plans →

Oyster habitat, SAV, bathymetry, James – access channel, Barren – borrow areas, pound nets

Remove from the Master Plans →

High marsh habitat adjacent to tidal channels



MASTER PLAN INPUT – ONGOING CONSIDERATIONS



1. Barren - Consider hydrology of existing island habitats and how water flows from existing habitats into future tidal channels and restored habitats
2. Barren – containment structures and development of main tidal channel
3. Barren – consider laying out habitats behind the sills that would minimize erosion at a future time when/where sills are overtopped
4. Barren – have discussions about future wholistic management of habitats with SLR
5. James - investigate softening measures that can be taken along eastern shoreline
6. James – ponds – long-term projection (enlarge/deepen?) of any ponds
7. James – transition zone – how to connect uplands and wetlands; hydrology of uplands
8. James – consider if reefs can be provided for deep water refuge in association with inlets
9. James – consider how to incorporate mussel habitat
9. James and Barren
 - a. low to high marsh ratio
 - b. habitat design criteria and target species
 - c. tidal channel dimensions
 - d. incorporate oysters, terrapin, horseshoe crab, saltmarsh sparrow, black rail, habitats
 - e. resiliency in the face of climate change and SLR
 - f. carbon footprint of the project



NEXT STEPS



Upcoming Meetings and Tasks

1. December – James Island sEIS - Request for OFD Concurrence Points #1 and 2 (Alternatives Analysis) from Cooperating Agencies and review of Permitting Timetable
2. December – ERDC initial modeling for tidal channels and containment at Barren Island
3. December – Habitat Working Group – borrow area survey data review and discussion of alternatives evaluation; bird island design, and further Master Plan discussions
4. January – MWG and WWG and NEPA



OPEN DISCUSSION / QUESTIONS

**Agency Coordination/NEPA Meeting #2 -
Geotechnical and Initial Benthic Survey
Results (December 20, 2022)**

Agency Coordination and Habitat Development Workgroup Meeting
Mid - Chesapeake Bay Island Ecosystem Restoration Project
December 20, 2022 – 9 AM – 12:15
Virtual Meeting

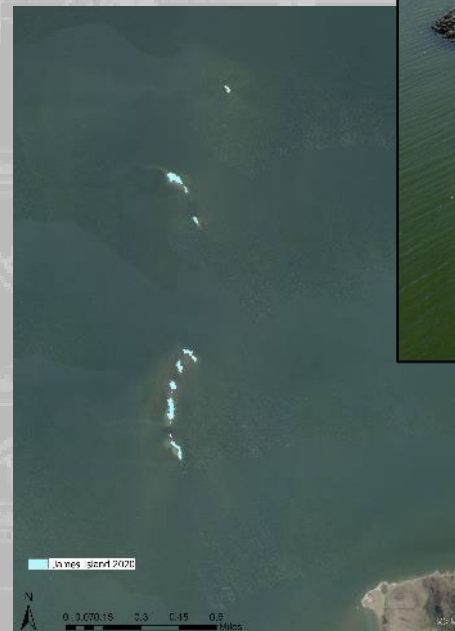
Virtual [LINK](#) (if calling in - Number: 443-842-5306 Passcode: 964968691#)

- 1. Introductions (10 minutes)** **Maura Morris, MES**
- 2. Barren Island NEPA Update (30 minutes)** **Angie Sowers, USACE**
 - a. Borrow Area*
 - i. Cultural resource schedule*
 - ii. Geotechnical results*
 - iii. Benthics – Karin Olsen, Anchor QEA*
- 3. Adaptive Management Plan Update (20 minutes)** **Michelle Osborn, MES**
 - a. Overview of AMP process*
 - b. Overview of comments*
 - c. Next steps*
- 4. Poplar Marsh Studies (1 hour)** **Michelle Osborn, MES, Jeff Cornwell, and Lori Staver, UMCES**
 - a. Marsh Ratio Reassessment Group – Michelle Osborn*
 - b. Sediment – Jeff Cornwell*
 - c. Vegetation – Lori Staver*
 - d. Cell Design – Lori Staver*
- Break: 15 minutes**
- 5. Bird Island Design (30 minutes)** **Angie Sowers, USACE**
 - a. Design criteria*
 - b. Elevations*
- 6. Barren Island Modeling Update (30 minutes)** **Angie Sowers, USACE**

MID-CHESAPEAKE BAY ISLAND ECOSYSTEM RESTORATION PROJECT, DORCHESTER COUNTY, MD

Agency Coordination/NEPA

December 20, 2022



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BARREN ISLAND BORROW AREA sEA



3

- Purpose – Evaluate alternatives to enable sand to be acquired for Phase 2 efforts
- Borrow Area sEA Schedule
 - Complete surveys – geotechnical and benthic – December 2022, and cultural – *March 2023*
 - Draft for internal review – February 2023
 - Public review – June 2023
 - FONSI – September 2023

Phase 1

- Sills & Breakwater

Phase 2

- Complete Sill (where foundation remediation required)
- Bird Islands
- Spillways²
- Dredge containment²

Phase 3²

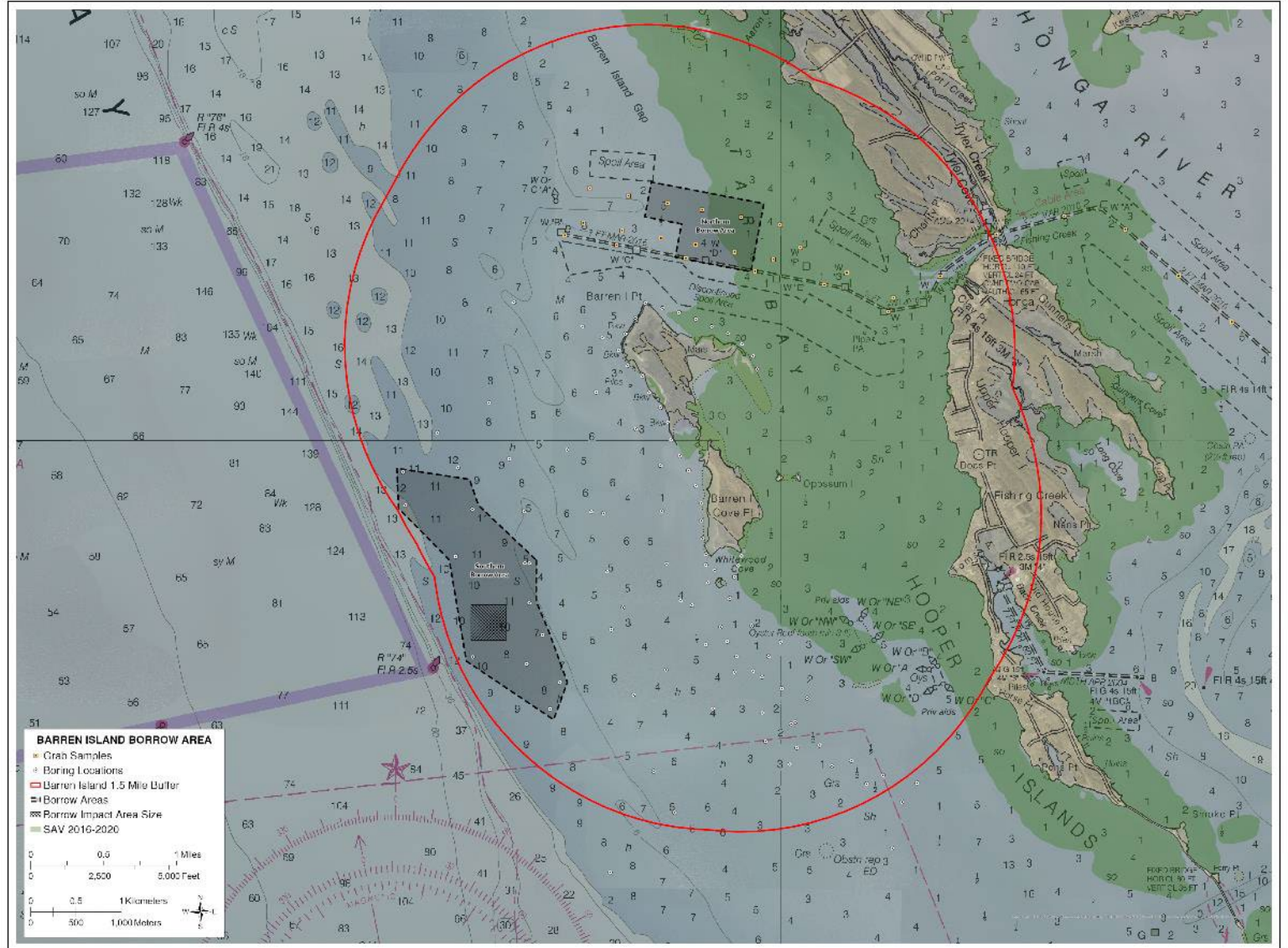
- Dredge placement
- Wetland development

² Dependent on FY23 dredging appropriations



Why does the project need sand?

1. Foundation replacement to construct northeast sill → ideal material is sand with < 20% fines
2. Create structures to contain dredge material
3. Material to construct bird islands





BORROW MATERIAL IDEAL CHARACTERISTICS



1. Low fines content

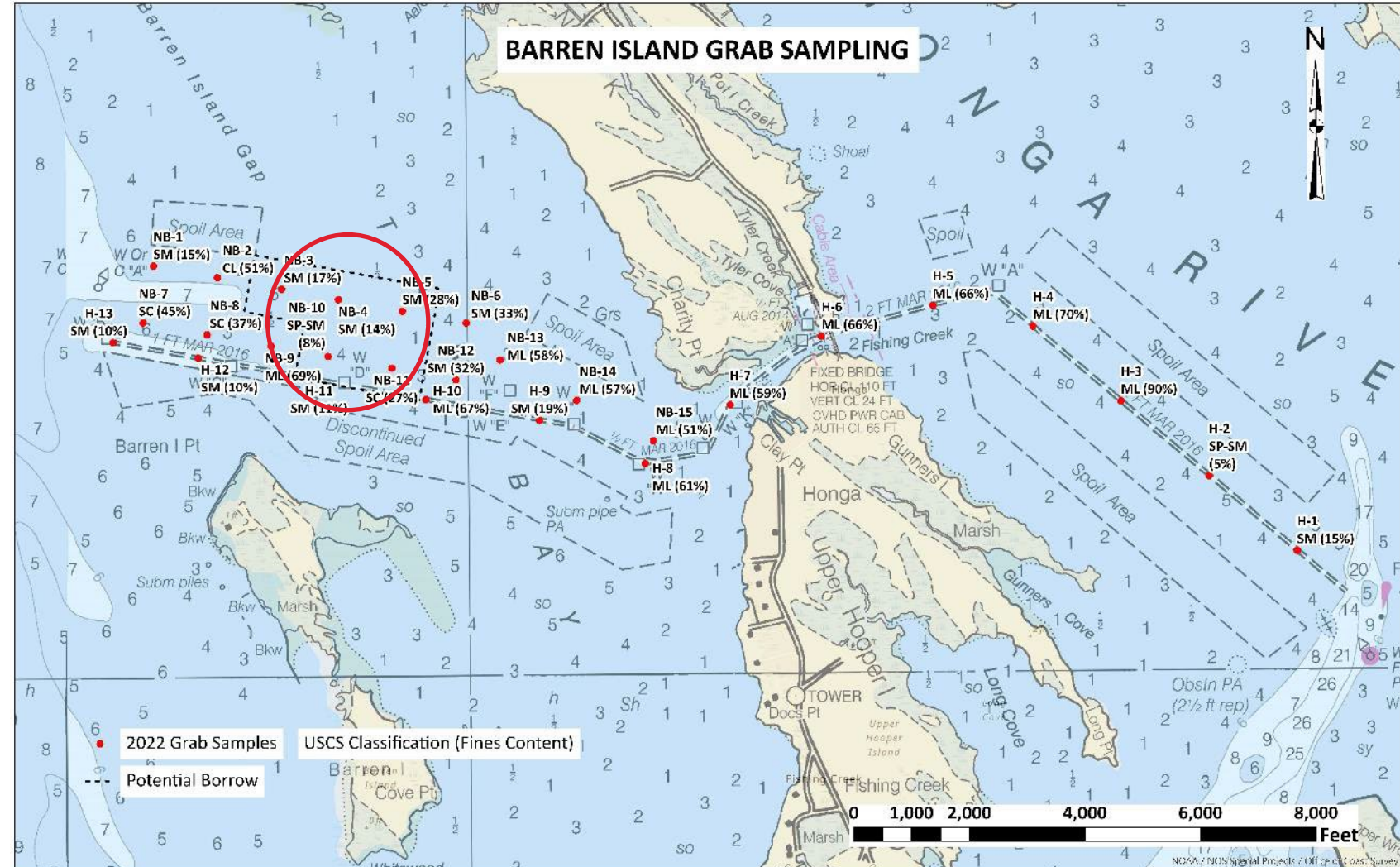
- Can be placed with mechanical or hydraulic placement,
- Allows for rapid decanting,
- Allows for achieving an adequate relative density with minimal to no compactive effort,
- Particularly important for underwater placement where compaction is not possible (i.e. foundation replacement)

2. Homogeneity

- Large homogenous area of sand, free of lenses of silts and clays
- Permits the designer to assign engineering properties to the borrow material with some degree of confidence
- Variability in material properties among grab samples is a strong indication that borrow source material is also variable
- Grab samples represent the surface, but a large homogenous surficial area will warrant further geotechnical investigations at depth

SAMPLING EFFORT #1 – MARCH 2022

- 28 grab samples – 13 in Honga River Channel and 15 in the Northern Borrow Area
- Sieve analysis and Atterberg limit testing to classify the fine-grained samples





MARCH 2022 RESULTS



Channel material

- highly variable,
- consists mostly of silts and silty sands,
- Limited stretches of silty sands with <20% fines, but these areas are adjacent to silts

Northern Borrow Area

- Highly variable,
- Contains silty sands, silts, lean clays, and clayey sands

Recommendations: Due to variability and high fines content neither the Honga River Channel nor Northern Borrow Area is suitable as backfill for foundation removal and replacement. Further investigation may show areas in the Northern Borrow Area with fines <30% could be suitable for bird island development because that application does not necessitate the same density and strength requirements.

Honga River		
Sample	USCS Classification	Fines Content (%)
H-1	SM	15
H-2	SP-SM	5
H-3	ML	90
H-4	ML	70
H-5	ML	66
H-6	ML	66
H-7	ML	59
H-8	ML	61
H-9	SM	19
H-10	ML	67
H-11	SM	11
H-12	SM	10
H-13	SM	10

Northern Borrow Area		
Sample	USCS Classification	Fines Content (%)
NB-1	SM	15
NB-2	CL	51
NB-3	SM	17
NB-4	SM	14
NB-5	SM	28
NB-6	SM	33
NB-7	SC	45
NB-8	SC	37
NB-9	ML	69
NB-10	SP-SM	8
NB-11	SC	27
NB-12	SM	32
NB-13	ML	58
NB-14	ML	57
NB-15	ML	51

SM : silty sand

SP-SM : poorly graded sand with silt

ML : silt

CL : lean clay

SC : clayey sand

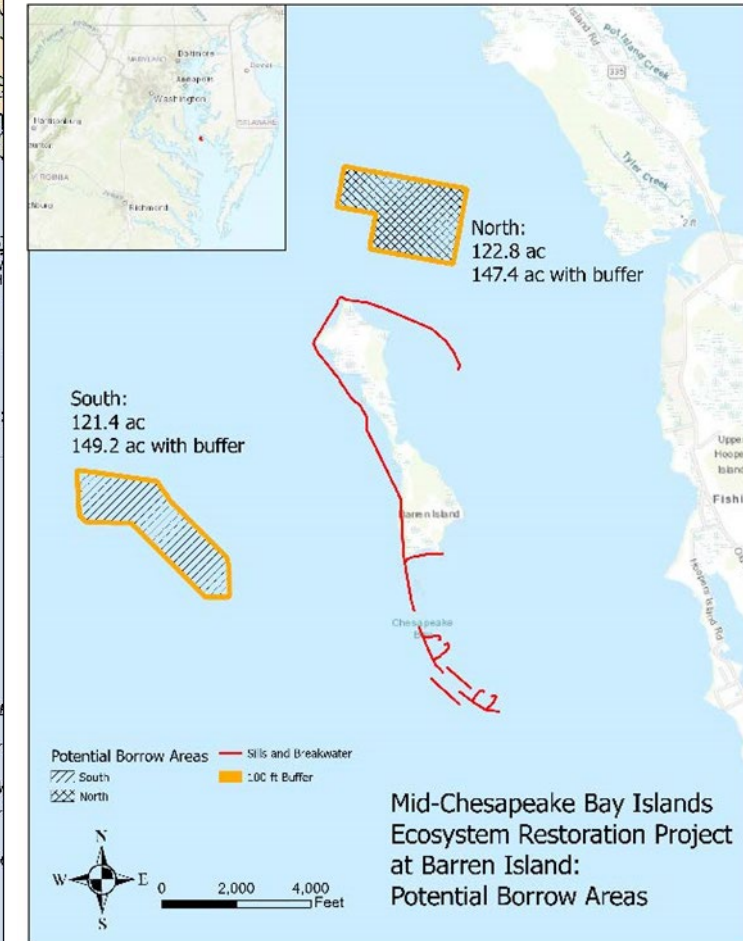
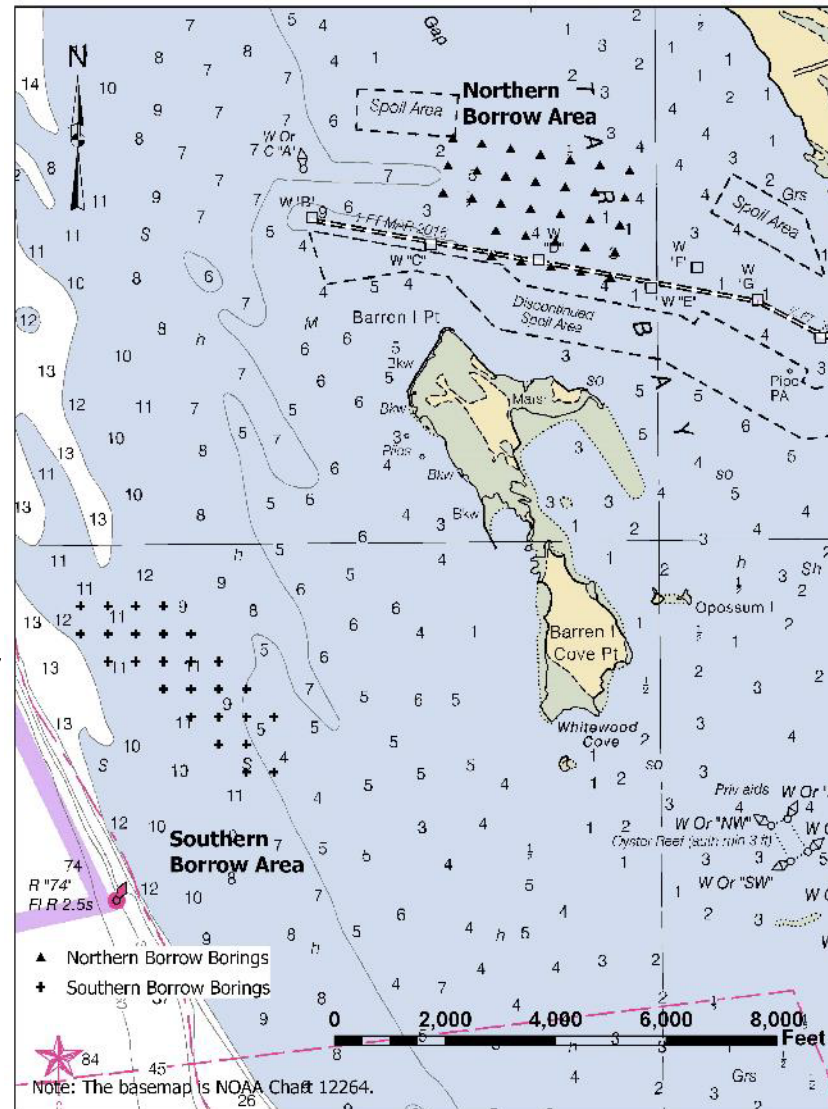
Fines Content : Percentage of material by weight with particle size finer than 0.075 millimeter (#200 sieve).



SAMPLING EFFORT #2 – AUGUST/SEPT 2022



- 31 borings in the Northern Borrow Area
- 26 borings in the Southern Borrow Area
- Field classifications, and determination of gradations and plasticity limits
- Borings conducted to depth of ~15 feet
- Continuous samples collected with either direct push sampling or split spoon sampling
- Focus for Northern Borrow Area survey is to determine if areas with <30% fines exists for bird island development – either a distinct site or through a blending of areas.





AUGUST/SEPTEMBER RESULTS

Sample recovery in the upper five feet proved challenging, but most borings had sufficient recovery to classify materials

Northern Borrow Area

- Highly variable; silty sand, clay, silt
- Depth of surficial sand varies throughout area from no sand (many boreholes) and 15 ft of sand (N-7)
- Layers of fine-grained materials found at surface and between layers of sand
- Large difference in material between adjacent borings
- A sub-area with a sizeable volume of sand was not identified

Boring	Surficial Sand Depth (ft)
N-1	4.7
N-2	-
N-3	9.7
N-4	8.4
N-5	14.3*
N-6	0
N-7	15*
N-8	9.2*
N-9	8.3
N-10	0
N-11	0
N-12	0*
N-13	0
N-14	0
N-15	0
N-16	4.0

Boring	Surficial Sand Depth (ft)
N-17	0*
N-18	4.2
N-19	2.2
N-20	0
N-21	0
N-22	2
N-23	0*
N-24	2
N-25	10.8
N-26	10
N-27	0*
N-28	5
N-29	0
N-30	0*
N-31	2





AUGUST/SEPTEMBER RESULTS - NORTHERN



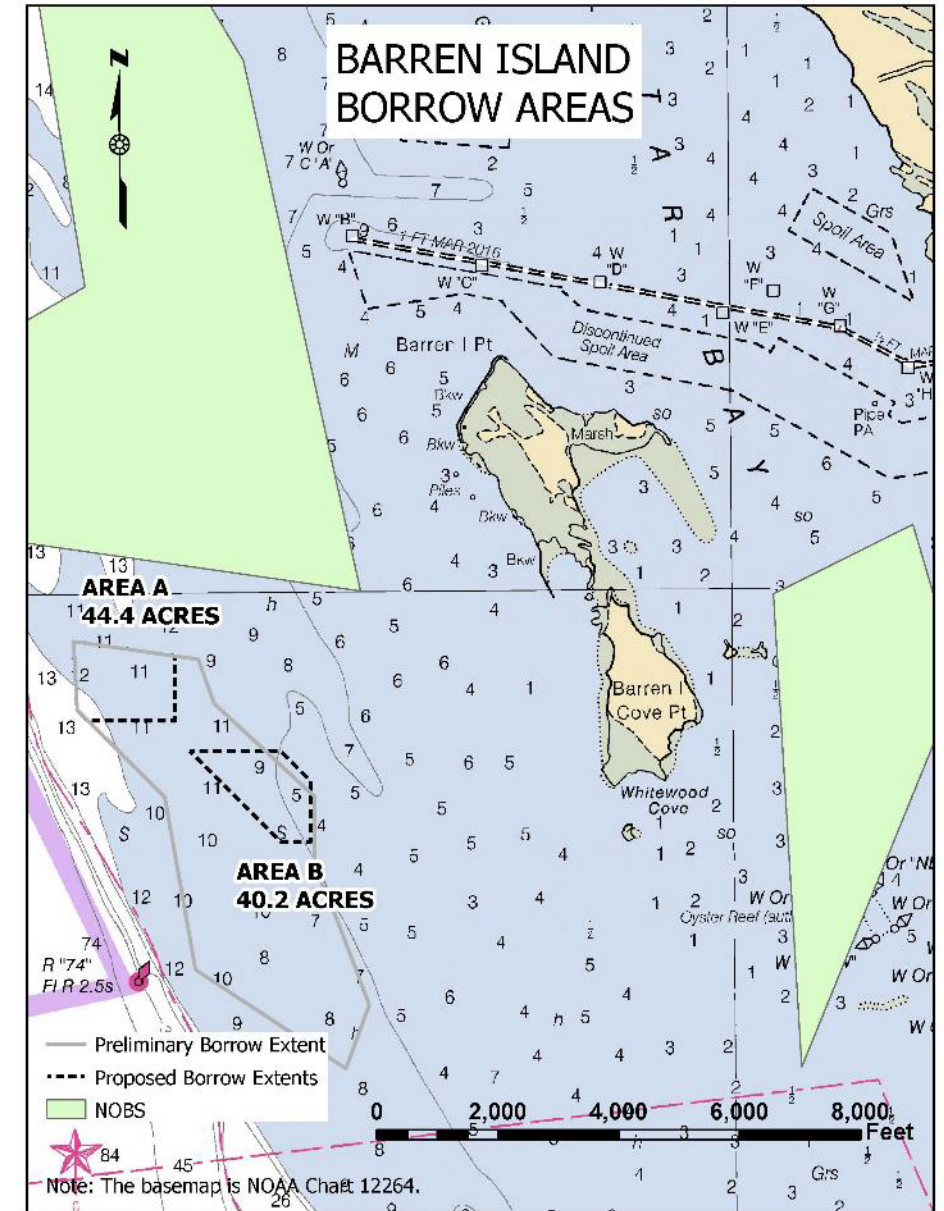
NORTHERN BORROW AREA CONCLUSIONS→

Not Suitable For Bird Island Development

1. This area does not contain large areas of sand.
2. Layers of fine-grained material are more extensive than layers of sand.
3. No areas exist that can be blended to produce suitable sand.

Not Suitable For Containment

1. To be suitable for containment, the material should have the least amount of fines as possible to prevent excessive settlement
2. It is highly likely that the material from the Northern Borrow Area would settle causing an unacceptable reduction in height to contain the dredged material.





POUND NET LOCATIONS





INITIAL BORROW AREA SCREENING



	No Action	Northern Borrow Area	Southern Borrow Area	Honga River Channel	Land-based source	Combination of N/S
<i>Material has suitable composition</i>						
Foundation replacement	N	N	Y	N	Y	N
Containment	N	N	Y	N	Y	N
Bird Island Development	N	N	Y	N	Y	N
<i>Quantity available meets needs</i>	N	N	Y	N	Y	N
<i>Avoids/minimizes impacts to commercial fisheries</i>						
Blue crabs	Y	N	N	Y	Y	N
Pound Nets	Y	Y	possibly	Y	Y	possibly
Oysters	Y	Y	Y	Y	Y	Y
<i>Avoids/minimizes impacts to cultural resources</i>	Y	TBD	TBD	Y	Y	TBD
<i>Avoids/minimizes impacts to habitats</i>						
SAV	Y	N - direct impacts	Y	N- indirect impacts*	Y	possibly
Oysters	Y	Y	Y	Y	Y	Y
Shallow-water habitat/benthics (add acreage)	Y	N	N	N - minimal*	Y	N
<i>Maximum size of impact area</i>	0	122.8	40.2/44.4		0	
<i>Cost</i>	0	\$10-20/cy	\$10-20/cy	\$10-20/cy	\$239/cy	\$10-20/cy

N* = The Honga River channel has been repeatedly dredged in modern times. Therefore, impacts are to a previously impacted area. Indirect impacts would be those that have occurred previously.

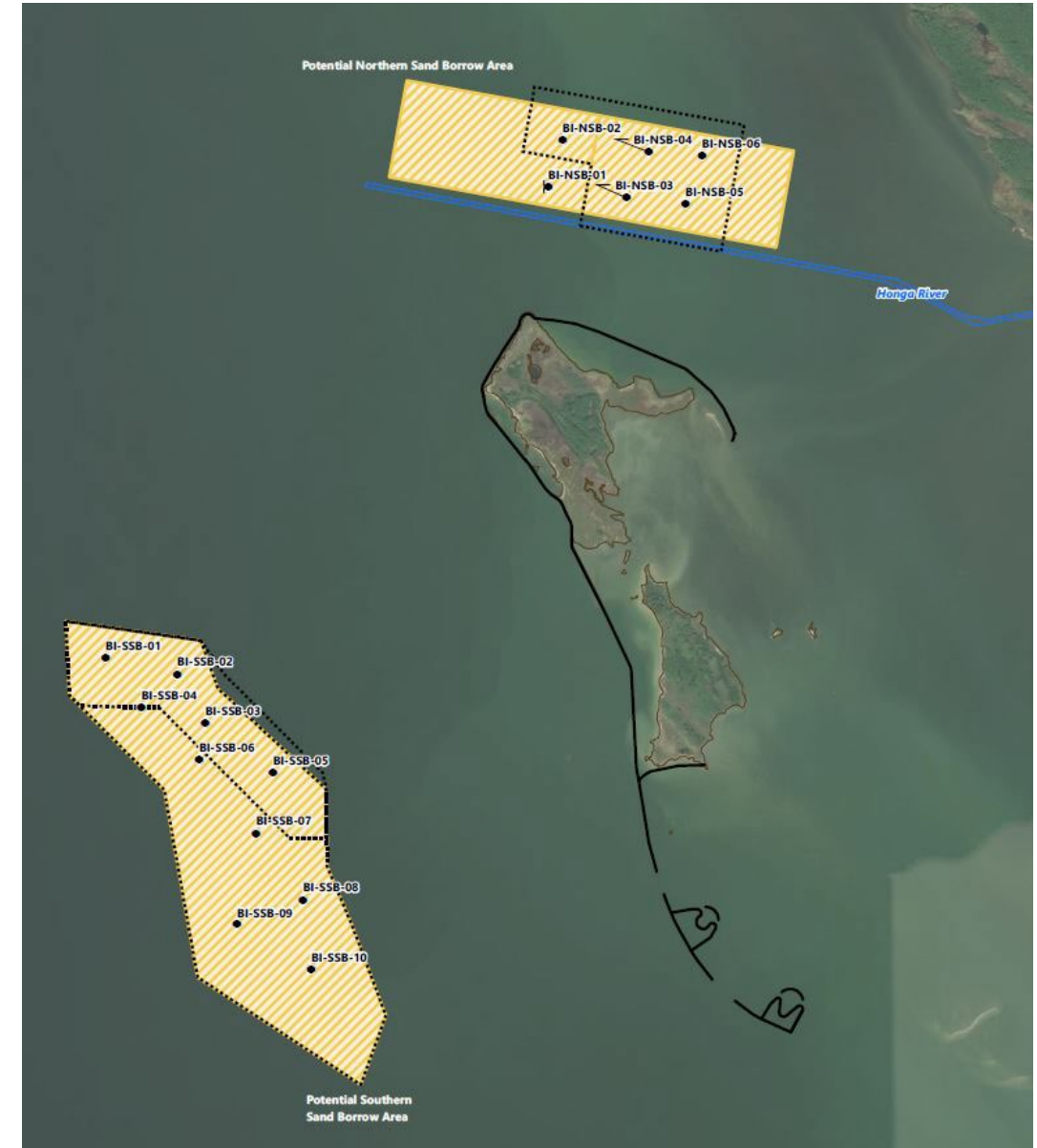
possibly = sub-areas in the North and South could be identified to minimize/avoid impacts to various resources.



SAND BORROW BENTHIC DATA



- Sampled in August 2022 – locations based on the geotechnical data
 - 6 locations in Northern Area
 - 10 locations in Southern Area
- Chesapeake Bay Benthic Index of Biotic Integrity (B-IBI)
 - Regional set of ecological metrics
 - Abundance, diversity, specific taxa
 - Each metric is assigned a value based on habitat (salinity, grain size)
 - Compared to Bay-wide values that have been collected since 1980s





CHESAPEAKE BAY B-IBI RESULTS



- Northern Borrow Area: Degraded areas mostly a result of high abundance and low diversity
- Southern Borrow Area: several locations met the restoration goal, meaning the benthic population is more balanced
 - No pattern to the data
 - Indicative of local variability

Northern Borrow Area	B-IBI	Community Condition
1	2.2	Degraded
2	2.6	Degraded
3	2.6	Degraded
4	2.6	Degraded
5	2.6	Degraded
6	2.6	Degraded

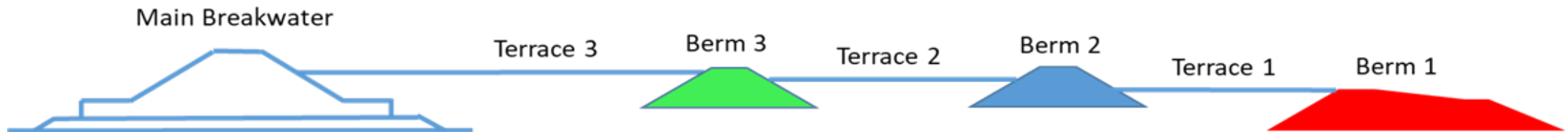
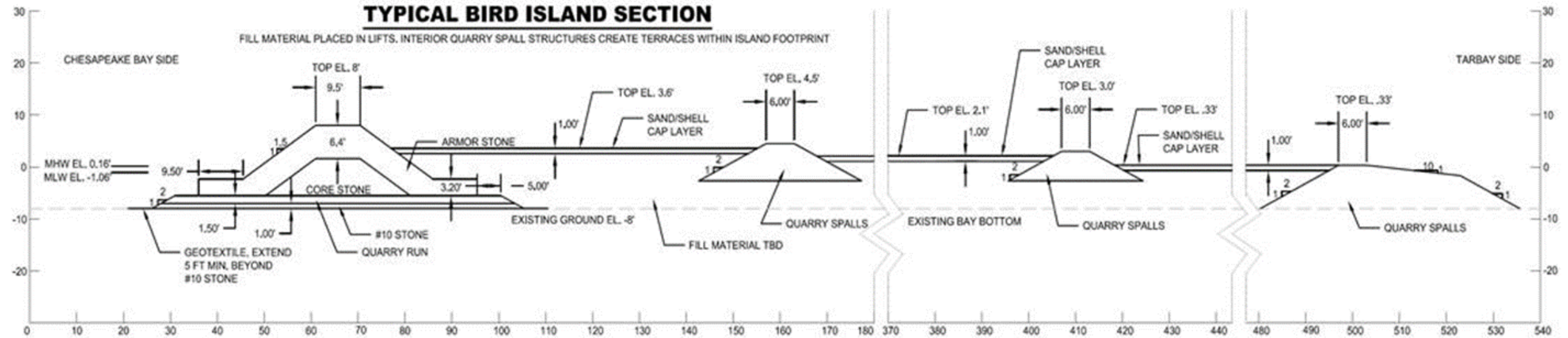
Southern Borrow Area	B-IBI	Community Condition
1	3	Meets goal
2	3.8	Meets goal
3	3	Meets goal
4	2.6	Degraded
5	3	Meets goal
6	3.4	Meets goal
7	2.6	Degraded
8	3	Meets goal
9	2.6	Degraded
10	3	Meets goal



BARREN ISLAND BIRD ISLANDS – INITIAL PROPOSAL



16



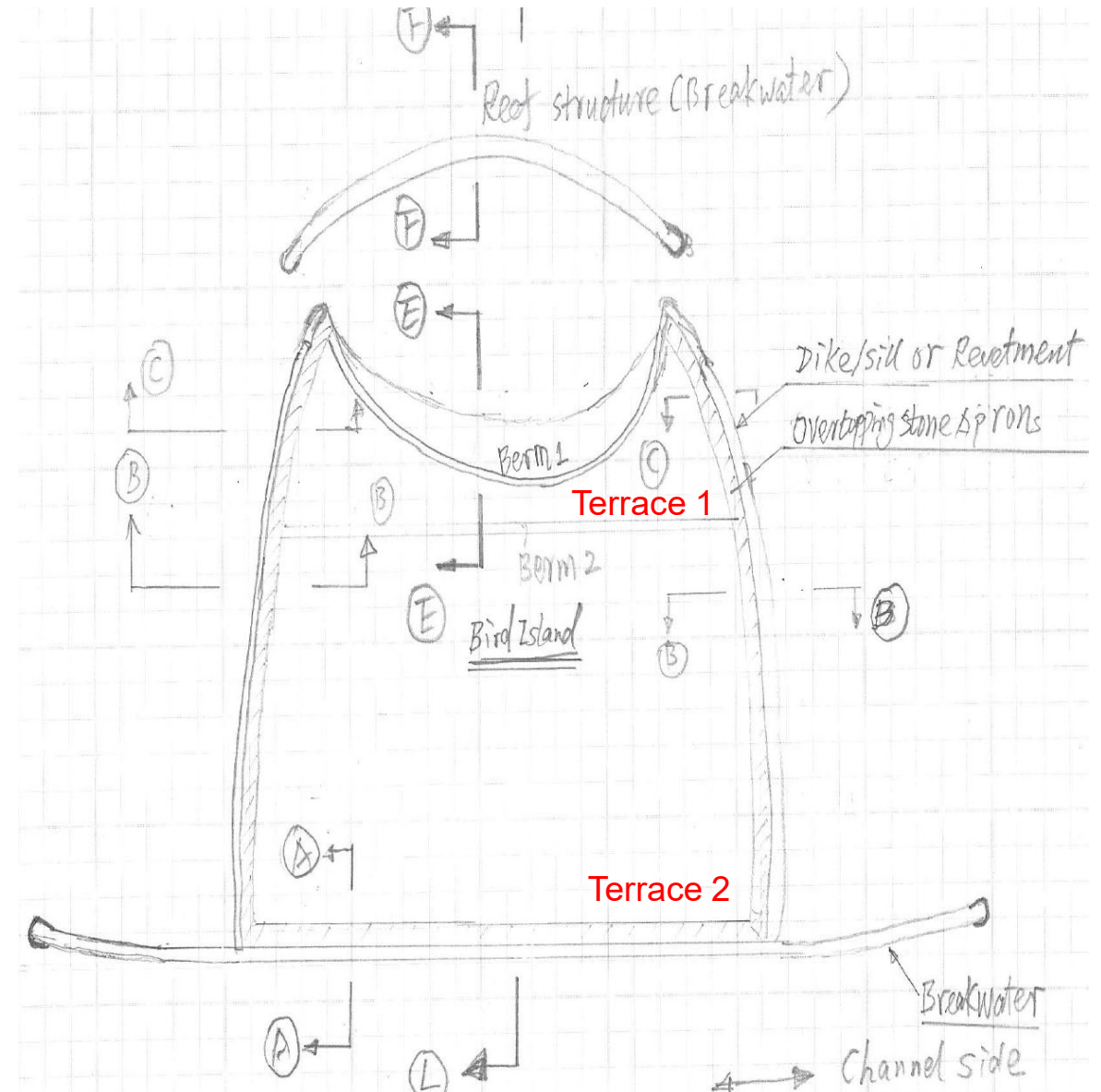
REVISED PROPOSAL – REMOVE TERRACE 3 AND BERM 3, ADJUST ELEVATIONS



REVISED BIRD ISLAND DESIGN PROPOSAL



- Terrace 2 would serve as the primary nesting habitat
- Berm 2 would provide protection from overwash to Terrace 2
- Terrace level 1 would function as a transition area between the main terrace 2 and water
- Terraces are level to maintain material
- Utilize articulated concrete mattresses for 'beach'/water access to address challenge of maintaining non-cohesive material on beach and providing access for birds
- Concrete mattress elevation would match +5 ft elevation and then extend into water at a 1:10 slope
- Reefs east of each cove for habitat value and protection
- Provide walking pathways on edges (interior side of dikes) over berm to enable chick access to cove
- Surface would be sand/shell mix for positive drainage and nesting habitat





PROPOSED DESIGN CRITERIA FOR ELEVATIONS



- Initial recommendation was to utilize periodic washover for vegetation control → how to balance benefit of natural vegetation control and risk of material loss
- Upon further consideration and discussion with FWS, it was determined that the risk and ramifications (costs/logistics) of needing to replace lost material was not worth the uncertain benefit of natural vegetation control with washover

Proposed Design Criteria

1. High SLR projection at 2075 (50 years)
2. Terrace 2 → +6.5 ft NAVD88
~75 year mean stillwater level plus the highest SLR projection at 2075 without waves, or about 35 yr 90% confidence still water level plus SLR at 2075

The elevation is proposed 1) to provide a habitat surface that will be very infrequently flooded risking the loss of nests, and 2) account for high sea level rise projections. This will result in the need to manage for vegetation, but reduces the risk of material loss from storms.



PROPOSED DESIGN CRITERIA FOR ELEVATIONS



3. Terrace 1 → +5 ft NAVD88

~15-20 year mean stillwater level plus the highest SLR projection at 2075 or the 10-year stillwater 90% confidence water level plus SLR at 2075

The elevation is proposed 1) as a transition zone between Terrace 1 and cove, 2) to provide a balance for an increased risk of flooding and some associated vegetation control compared to Terrace 2 with material retention, and 3) manage cost and material needed.

**PLEASE PROVIDE ANY FEEDBACK ON THIS DESIGN BY JANUARY 13.
WE ARE WORKING ON PULLING TOGETHER 35% DESIGN PLANS.**



BARREN ISLAND MODELING PLANS



Phase 2 Modeling – Kicks-off in January 2023 – ERDC

➤ Purpose

- Determine impacts of several restoration design alternatives on hydrodynamics and sediment in restored wetlands.
- Evaluate placement and size of the tidal channels for allowing sufficient water flow exchanges to maintain a viable wetland and not induce erosion within the wetland channels and along existing shorelines of Barren Island, and potential sediment accumulation in the channels.
- Consider sediment accumulation/deposition to assess the channel service life.
- Establish containment alignment to determine quantities needed to support Phase 2.

➤ Iterative process using AdH model; boundary conditions from ADCIRC

➤ Analysis of the water surface elevation, depth, velocity patterns, and water exchange

➤ Schedule

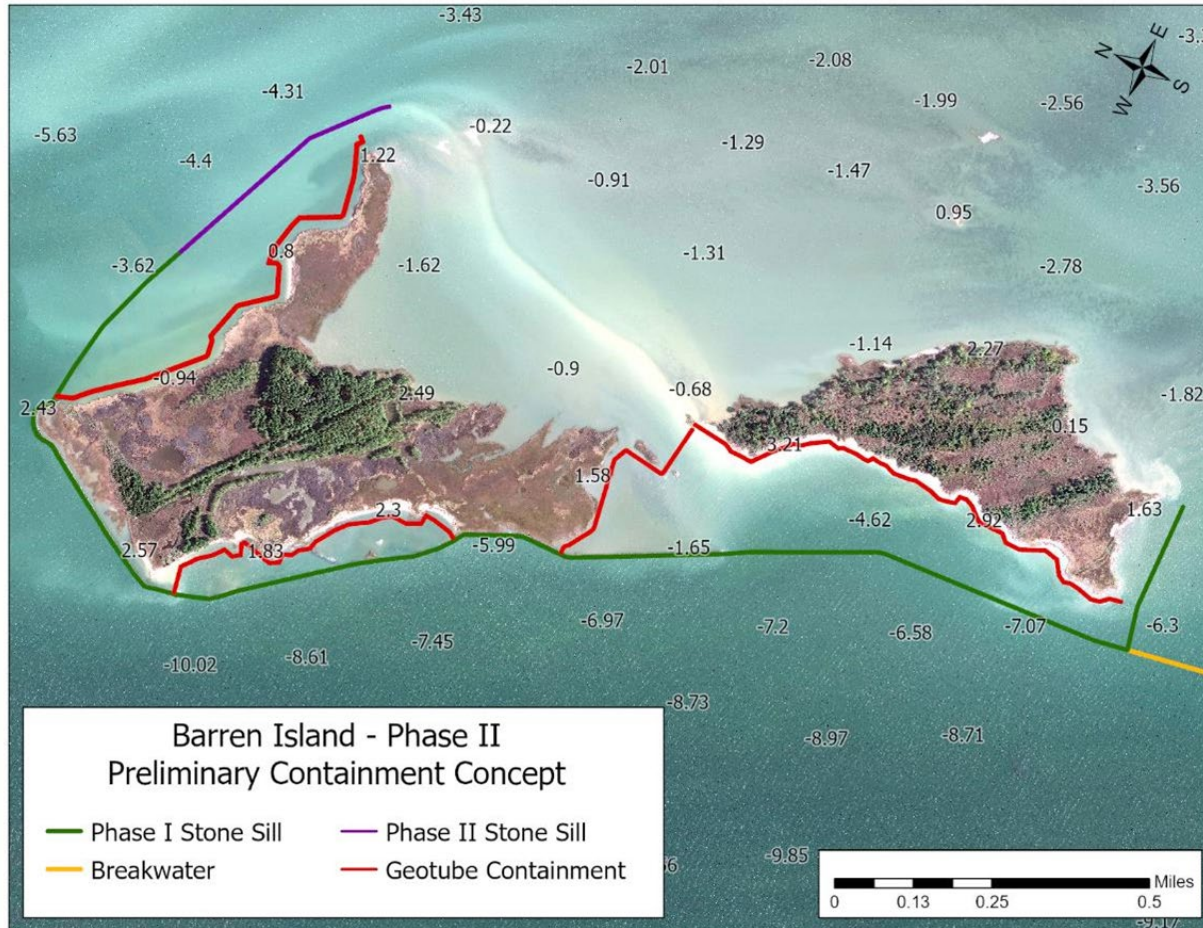
- Initial alternative evaluation – January 2023
- Determine any additional alternative geometries for main channels – 1 March 2023
- Modeling complete – November 2023
- Modeling report complete – January 2024



PHASE 2 MODELING – DATA NEEDS



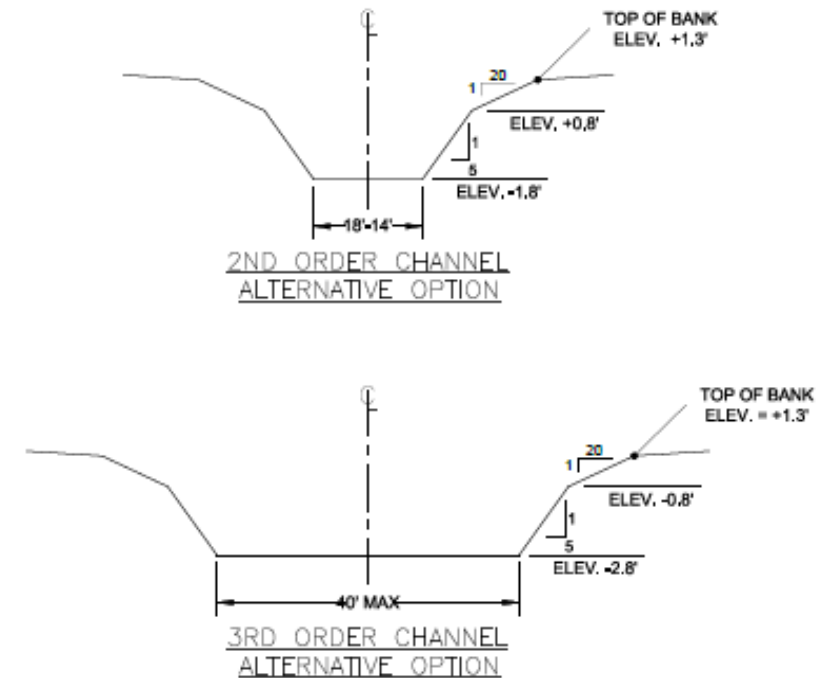
1. Initial containment alignment

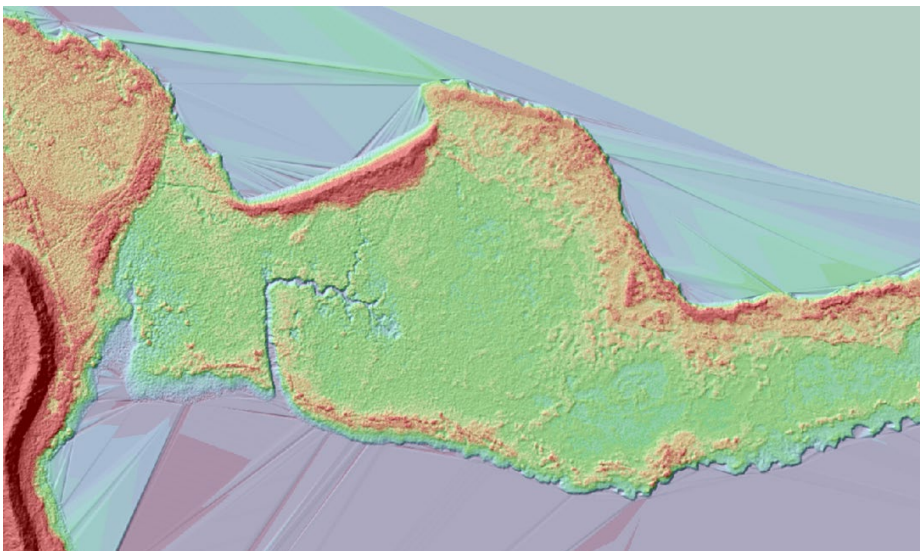


2. Initial channel dimensions

- Current Poplar approach (figure)
- Maximize based on existing bathymetry

CELL 5CD CHANNEL SECTIONS (NOT TO SCALE)





3. Initial marsh elevations

- DEM from 2020 LIDAR
- Current habitat map
- Current tidal datum
- Additional allowance for near term SLR
- Target high end of suitable elevations for plants

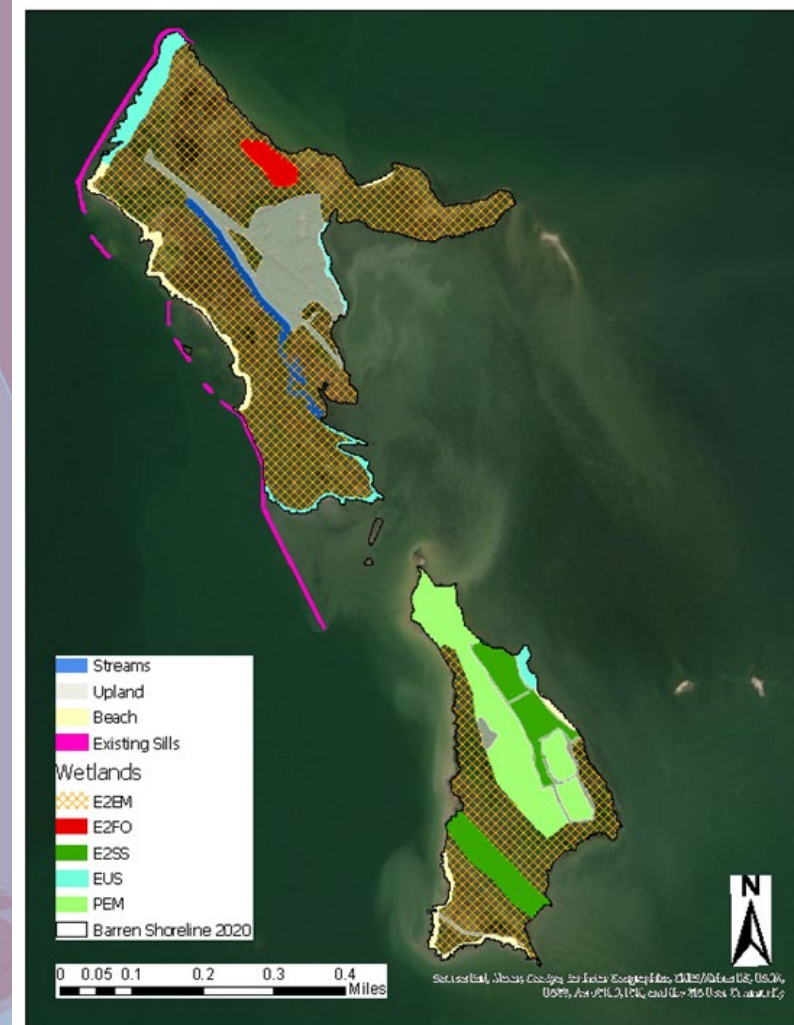
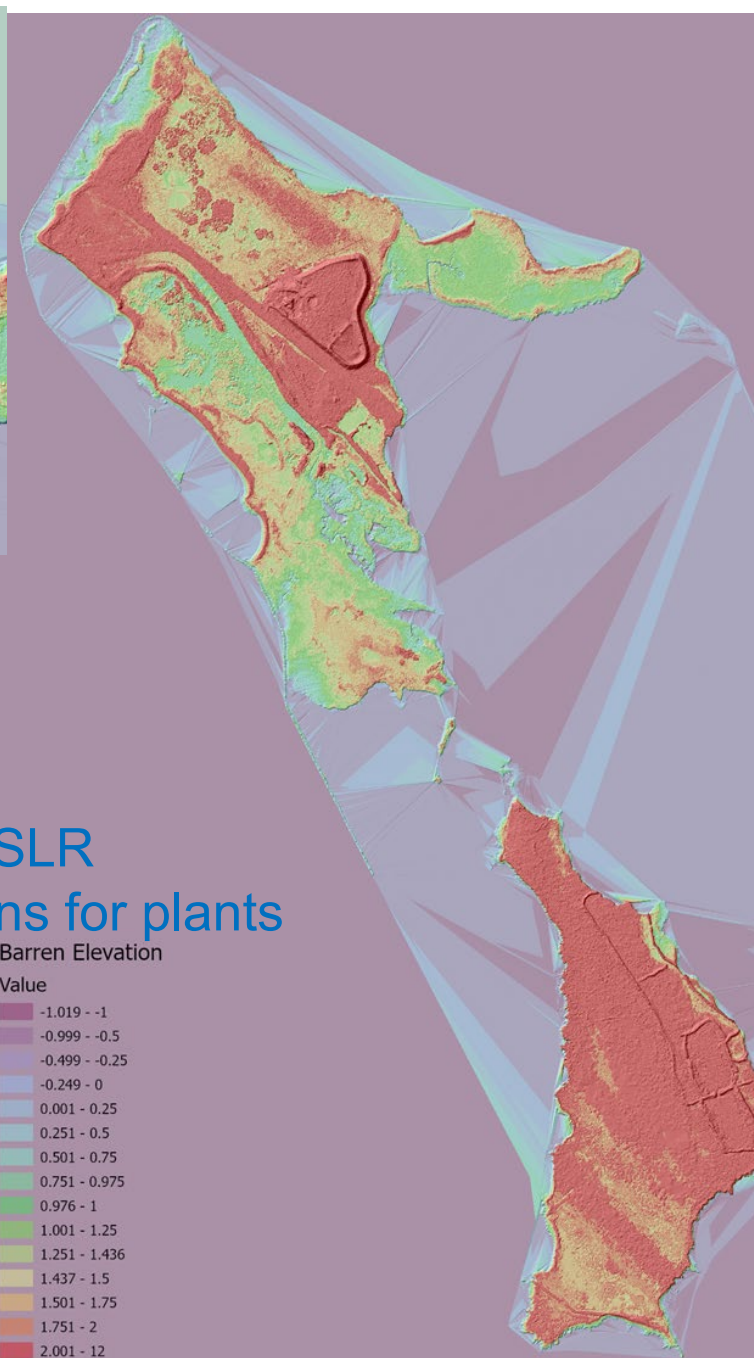
0.33'	MEAN HIGHER HIGH WATER (MHHW)
0.16'	MEAN HIGH WATER (MHW)
0.00'	NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
-0.45'	MEAN TIDE LEVEL (MTL)
-1.06'	MEAN LOW WATER (MLW)
-1.22'	MEAN LOWER LOW WATER (MLLW)

TIDAL DATUMS AT BARREN ISLAND, MD FOR THE
1983-2001 TIDAL EPOCH*

NOT TO SCALE

Barren Elevation
Value

-1.019 - -1
-0.999 - -0.5
-0.499 - -0.25
-0.249 - 0
0.001 - 0.25
0.251 - 0.5
0.501 - 0.75
0.751 - 0.975
0.976 - 1
1.001 - 1.25
1.251 - 1.436
1.437 - 1.5
1.501 - 1.75
1.751 - 2
2.001 - 12





BARREN ISLAND MODELING PLANS (CON'T)



Phase 3 Modeling – Starts in Fall 2023 – ERDC

- Detailed wetlands modeling that captures all wetlands features
- Modeling of Master Plan Concept
- Establish initial concept for modeling by end of September 2023



NEXT STEPS



Upcoming Meetings and Tasks

1. January – MWG and WWG and NEPA
2. March – Southern Borrow Area Cultural Survey Results



OPEN DISCUSSION / QUESTIONS

**Agency Coordination/NEPA Meeting #3 -
Geotechnical and Full Benthic Survey
Results and Modeling Overview
(February 28, 2023)**



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)

USACE Model Details

Model Name: CSTORM comprised of coupled surge and nearshore wave models (ADCIRC and STWAVE, respectively)

Purpose: To determine surge and wave responses during storm conditions for with-project design and generate water surface elevation and velocity boundary conditions for use with the AdH model.

Inputs: NACCS meteorological forcing data (wind and pressure), NACCS wave spectra data, topography and bathymetry, nodal attributes (e.g. friction factors), with-project feature geometry and height, and Sea level

Outputs: Maximum water surface elevation and velocity at each model grid point and selected save point locations, time series of water surface elevations and velocities at each grid point and selected save point locations, maximum wave height, period, and direction at each model grid cell and selected save point locations, and time series of wave height, period, and direction at each grid cell and selected save point locations.

Model Name: StormSim

Purpose: Storm suite selection, probabilistic coastal hazard analysis, probabilistic structure design, probabilistic life-cycle simulation of hazards (storm wave and water level, RSLC), and structure responses and costs.

Inputs: Historical storm history and meteorology, NACCS cyclone modeling (winds and pressures), NACCS hydrodynamic modeling and aleatory and epistemic hazard uncertainty, bathymetry/topography, feasibility structure design, structure and stone details, historical damage data (Poplar Is.), and structure response epistemic uncertainty.

Outputs: Probabilistic hazards, probabilistic structure design (crest, geometry, armor, toe), life cycle simulation output including life cycles of storms/responses/costs, intra-storm hazard/response/cost time series, and present worth costs.

Model Name: Adaptive Hydraulics (AdH)

Purpose: To model the internal restoration island features (tidal channels, marsh areas, etc.). AdH has the ability to include wetting/drying of the restoration features to account for inundation of the various areas over several tidal cycles. It can model tracers to look at flushing of various inland features over time. This will allow us to review different sizes or alignments of the various features and compare how they perform.

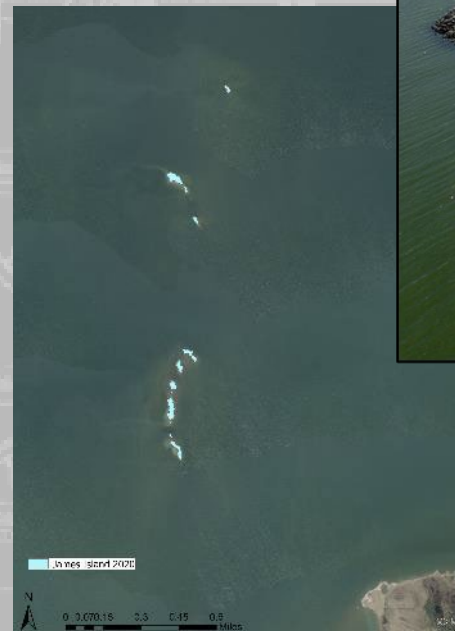
Inputs: AdH is being driven with water surface elevations on the north and south from ADCIRC model results. AdH is being run with predicted tides and river inflows.

Outputs: water surface elevation, depth, velocity vectors, and constituent tracer results (where included) for all nodes within the model domain.

MID-CHESAPEAKE BAY ISLAND ECOSYSTEM RESTORATION PROJECT, DORCHESTER COUNTY, MD

Agency Coordination/NEPA

February 28, 2022



"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."



**US Army Corps
of Engineers®**





AGENDA



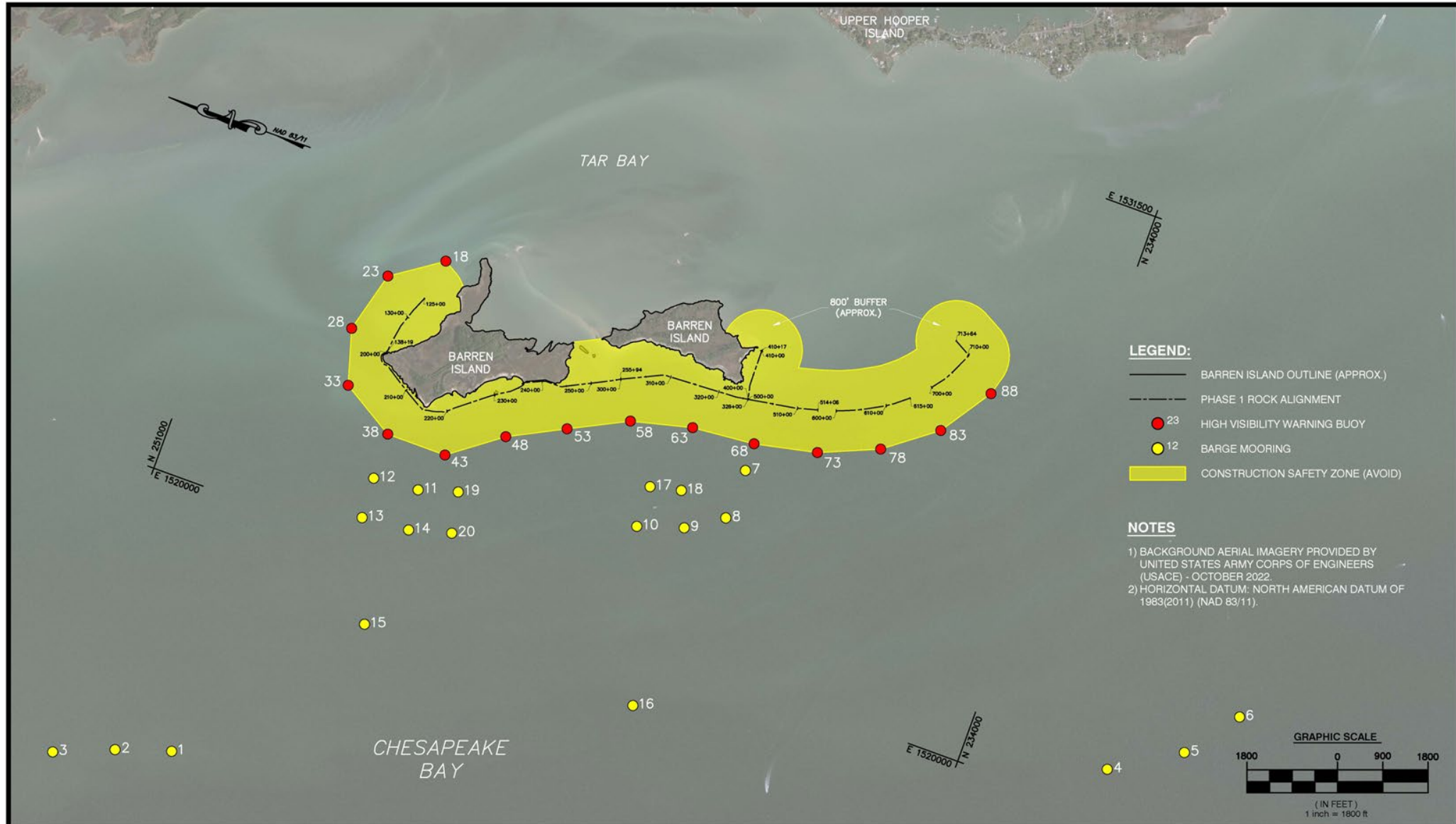
1. Introductions
2. Barren Island Phase I Construction
 - a. Status and Construction Schedule
3. Barren Island Bird Island Design - Update
4. Barren Island Borrow Area EA – Update
5. ERDC Modeling Review
 - a. StormSim
 - b. CSTORM
 - c. Adaptive Hydraulics (ADH)
6. Discussion/Questions
7. Wrap-up and Action Items



BARREN ISLAND PHASE I CONSTRUCTION - UPDATE



- Contractor preparing to mobilize and start construction in the next two weeks
- Preparing to measure turbidity during construction in accordance with permit
- Coordinating with public on 800 ft safety zone around construction (boaters, crabbers, etc.)
- Coordinating with local pound net owners / users



REVISIONS



Maryland
ENVIRONMENTAL
SERVICE

DRAWN BY AEK
SURVEYED BY N/A
CHECKED BY DRR, MM, MO
DATE FEBRUARY 23, 2023

MID-BAY PROJECT - BARREN ISLAND
PHASE I CONSTRUCTION

SAFETY ZONE AND EQUIPMENT LOCATIONS

DORCHESTER COUNTY, MARYLAND

PROJECT NO.

SCALE: 1" = 1800'

SHEET 1 OF 1

DRAWING NO.

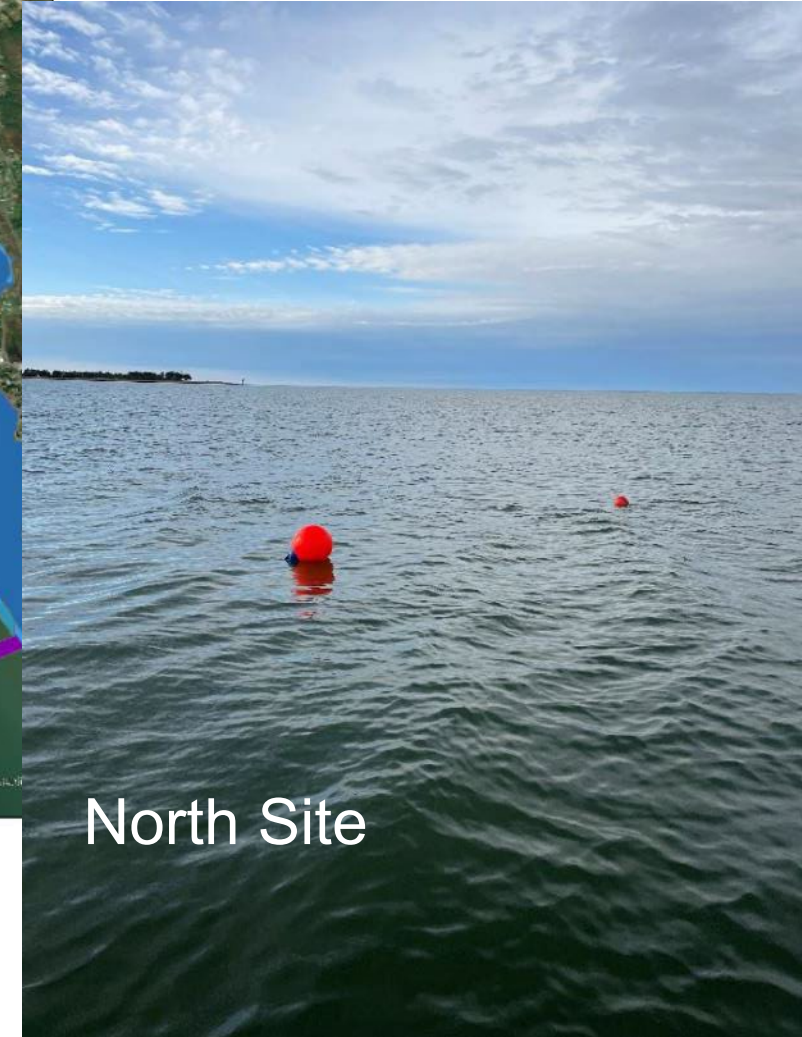
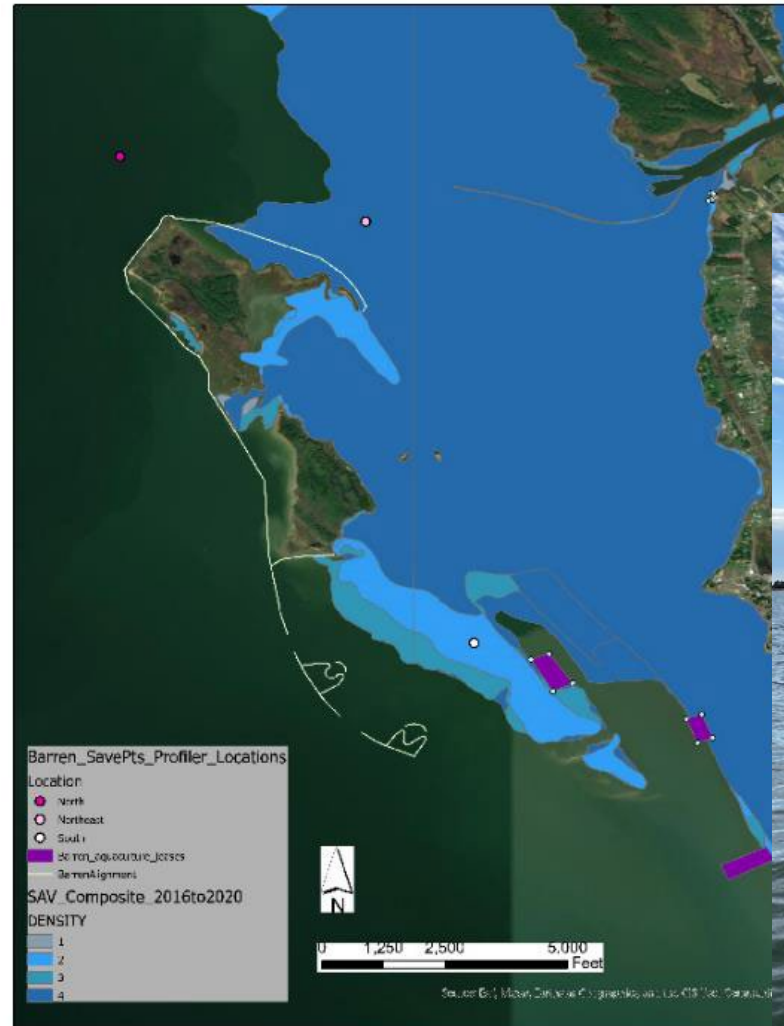


H&H MONITORING WITH PROFILERS



5

- October 6, 2022 – deployed 2 Echo profilers and 1 Aquadopp
- December 6-7, 2022 – exchanged equipment for 3 Aquadopp profilers, collected data
- February 21-22, 2022 – retrieved profilers, cleaned sleds, exchanged batteries, and collected data; redeployed with a second buoy marker as lighted poles were lost

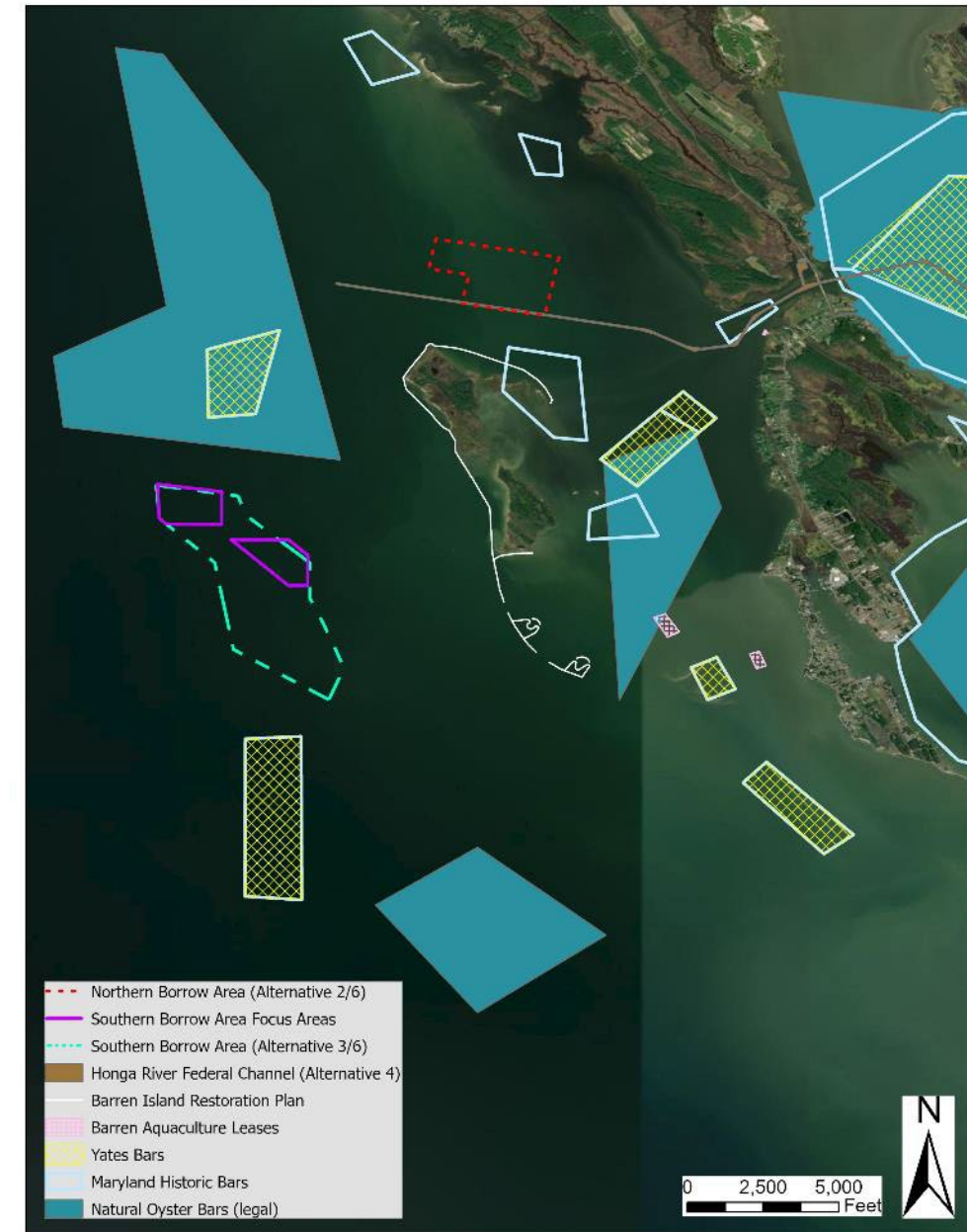




OYSTER HABITAT CONDITION SURVEYS – PRELIMINARY RESULTS



- Side-scan sonar (SSS) surveys, followed by ground-truthing and image collection of shell habitat
- Survey Great Bay Bar, NOB 23-2, and NOB 23-4
- Remaining work will focus on groundtruthing and bottom habitat image collection/documentation

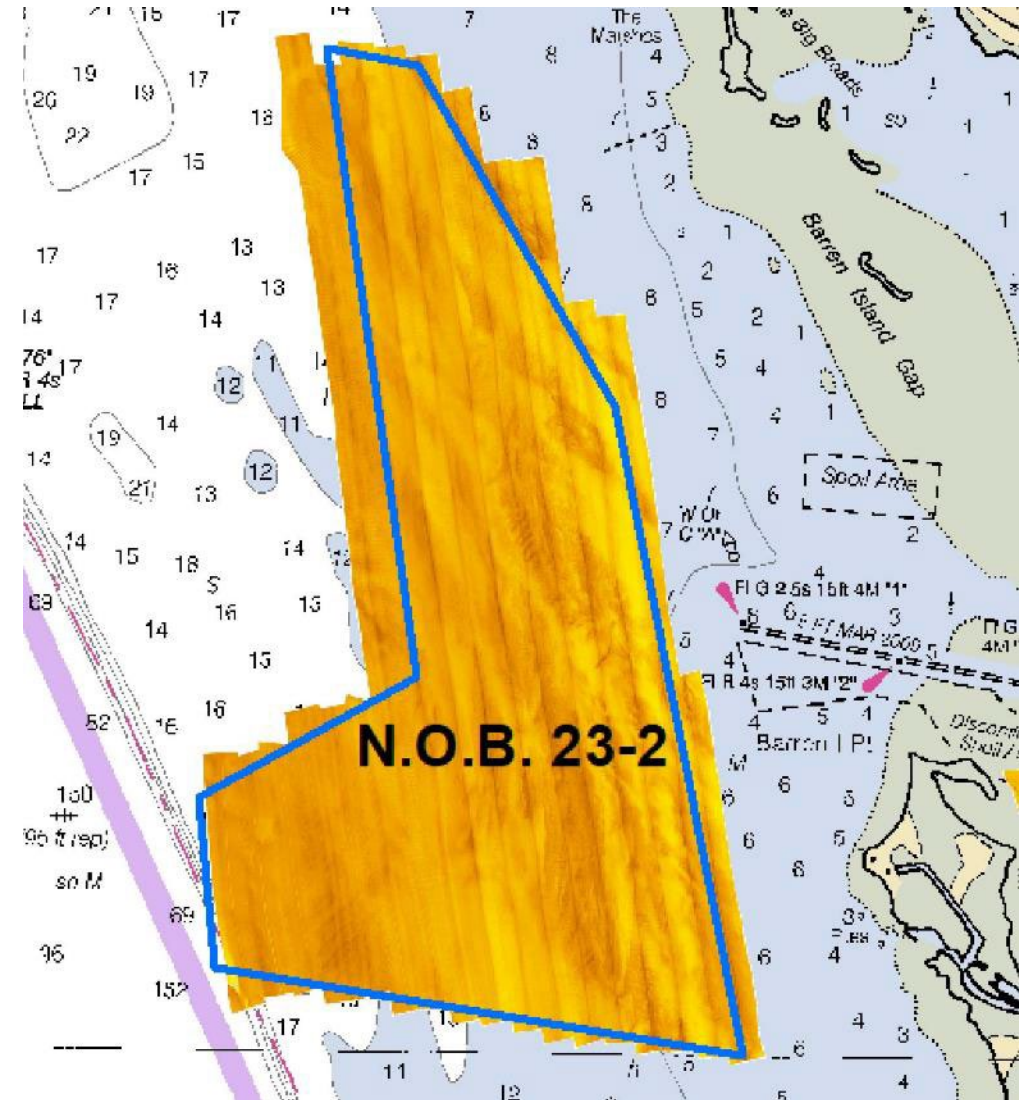




NOB 23-2: PRELIMINARY RESULTS



- SSS completed
- Grab samples collected for ground truthing
- Drift video collected at a number of the grab sample locations
- Located some interesting habitat with small rocks, miocene clay and iron concretions lumps with small Mogula (sea grapes) colonies, scattered (sparse) old dead oyster shell and a few clam shells
- Did not retrieve any living oysters in any samples or see any sign of active/dense oyster populations across the NOB
- Expect any living oysters to be scattered and sparse
- Future effort will focus on identifying potential shell habitat areas to investigate with GoPro for visual confirmation

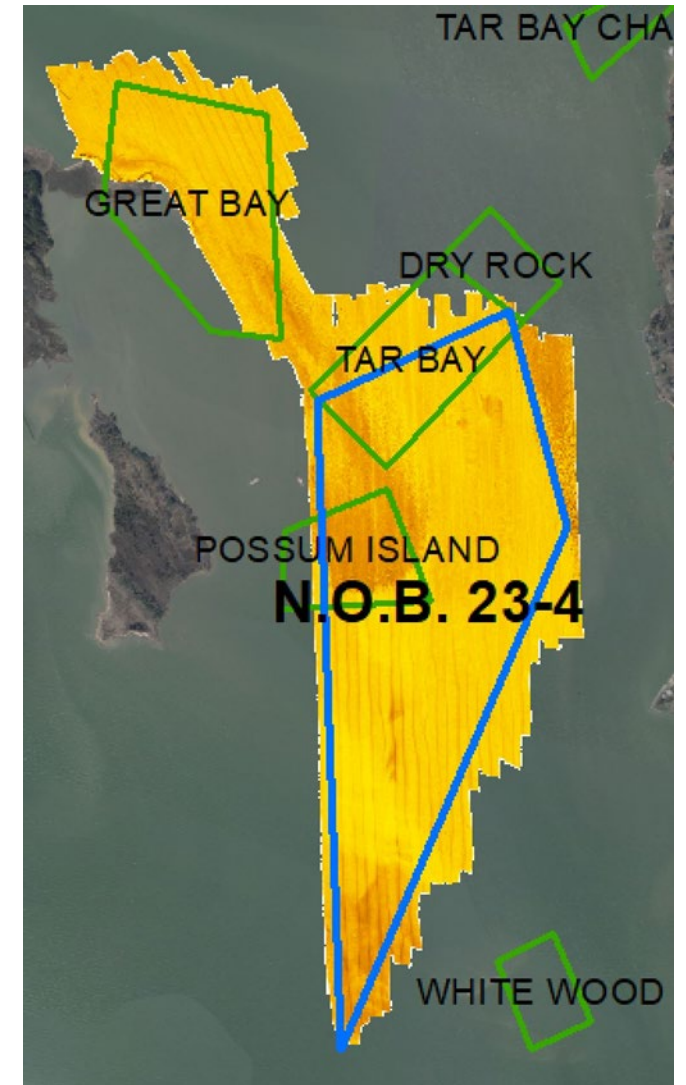




GREAT BAY BAR AND NOB 23-4



- Two large areas circled in green contain SAV (western area has been identified as eelgrass).
- Two small features circled in blue are suspected to contain oyster shell.
- The areas circled in red are darker/firmer and may contain shells or just be firmer due to coarser sand/gravel.
- Southern tip also contains a firmer substrate than the surrounding firm fine sand.
- Vast majority of the area consists of fine sand.
- All areas need to be sampled to confirm bottom. The only area checked currently being the western SAV patch.

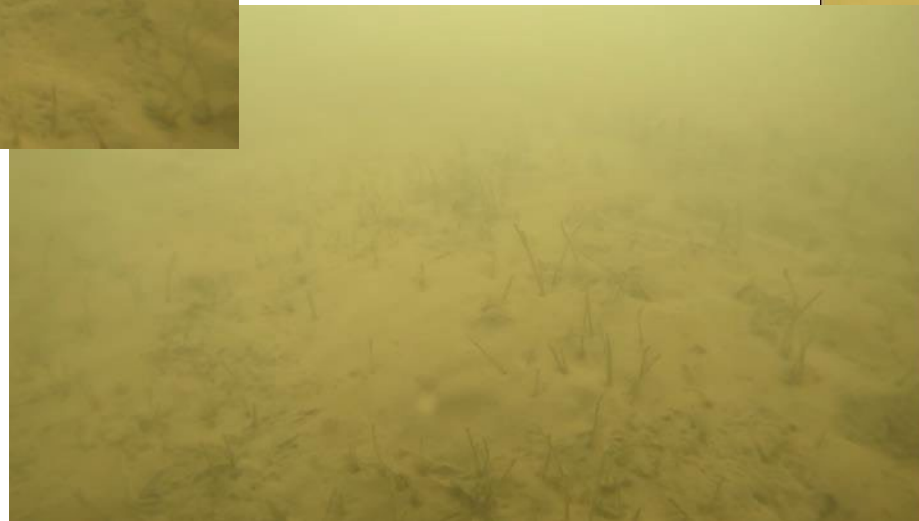




BOTTOM HABITAT IMAGES IN TAR BAY



- Acquired using GroPro rig (SERC/NOAA Oyster Rapid Assessment Protocol) – February 2023
- Images from within Great Bay bar in the SAV in about 2 feet of water.





PHASE 2: BARREN ISLAND BIRD ISLANDS



Terrace 1

- Transition area between water and Terrace 2
- Substrate: articulated concrete mattress that transitions to sand/shell mix
- Elevations:
 - Concrete mattress top elevation = +5 ft NAVD88
 - Terrace 1 = +5 ft NAVD88
- Design criteria: ~15-20 year mean stillwater level plus high SLR projection at 2075, or the 10-year stillwater 90% confidence water level plus high SLR at 2075
- Access Terrace 2 using sand/shell pathways over the berm along the interior edge of protective sill

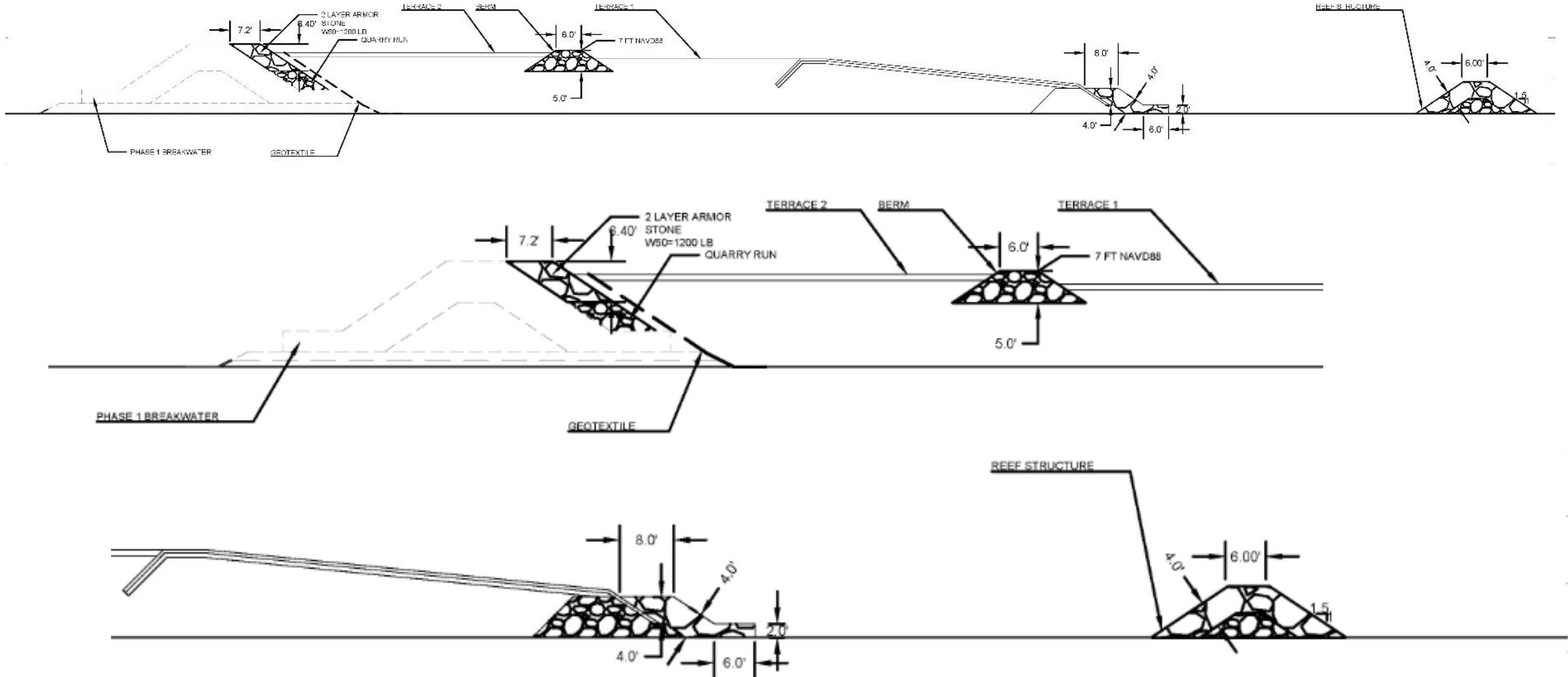
Terrace 2

- Primary nesting habitat
- Substrate: sand/shell mix
- Elevation:
 - Terrace 2 = +6.5 ft NAVD88
- Design criteria: 75 year mean stillwater level plus the high SLR projection at 2075 without waves, or ~35 yr 90% confidence still water level plus high SLR at 2075

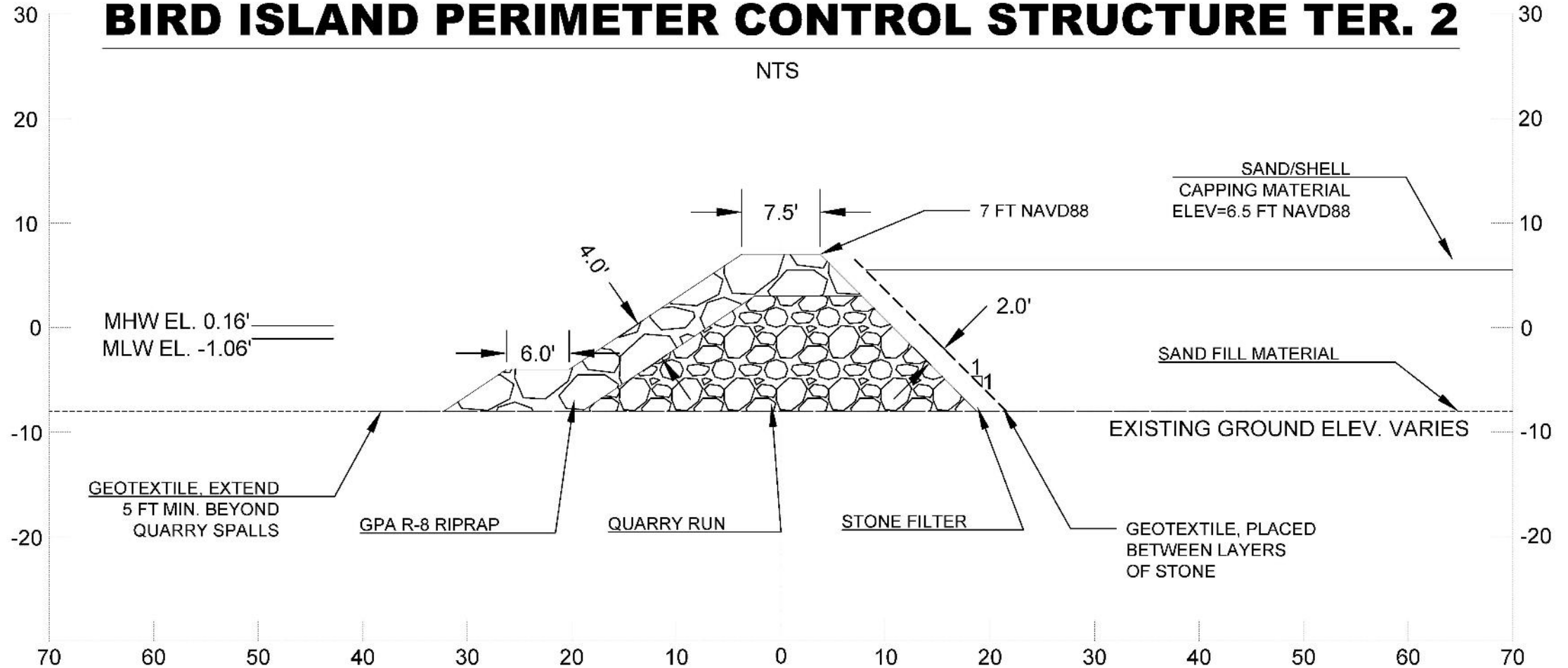
BIRD ISLAND CROSS-SECTION

BIRD ISLAND CROSS SECTION

NTS

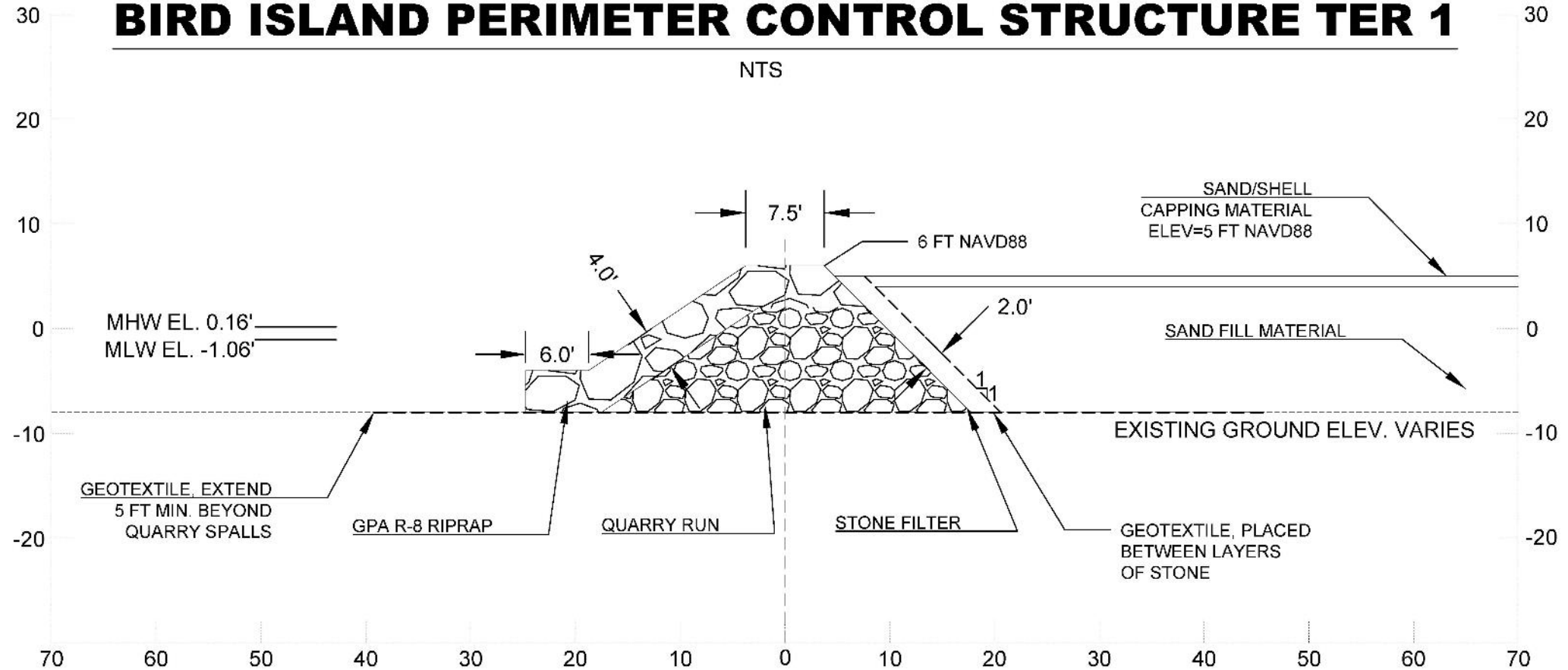


BIRD ISLAND PERIMETER CONTROL STRUCTURE TER. 2



BIRD ISLAND PERIMETER CONTROL STRUCTURE TER 1

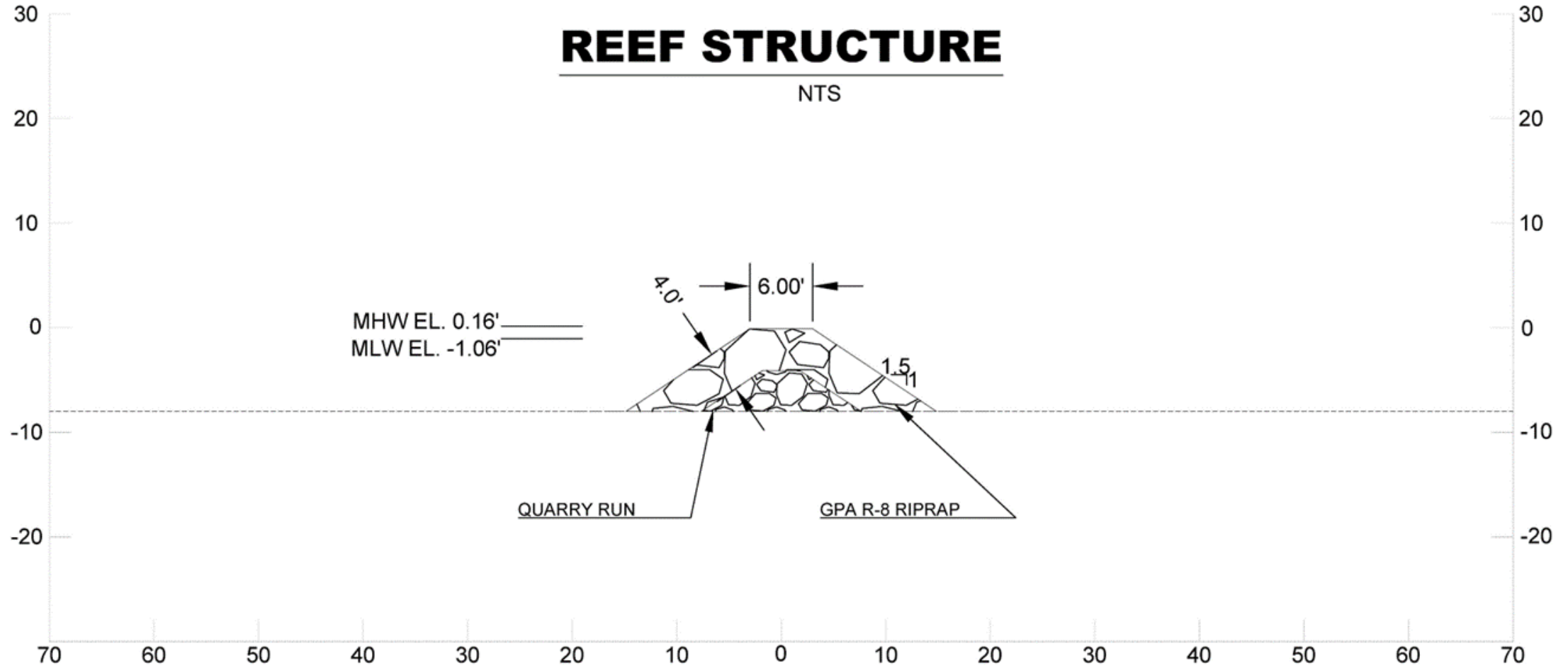
NTS





REEF STRUCTURE

NTS





BARREN ISLAND BORROW AREA sEA



- Purpose – Evaluate alternatives to enable sand to be acquired for Phase 2 efforts
- Borrow Area sEA Schedule
 - Complete surveys – geotechnical and benthic – December 2022, and cultural – March 2023
 - Draft for internal review – *April 2023*
 - Public review – *August 2023*
 - FONSI – *November 2023*

Phase 1

- Sills & Breakwater

Phase 2

- Complete Sill (where foundation remediation required)
- Bird Islands
- Spillways
- Dredge containment

Phase 3

- Dredge placement
- Wetland development

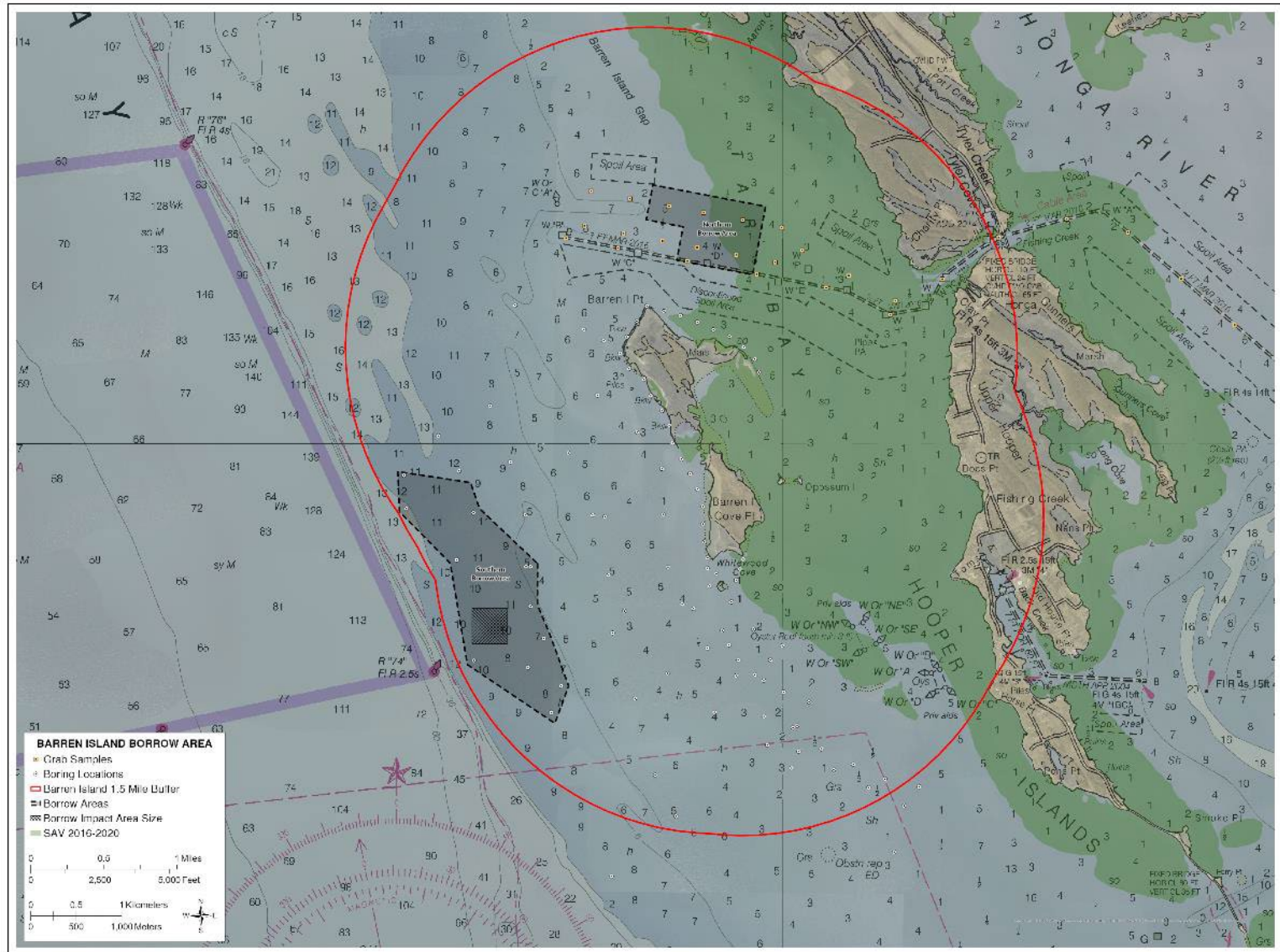


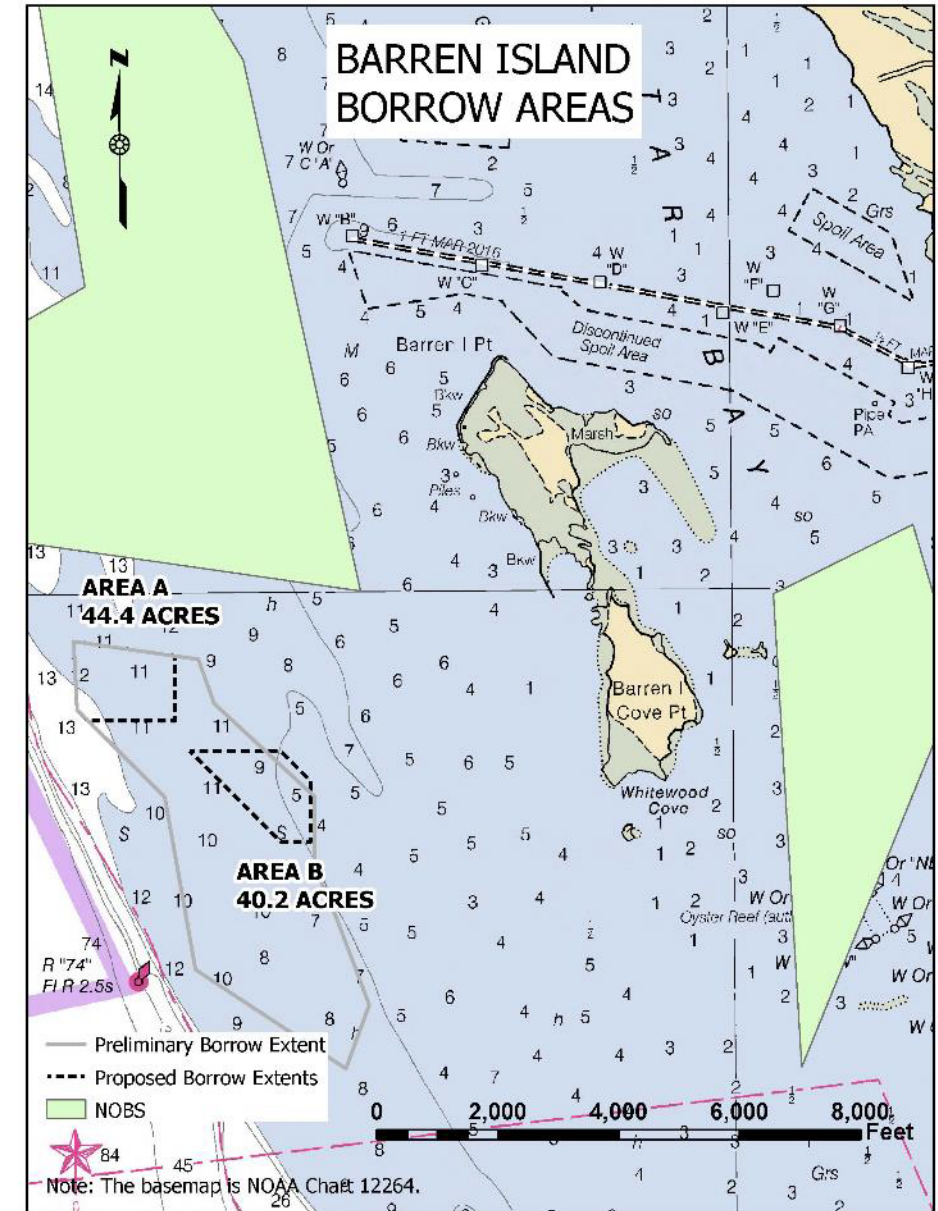
Why does the project need sand?

1. Foundation replacement to construct a portion of the northeast sill → ideal material is sand with <20% fines
2. Create structures to contain dredge material
3. Material to construct bird islands

Ideal Characteristics:

1. Low fines content
2. Homogeneity

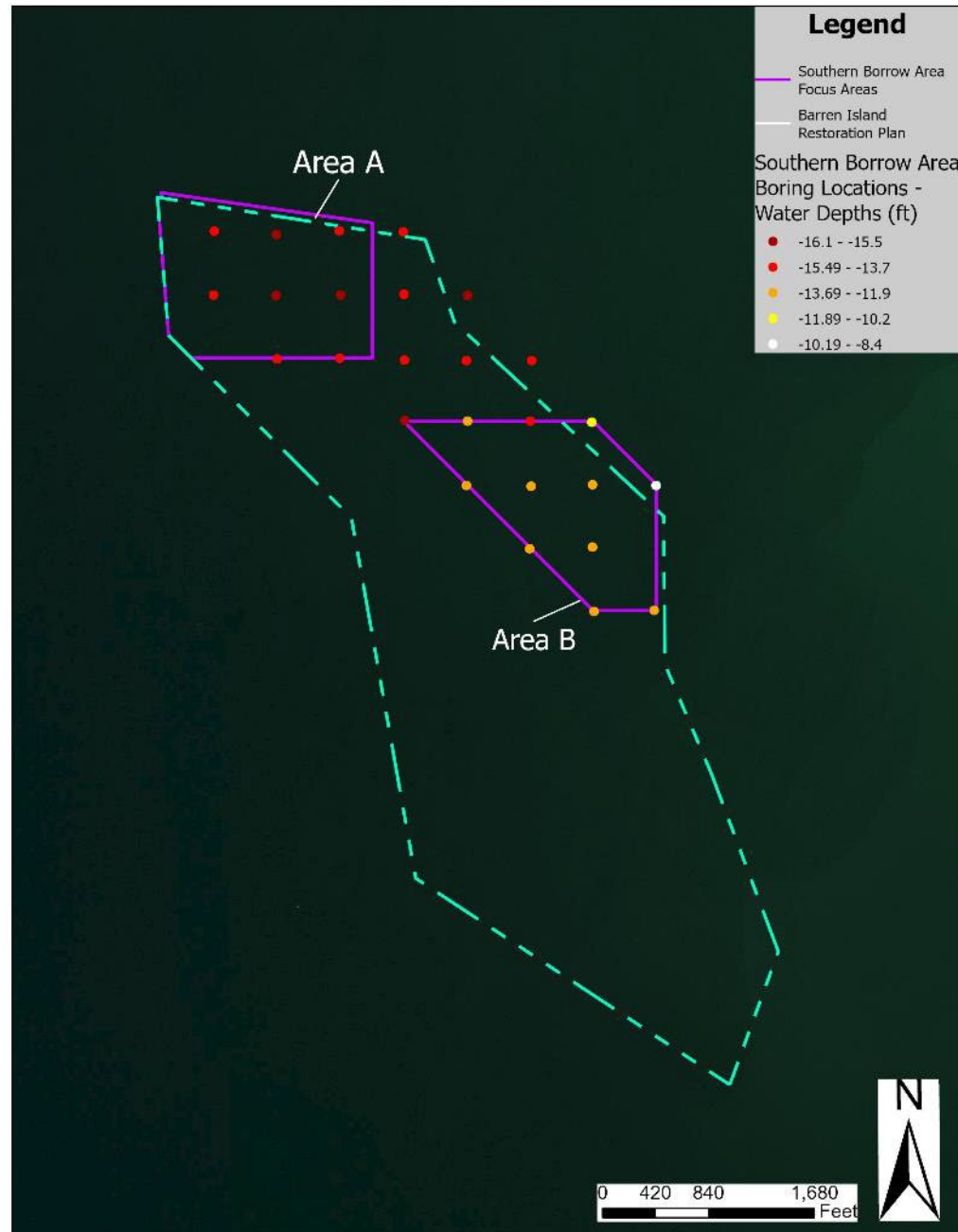






BATHYMETRY

- Bathymetry collected at boring locations available
- Full bathymetric survey has been completed (week of Feb 20)
- Results expected in March

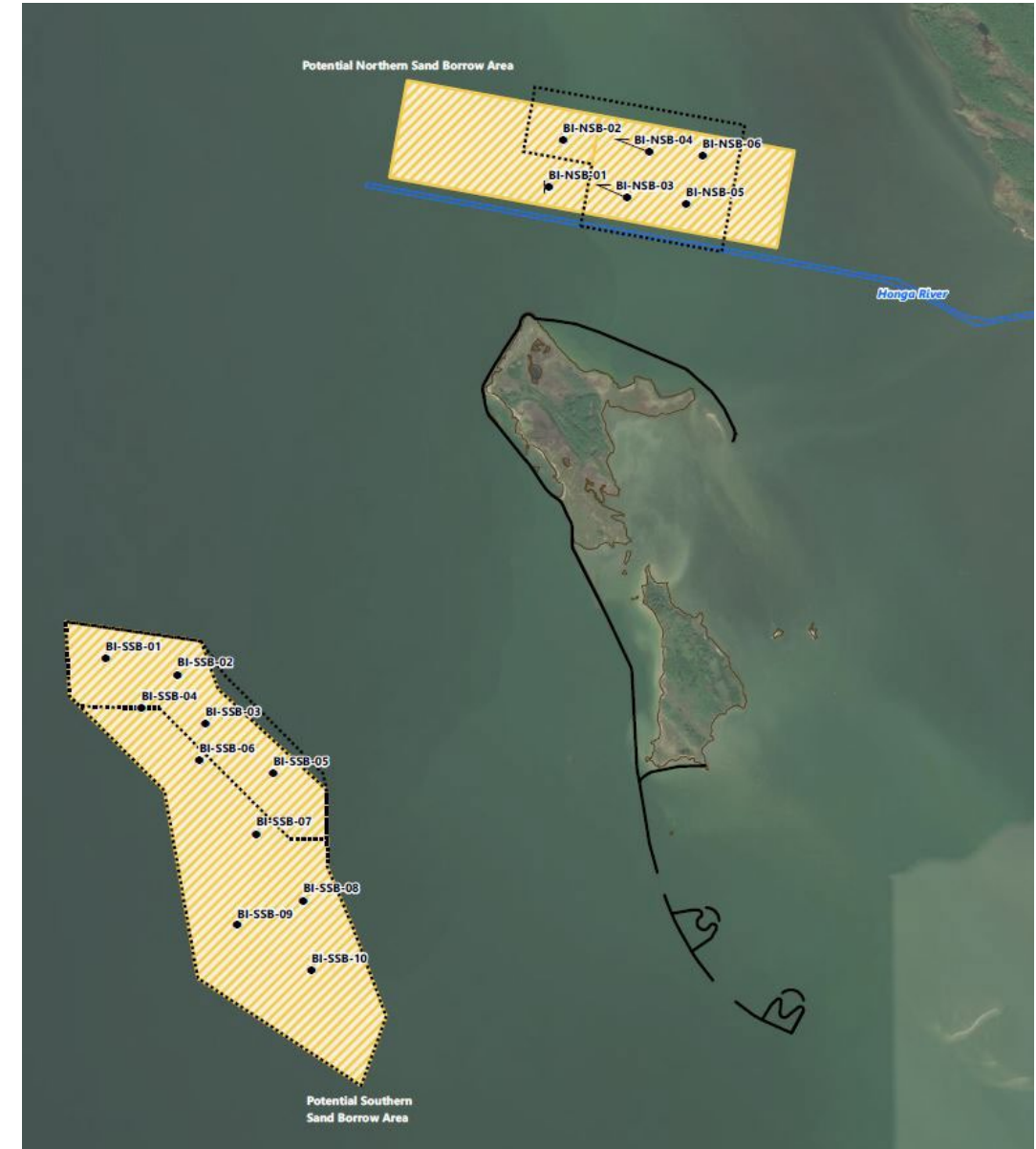




SAND BORROW BENTHIC DATA



- Sampled in August 2022 – locations based on the geotechnical data
 - 6 locations in Northern Area
 - 10 locations in Southern Area (1 – 7 in/adjacent to Focus Areas A and B)
- Chesapeake Bay Benthic Index of Biotic Integrity (B-IBI)
 - Regional set of ecological metrics
 - Abundance, diversity, specific taxa
 - Each metric is assigned a value based on habitat (salinity, grain size)
 - Compared to Bay-wide values that have been collected since 1980s





SUMMARY OF BENTHIC SURVEYS



- Bivalves and polychaetes were the *dominant taxa* in both the northern and southern borrow areas
 - Pile worms (*Mediomastus ambieseta*), segmented worms (*Glycinde multidentis*), and Mitchell macoma (*Ameritella mitchelli*)
- *Abundance* ranged from 15,939 to 49,885 organisms/m² in the proposed northern borrow area and from 4,631 to 10,333 organisms/m² in the proposed southern borrow area.
- *Number of unique taxa*: 18 to 32 in proposed northern borrow area and 17 to 23 in proposed southern borrow area
- *Species richness*: 2.9 to 3.7 in the proposed northern borrow area and from 2.9 to 4.4 in the proposed southern borrow area
- *Evenness*: 0.7 to 0.9 in the proposed northern borrow area and from 0.9 to 1.1 in the proposed southern borrow area.



SUMMARY CONTINUED



- *Shannon-Weiner species diversity index*: 2.3 to 3.0 in the proposed northern borrow area and from 3.0 to 3.6 in the proposed southern borrow area
- Simpson's dominance indices: 0.21 to 0.27 in the proposed northern borrow area and from 0.12 to 0.21 in the proposed southern borrow area

The high evenness and Shannon-Wiener species diversity indices and low Simpson's dominance indices indicate that the benthic community surrounding Barren Island is a diverse community.



GRAIN SIZE RESULTS



Area	Location	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	TOC (mg/kg)
Proposed Northern Borrow Area	NSB-01	4.3	75.1	15.5	5.1	4,500
	NSB-02	0	91.5	5.5	3	2,200
	NSB-03	0	89.2	6	4.8	1,400
	NSB-04	0	76.5	19	4.5	1,400
	NSB-05	0.1	78.4	16.6	5	2,700
	NSB-06	0	68.7	24	7.3	1,700
Proposed Southern Borrow Area	SSB-01	0	95.4	2.5	2.1	1,800
	SSB-02	0	94.1	3.9	2	1,800
	SSB-03	0	97	0.8	2.2	3,100
	SSB-04	0	93.2	3.6	3.2	2,900
	SSB-05	0	97.4	0.3	2.3	2,500
	SSB-06	0	98.4	0.2	1.5	2,700
	SSB-07	0	96.3	0.9	2.9	2,600
	SSB-08	0	96	1	3	1,300
	SSB-09	0	96.3	0.5	3.2	1,300
	SSB-10	0	97.1	0.5	2.5	1,800



NORTHERN BORROW AREA: B-IBI



	NSB-01		NSB-02		NSB-03		NSB-04		NSB-05		NSB-06	
	Result	Score	Result	Score	Result	Score	Result	Score	Result	Score	Result	Score
Salinity regime	High mesohaline sand		High mesohaline sand		High mesohaline sand		High mesohaline sand		High mesohaline sand		High mesohaline sand	
Shannon-Weiner species diversity index	2.7	1	3.0	3	2.6	3	2.5	3	2.3	5	2.5	3
Total abundance/m ²	30,100	1	16,877	1	21,431	1	15,939	1	49,885	1	26,904	1
Biomass/m ²	1.2	3	3.4	5	1.7	3	1.6	3	2.2	3	1.8	3
Percent abundance stress-indicative species	3.0	5	6.0	5	4.2	5	6.0	5	3.5	5	4.2	5
Percent abundance stress-sensitive species	46.2	3	14.0	3	21.0	3	11.5	3	42.0	1	29.5	3
Percent abundance carnivores and omnivores	10.5	1	18.6	1	14.1	1	13.8	1	7.94	1	14.1	1
B-IBI	2.3		3		2.67		2.67		2.67		2.67	
Restoration goal	Degraded		Meets restoration goal		Degraded		Degraded		Degraded		Degraded	



SOUTHERN BORROW AREA: B-IBI (SSB-01 TO 05)



	SSB-01		SSB-02		SSB-03		SSB-04		SSB-05	
	Result	Score	Result	Score	Result	Score	Result	Score	Result	Score
Salinity regime	High mesohaline sand		High mesohaline sand		High mesohaline sand		High mesohaline sand		High mesohaline sand	
Shannon-Weiner species diversity index	3.6	1	3.1	3	3.2	1	3.5	1	3.1	3
Total abundance/m ²	6,889	1	4,631	3	5,492	1	8,056	1	9,950	1
Biomass/m ²	1.1	3	2.1	3	1.8	3	3.3	5	2.5	3
Percent abundance stress- indicative species	1.7	5	5.4	5	2.1	5	3.1	5	6.2	5
Percent abundance stress- sensitive species	22.2	3	23.1	3	30.0	3	21.9	3	37.5	3
Percent abundance carnivores and omnivores	39.4	5	39.7	5	38.7	5	30.9	3	30.4	3
B-IBI	3		3.67		3		3		3	
Restoration goal	Meets restoration goals		Meets restoration goals		Meets restoration goals		Meets restoration goals		Meets restoration goals	



SOUTHERN BORROW AREA: B-IBI (SSB-06 TO 10)



	SSB-06		SSB-07		SSB-08		SSB-09		SSB-10	
	Result	Score	Result	Score	Result	Score	Result	Score	Result	Score
Salinity regime	High mesohaline sand		High mesohaline sand		High mesohaline sand		High mesohaline sand		High mesohaline sand	
Shannon-Weiner species diversity index	3.2	3	3.6	1	3.0	3	3.3	1	3.4	1
Total abundance/m ²	6,066	1	10,333	1	9,912	1	7,520	1	7,616	1
Biomass/m ²	2.2	3	3.3	5	3.3	5	2.5	3	2.8	3
Percent abundance stress-indicative species	3.2	5	3.0	5	1.9	5	1.5	5	4.5	5
Percent abundance stress-sensitive species	31.9	3	15.2	3	13.1	3	25.2	3	5.0	5
Percent abundance carnivores and omnivores	42.3	5	31.1	3	23.8	3	30.5	3	26.9	3
B-IBI	3.33		3		3.33		2.67		3	
Restoration goal	Meets restoration goals		Meets restoration goals		Meets restoration goals		Degraded		Meets restoration goals	



OPEN DISCUSSION / QUESTIONS

MID-CHESAPEAKE BAY ISLAND ECOSYSTEM RESTORATION PROJECT: JAMES ISLAND

Modeling Overview

Presented by:

Jeffrey Melby, PhD, PE

Margaret Owensby

Jennifer McAlpin, PhD, PE

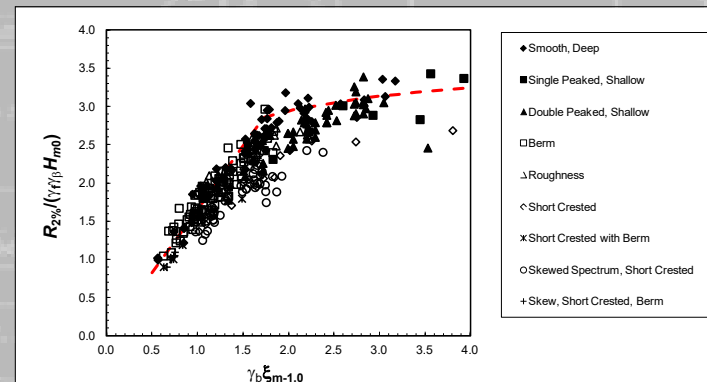
Coastal and Hydraulics Laboratory
Engineering Research and Development Center
U.S. Army Corps of Engineers

February 28, 2023

"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."



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PROBABILISTIC ENGINEERING ANALYSIS (STORMSIM)

Coastal Hazards System (CHS)

What is the CHS?

A national-scale, multi-agency initiative for accurate, efficient, and consistent coastal storm hazards quantification along U.S. coastlines and other strategic locations critical to U.S. national security.

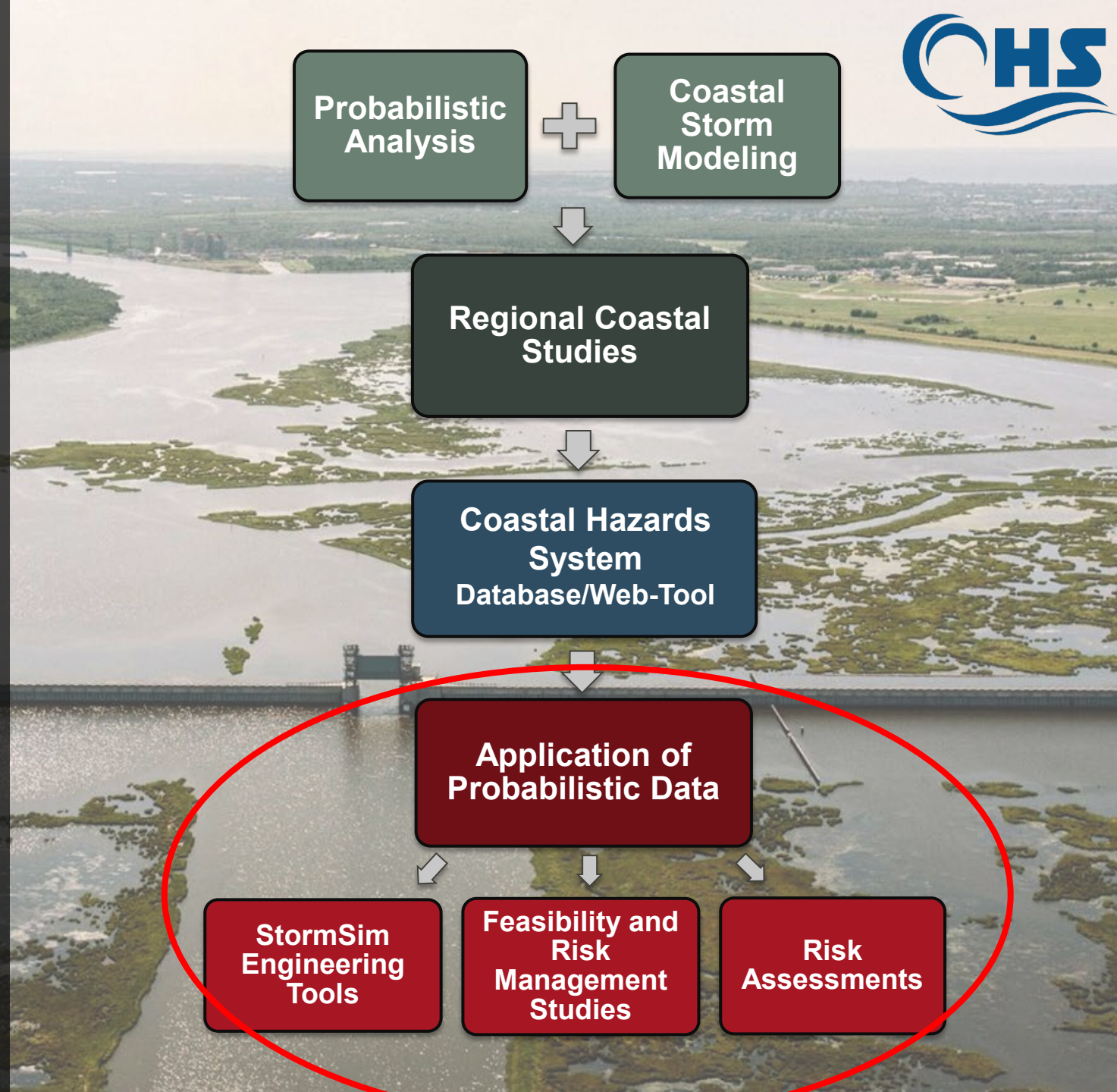
Goals:

Provide high-fidelity, high-resolution state-of-the-art hydrodynamic and probabilistic modeling and companion tools in a multivariate statistical context for coastal planning, engineering, and operations and maintenance.

Impact to the Nation:

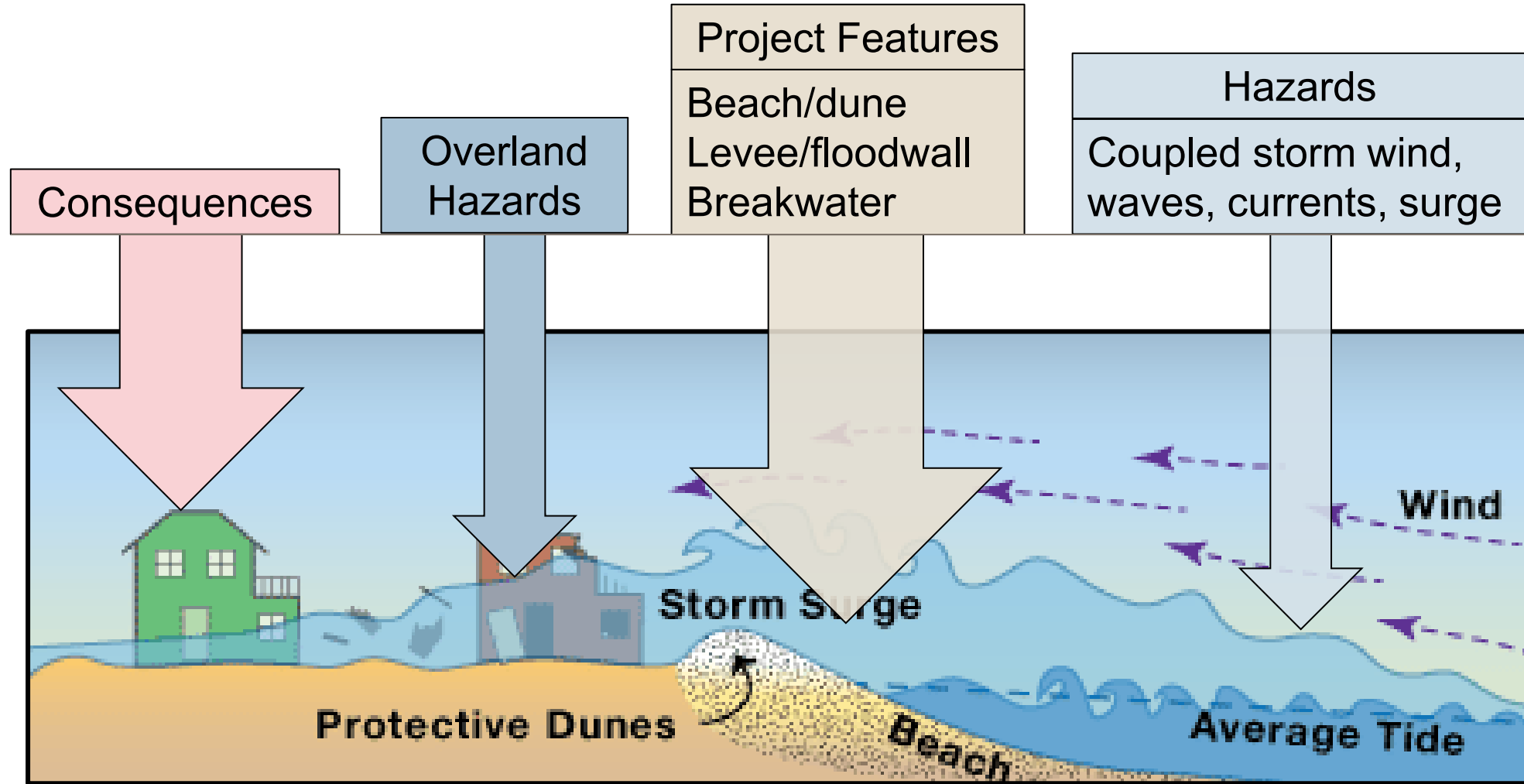
Methods, data, and tools within the CHS serve as the basis for coastal engineering by providing high-fidelity, probabilistic coastal hazards on a national scale.

<https://chs.erdcdren.mil>



QUANTIFY RISK

$$\text{Risk} = \text{Hazard} \times \text{Exposure} \times \text{Vulnerability}$$





STOCHASTIC STORM SIMULATION SYSTEM: STORMSIM

32



- Simplify and automate complex multi-variate PCHA for primary and derived hazards.
- CHS context
 - Storm suite spans probability space
 - Hazards span coastal processes (e.g., surge, tides, waves, winds, SLR)
 - Aleatory and epistemic uncertainty
 - High fidelity
 - Time-integrated, time-dependent, life-cycle





REGIONAL STUDIES



USACE Regional Studies

- **North Atlantic Coast Comprehensive Study (NACCS)**
- Coastal Texas Study (CTXS)
- South Atlantic Coastal Study (SACS): 3 Phases
- Louisiana Study (2021)
 - Hurricane and Storm Damage Risk Reduction System (HSDRRS) Re-Certification

USACE Supplemental Studies

- **NACCS**
 - **NY-NJ Harbors and Tributaries CSRM**
 - **New Jersey Back Bays CSRM**
 - **Nassau County Back Bays CSRM**
- CTXS
 - Sabine 2 Galveston – Feasibility and PED
 - Galveston, TX – Coastal Spine
- Miami/Dade County, FL Keys, Collier County studies
 - FEMA Region IV data
- Midbay – Chesapeake Bay DDF and environmental restoration

FEMA Coastal Flood Hazard Studies

- Region V
 - Great Lakes
- Region VI
 - Texas – Appeal support
 - St. Tammany Parish, Louisiana (*Parish led*)
- Region IV
 - Mississippi – Mapping update (*State led*)
- Region II
 - Nantucket Island – Pilot

U.S. Nuclear Regulatory Commission (NRC)

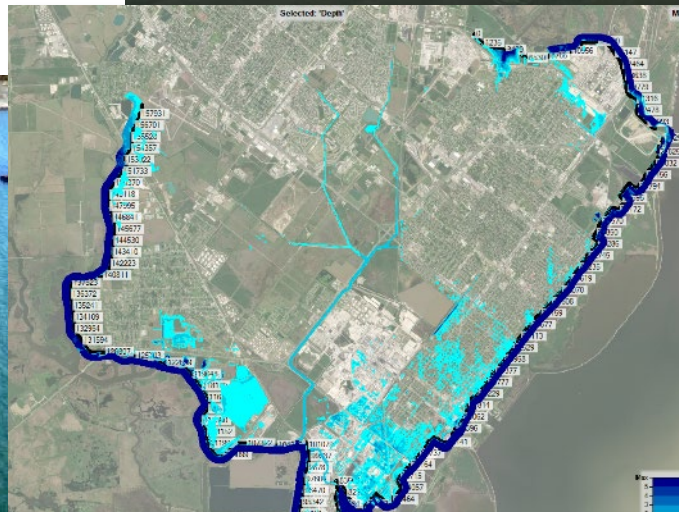
- Quantification of Uncertainty in Probabilistic Storm Surge Models (NACCS)
- Pilot Study on Compound Flooding Hazards (CTXS)

DoD Missile Defense Agency

- Homeland Defense Radar – Pacific Missile Range

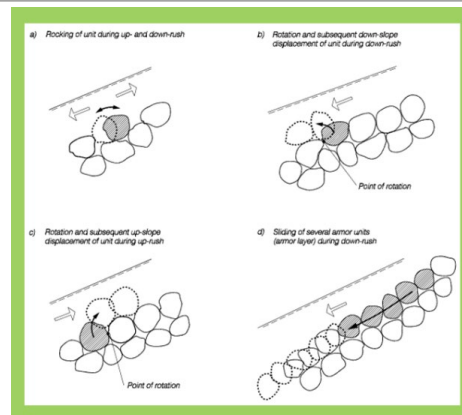
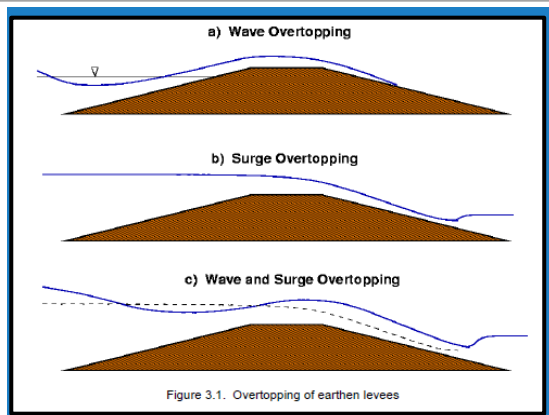
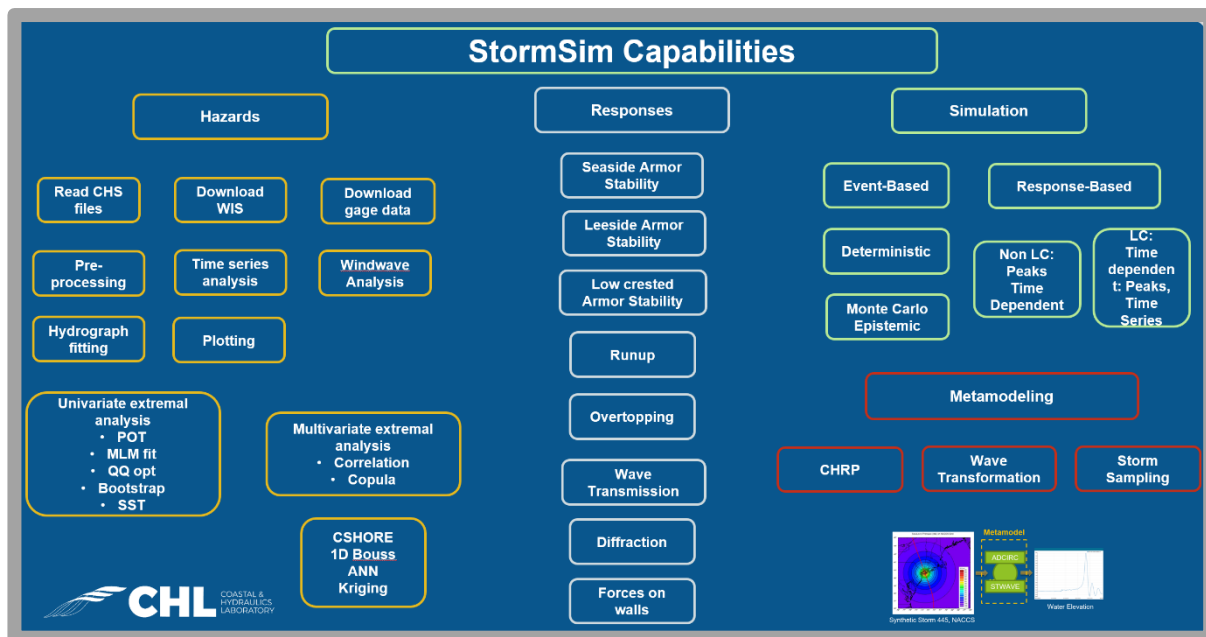


PROJECT TYPES

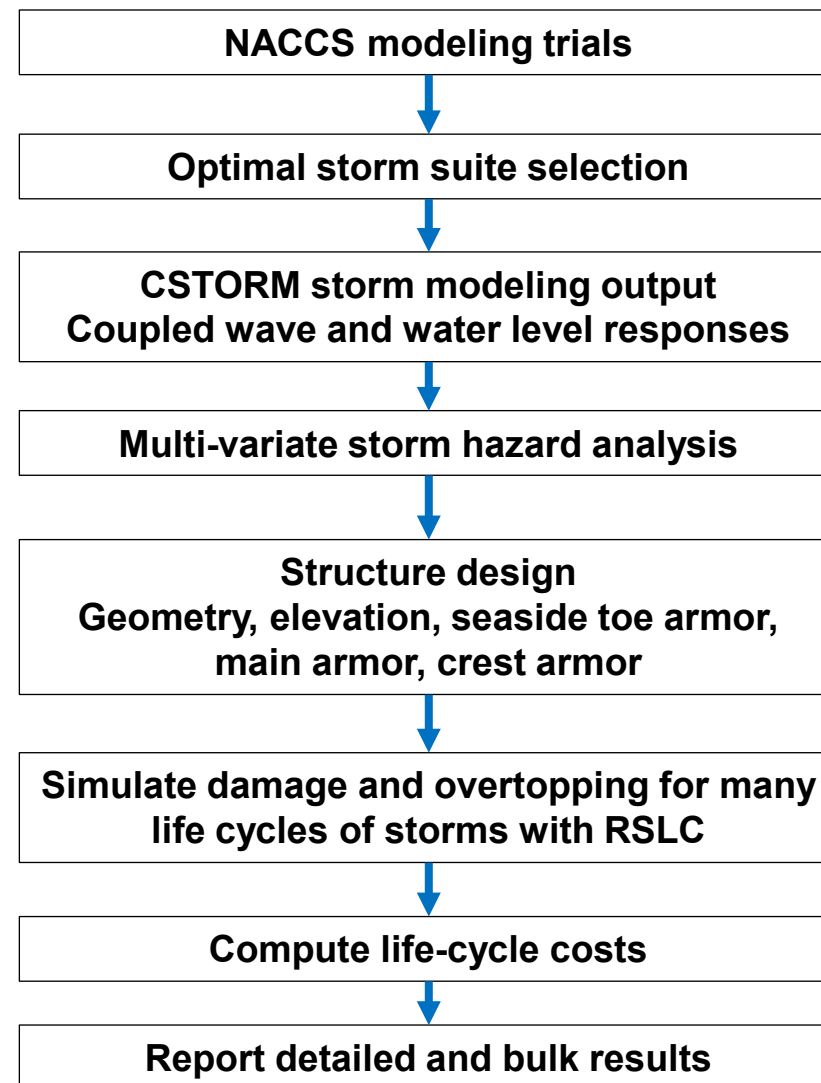




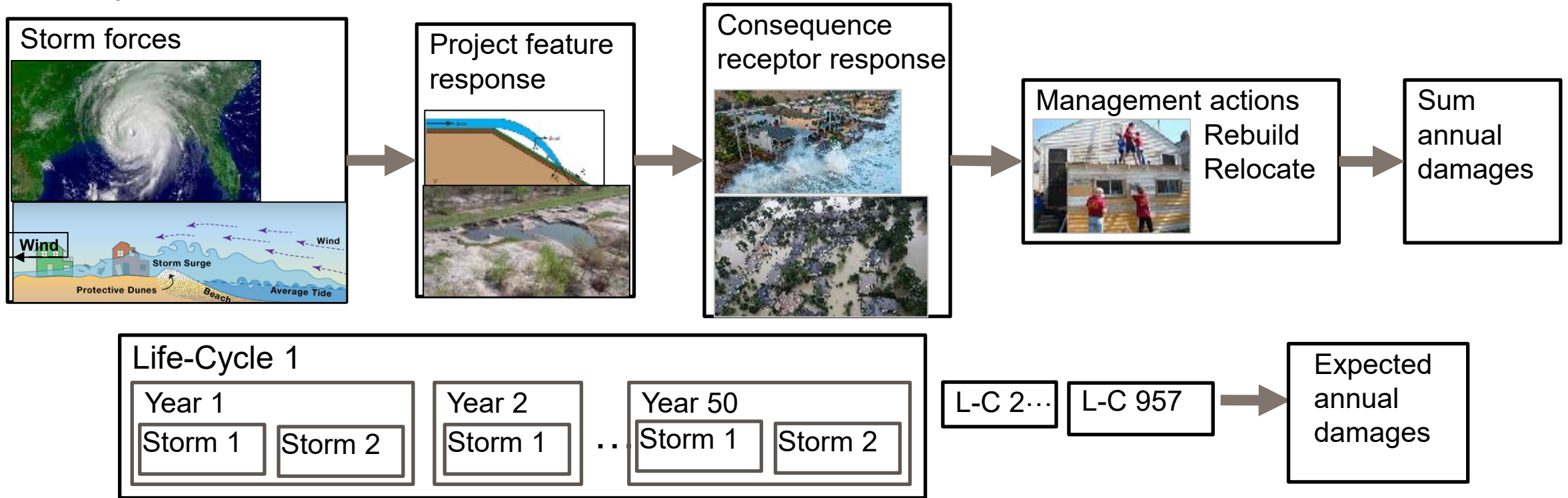
StormSim TOOLS



WORKFLOW



Digital twin of project or component performance
Computational workflow



Model time-dependent natural and management processes

Deterministic (forensic, historical) or stochastic (assess uncertainty)

Technology: numerical hydrodynamic models, planning models, Coastal Hazards System, AI, data



UNCERTAINTY

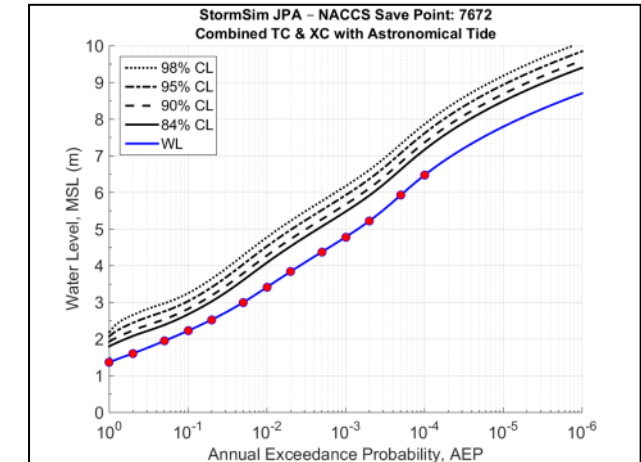
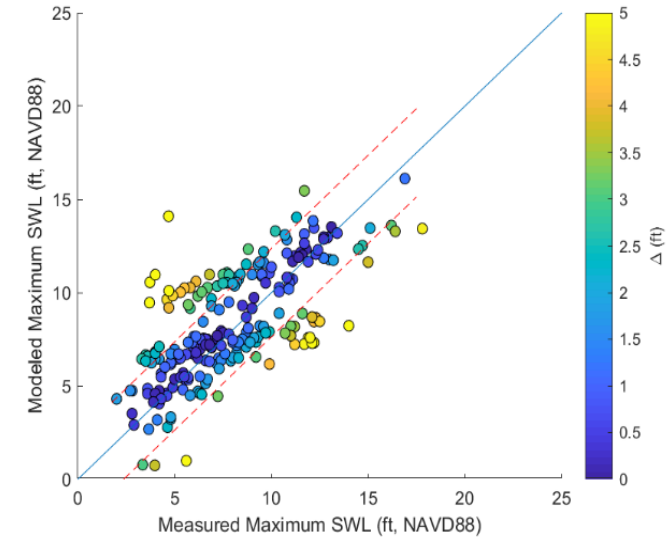
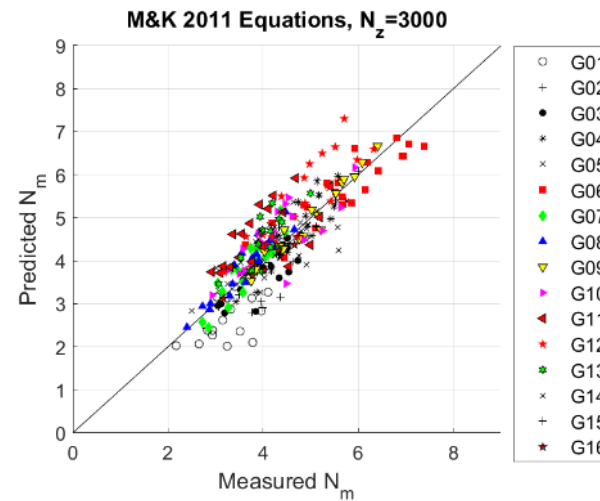
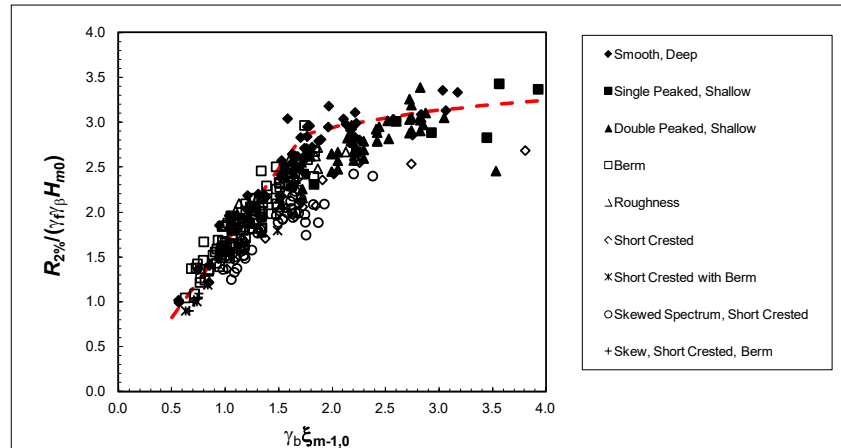
- Aleatory (natural variability) and epistemic (model error)
- Uncertainty incorporated in hazard analysis, structure design and life cycle simulation
- Storm meteorological models and parameters
- Storm hydrodynamic models
- Structure response empirical models

Runup and overtopping

Seaside armor stability and damage

Toe berm stability

Crest armor stability and damage

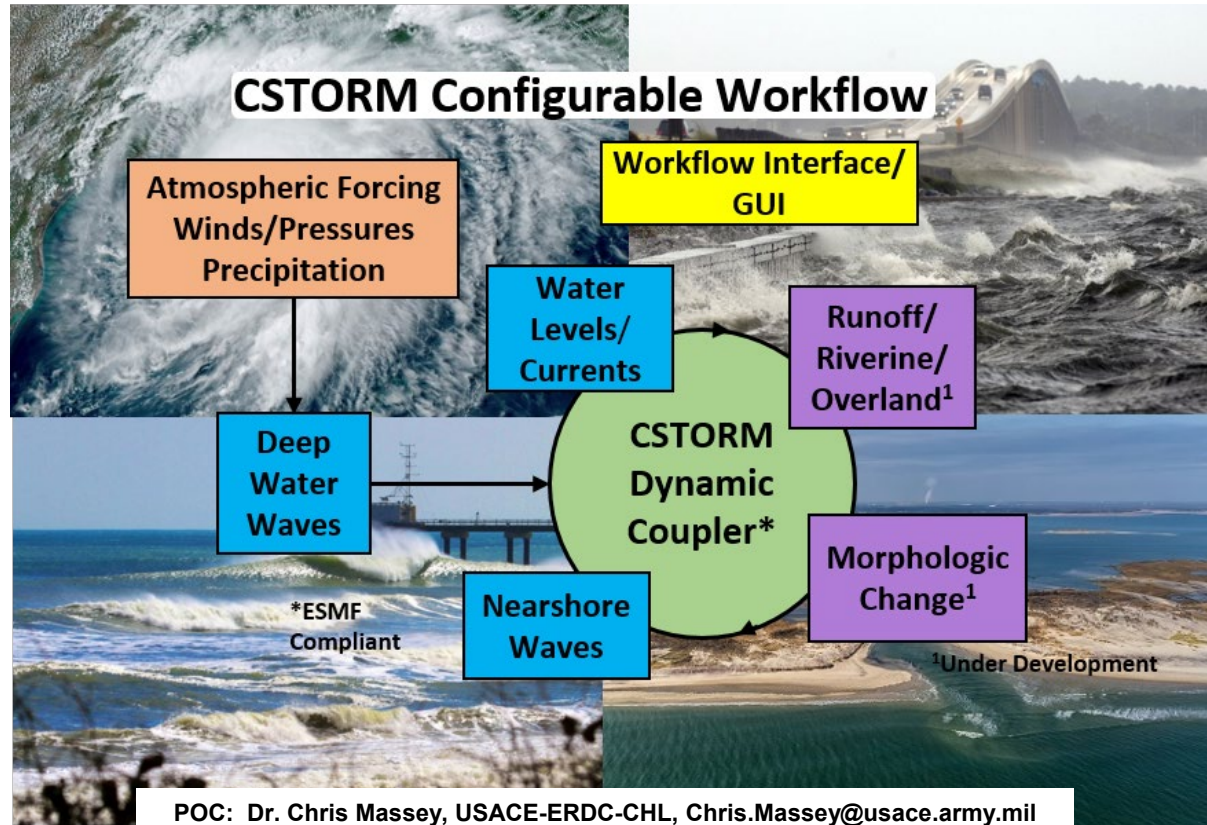




HYDRODYNAMIC MODELING (COASTAL STORM MODELING SYSTEM)

COASTAL STORM MODELING SYSTEM (CSTORM)

Application of high-resolution, highly skilled numerical models in a tightly integrated modeling system with user friendly interfaces



Atmospheric Forcing

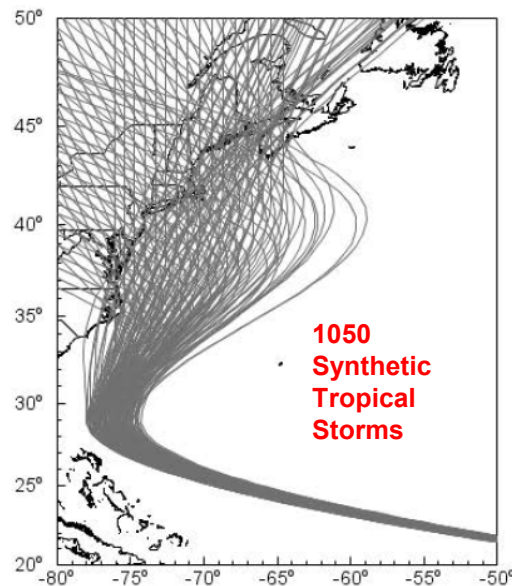
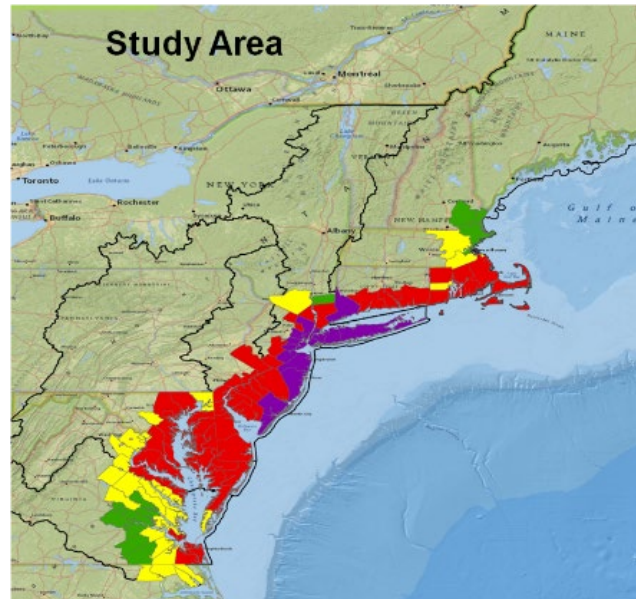
- Tropical cyclones
- Extratropical cyclones
- **Rainfall**

Response

- Water level (storm surge, astronomical tide, sea level change) (**and Runoff**)
- Currents
- Wave height, period, direction
- Wind speed, direction
- **Precipitation**

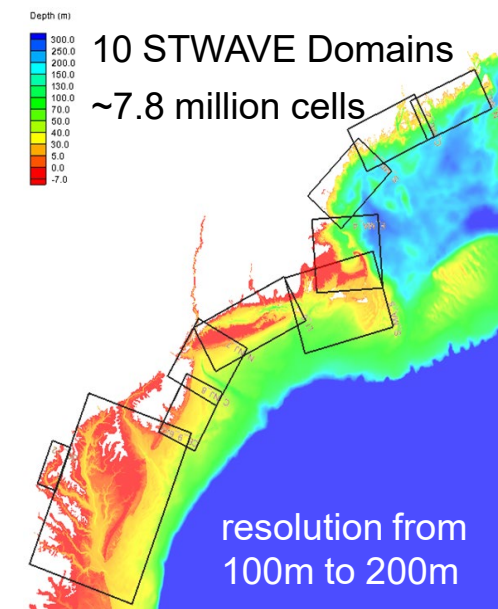
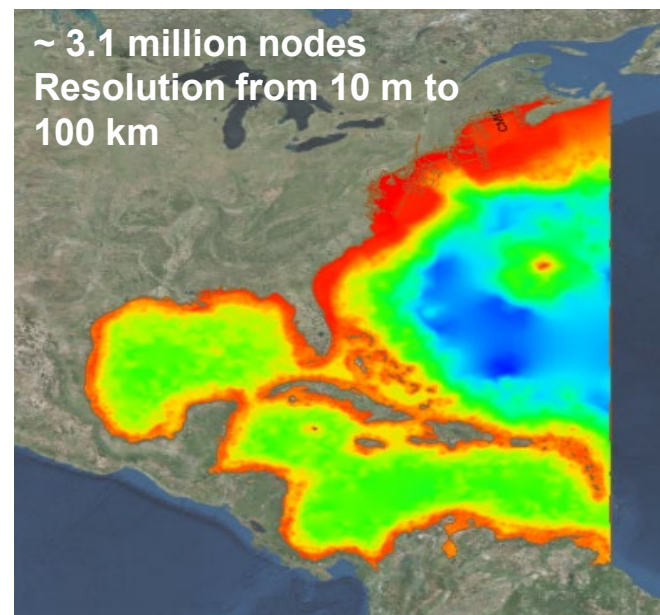
Provides for a robust, standardized approach to model coupling and is used for establishing the risk to coastal communities of future occurrences of storm events.

NORTH ATLANTIC COAST COMPREHENSIVE STUDY (NACCS)

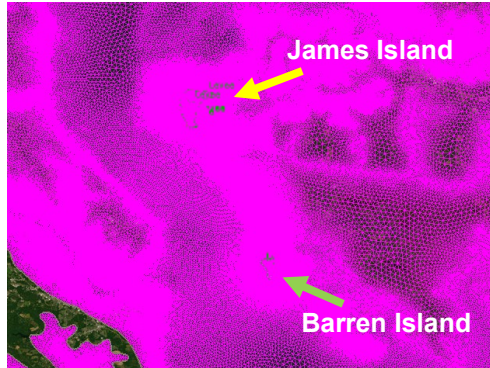


CSTORM modeling for James Island leverages products developed as part of the regional-scale NACCS study (see Cialone et al. 2015)

- Over 3400 high resolution CSTORM simulations for winds, waves and surge levels including sea level rise scenarios.
- 1,050 Synthetic Tropical + 100 Extra Tropical Storms
- Water Levels:
 - Present Day No Tides
 - Present Day Random Tides
 - 1m SLR No Tides

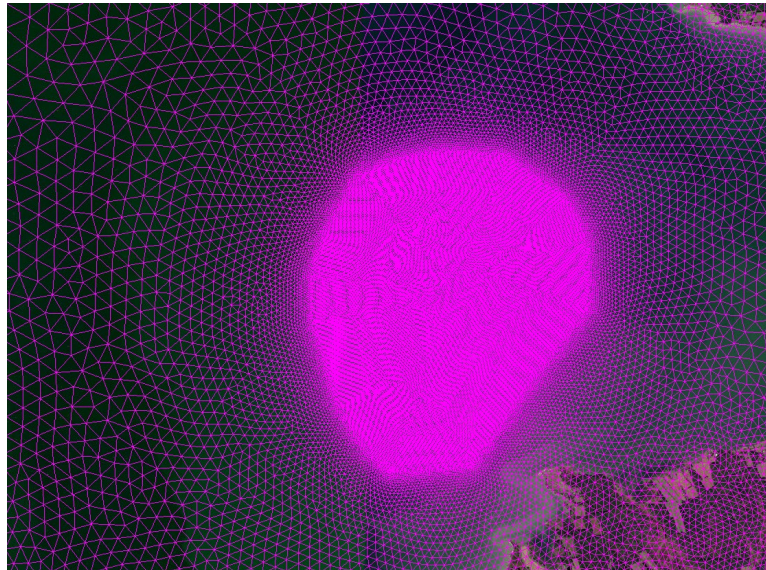


JAMES ISLAND ADCIRC MESH

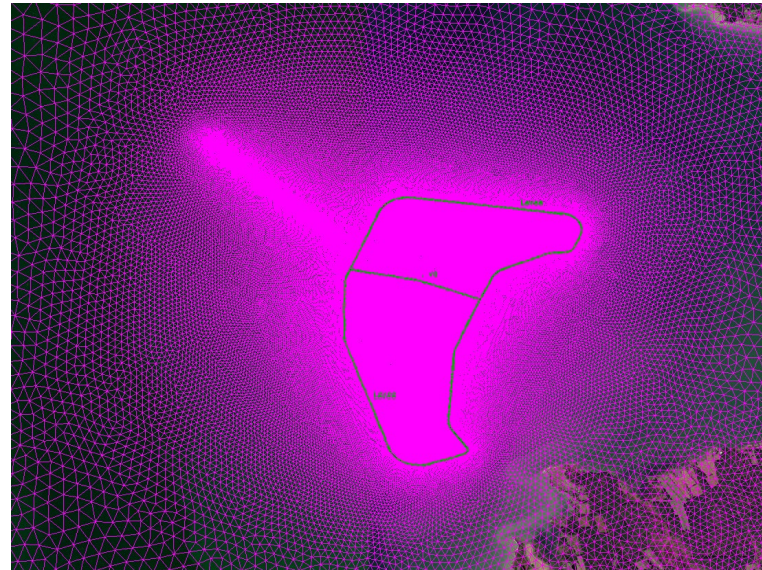


Perimeter dike and access channel outlines

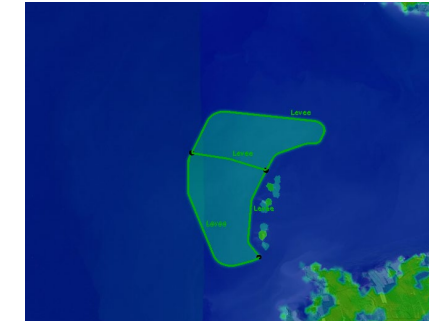
- Updated ADCIRC grid for with-project scenario to incorporate upland and wetland perimeter dikes and access channel
- Model resolution ~15 m at project site
- Updated bathymetry, topography, and Manning's n in surrounding area



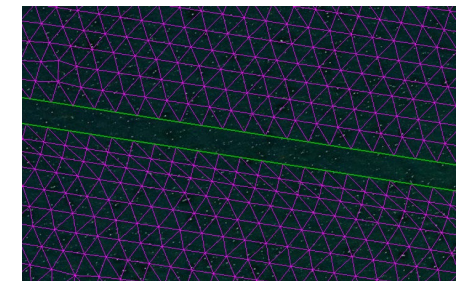
General Refinement



Project Level Refinement



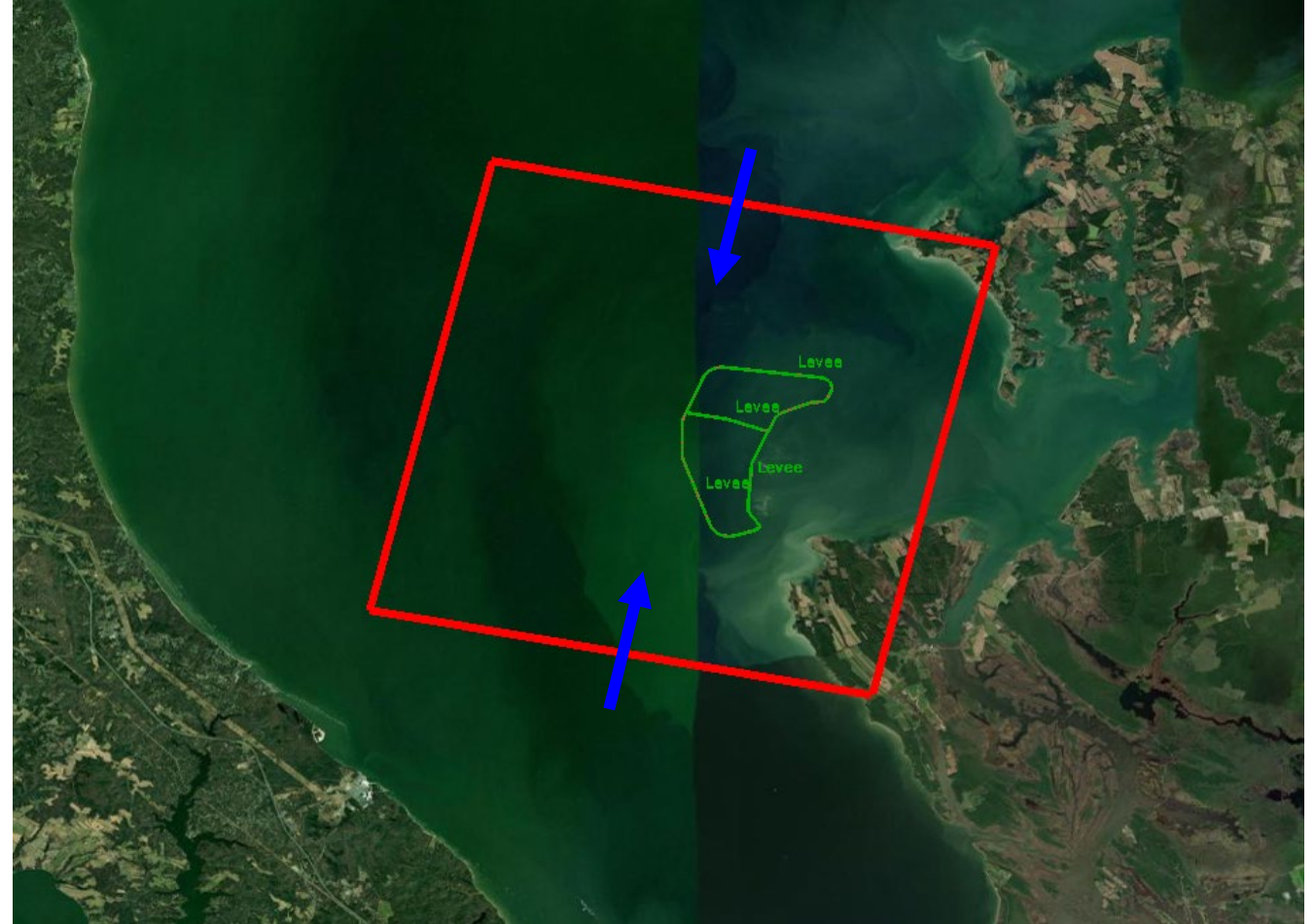
Updated Manning's n values



Detail of perimeter dike in grid

JAMES ISLAND STWAVE GRIDS

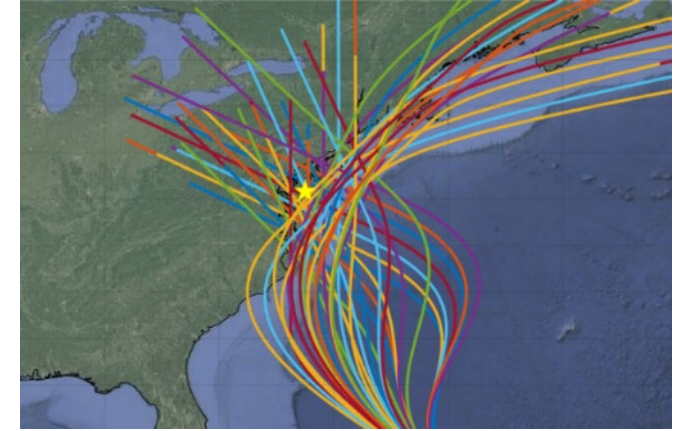
- Chesapeake Bay, bay wide grid resolution of 70 meters
- Nested project area grid resolution of 17.5 meters
- Nested grids forced from north and south directions by bay wide grid



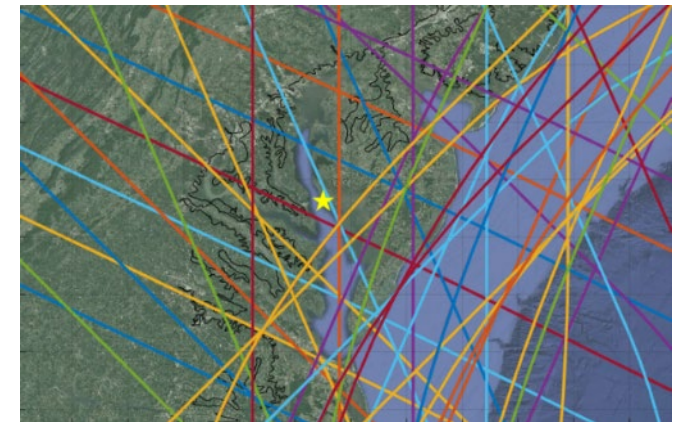
Location of James Island nested STWAVE grids (red box). Arrows indicate grid forcing boundaries.

CSTORM simulations conducted as part of James Island project include:

- Two (2) tides-only simulations for month-long date ranges to generate boundary conditions for interior wetland modeling (AdH model):
 - February 2018
 - June 2018
- 100 synthetic tropical storms from NACCS storm suite
 - Run with estimated sea level for 2030



Tracks of 100 synthetic tropical NACCS storms used for hydrodynamic analysis of James Island



Detail of 100 synthetic tropical storm tracks used for hydrodynamic analysis of James Island

CSTORM MODEL RESULTS

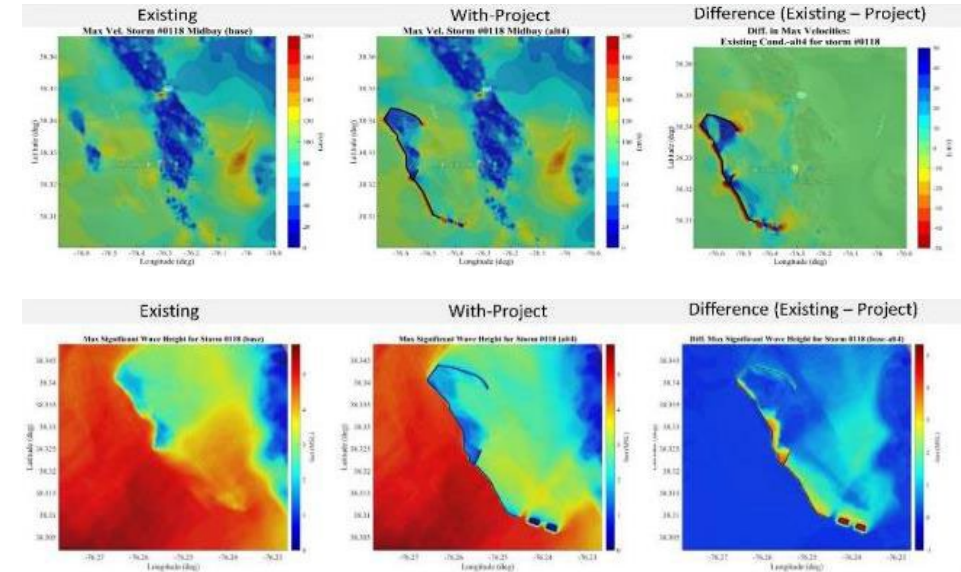
Products generated as part of analysis will include:

Color maps for each storm event comparing with- and without-project results for:

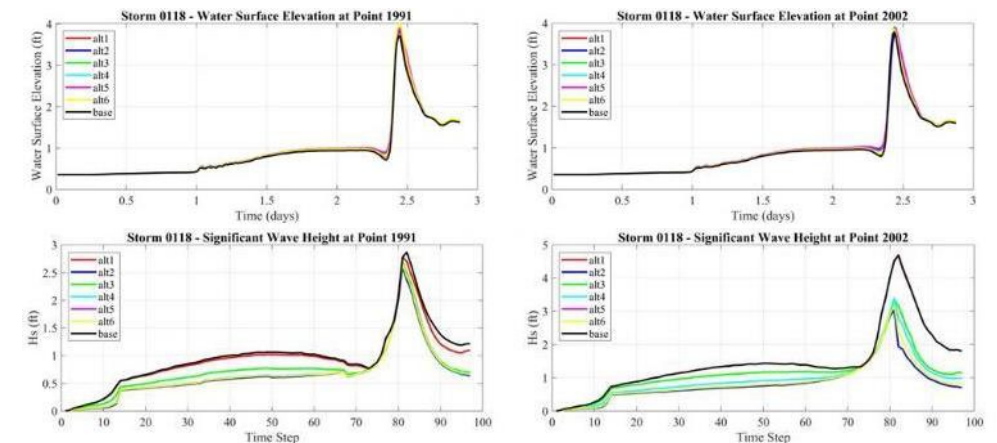
- Maximum water surface elevation
- Maximum current velocity
- Maximum significant wave height

Time series comparing with- and without-project results throughout simulation at selected save point locations for:

- Water surface elevation
- Current velocity
- Significant wave height



Example color maps comparing maximum velocity and significant wave height results (from Barren Island simulations)



Example time series plots comparing water surface elevation and significant wave height results (from Barren Island simulations)

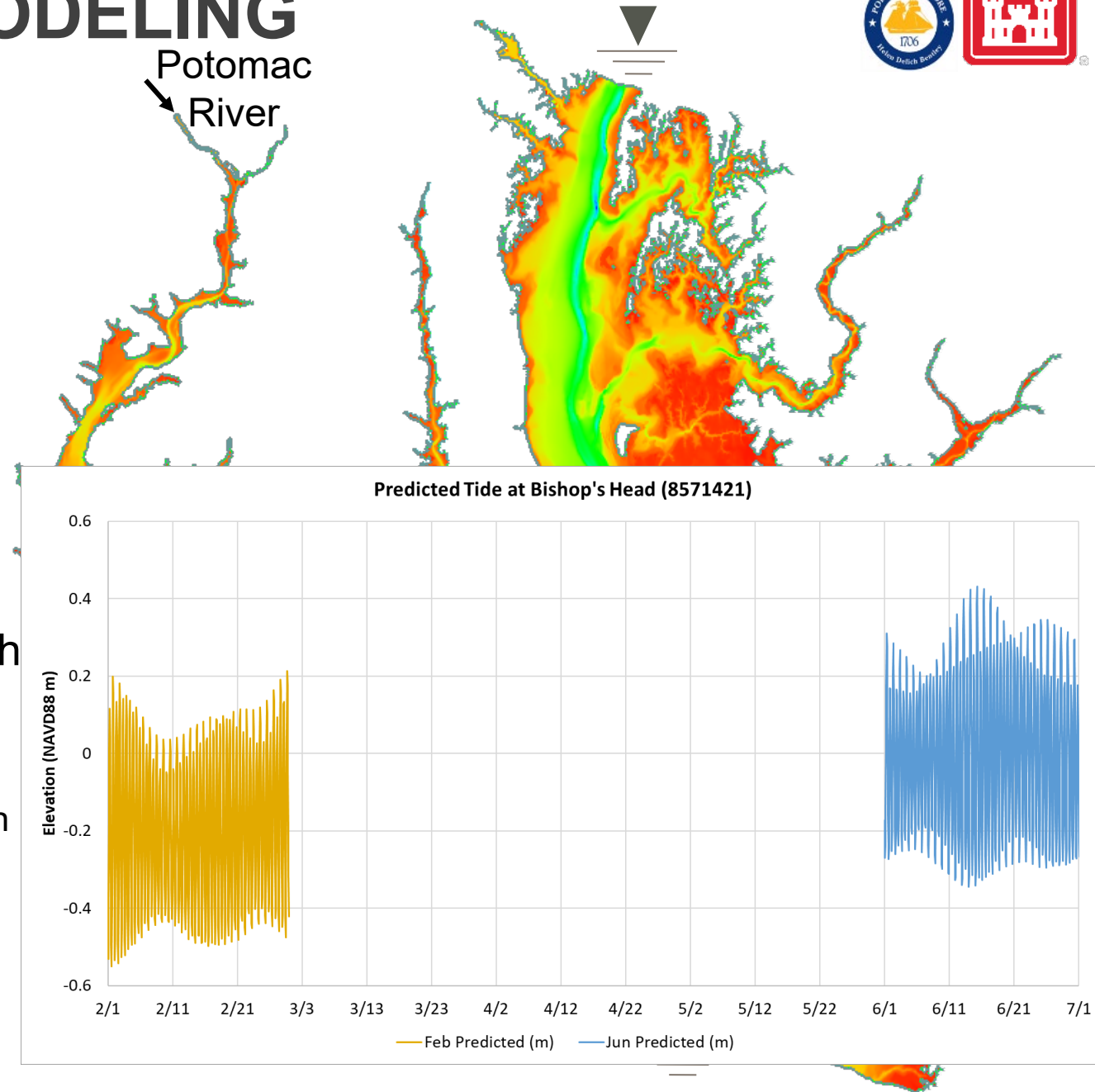


INTERIOR WETLAND MODELING (ADH MODEL)



INTERIOR WETLAND MODELING

- Adaptive Hydraulics (AdH)
 - Finite Element code developed at ERDC-CHL
 - Used to model many estuarine/riverine systems world-wide
- Based on the ADCIRC model shown previously
 - Using a subsection of the mesh
 - Using modeled water levels on the north and south to drive AdH (predicted tide)
 - Includes river inflows
 - Potomac River is the only one not included in the ADCIRC water levels
 - Simulating February and June 2018
 - Feb – large tidal amplitude, low elevation
 - Jun – large tidal amplitude, high elevation



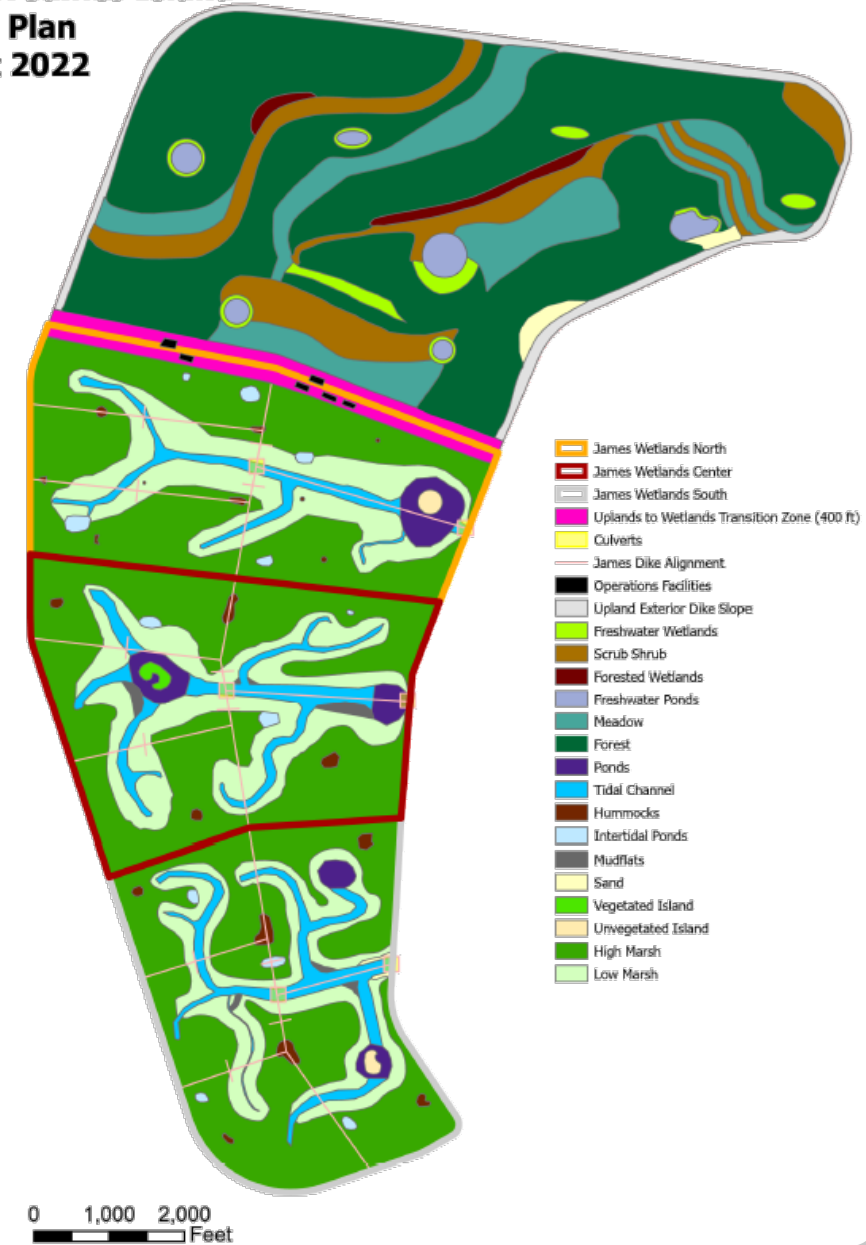


INTERIOR WETLAND MODELING



**MidBay: James Island
Master Plan
August 2022**

- The AdH mesh will be modified to include the island restoration features.
- Current master plan shown here →
- The model will be used to assist in:
 - Determining functionality of the wetland cell design
 - Sizing the main tidal channels
 - Sizing the bay openings
- Determination of performance criteria is still being developed
 - Inundation time of high/low marsh areas?
 - Flushing time of water from internal wetland areas?
 - Velocity magnitude of flow within the tidal channels?
 - Others?



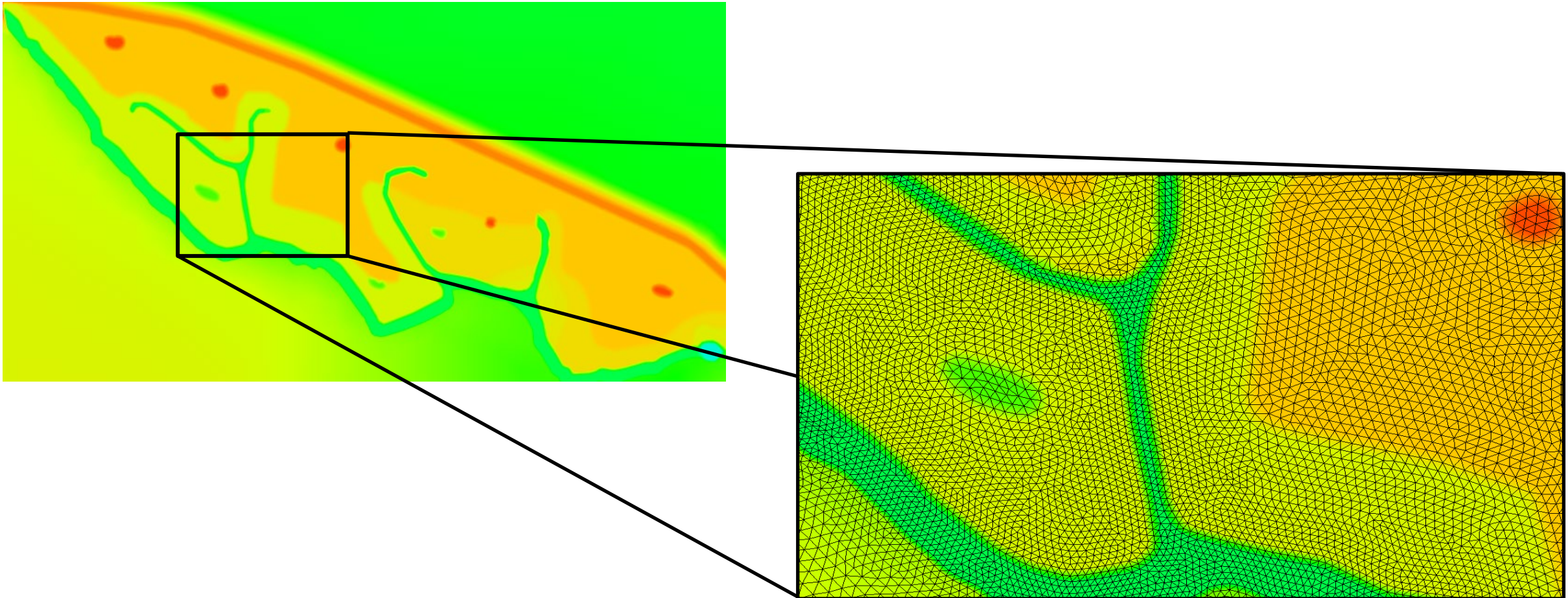


INTERIOR WETLAND MODELING

BARREN ISLAND EXAMPLES



- Mesh modifications



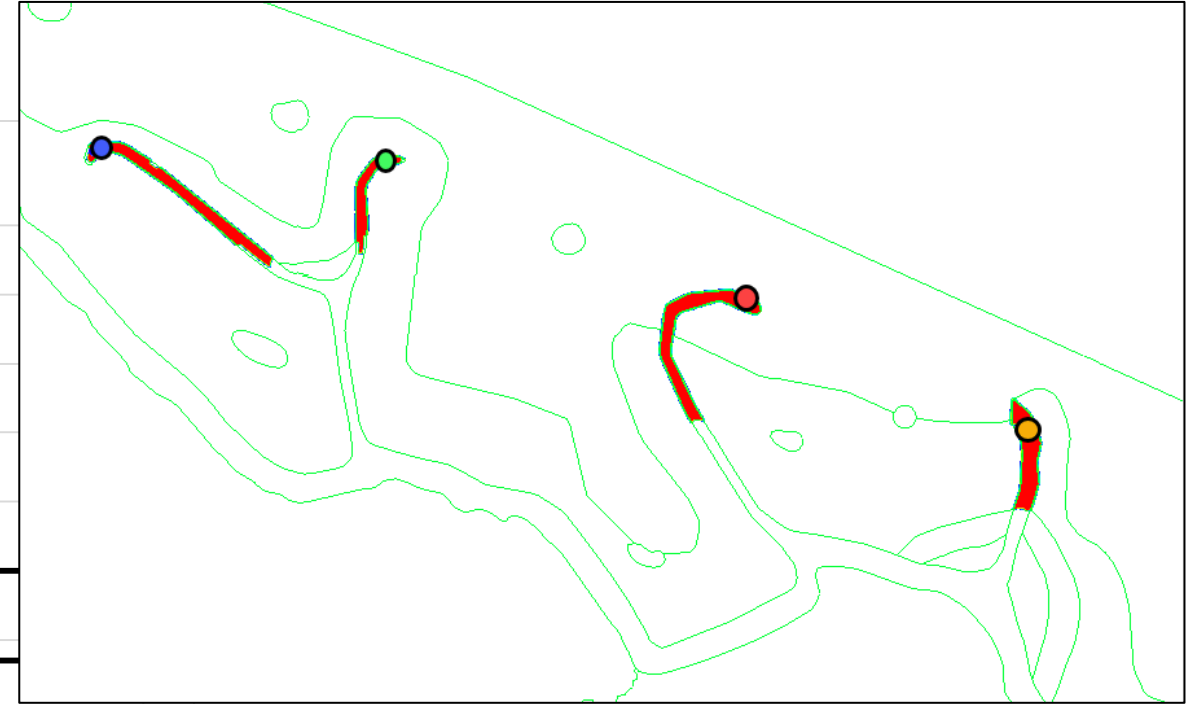
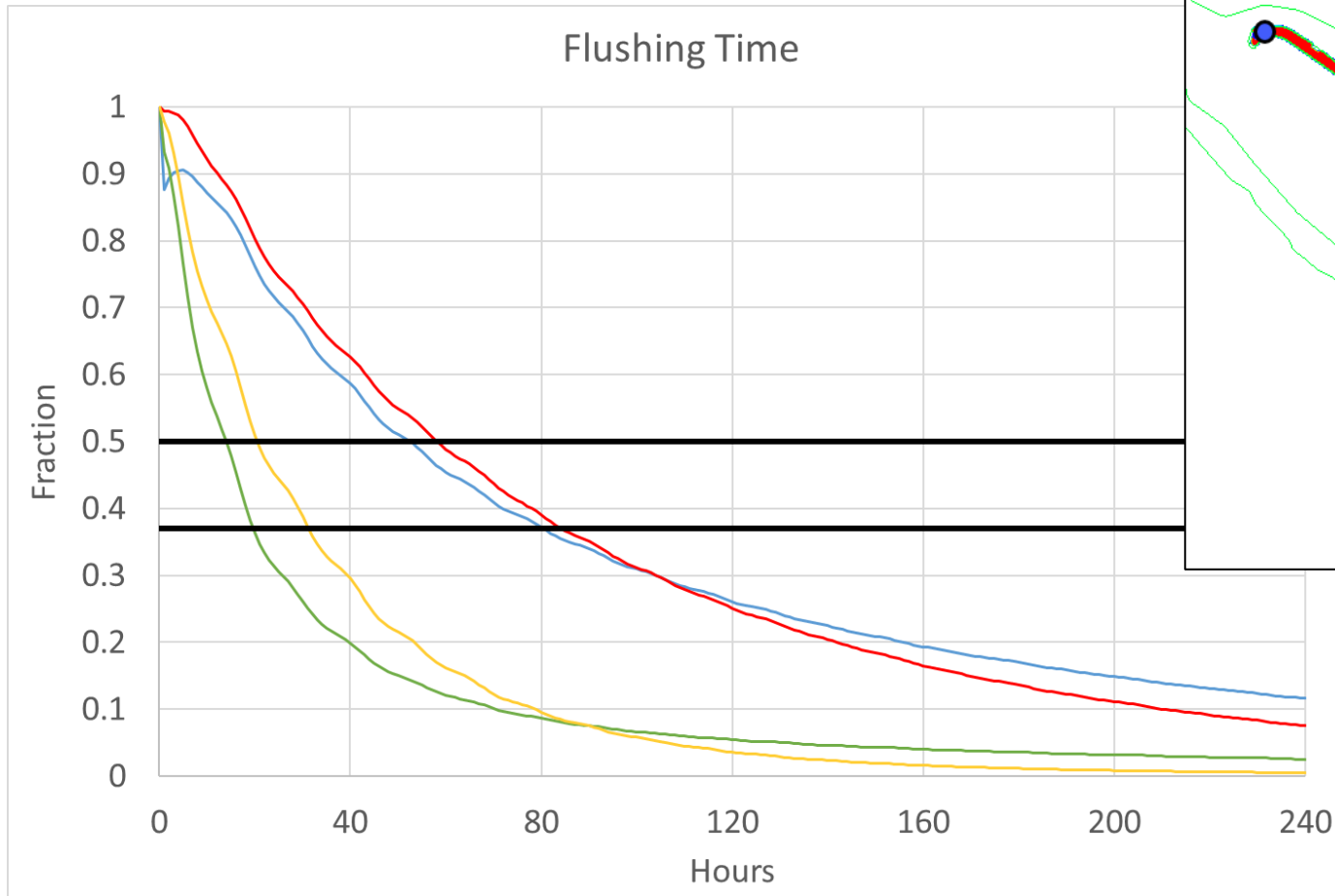


INTERIOR WETLAND MODELING

BARREN ISLAND EXAMPLES



- Tracers



Residence Time =

- 50% reduction in concentration (Marr 2013)
- 63% reduction in concentration (Kraus et al. 2006)



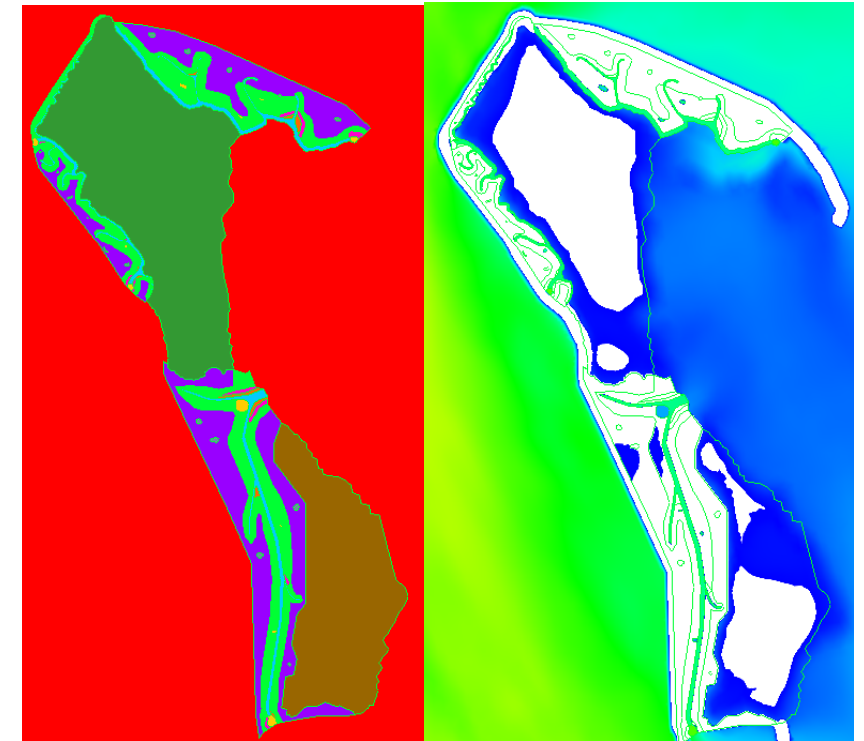
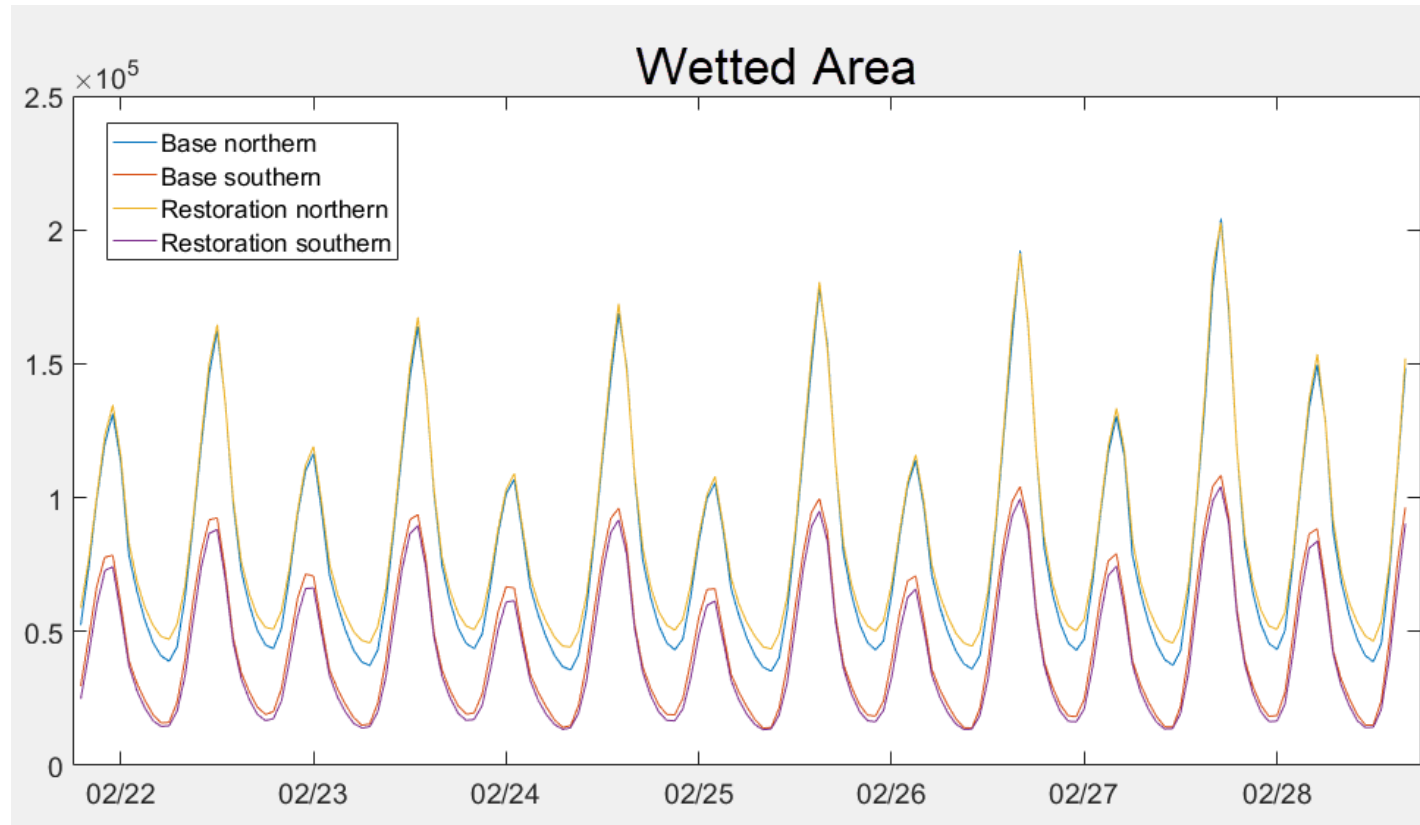
INTERIOR WETLAND MODELING

BARREN ISLAND EXAMPLES



50

- Wetted area and wetted time





OPEN DISCUSSION / QUESTIONS

**Agency Coordination/NEPA Meeting #4 -
Bathymetric Survey Results
(March 28, 2023)**



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:

My Webex or MES Teams???

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 (Need map of NE sill extent)
 - 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-CHESAPEAKE BAY ISLAND ECOSYSTEM RESTORATION PROJECT, DORCHESTER COUNTY, MD

NEPA
Habitat Working Group

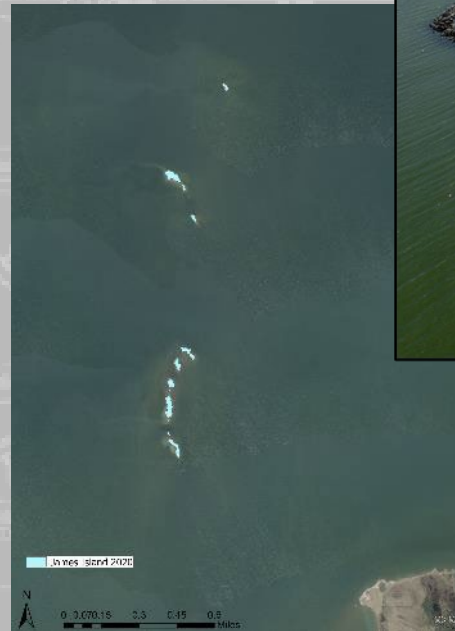
March 28, 2023

Angie Sowers, USACE

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AGENDA



1. Introductions
2. Barren Island Phase I
 - Construction Update
 - H&H Monitoring

NEPA

3. Barren Island Phase 2/3 Planning – Borrow Area sEA
4. James Island sEIS

Habitat Working Group

5. Wetlands Design
6. Discussion
7. Wrap Up/Action Items



BARREN ISLAND PHASE I

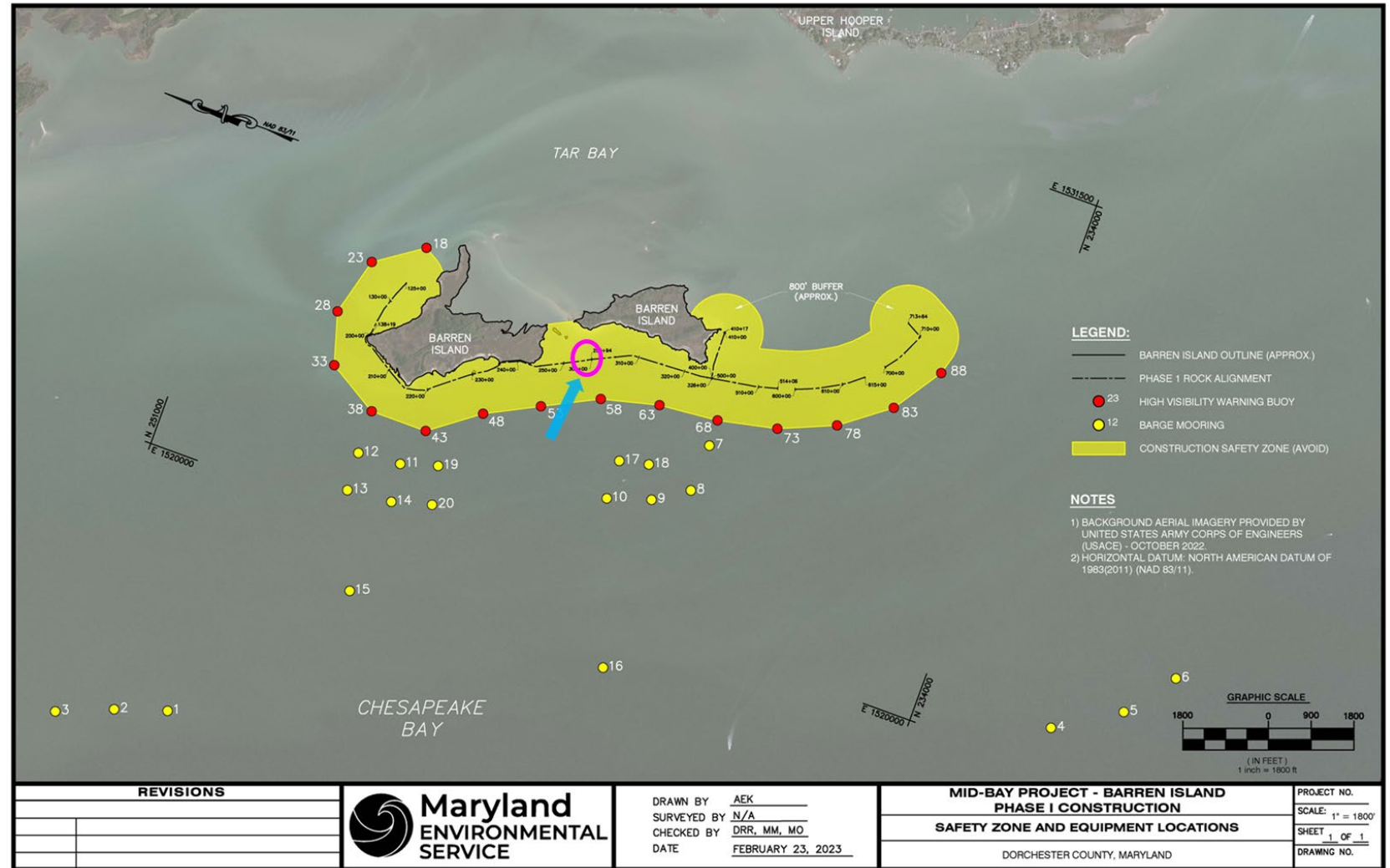


CONSTRUCTION UPDATE



4

- Phase 1 construction at Barren started on 10 March
- Safety figure distributed broadly on 10 Mar
- Working between stations 255 and 300 on the sill (new sill)
- Meeting with watermen slated for 13 Apr to discuss safety and Ph2 borrow area





H&H MONITORING WITH PROFILERS



5

- Initial data from 2 Echo profilers and 1 Aquadopp deployed October to December 2022
- December – Replaced these devices with Aquadopp at all locations

- North (Echo)

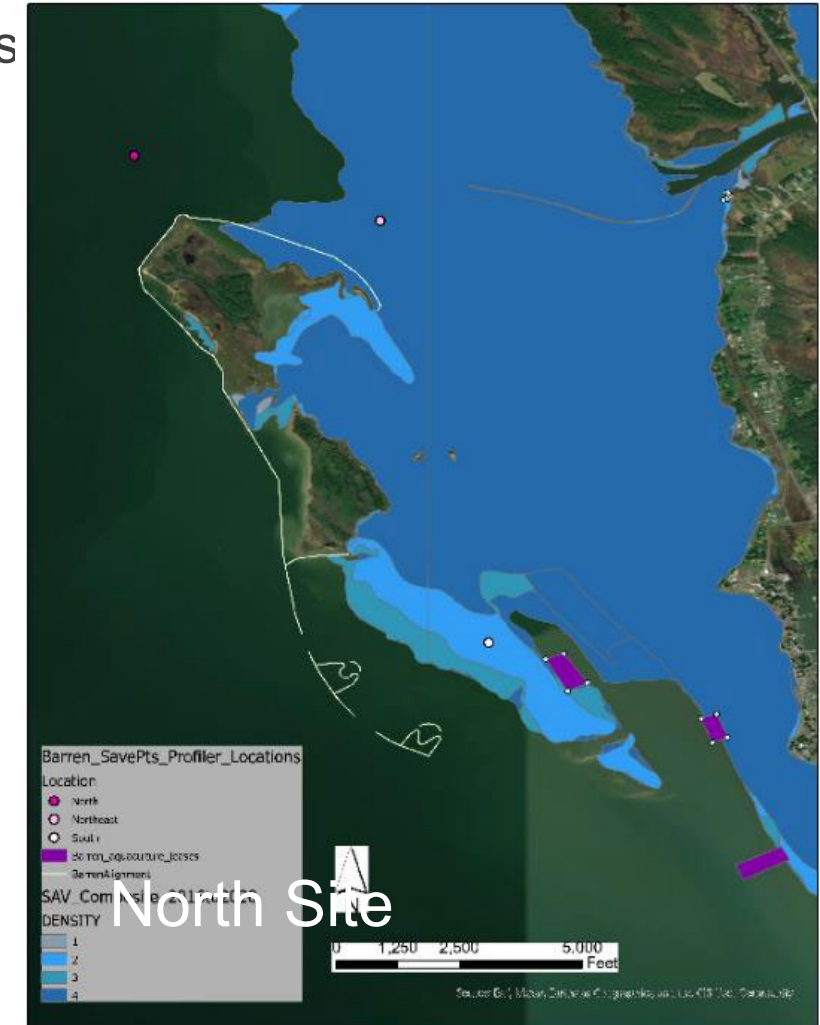
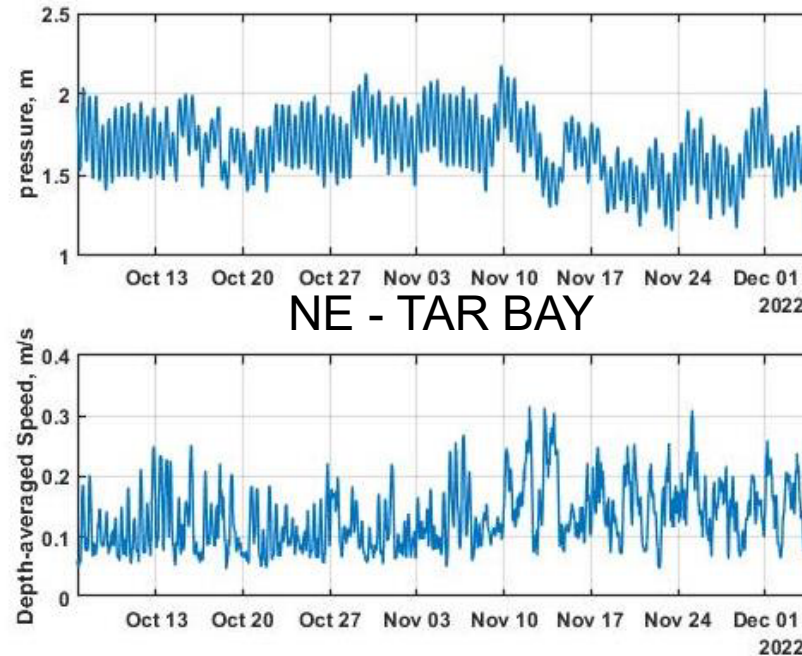
- Depths = 1.8 m to 2.8 m
- Velocities = 0 - 0.3 m/s; peaked around 0.2 m/s for most of deployment
- Temperatures peaked at $\sim 19^{\circ}\text{C}$

- NE (Aquadopp)

- Depths = 1.2 m to 2.3 m
- Average velocity (depth-averaged) = 0.13 m/s, range = 0.47 to 0.31 m/s

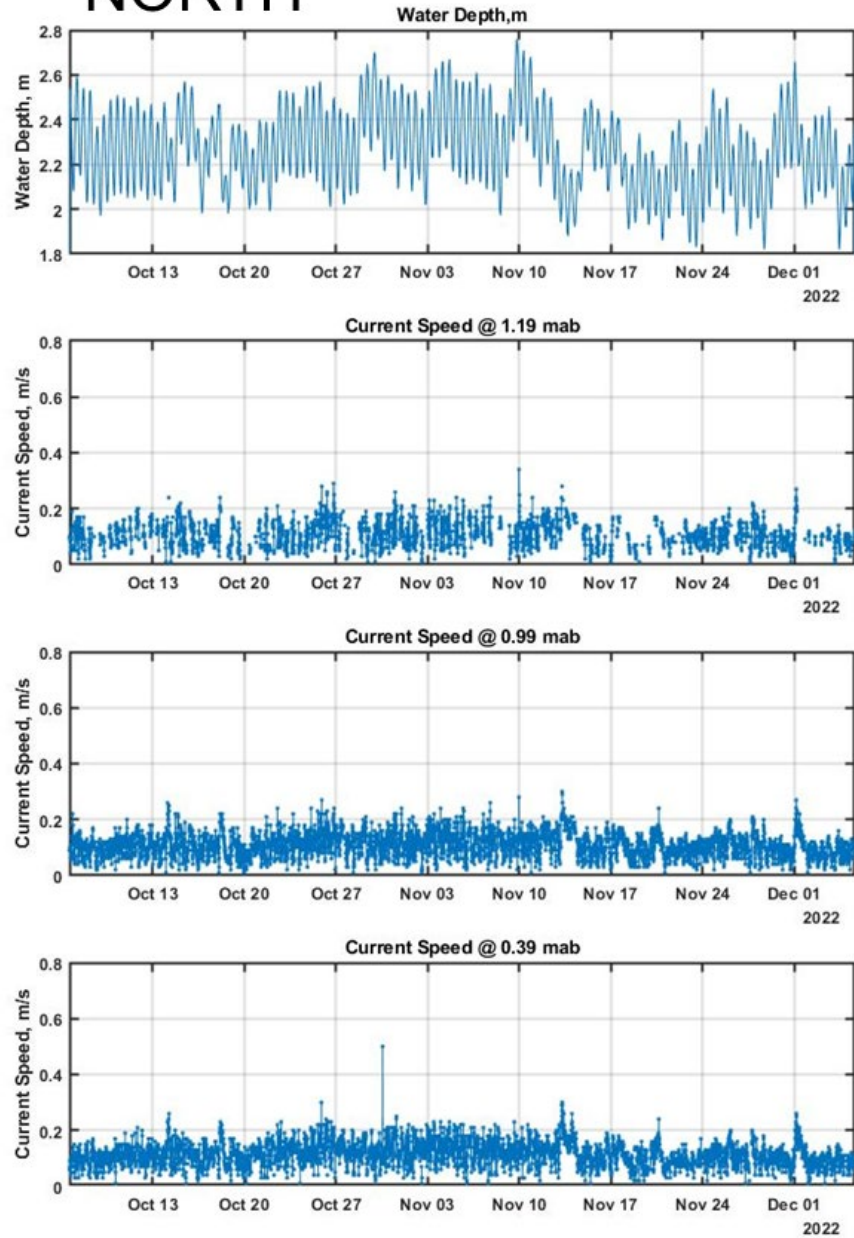
- South (Echo)

- Depths = 1 m to 1.9 m
- Velocities = 0 - 0.3 m/s; typically below 0.2 m/s
- Temperatures peaked at $\sim 19^{\circ}\text{C}$

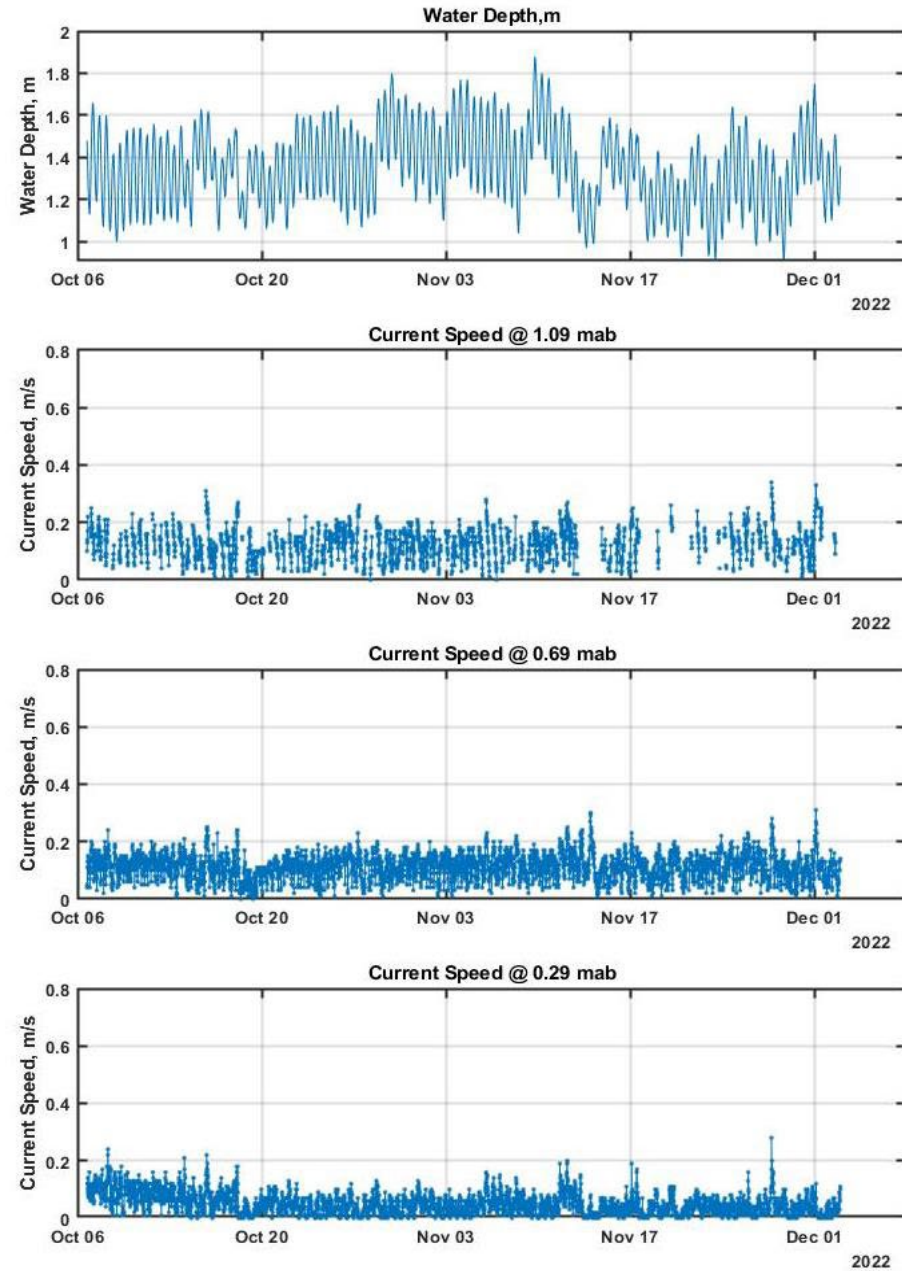




NORTH



SOUTH

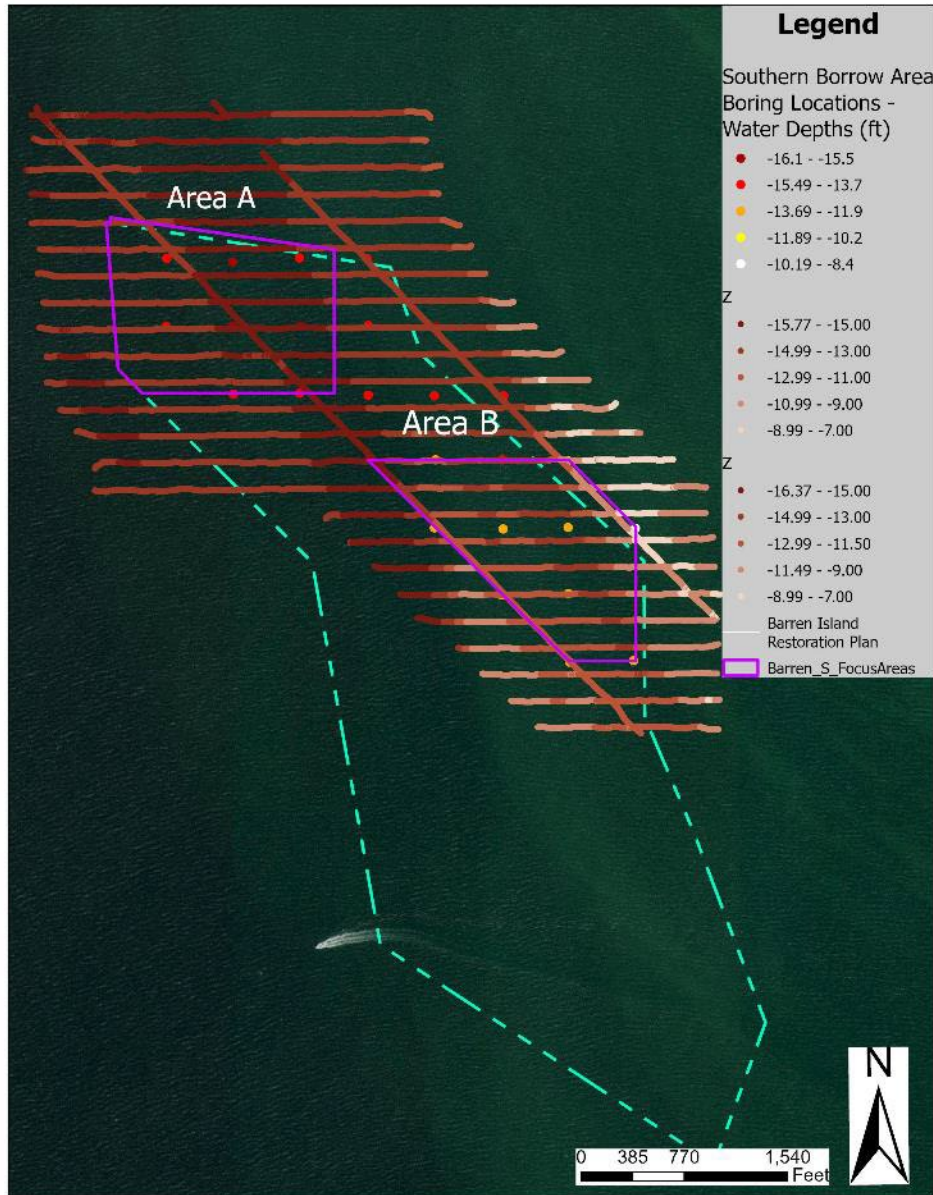




NEPA

Barren Island Phase 2/3 Planning: Borrow Area sEA

BORROW AREA - BATHYMETRY



- Focus Area A has deeper depths, typically > -14.3 ft to nearly -16 ft
- Focus Area B is shallower, most values range between -11.5 to -13.6 ft
 - Less fines and slightly coarser material than Focus Area A
- Considerations for a potential future dredging contract and dredging depths
 - Contracts typically provide a maximum allowable depth
 - It is most efficient to dredge at least 5 ft of depth at a time



FOCUS AREA A

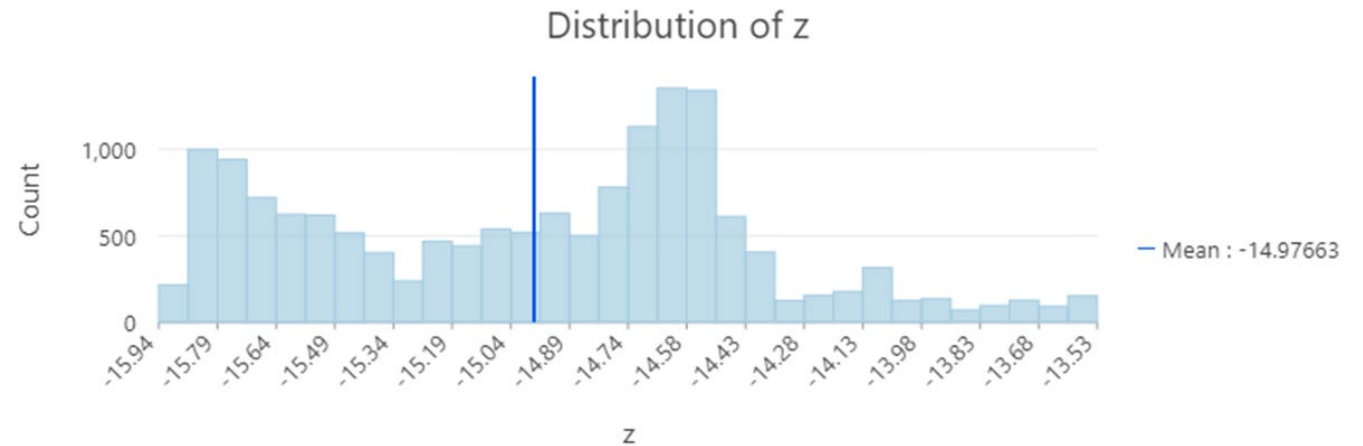


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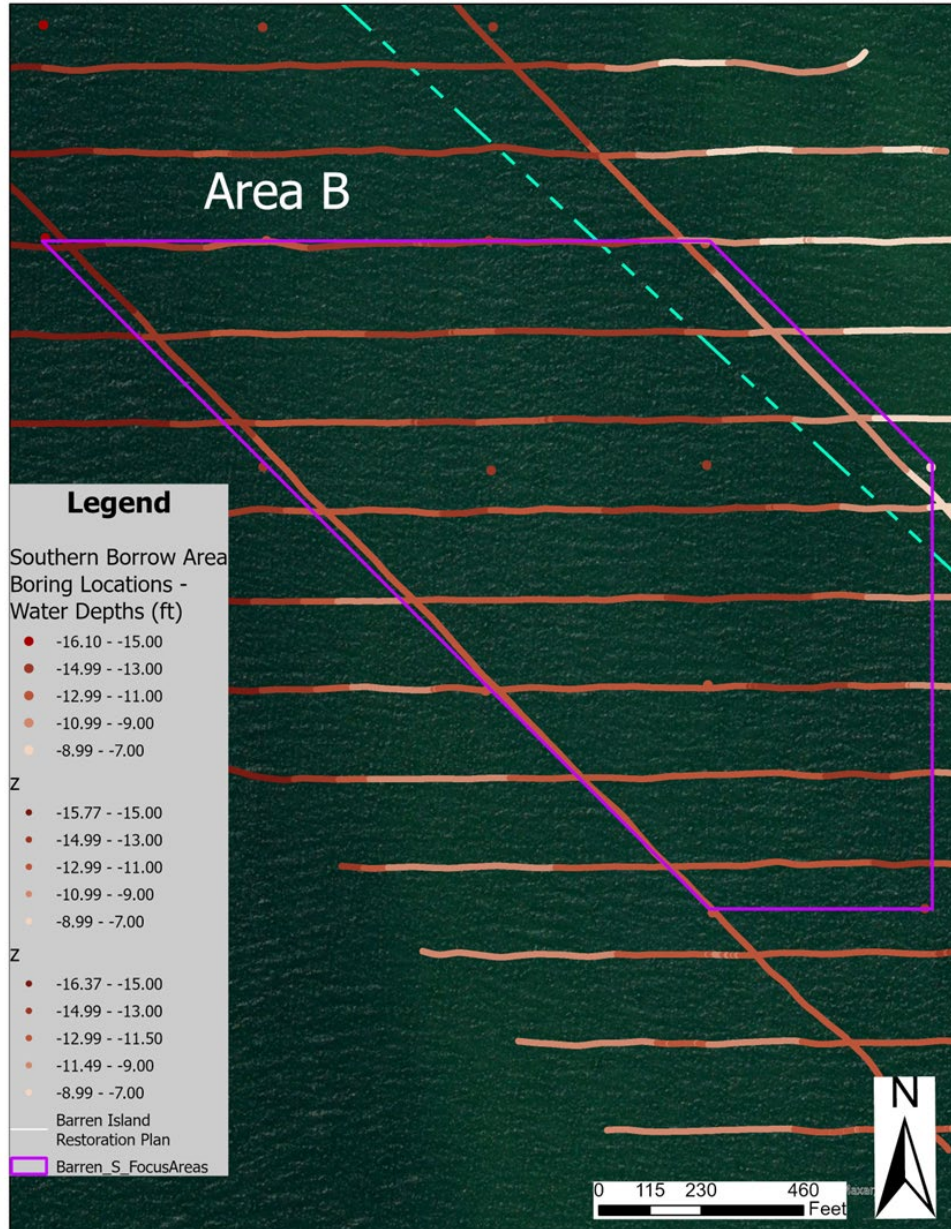


➤ Area A – 44.4 acres

- Mean = -15.0
- Median = -14.9
- Min = -15.9
- Max = -13.5

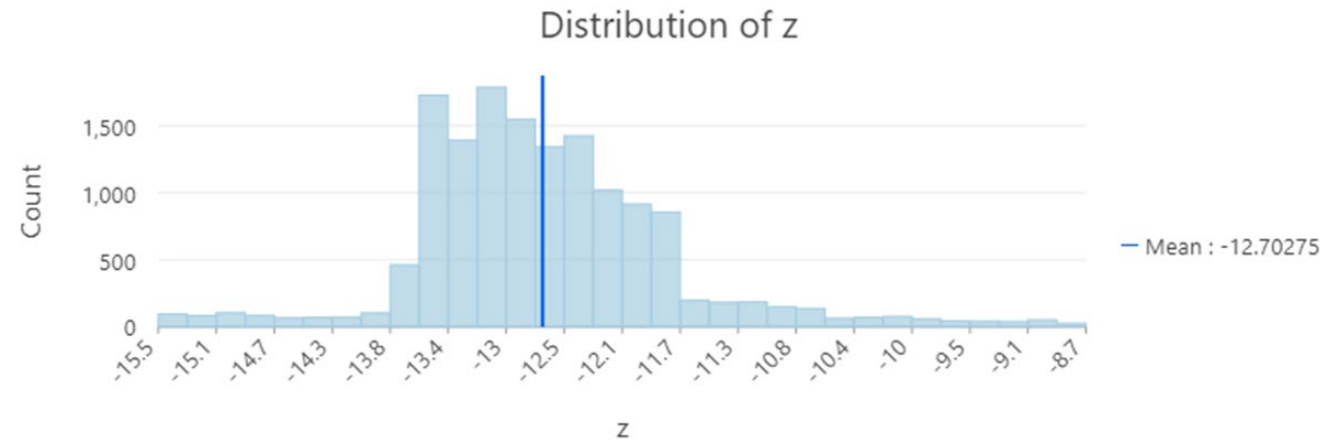


FOCUS AREA B



➤ Area B – 40.2 acres

- Mean = -12.7
- Median = -12.8
- Min = -15.5
- Max = -8.7





INITIAL BORROW AREA SCREENING



	No Action	Northern Borrow Area	Southern Borrow Area	Honga River Channel	Land-based source	Combination of N/S
<i>Material has suitable composition</i>						
Foundation replacement	N	N	Y	N	Y	N
Containment	N	N	Y	N	Y	N
Bird Island Development	N	N	Y	N	Y	N
<i>Quantity available meets needs</i>	N	N	Y	N	Y	N
<i>Avoids/minimizes impacts to commercial fisheries</i>						
Blue crabs	Y	N	N	Y	Y	N
Pound Nets	Y	Y	Y	Y	Y	Y
Oysters	Y	Y	Y	Y	Y	Y
<i>Avoids/minimizes impacts to cultural resources</i>	Y	TBD	TBD	Y	Y	TBD
<i>Avoids/minimizes impacts to habitats</i>						
SAV	Y	N - direct impacts	Y	N- indirect impacts*	Y	possibly
Oysters	Y	Y	Y	Y	Y	Y
Crabs - wintering habitat	Y	Y	Y	Y	Y	Y
Shallow-water habitat/benthics (add acreage)	Y	N	N (40.2-44.4 ac)	N - minimal*	Y	N
<i>Maximum size of impact area</i>	0	122.8 ac	84.6 ac	40 ac	0	<122.8 ac
<i>Cost</i>	0	L	L	L	H	L

N* = The Honga River channel has been repeatedly dredged in modern times. Therefore, impacts are to a previously impacted area. Indirect impacts would be those that have occurred previously.

possibly = Areas in the North and South could be identified to minimize/avoid impacts to various resources.

- *sEA Preferred Alternative anticipated to be Southern Area narrowed to the Focus Areas (A and B)*
- Watermen preference is for impacts to be as far north as possible
 - leans toward selection of Focus Area A as primary borrow area
- Material is slightly better quality from Focus Area B



CONFINEMENT RECOMMENDATIONS & DECISIONS



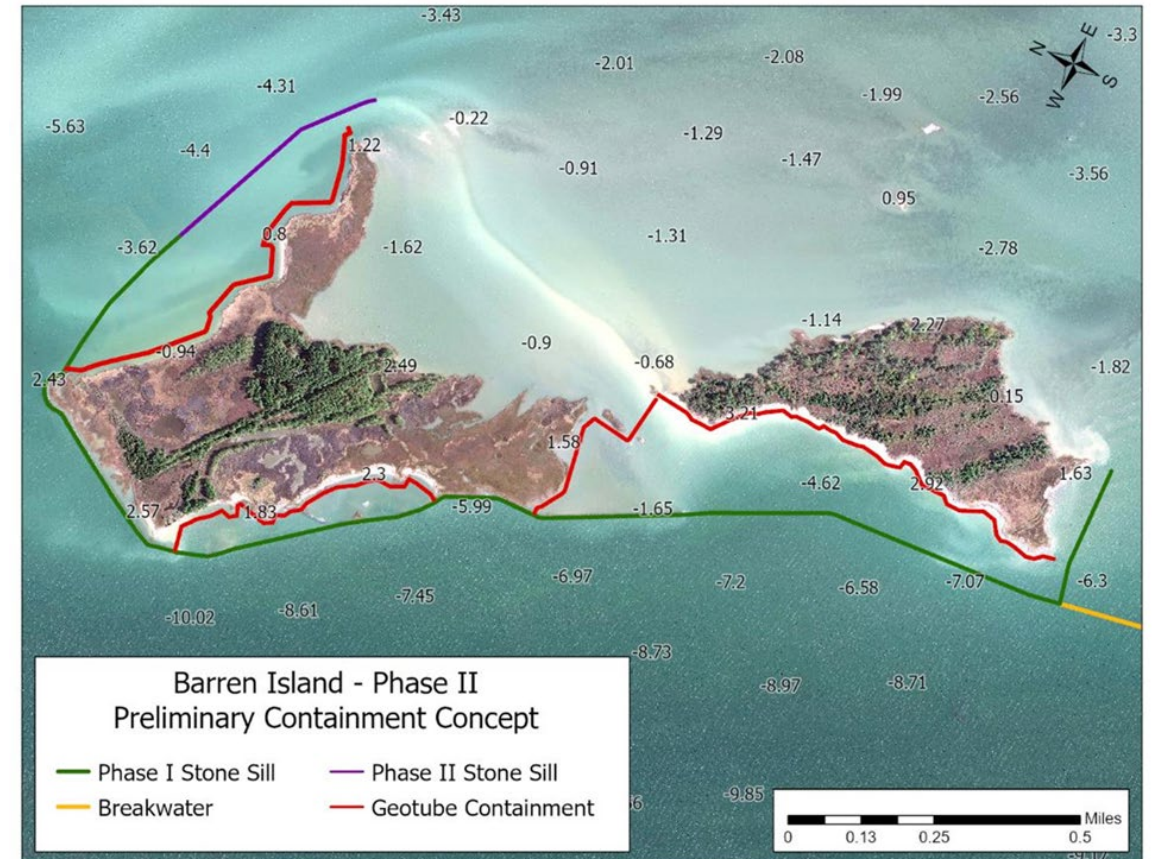
- Geotubes will be used to contain dredged material. Once substrates are stable, geotubes will be opened and material graded into wetland design.
- Containment in the NE and NW wetland cells is necessary and allows for:
 - Reaching desired elevations of wetlands to ensure resiliency and success,
 - Maintaining water quality during dewatering, and
 - Ensuring dredged material needed for wetlands development is not lost onto existing wetlands surface or into the open Bay impacting habitat.
- This approach is expected to result in non-hardened channel shorelines within wetland cells
 - Mechanical formation is necessary for the main channel and potentially secondary channels to ensure proper flooding (currently being modeled) given properties of silty substrates
 - The lowest order channels will likely be able to form naturally
- Flexibility in containment remains in the southern wetland due to current shoreline features (scarped edge)
 - Higher existing shorelines may be able to serve as containment to avoid use of geotubes along the Barren Island shoreline
 - Containment needs would be limited to the span between the existing island remnants

BARREN PHASE 2/3 – SAND NEEDS

Sand Quantity Needs (CY)

	Containment	Ac-Ft Needed	Foundation Replacement	Ac-Ft Needed	Fill	Ac-Ft Needed
Northwest	10,000	6.2				
Northeast	13,000	8.1	33,000	20.5		
Southwest	20,000	12.4				
Bird Island A					113,000	70.1
Bird Island M					69,000	42.8
SUBTOTAL	43,000	26.7	33,000	20.5	182,000	112.8
TOTAL QUANTITY	258,000	160				

- Dredging 1 ac to a depth of 1 ft provides 1,613 cy of material
- Opportunities to minimize number of dredging events (real estate, island elevations, budget)
- Anticipated earliest dredging would be 2025





BARREN WETLAND DEVELOPMENT – INITIAL DREDGED MATERIAL (VOL) ESTIMATE



- To efficiently achieve targeted wetlands elevation – approach will be to overfill wetland cells when placing material and then adaptively manage any extra material which would require additional material than shown
- Dredging quantity will be driven by budget provided (likely 200,000 cy)

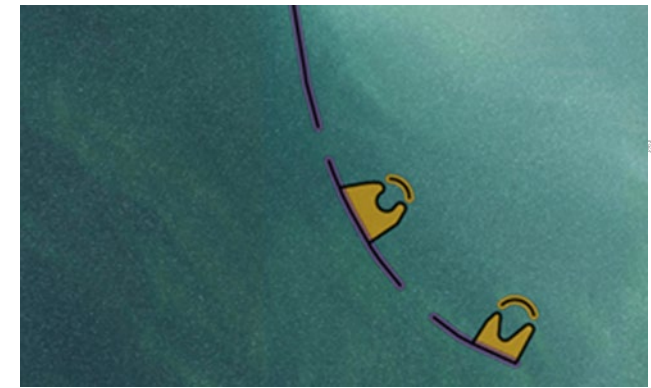
Wetland Cell	Area (AC)	1 ft NAVD88 (CY)	2 ft NAVD88 (CY)
NE Wetland	26.3	152,979	195,441
NW Wetland	9.5	19,079	34,496
SW Wetland	45.5	184,000	257,390

Depth (NAVD88)	Estimated Dredge Material Quantity (CY)
-7 (authorized depth)	172,000
-8 (+1 ft over-depth)	235,000
-9 (+2 ft over-depth)	306,000



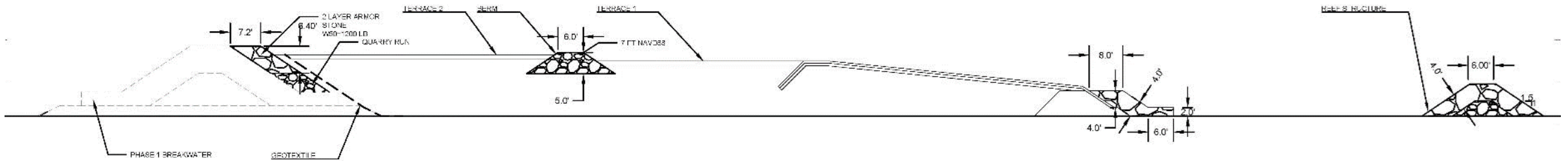
OTHER UPDATES

- Cultural surveys – data collection has started
- Bird Island – reefs



BIRD ISLAND CROSS SECTION

NTS



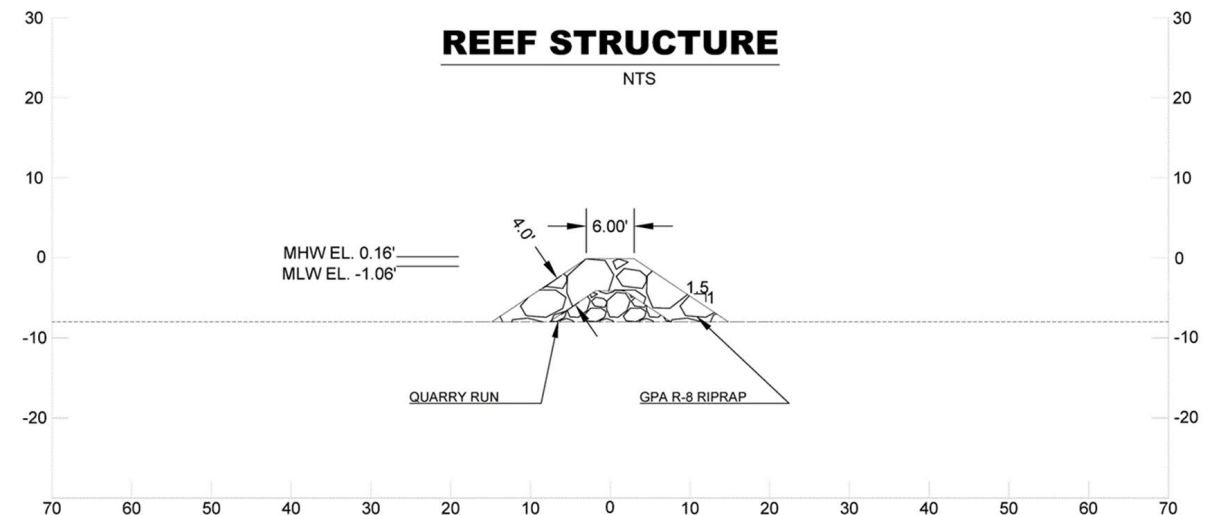
- Considering the use of reef balls rather than a stone breakwater to enhance habitat value

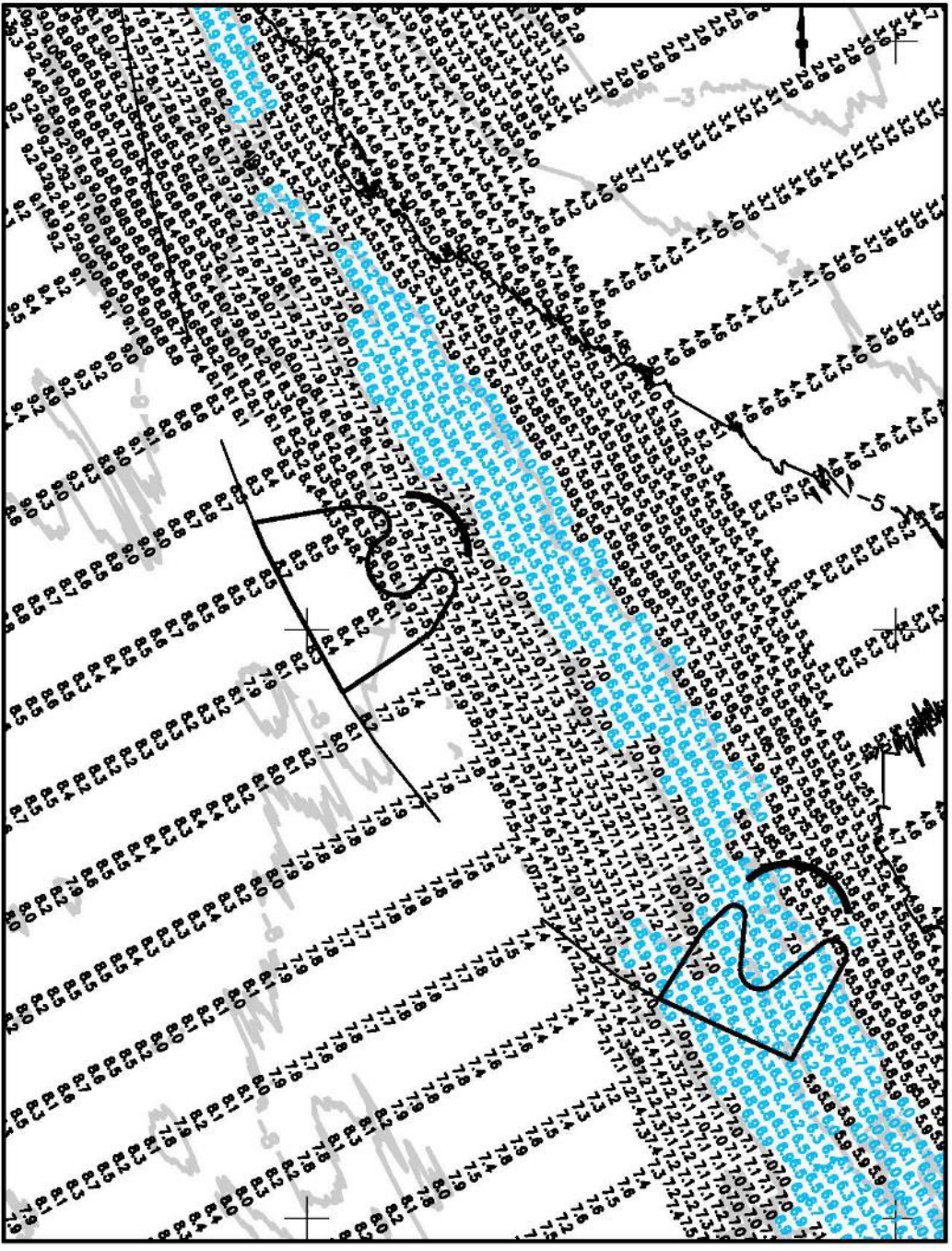
- Water Depths

- Island A: 7 to 7.5 ft
- Island B: 5 to 7.5 ft (most < 6 ft)

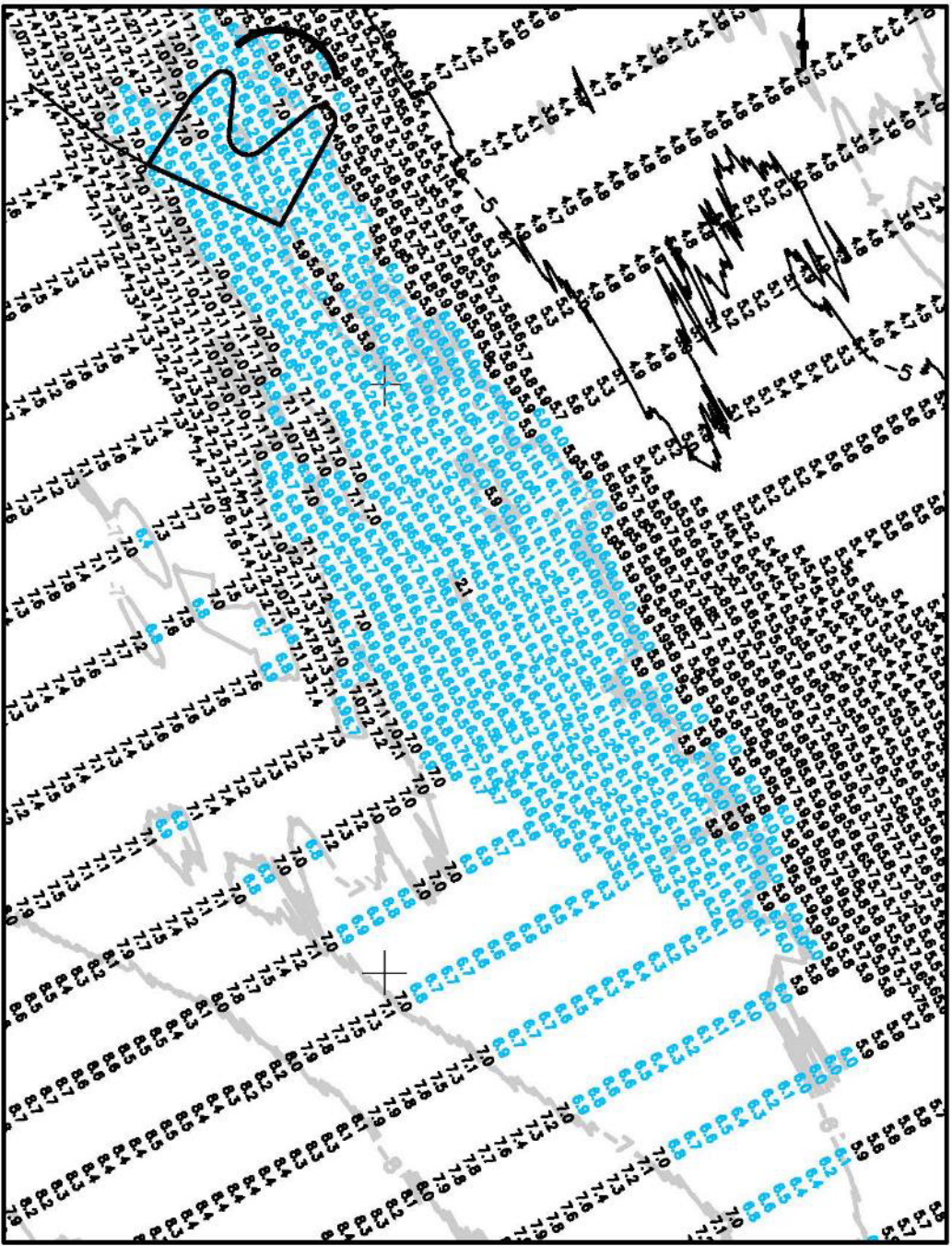
REEF STRUCTURE

NTS





BARREN ISLAND BATHYMETRY AT BIRD ISLAND HABITAT



BARREN ISLAND BATHYMETRY AT BIRD ISLAND HABITAT, cont

OTHER REEF BALL APPLICATIONS

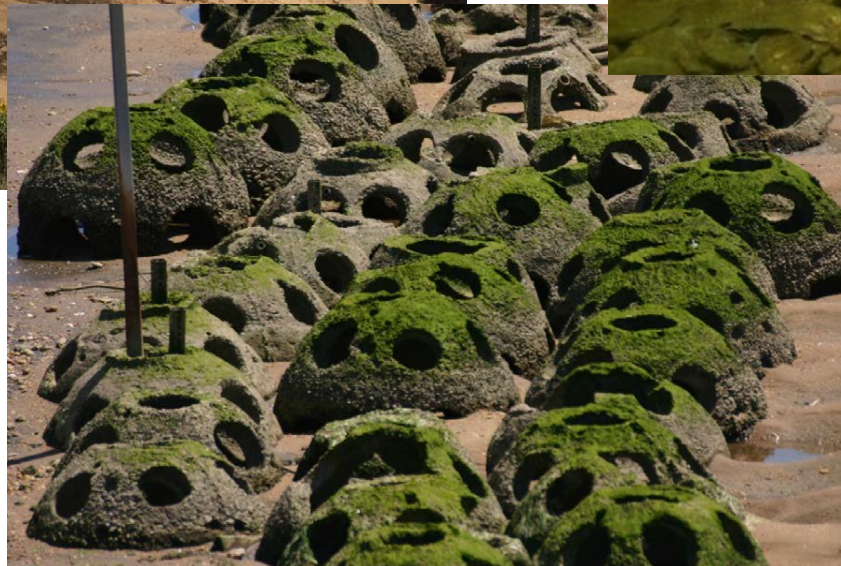
COX CREEK (MPA)



COOK POINT
(CBF)



- Successfully used at Cox Creek and Masonville (MPA)
- Monitoring has shown increased density and diversity of fish assemblage





NEPA

James Island sEIS

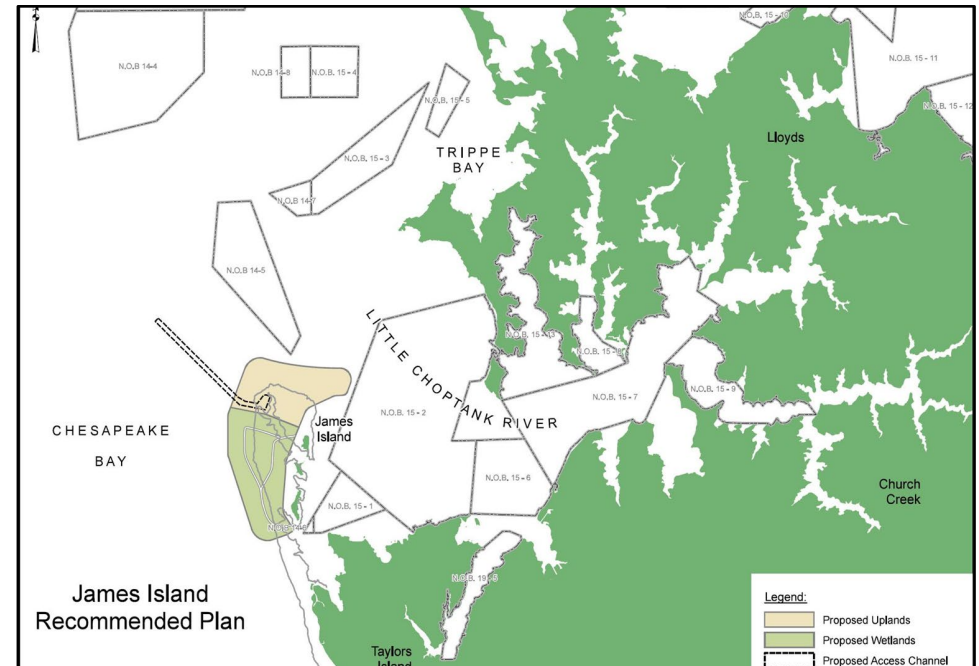


JAMES ISLAND sEIS

- ✓ NOI Published 7 November 2022
- ✓ Coordination Letters and Cooperating Agency sent in November 2022
- ✓ OFD Concurrence Point #1 – Purpose and Need – January 2023
 - OFD Concurrence Point #2 – Alternatives – Initiated March 2023 – In Progress
 - Cultural surveys – In Progress

Schedule

- Draft sEIS for internal review – May 2023
- Public Review – September 2023
- ROD - May 2024
- WQC/TWL – summer 2025





HABITAT WORKING GROUP

Wetlands Design Discussion



WETLANDS DESIGN METRICS



Objective: Identify metrics for wetland design applicable to Barren and James Island restoration

Potential design parameters

1. *Geometry (channel and inlets) – width, depth, slope
2. Percent ponding on marsh surface
3. Sinuosity
 - a. sinuous length/straight length
 - b. Typical range is 1.3 – 2.2 (Marani et al. 2002)
4. Drainage density (total length within a given drainage area)
 - a. Determines adequate overall tidal exchange and circulation
 - b. Typically increases as marsh matures
5. Channel length ratio
 - a. Average channel length (order N)/average channel length (Order N +1)
6. Bifurcation ratio
 - a. Total number of channels in Order N/Total number of channel in Order N + 1
 - b. An optimum bifurcation ratio of 3.5 is recommended, with range of 3 to 5 (Coats et al. 1995)
7. Channel distribution ratio
 - a. Average channel length (Order N) * Total No. Channels (Order N)/Total Channel Length (ft)
 - b. Typically decreases as channel order increases; expressed as a % of total channel length
8. Hydroperiod
9. Tidal prism, residence time/flushing
10. Vegetation – cover and diversity
11. Others?



HWG

Evolution of Wetland Design at Poplar – Lorie Staver/UMCES

Mid-Bay Restoration Working Group Meeting

UMCES Update

MARCH 29, 2023

Lorie Staver
lstaver@umces.edu



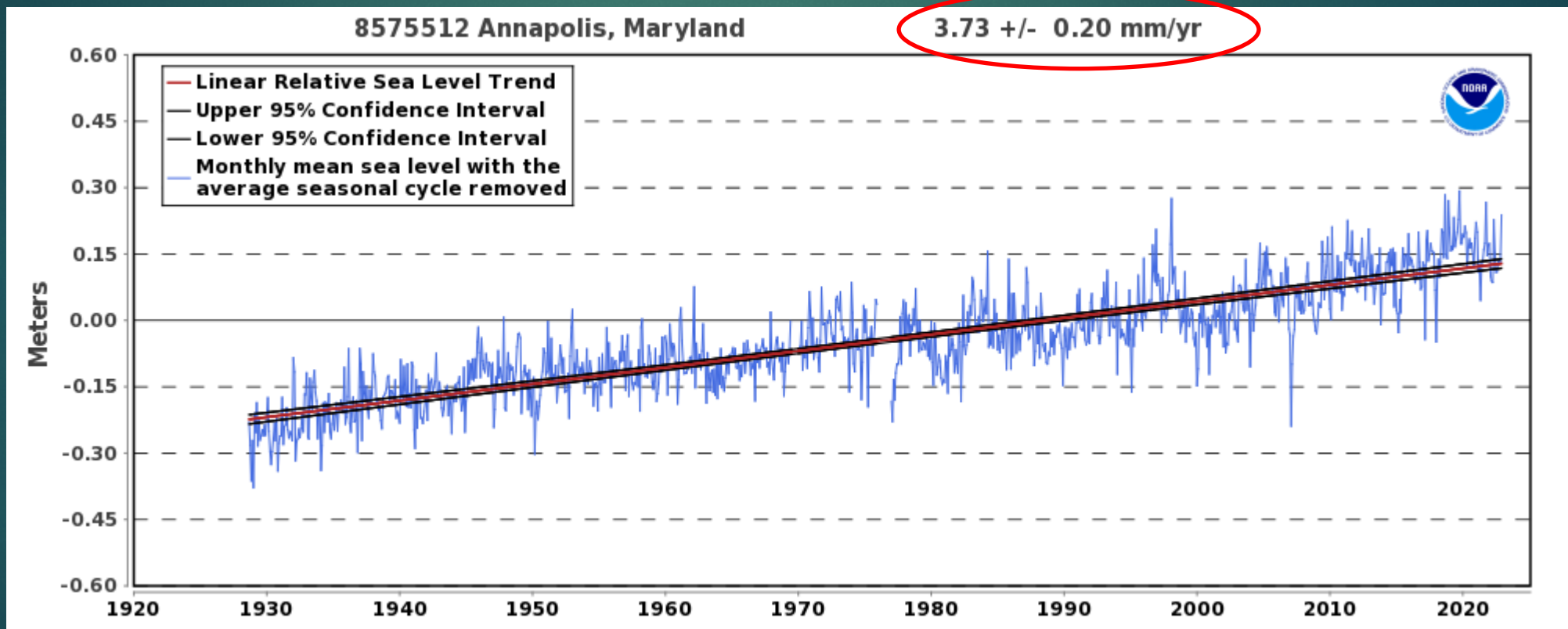


Marsh Resilience to Sea Level Rise

- Sea level rise in Chesapeake Bay
- Marsh responses to sea level changes
- Elevation
- Coastal Wetland Equilibrium Model

Sea Level Rise in Chesapeake Bay

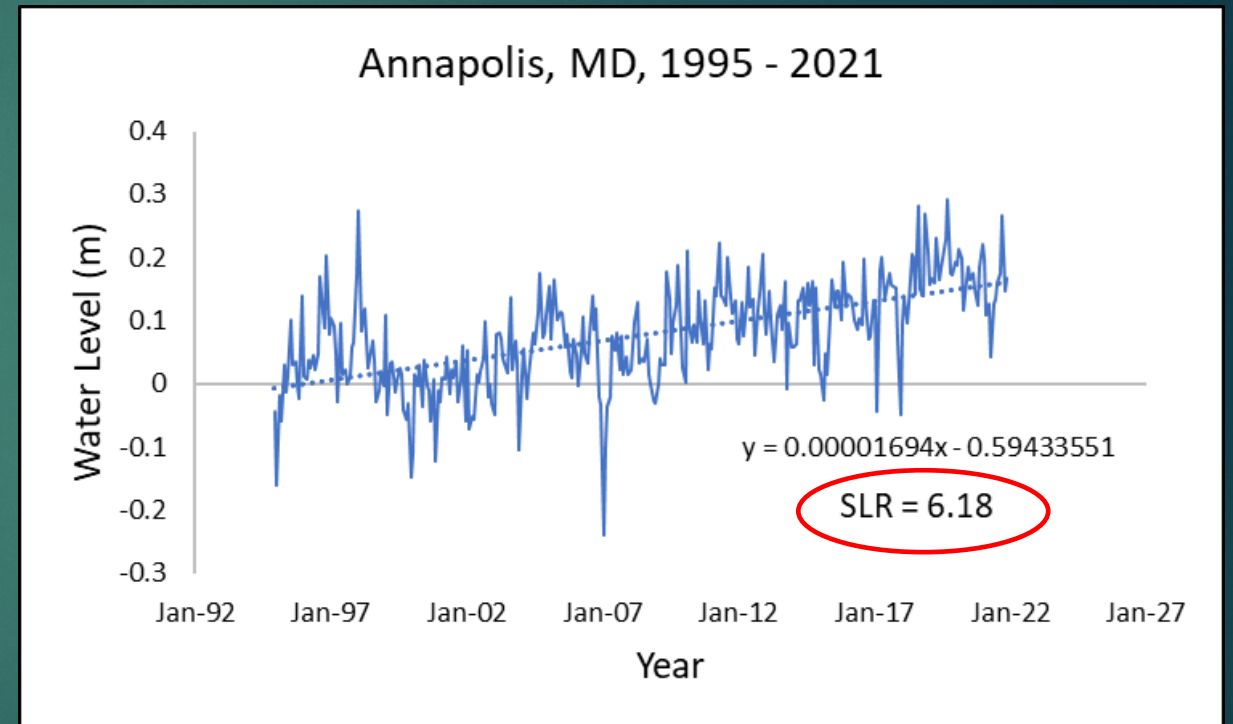
- Historical rate of sea level rise (SLR) in Chesapeake Bay = $\sim 3.7 \text{ mm y}^{-1}$



Sea Level Rise in Chesapeake Bay

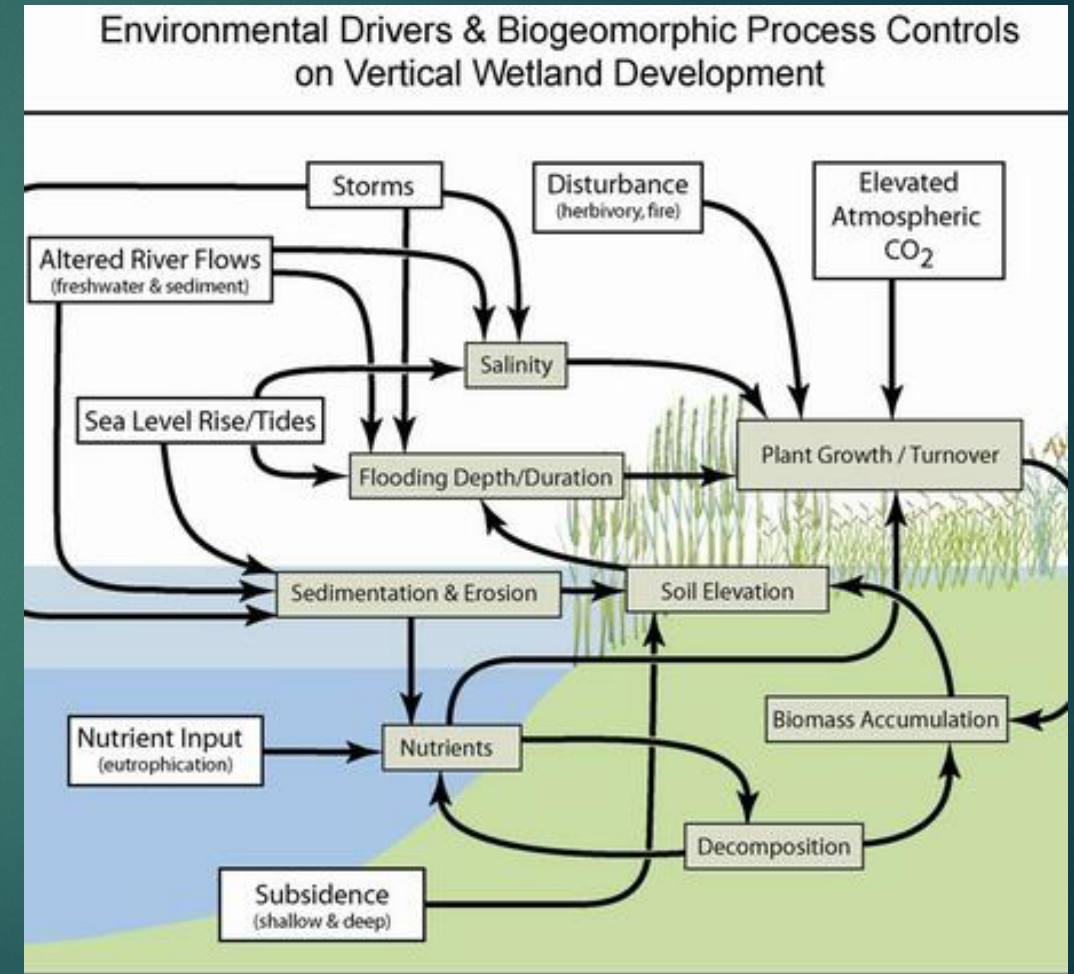
Recent SLR in Chesapeake Bay = $\sim 6 \text{ mm y}^{-1}$

- Assuming 4 mm/yr SLR, sea level has rise 80 mm (0.26 feet , 3.1 in) over last 20 years
- With a mean tide range at Poplar Island of 1.1 ft (1.5 ft diurnal tide range), this represents an increase in elevation of 24% of the tidal range
- SLR will continue accelerating in the coming decades, with water levels projected to increase by as much as 0.61 m (2 ft), and possibly more, by the end of the century (Boesche et al. 2018)
- Need to calculate new tidal datums!



Marsh Resilience to Sea Level Rise

- Marshes respond to sea level changes through a number of processes and complex feedbacks which allow them to adjust the the marsh platform elevation, or move laterally within the landscape

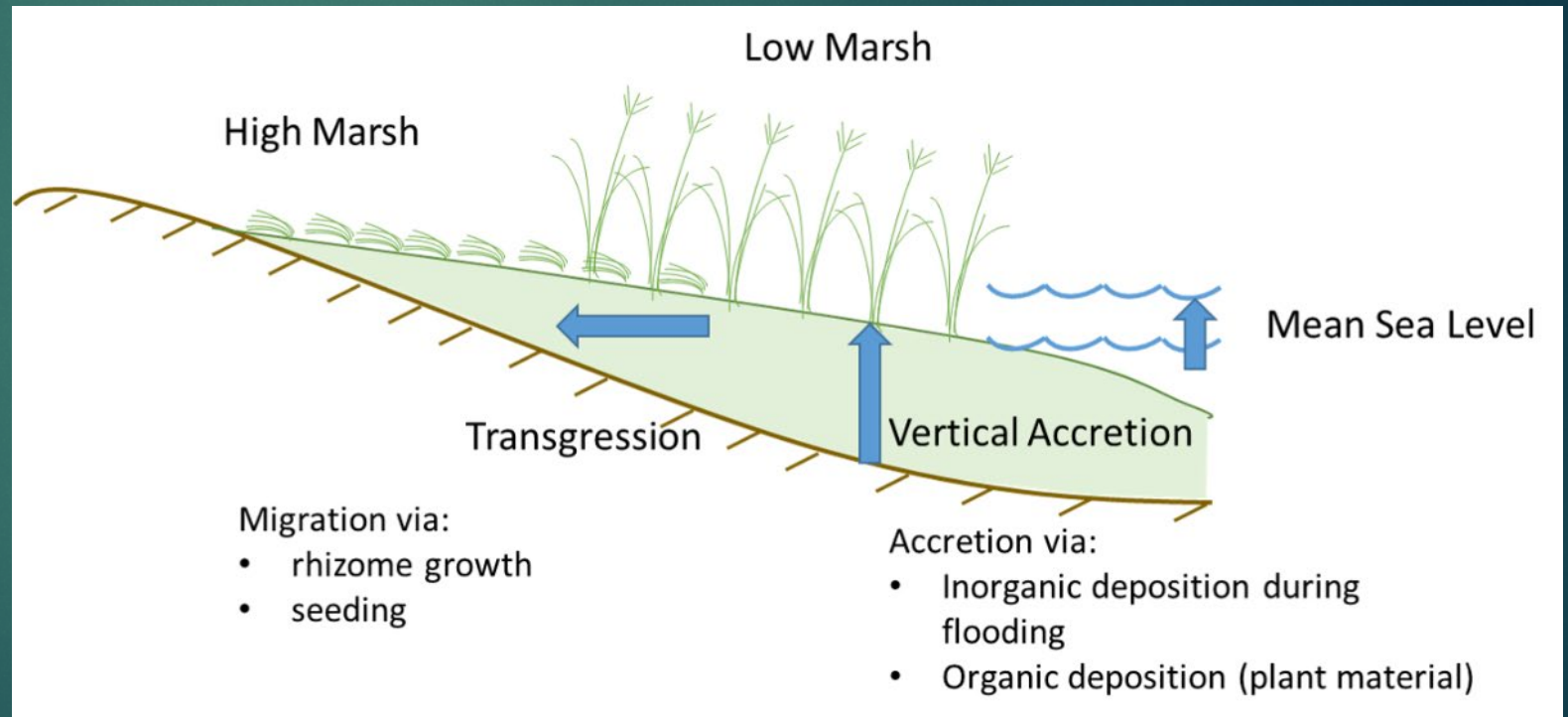


Source: Cahoon et al. 2009

Marsh Resilience to Sea Level Rise

Two responses:

- Transgression (lateral migration) occurs where the upland grade is not too steep
- Vertical accretion occurs via
 - Inorganic sediment trapping
 - Organic matter deposition from macrophytic vegetation, e.g. *Spartina* spp.
 - Vegetation is important in both processes



Marsh Resilience to Sea Level Rise

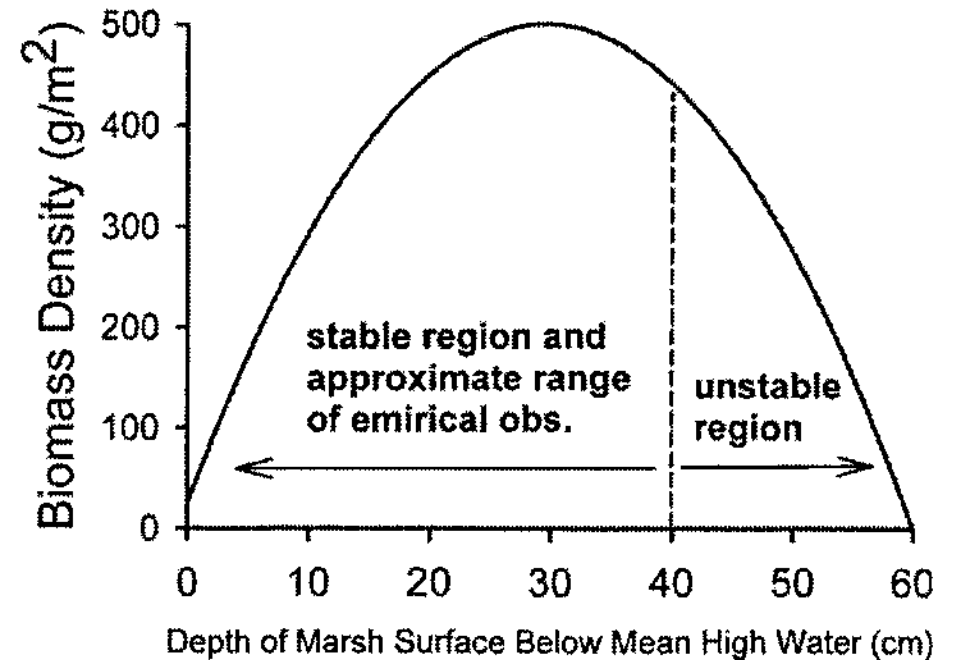
Sediment trapping is heavily influenced by vegetation density



Marsh Resilience to Sea Level Rise

Macrophyte biomass production has a parabolic response curve to elevation

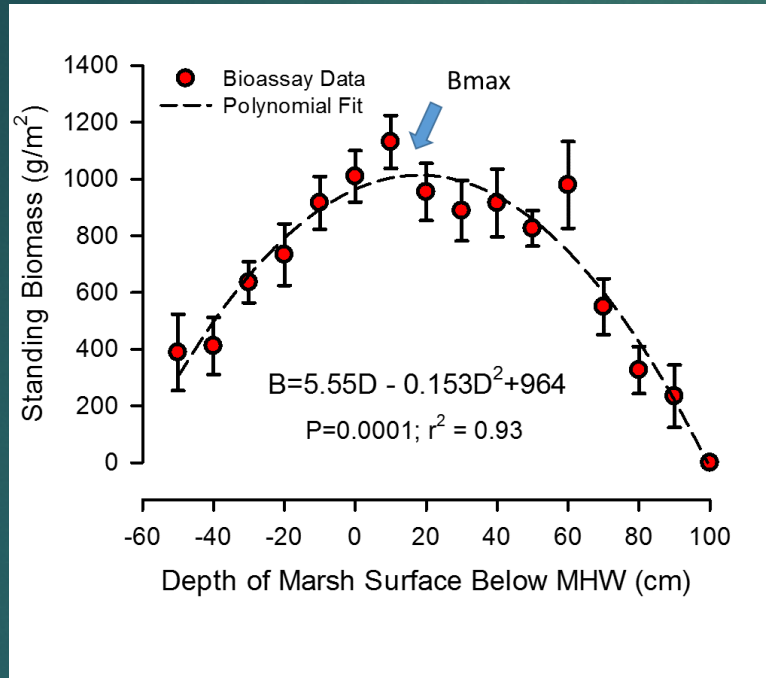
- Biomass production is lower at elevations higher or lower than the optimal elevation
- At lower elevations (sub-optimal), biomass production will decrease in response to SLR
 - *Less elevation capital!*
- At higher elevations (supra-optimal), biomass production will increase in response to SLR
 - *More elevation capital!*



Source: Morris 2007

Marsh organs test effect of elevation on biomass production

Marsh Resilience to Sea Level Rise



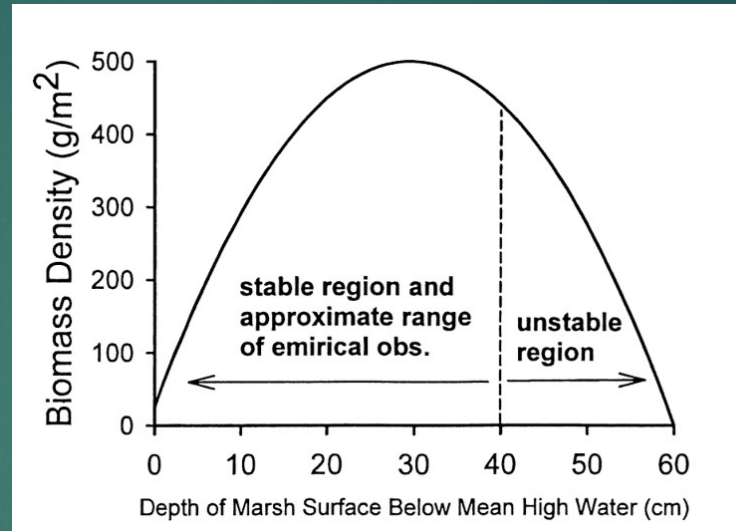
“Marsh organ” data confirms hypothetical relationship
(Source: J. Morris)

- Organic production is a primary contributor to vertical accretion and is a function of relative marsh elevation



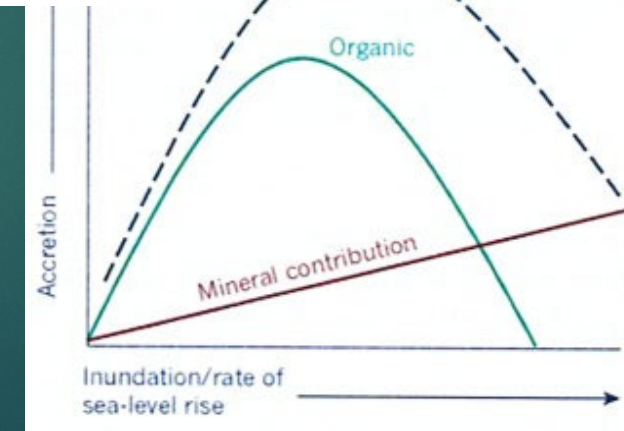
Marsh Resilience to Sea Level Rise

- Biomass production is a parabolic function of inundation
- Inorganic deposition is a linear function of inundation
- In the mid-Bay, vertical accretion is dominated by organic matter deposition



Morris 2007

- Two ways to achieve more elevation capital:
- higher initial elevations of each zone within the tidal range
 - shift HM/LM ratio

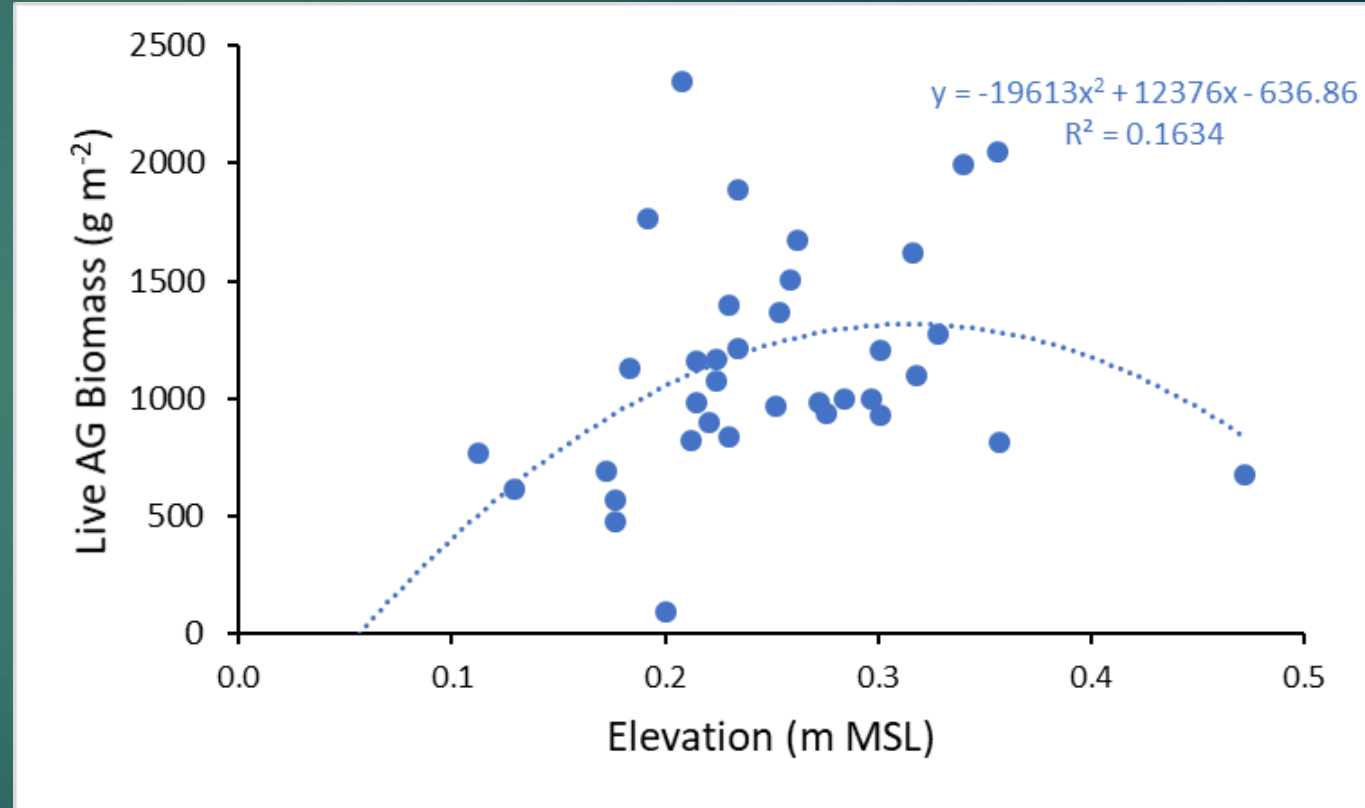


Kirwan & Megonigal 2013

Poplar Island biomass production

Scatter in the field data, but biomass data fits this model

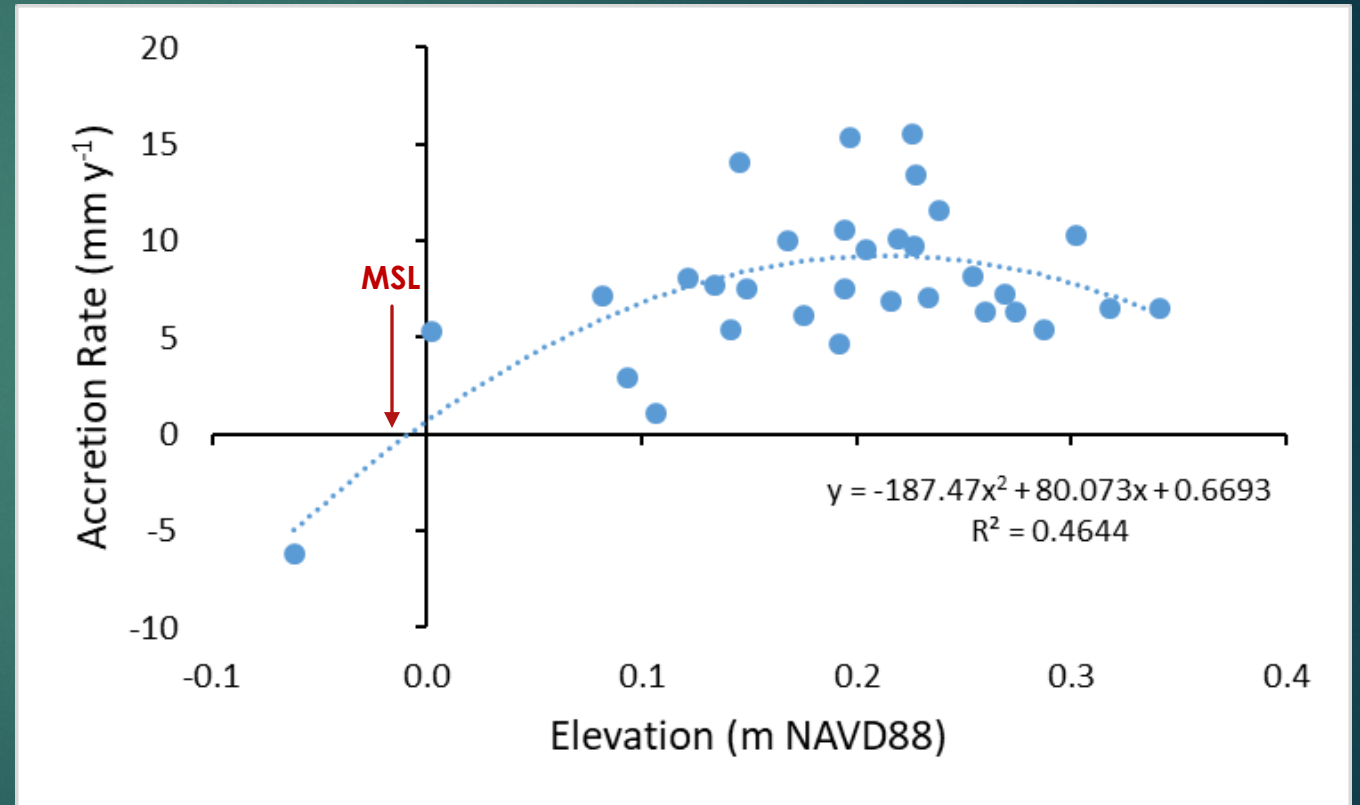
- Elevation is not the only control on biomass production
- The entire elevation range was not sampled



Poplar Island 2021 *S. alterniflora* biomass vs. elevation

Poplar Island Accretion Rates

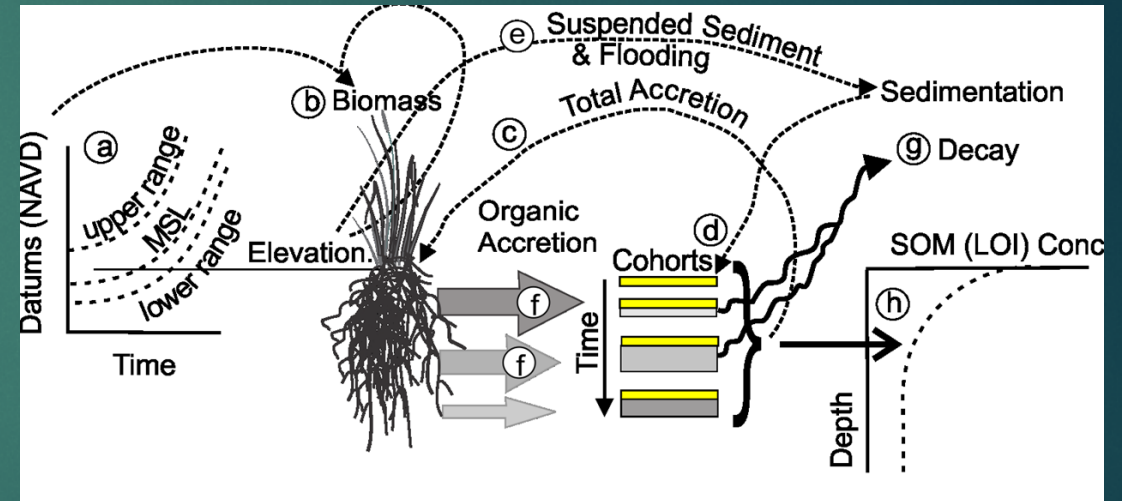
Poplar Island low marsh accretion trends also fit this model, suggesting that organic matter deposition is a major contributor to accretion rates



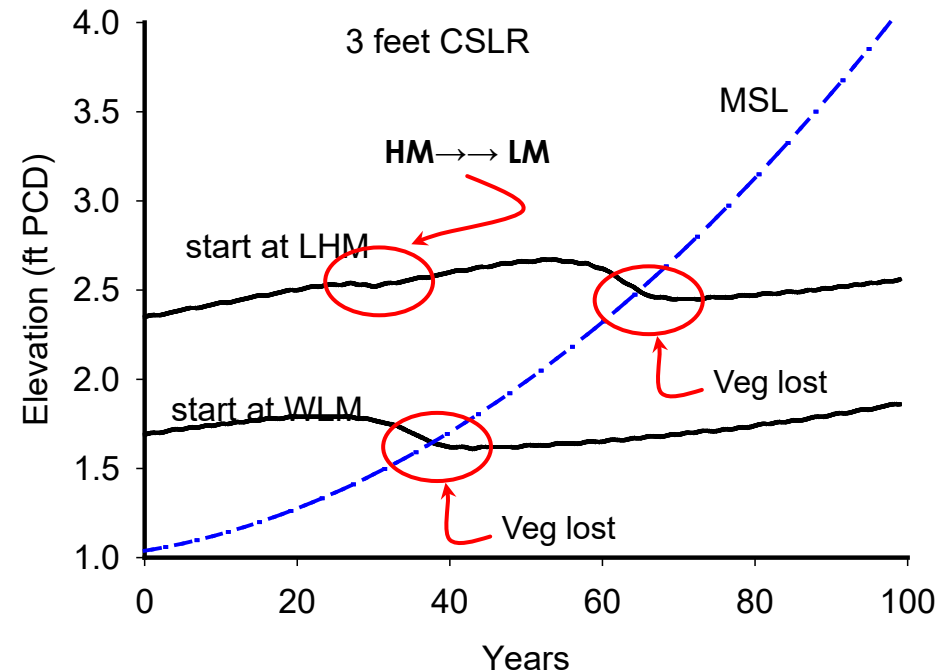
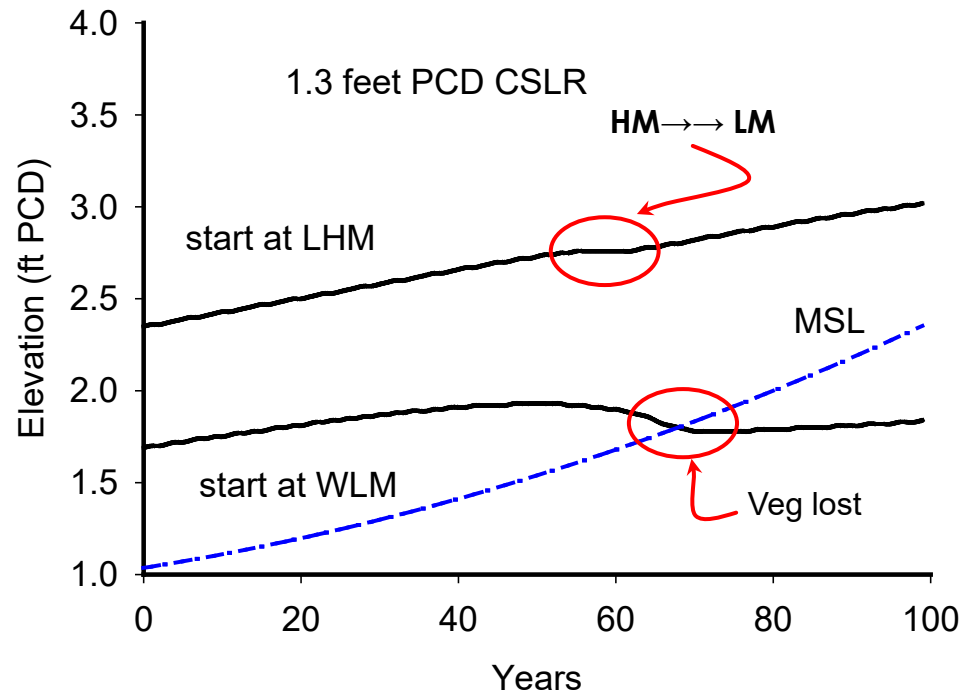
Coastal Wetland Equilibrium Model (J. Morris)

Coastal Wetland Equilibrium Model (CWEM)

- Complex ecological model based on Sediment Cohort Theory (Morris & Bowden 1986) behind spreadsheet model
- Used site specific data to evaluate Poplar Island marsh survival under future SLR
- Tested:
 - HM/LM Ratios: 80/20, 50/50 and 20/80
 - SLR scenarios: 1.3 ft and 3.0 ft in 100 years



100 year elevations of High and Low Marsh Boundaries at 2 assumed rates of SLR



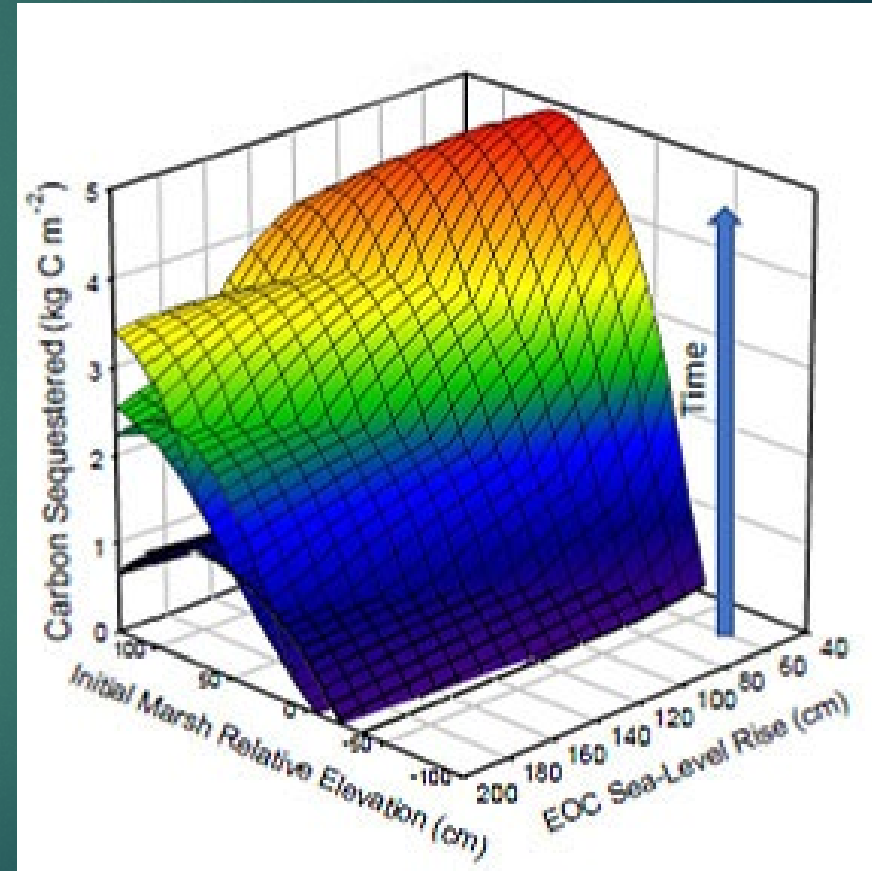
CSLR = water level rise at 100 years
WLM = water – low marsh boundary
LHM = low marsh – high marsh boundary
MSL = mean sea level

- at 1.3' CSLR HM survives 100 years, LM drowns at ~70 years
- At 3' CSLR, HM drowns at ~65 years, LM drowns at ~40 years

Coastal Wetland Equilibrium Model (J. Morris)

Coastal Wetland Equilibrium Model
Used site specific data to evaluate Poplar
Island marsh survival under future SLR

- Tested 80/20, 50/50 and 20/80 HM/LM ratios
- **Preliminary** recommendations:
 - 50/50 based on survival, carbon sequestration, concerns about fish habitat value
 - Mean marsh platform elevation: 2.4 ft PCD (1.22 ft, 0.37 m NAVD88)



Marsh Resilience to Sea Level Rise

Summary

- Vegetation establishment is an essential part of marsh restoration, whether planted or natural colonization
- Elevation is a critical element in marsh restoration
 - Exerts control on vegetation establishment and biomass production
 - Exerts control on vertical accretion rate where inorganic sediment supply is low
 - Determines (in part) resilience to SLR
- Applies to created marshes, whether they are confined (Poplar Is. – style), or unconfined (example, San Francisco Bay)

References

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- Cahoon, D.R., and Guntenspergen, G.R. (2010). Climate change, sea-level rise, and coastal wetlands. National Wetlands Newsletter 32(1), 8-12.
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- Morris, J.T., and Bowden, W.B. (1986). A Mechanistic, Numerical Model of Sedimentation, Mineralization, and Decomposition for Marsh Sediments. Soil Science Society of America Journal 50(1), 96-105. doi: <https://doi.org/10.2136/sssaj1986.03615995005000010019x>.
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HWG

Hummock Design Guidance – Peter McGowan/FWS



HWG

Vegetation Monitoring as it pertains to Reference Marsh Identification - Robbie Callahan/FWS



HWG

Path Forward to Establish Design Criteria



WHERE DO WE GO FROM HERE?



➤ Use of reference sites

1. Primary focus on Poplar Island and Barren Island wetlands
2. Other potential sites- wetlands in Fishing Creek, Blackwater NWR, Swan Island, Deal Island

➤ Elevation

1. Utilize data from Poplar (existing), Barren (need to generate), and Swan Island (existing) relating elevations and vegetation type to identify target elevations under existing conditions
2. Determine a future SLR planning trajectory
3. Identify target elevations for a future implementation point

➤ Low to high marsh ratio

1. Evaluate results of CWEM to determine if 50% low marsh to 50% high marsh is the most suitable ratio to balance need for sufficient low marsh resources/habitat value with high marsh capital to enable low marsh progression with SLR

➤ Select design metrics

1. PDT 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 modeling, and 4) the ability to measure/monitor the metric, and 5) existing information available to inform setting targets. Another consideration is whether there is the capability to apply adaptive management measures to respond to results.



OPEN DISCUSSION / QUESTIONS