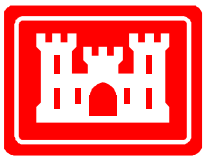

US Army Corps
of Engineers
Baltimore District

DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT - APPENDIX C

MID-CHESAPEAKE BAY ISLANDS ECOSYSTEM RESTORATION PROJECT: JAMES ISLAND

DORCHESTER COUNTY, MARYLAND

MARCH 2024

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

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C1: Correspondence Records

JAN 0 6 2020

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

Deborah Dotson, President
Delaware Nation
P.O. Box 825
Anadarko, Oklahoma 73005

Dear Ms. Dotson:

The purpose of this letter is to initiate consultation with your office in accordance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations at 36 CFR Part 800, regarding the Mid-Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay Project) being conducted by the U.S. Army Corps of Engineers, Baltimore District (USACE). The purpose of the Mid-Bay Project is to restore James and Barren Islands, located in western Dorchester County, Maryland (Enclosure 1), to their historic conditions. James Island will be restored through the use of beneficial dredge material, and will require a new access channel. The proposed access channel begins approximately 7,000 feet northwest of James Island, and is 8,300 feet long by 500 feet wide. Barren Island will be restored through the placement of sills along its eroded shoreline.

The project's area of potential effect (APE) is defined as the areas where dredged material will be placed at James Island and its associated access channel (Enclosure 2). The APE also includes areas of sill construction at Barren Island (Enclosure 3). At James Island, the area for proposed dredged material placement was surveyed by Panamerican Consultants in 2004. They identified four clusters of submerged debris, but none were recommended for further investigation. The proposed access channel was not surveyed at that time. At Barren Island, sill construction will take place along the previously eroded shoreline, and will have no impacts on historic properties.

A desktop examination of the APE was completed using Medusa, the Maryland Historical Trust's online cultural resources database. The Medusa database indicated that no surveys have been conducted within a majority of the proposed access channel at James Island, and no submerged resources have been reported. Additionally, a search of the National Oceanic and Atmospheric Administration's Automated Wreck and Obstruction Information System indicated that no shipwrecks have been reported within the proposed access channel.

Given the above information, we have determined that a Phase I archaeological investigation for submerged resources is warranted to identify historic properties within the proposed access channel at James Island. This investigation will be conducted and reported in accordance with the *Standards and Guidelines for Archeological Investigations in Maryland* (Shaffer and Cole 1994).

Please let us know if you are interested in consulting on this project on a Government-to-Government basis, and the extent to which you wish to participate. We will provide a USACE representative at any consultation meetings, and we will fully consider any information you wish to provide.

Thank you for your assistance with the Mid-Bay Project. We respectfully request your response within 30 days of the receipt of this letter. If you have any questions about the project, please contact Ethan A. Bean at (410) 962-2173 or ethan.a.bean@usace.army.mil.

Sincerely,

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

Enclosures

JAN 0 6 2020

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

Susan Bachor
Tribal Historic Preservation Representative
Delaware Tribe of Indians
P.O. Box 64
Pocono Lake, PA 18347

Dear Ms. Bachor:

The purpose of this letter is to initiate consultation with your office in accordance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations at 36 CFR Part 800, regarding the Mid-Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay Project) being conducted by the U.S. Army Corps of Engineers, Baltimore District (USACE). The purpose of the Mid-Bay Project is to restore James and Barren Islands, located in western Dorchester County, Maryland (Enclosure 1), to their historic conditions. James Island will be restored through the use of beneficial dredge material, and will require a new access channel. The proposed access channel begins approximately 7,000 feet northwest of James Island, and is 8,300 feet long by 500 feet wide. Barren Island will be restored through the placement of sills along its eroded shoreline.

The project's area of potential effect (APE) is defined as the areas where dredged material will be placed at James Island and its associated access channel (Enclosure 2). The APE also includes areas of sill construction at Barren Island (Enclosure 3). At James Island, the area for proposed dredged material placement was surveyed by Panamerican Consultants in 2004. They identified four clusters of submerged debris, but none were recommended for further investigation. The proposed access channel was not surveyed at that time. At Barren Island, sill construction will take place along the previously eroded shoreline, and will have no impacts on historic properties.

A desktop examination of the APE was completed using Medusa, the Maryland Historical Trust's online cultural resources database. The Medusa database indicated that no surveys have been conducted within a majority of the proposed access channel at James Island, and no submerged resources have been reported. Additionally, a search of the National Oceanic and Atmospheric Administration's Automated Wreck and Obstruction Information System indicated that no shipwrecks have been reported within the proposed access channel.

Given the above information, we have determined that a Phase I archaeological investigation for submerged resources is warranted to identify historic properties within the proposed access channel at James Island. This investigation will be conducted and reported in accordance with the *Standards and Guidelines for Archeological Investigations in Maryland* (Shaffer and Cole 1994).

Please let us know if you are interested in consulting on this project on a Government-to-Government basis, and the extent to which you wish to participate. We will provide a USACE representative at any consultation meetings, and we will fully consider any information you wish to provide.

Thank you for your assistance with the Mid-Bay Project. We respectfully request your response within 30 days of the receipt of this letter. If you have any questions about the project, please contact Ethan A. Bean at (410) 962-2173 or ethan.a.bean@usace.army.mil.

Sincerely,

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

Enclosures

The Delaware Nation
Historic Preservation Department
31064 State Highway 281
Anadarko, OK 73005
Phone (405)247-2448

February 19, 2020

2019
To Whom It May Concern:

The Delaware Nation Historic Preservation Department received correspondence regarding the following referenced project(s).

Project: Mid-Chesapeake Bay Island Ecosystem Restoration Project

Our office is committed to protecting tribal heritage, culture and religion with particular concern for archaeological sites potentially containing burials and associated funerary objects.

The Delaware Nation objects to projects that will disturb or destroy archaeological sites that may be eligible for the Nation Register of Historic Places and requests copies of the State Historic Preservation Officer's report and any archaeological surveys that are performed for the above-mentioned project. If no surveys have been undertaken, we recommend that a cultural resources survey be completed prior to project implementation.

Please note the Delaware Nation, the Delaware Tribe of Indians, and the Stockbridge Munsee Band of Mohican Indians are the only Federally Recognized Delaware/Lenape entities in the United States and consultation must be made only with designated staff of these three tribes. We appreciate your cooperation in contacting the Delaware Nation Cultural Preservation Office to conduct proper Section 106 consultation. Should you have any questions, feel free to contact our offices by email or at 405-247-2448 ext. 1403.

Erin N. Paden

Erin Thompson
Director of Historic Preservation
Delaware Nation
31064 State Highway 281
Anadarko, OK 73005
Ph. 405-247-2448 ext. 1403
epaden@delawarenation-nsn.gov

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

May 7, 2020

Deborah Dotson, President
Delaware Nation
P.O. Box 825
Anadarko, Oklahoma 73005

Dear Ms. Dotson:

The purpose of this letter is to continue consultation with your office in accordance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations at 36 CFR Part 800, regarding the Mid-Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay Project) being conducted by the U.S. Army Corps of Engineers, Baltimore District (USACE). The purpose of the Mid-Bay Project is to restore James and Barren Islands, located in western Dorchester County, Maryland (Enclosure 1), to their previous conditions. James Island will be restored through the beneficial use of dredged material, and will require a new access channel. The proposed access channel begins approximately 7,000 feet northwest of James Island, and is 8,300 feet long by 500 feet wide. Barren Island will be restored through the placement of sills along its eroded shoreline.

Previous correspondence with your office and the Maryland Historical Trust (MHT) determined that a Phase I archaeological investigation for submerged resources was warranted to assess the presence or absence of potential historic properties within the proposed access channel at James Island. On behalf of USACE, SEARCH, in collaboration with Stell Environmental, conducted the Phase I investigation during the winter of 2020.

The enclosed report, *Cultural Resource Investigation of a Proposed Channel for the Mid-Bay Island Ecosystem Restoration Project, James Island, Maryland* is made available for your review and comment. The report presents an evaluation and synthesis of the data gathered during the investigation. It describes project activities, the areas that may be affected by the proposed activity, the methods of identifying archaeological resources, and the results of the survey efforts. In accordance with 36 CFR 800.4(b)(1), the content and format are also consistent with the most current version of the MHT's *Standards and Guidelines for Archeological Investigations in Maryland.*

As described in the report, several magnetic and acoustic indicators were identified through the Phase I investigation. These indicators resemble three potential buried paleolandscapes extending across the entire area of potential effect that are indicative of relict channels of the Susquehanna River or its tributaries. Since the proposed access channel includes subsurface disturbance, there is a potential for adverse effects to the potential buried paleolandscapes. Additional archaeological testing and geotechnical investigations are recommended if subsurface disturbances cannot be avoided.

Thank you for your assistance with the Mid-Bay Project. We respectfully request your review of the report and response within 30 days of the receipt of this letter. If you have any questions about the project, please contact Ethan A. Bean at (410) 962-2173 or ethan.a.bean@usace.army.mil.

Sincerely,

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

Enclosure

June 12, 2020

Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch
Planning Division, Baltimore District
U.S. Army Corps of Engineers
2 Hopkins Plaza
Baltimore, MD 21201

Submitted via Email

Re: Section 106 Consultation and Review of *Cultural Resource Investigation of a Proposed Channel for the Mid Bay Island Ecosystem Restoration Project, James Island, Maryland*

Dear Mr. Bierly:

The Maryland State Historic Preservation Office, the Maryland Historical Trust (MHT) received a letter requesting review and comment on *Cultural Resource Investigation of a Proposed Channel for the Mid Bay Island Ecosystem Restoration Project, James Island, Maryland*. The work described in this report focuses on the proposed footprint of an access channel measuring 8,300 ft. long by 500 ft. wide located approximately 7,000 ft. northwest of James Island. It was undertaken to assist in the identification of potential historic properties in accordance with Section 106 of the National Historic Preservation Act.

These investigations incorporated archival and background research and reconnaissance field survey using side scan sonar, magnetometer, and sub-bottom profiler systems. The report suggests a low potential for the existence of historic shipwrecks within the project area and recommends no further archeological work for any of the identified side scan sonar contacts and magnetic anomalies. However, sub-bottom profiler records suggest the proposed channel footprint crosses a buried paleolandscape containing three small tributaries of the ancestral Susquehanna River. The report recommends additional investigations involving geotechnical sampling and analyses to determine the potential for the existence of submerged prehistoric archeological historic properties within this buried paleolandscape. MHT concurs with these recommendations.

Creation of an archeological research design which includes research questions and expected results, and a detailed archeological work plan including archeological sampling locations, methods, handling, and analyses should be developed by the archeological contractor in consultation with USACE cultural resources and engineering personnel and MHT archeologists.

MHT understands that the greater project also includes soil boring which is necessary for engineering and design refinement and recommends a finding of *no adverse effect* for these activities provided that

USACE works closely with the archeological contractor to avoid or minimize the potential for adverse effects on historic properties and avoids taking actions that could impede archeological sampling, such as spud placement, anchoring, boring, or other bottom disturbing activities in the vicinity of archeological sampling locations.

Details provided in the archeological research design and work plan will help determine if it will be possible and beneficial for engineering and design-related and archeological sampling-related geotechnical work to be conducted concurrently.

We look forward to further coordination regarding the archeological research design and work plan as project planning proceeds.

If you have questions or require further assistance, please contact me at troy.nowak@maryland.gov or (410) 697-9577.

Thank you for providing us with this opportunity to comment.

Sincerely,

Troy J. Nowak
Asst. Underwater Archeologist
Maryland Historical Trust

TJN/202002365

cc:
Ethan Bean (USACE)
Raymond Tracy (USACE)

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

REPLY TO
ATTENTION OF

Planning Division

March 17, 2021

Elizabeth Hughes, SHPO
Maryland Historical Trust
100 Community Place, 3rd Floor
Crownsville, MD 21032-2023

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 Islands 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 Maryland 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 June 2009. The record of decision was signed in July 2019 initiating the next phase of the project, Pre-construction Engineering and Design.

The purpose of this letter is to inform your agency that USACE will be preparing a supplemental Environmental Assessment (EA) to update documentation for the National Environmental Policy Act (NEPA) of 1969, as amended, focused on the Barren Island component of the project. A similar action will be undertaken at a future time for the James Island component. This letter follows a meeting we had with your office on April 1, 2019. Your office stated that they had no significant issues or concerns with the Barren Island component of the project.

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. Angela Sowers, Ph.D., at (410) 962-7440.

Sincerely,

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

From: Troy Nowak -MDP-
To: Bean, Ethan A CIV USARMY CENAB (USA)
Subject: [Non-DoD Source] Mid-Chesapeake Bay Island Ecosystem Restoration Supplemental EA Notification
Date: Thursday, April 1, 2021 7:57:48 PM

Ethan,

MHT received the above-referenced letter on March 17, 2021. Thank you for updating us on this project. We have no additional information or concerns about the project and look forward to future coordination related to the ongoing cultural resources investigations related to the James Island project element.

Please let me know if you have any questions or require additional information. Email is best.

Troy

Troy J. Nowak
Asst. Underwater Archeologist
Maryland Department of Planning
Maryland Historical Trust
100 Community Place
Crownsville, MD 21032
(410) 697-9577
Troy.Nowak@maryland.gov

Pronouns - he/him/his

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

Elizabeth Hughes, SHPO
Maryland Historical Trust
100 Community Place, 3rd Floor
Crownsville, MD 21032-2023

August 16, 2023

Dear Ms. Hughes:

The purpose of this letter is to continue consultation with your office in accordance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations at 36 CFR Part 800, regarding the Mid-Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay Project) being conducted by the U.S. Army Corps of Engineers, Baltimore District (USACE) in partnership with the Maryland Department of Transportation Maryland Port Administration. The purpose of the Mid-Bay Project is to restore James and Barren Islands, located in western Dorchester County, Maryland (Enclosure 1), to their historic conditions. James Island will be restored through the use of beneficial dredge material and will require a new access channel and turning basin. The proposed access channels and turning basin consist of three segments that combined are 14,319 feet long by 18,346 feet wide. Barren Island requires a source of clean sand to complete a number of project features. For this purpose, a proposed sand borrow area has been identified to the west of Barren Island. The proposed borrow area is 5,771 feet long by 4,353 feet wide. On behalf of USACE, SEARCH, Inc., under contract to Stell Environmental, conducted a Phase I archaeological investigation during the winter of 2023 at these locations for the James and Barren Island projects.

The enclosed draft report, *Cultural Resource Investigation of a Proposed Borrow Area, Access Channel, and Turning Basin for the Mid-Bay Island Ecosystem Restoration Project, Barren and James Islands, Maryland* is made available for your review and comment. The report presents an evaluation and synthesis of the data gathered during the investigation. It describes project activities, the areas that may be affected by the proposed activity, the methods of identifying archaeological resources, and the results of the survey efforts. In accordance with 36 CFR 800.4(b)(1), the content and format are also generally consistent with the most current version of the Maryland Historical Trust's *Standards and Guidelines for Archeological Investigations in Maryland.*

We ask that your office review the enclosed report and assist in identifying and assessing the project's effect on historic properties. If you have any questions about the project, please contact Ethan A. Bean at (410) 962-2173 or ethan.a.bean@usace.army.mil. Thank you for your continued assistance with the Mid-Bay Project.

Sincerely,

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

Enclosure

From: Katelyn Lucas
To: Bean, Ethan A CIV USARMY CENAB (USA)
Subject: [URL Verdict: Neutral][Non-DoD Source] RE: Mid Bay Island Ecosystem Restoration Project -
Date: Thursday, July 13, 2023 3:42:43 PM
Attachments: image001.png

Hi Ethan,

Thanks for sending this. We concur with the need for additional investigation if disturbance to the identified sites sensitive for archaeological potential cannot be avoided by the project.

Sincerely,

Katelyn Lucas
Delaware Nation Tribal Historic Preservation Officer
PhD Candidate
405-544-8115
klucas@delawarenation-nsn.gov

From: Bean, Ethan A CIV USARMY CENAB (USA) <ETHAN.A.BEAN@usace.army.mil>
Sent: Thursday, July 13, 2023 10:00 AM
To: Katelyn Lucas
Subject: Mid Bay Island Ecosystem Restoration Project -

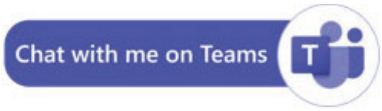
Hi Katelyn,

I wanted to send along the draft survey report for our Mid Bay Island Ecosystem Restoration project at James and Barren Islands for your review and comment. I'm sending this because the Delaware Nation has been a consulting party in the past on this project (I'm not sure if you were there yet, it

may have been Erin Paden).

Let me know if you have any questions or comments.
Thanks!
Ethan

Ethan A. Bean
Cultural Resources Specialist
History Program Manager
U.S. Army Corps of Engineers
Baltimore District
(410) 962-2173



From:	Lindsey Sestak -DNR-
To:	Sowers, Angela M CIV USARMY CENAB (USA)
Cc:	Roland Limpert -DNR-; Gwendolyn Gibson -DNR-
Subject:	[URL Verdict: Neutral][Non-DoD Source] Fwd: James Island Restoration Project - Access Channel Location and Oyster Bars
Date:	Tuesday, May 23, 2023 5:24:08 PM

Hello Angie,

I hope you're doing well. I spoke with Roland, Jodi, and Chris and developed the comment below on DNRs preference regarding the access channel at James Island. Please let me know if you have any questions or need any additional information. Thank you!

DNR prefers the original alignment as the access channel to use for the construction of the James Island Project. The alternative alignment is within 500 yards of Natural Oyster Bar (NOB) 14-5 and DNR would like to keep the access channel as far from NOB 14-5 as possible. The historic oyster bars in the original alignment have had limited productivity and will not require a time of year restriction as these time of year restrictions are typically applied to NOBs and oyster restoration sites. Additionally, DNR would like to request the recovery of any buried shell while dredging.

Lindsey Sestak
Maryland Environmental Service/MDOT Liaison
Environmental Review Program
Maryland Department of Natural Resources
580 Taylor Ave., B-3
Annapolis, Maryland 21401
(240) 927-3582
Lindsey.Sestak@maryland.gov

Website | Facebook | Twitter

---------- Forwarded message ---------
From: **Roland Limpert -DNR-**< roland.limpert@maryland.gov>
Date: Tue, May 23, 2023 at 3:01 PM
Subject: Fwd: James Island Restoration Project - Access Channel Location and Oyster Bars
To: Lindsey Sestak <lindsey.sestak@maryland.gov>
Cc: Gwendolyn Gibson -DNR- <gwendolyn.gibson@maryland.gov

On Tue, May 23, 2023 at 2:42 PM Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil> wrote:

> Hello,
>
> I just wanted to follow-up to see if you had any feedback on the two proposed channel locations.

Thanks,
Angie

From: Sowers, Angela M CIV USARMY CENAB (USA)
Sent: Tuesday, May 2, 2023 11:44 AM
To: Roland Limpert <roland.limpert@maryland.gov>; Jodi Baxter (jodi.baxter@maryland.gov) <jodi.baxter@maryland.gov>; Judy, Chris <cjudy@dnr.state.md.us>
Cc: Gwendolyn Gibson -DNR- <gwendolyn.gibson@maryland.gov>; Maura Morris <mmorris@menv.com>; Cyran, Trevor P CIV USARMY CENAB (USA) <Trevor.P.Cyran@usace.army.mil>
Subject: James Island Restoration Project - Access Channel Location and Oyster Bars

Hello,

We are awaiting results of cultural surveys within the footprint of two potential locations for an access channel to use for construction of the James Island project (Figure attached). I had our engineers identify a location that avoided direct impacts to oyster reefs for an alternate alignment than what we included in the feasibility study. If the cultural surveys don't identify any problems within the path of the northern option (that avoids oyster bars), we could use that alignment. We had previously sent the attached document on oyster impacts to DNR and received comments, but this alternate alignment was not part of that evaluation. While the alternate alignment avoids directly dredging through the James Point historic bar, it does move the dredging within 500 yds of NOB14-5 (as well as James Point). Therefore, I don't want to assume which alignment DNR would prefer. Could you please consider the two options and let me know your thoughts regarding oyster impacts and your preferred alignment?

Thanks,
Angie

Angie Sowers, Ph.D., WRCP

U.S. Army Corps of Engineers

Baltimore District- Planning Division

Civil Project Development Branch

Integrated Water Resources Management Specialist

2 Hopkins Plaza

10-E-04

Baltimore, MD 21201

angela.sowers@usace.army.mil

(410) 962-7440 (office)

(443) 676-4679 (cell)

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.

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*

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,

Troy Nowak

Asst. Underwater Archaeologist

TJN/202303177

National Oceanic and Atmospheric Administration - Endangered Species Act and Fish and Wildlife Coordination Act

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

REPLY TO
ATTENTION OF

22 November 2022

Planning Division

Jennifer Anderson
Assistant Administrator for Protected Resources
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 (USACE), is requesting to reinitiate 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 Islands 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 Maryland Mid-Chesapeake Bay Islands Project, as described in the Chief's Report (https://planning.erdc.dren.mil/toolbox/library/Chief Reports/mid_chesapeake.pdf), dated August 2009, and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated June 2009. The record of decision (ROD) was signed in July 2019 initiating the next phase of the study, Preconstruction Engineering and Design. USACE will be preparing a supplemental Environmental Impact Statement (sEIS) to update documentation for the National Environmental Policy Act (NEPA) of 1969, as amended, focused on the James Island component of the project.

The purpose of this letter is to re-engage with your agency on coordination for Section 7(a)(2) of the Endangered Species Act and the Fish and Wildlife Coordination Act for the James Island component of the project. At this time there is no change in the proposed plan from that described in the report and final EIS (http://www.nab.usace.army.mil/DMMP). This letter follows one sent in 2017 requesting input to facilitate signing of the ROD. Your agency's response on January 9, 2018 indicated no current objections to the project. USACE anticipates the reinitiated consultation to conclude with NMFS concurrence with a determination of may affect not likely to adversely affect.

Based on prior consultation, 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)

Descriptions of all species except the Atlantic sturgeon have been documented in a previously submitted biological assessment, dated May 2005. An Atlantic sturgeon description was provided via a prior coordination letter dated July 10, 2017. The supplemental sEIS will document updates to those descriptions, if needed.

Further, your agency has been identified as an agency that may have an interest in the proposed project based on your jurisdiction by law and/or special expertise, specifically responsibilities to administer Section 7(a)(2) of the Endangered Species Act, the Fish and Wildlife Coordination Act, and the Magnuson-Stevens Conservation and Management Act. This invitation is also being made via a separate invitation to Mr. Lou Chiarella, Assistant Regional Administrator for Habitat Conservation. Your agency does not have to accept this invitation to be a cooperating agency. If, however, you elect not to become a cooperating agency, you must decline this invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, or does not intend to submit comments on the project. The declination may be transmitted electronically to Angela Sowers, Ph.D. the project's lead environmental planner, at angela.sowers@usace.army.mil. Please provide your written response within 30 days of receipt of this request.

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

Sincerely,

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

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

From:	Brian D Hopper - NOAA Federal
To:	Sowers, Angela M CIV USARMY CENAB (USA)
Cc:	Leasure, Charles W CIV USARMY CENAB (USA); Jonathan Watson - NOAA Federal
Subject:	[URL Verdict: Neutral][Non-DoD Source] Re: Mid-Chesapeake Bay Island Ecosystem Restoration Project at James Island
Date:	Friday, December 2, 2022 9:46:52 AM

Hi Angie,

Your email and attached letter dated November 22, 2022, regarding the ACOE's Mid-Chesapeake Bay Island Ecosystem Restoration Project, requested re-initiation of consultation for ESA-listed species under our jurisdiction.

I've reviewed the information attached to your email requesting a determination from us regarding re-initiation of consultation 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. Please contact me (brian.d.hopper@noaa.gov), should you have any questions regarding these comments. For questions about Essential Fish Habitat, please contact Jonathan Watson with our Habitat Conservation Division at Jonathan.Watson@noaa.gov or (410) 295-3152.

As a friendly reminder, in the future, please send all correspondence to nmfs.gar.esa.section7@noaa.gov to ensure tracking and efficient processing.

Regards,
-Brian

On Tue, Nov 22, 2022 at 3:43 PM Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil> wrote:

> Dear Ms. Anderson,
>
> The U.S. Army Corps of Engineers, Baltimore District (USACE), is requesting to reinitiate 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 at James Island as part of our efforts to prepare a supplemental Environmental Impact Statement. Please find attached a coordination letter and an invitation to serve as a cooperating agency as well as the Notice of Intent.
>
> Respectfully,
>
> Angie Sowers
>
> MidBay Lead NEPA/Environmental Planner
>
> Angie Sowers, Ph.D.

U.S. Army Corps of Engineers

Baltimore District- Planning Division

Civil Project Development Branch

Integrated Water Resources Management Specialist

2 Hopkins Plaza

10-E-04

Baltimore, MD 21201

angela.sowers@usace.army.mil

(410) 962-7440

--

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 FISHERIES
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Greater Atlantic Region

US Army Corps of Engineers ®

GARFO ESA Section 7: 2017 NLAA Program Verification Form

(Please submit a signed version of this form, together with any project plans, maps, supporting analyses, etc., to nmfs.gar.esa.section7@noaa.gov with "2017 NLAA Program" in the subject line)

Section 1: General Project Details

Application Number:	N/A
Applicant(s):	Corps/Sponsor: Maryland Port Administration
Permit Type (e.g. NWP, LOP, RGP, IP, Permit Modification):	Mid-Chesapeake Bay Island Ecosystem Study
Anticipated project start date (e.g., 9/1/2017)	01/01/2023
Anticipated project end date (e.g., 3/14/2018 – if there is no permit expiration date, write "N/A")	Project to occur for more than 30 years

Project Type/Category (check all that apply to entire action):

☐	Aquaculture (shellfish) and artificial reef creation	☐	Transportation and development (e.g., culvert construction, bridge repair)
☐	Routine maintenance dredging and disposal/beach nourishment	☐	Mitigation (fish/wildlife enhancement or restoration)
☐	Piers, ramps, floats, and other structures	☐	Bank stabilization and dam maintenance
☑	If other, describe project type/category: Environmental restoration/beneficial use of dredged material (dredge and fill)		

Project/Action Description and Purpose (*include town/city/state and water body where project is occurring; relevant permit conditions that aren't captured elsewhere on form*):

The Corps is conducting the Mid-Chesapeake Bay Island Ecosystem Restoration Study--the study sponsor is the Maryland Department of Transportation (Maryland Port Administration).

The work would occur at two sites in the Middle Chesapeake Bay study area: James Island and Barren Island. Construction at these two islands would restore a total of approximately 2,144 acres of remote island habitat and protect approximately 1,325 acres of submerged aquatic vegetation (SAV) habitat. This project would promote connectivity and ensure the longevity of these two islands in the ecologically significant Maryland Eastern Shore island network.

Type of Habitat Modified (e.g., sand, cobble, silt/mud/clay):	Area (acres):
sand (dredge location)	101.00
sand/silt/clay (fill location)	2,172.00
Project Latitude (e.g., 42.625884)	38.517382
Project Longitude (e.g., -70.646114)	-76.338646

Section 2: ESA-listed species and/or critical habitat in the action area:

☑	Atlantic sturgeon (all DPSs) If not all DPSs, list which here:	☑	Kemp's ridley sea turtle
☐	Atlantic sturgeon critical habitat (proposed or designated) Indicate which DPS (GOM, NYB, Chesapeake Bay DPSs):	☑	Loggerhead sea turtle (NW Atlantic DPS)
☑	Shortnose sturgeon	☑	Leatherback sea turtle
☐	Atlantic salmon (GOM DPS)	☐	North Atlantic right whale
☐	Atlantic salmon critical habitat (GOM DPS)	☐	North Atlantic right whale critical habitat
☑	Green sea turtle (N. Atlantic DPS)	☐	Fin whale

Section 3: NLAA Determination (check all applicable fields):

a) GENERAL PDC	
☑	Yes, my project meets all of the General PDC.
☐	No, my project does not meet all the General PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):
	Information for PDC 8 (if "max extent of stressor" exceeds "width of water body", PDC 8 is NOT met, and a justification in Section 4 is required to proceed with the verification form)

	Width (m) of water body in action area:	Stressor Category (stressor that extends furthest distance into water body – e.g., turbidity plume; sound pressure wave):	Max extent (m) of stressor into the water body:
	1,450.00	turbidity plume	Up to 191 mg/L TSS within 2,000 foot radius of mechanical dredge.

☐	1.	No work will individually or cumulatively have an adverse effect on ESA-listed species or designated critical habitat; no work will cause adverse modification or destruction to proposed critical habitat.
☐	2.	No work will occur in the tidally influenced portion of rivers/streams where Atlantic salmon presence is possible from April 10–November 7.
☐	3.	No work will occur in Atlantic or shortnose sturgeon spawning grounds as follows: i. New England: April 1–Aug. 31 ii. New York/Philadelphia: March 15–August 31 iii. Baltimore/Norfolk: March 15–July 1 and Sept. 15–Nov. 1
☐	4.	No work will occur in shortnose sturgeon overwintering grounds as follows: i. New England District: October 15–April 30 ii. New York/Philadelphia: Nov. 1–March 15 iii. Baltimore: Nov. 1–March 15
☐	5.	Within designated Atlantic salmon critical habitat, no work will affect spawning and rearing areas (PBFs 1-7).
☐	6.	Within proposed/designated Atlantic sturgeon critical habitat, no work will affect hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0-0.5 parts per thousand) (PBF 1).
☐	7.	Work will not change temperature, water flow, salinity, or dissolved oxygen levels.
☐	8.	If it is possible for ESA-listed species to pass through the action area, a zone of passage with appropriate habitat for ESA-listed species (e.g., depth, water velocity, etc.) must be maintained (i.e., physical or biological stressors such as turbidity and sound pressure must not create barrier to passage).
☐	9.	Any work in designated North Atlantic right whale critical habitat must have no effect on the physical and biological features (PBFs).
☐	10.	The project will not adversely impact any submerged aquatic vegetation (SAV).
☐	11.	No blasting will occur.

b) The following stressors are applicable to the action (check all that apply – use Stressor Category Table for guidance):

☐	Sound Pressure
☑	Impingement/Entrapment/Capture
☑	Turbidity/Water Quality
☑	Entanglement

☑	Habitat Modification
☑	Vessel Traffic

	Stressor Category					
Activity Category	Sound Pressure	Impingement/ Entrapment/ Capture	Turbidity/ Water Quality	Entanglement	Habitat Mod.	Vessel Traffic
Aquaculture (shellfish) and artificial reef creation	N	N	Y	Y	Y	Y
Routine maintenance dredging and disposal/beach nourishment	N	Y	Y	N	Y	Y
Piers, ramps, floats, and other structures	Y	N	Y	Y	Y	Y
Transportation and development (e.g., culvert construction, bridge repair)	Y	N	Y	N	Y	Y
Mitigation (fish/wildlife enhancement or restoration)	N	N	Y	N	Y	Y
Bank stabilization and dam maintenance	Y	N	Y	N	Y	Y

c) SOUND PRESSURE PDC

☐	Yes, my project meets all of the Sound Pressure PDC below.
☐	No, my project does not meet all the Sound Pressure PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):

Information for PDC 14 (refer to SOPs for guidance):

	Pile material (e.g., steel pipe, timber, concrete)	Pile diameter/width (inches)	Number of piles	Installation method (e.g., impact hammer, vibratory start and then impact hammer to depth)
a)				
b)				

	c)				
	d)				

☐	12.	If the pile driving is occurring during a time of year when ESA-listed species may be present, and the anticipated noise is above the behavioral noise threshold of those species (please see SOPs), a 20 minute "soft start" is required to allow for animals to leave the project vicinity before sound pressure increases.
☐	13.	Any new pile supported structure must involve the installation of ≤ 50 piles (below MHW).
☐	14.	All underwater noise (pressure) is below (<) the physiological/injury noise threshold for ESA-listed species in the action area (if project involves steel piles, or non-steel piles > 24-inches in diameter/width, include noise estimate with this form).

d) IMPINGEMENT/ENTRAINMENT/CAPTURE PDC

☑		Yes, my project meets all of the Impingement/Entrainment/Capture PDC below.
☐		No, my project does not meet all the Impingement/Entrainment/Capture PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):
		Information for Dredging:
		If dredging permit/authorization includes multiple years of maintenance, include estimated number of dredging/disposal events: — Dredging of access channel associated with this project would occur during one event; material to be disposed at
		Information for PDC 18 (refer to SOPs for guidance):
		Mesh screen size (mm) for temporary intake:
☐	15.	Only mechanical, cutterhead, and low volume hopper (e.g., CURRITUCK) dredges may be used.
☐	16.	No new dredging in proposed or designated Atlantic sturgeon or Atlantic salmon critical habitat (maintenance dredging still must meet all other PDCs). New dredging outside Atlantic sturgeon or salmon critical habitat is limited to one time dredge events (e.g., burying a utility line) and minor (≤ 2 acres) expansions of areas already subject to maintenance dredging (e.g., marina/harbor expansion).
☐	17.	Work behind cofferdams, turbidity curtains, and other methods to block access of animals to dredge footprint is required when operationally feasible and ESA-listed species may be present.
☐	18.	Temporary intakes related to construction must be equipped with appropriate sized mesh screening (as determined by GARFO section 7 biologist and/or according to Chapter 11 of the NOAA Fisheries Anadromous Salmonid Passage Facility Design) and must not have greater than 0.5 fps intake velocities, to prevent impingement or entrainment of any ESA-listed species life stage.
☐	19.	No new permanent intake structures related to cooling water, or any other inflow at facilities (e.g. water treatment plants, power plants, etc.).

e) TURBIDITY/WATER QUALITY PDC

☐		Yes, my project meets all of the Turbidity/Water Quality PDC below.

☑	No, my project does not meet all the Turbidity/Water Quality PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):	
☐	20.	Work behind cofferdams, turbidity curtains, or other methods to control turbidity are required when operationally feasible and ESA-listed species may be present.
☑	21.	In-water offshore disposal may only occur at designated disposal sites that have already been consulted on with GARFO.
☐	22.	Any temporary discharges must meet state water quality standards; no discharges of toxic substances.
☐	23.	Only repair of existing discharge pipes allowed; no new construction.

f) ENTANGLEMENT PDC

☑	Yes, my project meets all of the Entanglement PDC below.	
☐	No, my project does not meet all the Entanglement PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):	
	Information for Aquaculture Projects:	
	Type of Aquaculture (e.g., cage on bottom)	Acreage
	a)	
	b)	
	c)	
☐	24.	Shell on bottom <50 acres with maximum of 4 corner marker buoys;
☐	25.	Cage on bottom with no loose floating lines <5 acres and minimal vertical lines (1 per string of cages, 4 corner marker buoys);
☐	26.	Floating cages in <3 acres in waters and shallower than -10 feet MLLW with no loose lines and minimal vertical lines (1 per string of cages, 4 corner marker buoys);
☐	27.	Floating upweller docks in >10 feet MLLW.
☐	28.	Any in-water lines, ropes, or chains must be made of materials and installed in a manner (properly spaced) to minimize the risk of entanglement by keeping lines taut or using methods to promote rigidity (e.g., sheathed or weighted lines that do not loop or entangle).

g) HABITAT MODIFICATION PDC

☐	Yes, my project meets all of the Habitat Modification PDC below.
☑	No, my project does not meet all the Habitat Modification PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):

☑	29.	No conversion of habitat type (soft bottom to hard, or vice versa) for aquaculture or reef creation.	
h) VESSEL TRAFFIC PDC			
☑	Yes, my project meets all of the Vessel Traffic PDC below.		
☐	No, my project does not meet all the Vessel Traffic PDC as indicated below (please check the PDC the action does NOT comply with below, and provide justification in Section 4 of this form):		
	Information for PDC 33 (refer to SOPs for guidance):		
		Temporary Project Vessel Type (e.g., work barge, tug, scow, etc.)	Number of Vessels
	a)	work barges	
	b)		
	c)		
		Type of Non-Commercial Vessels Added (e.g., 20' recreational motor boat – *only include if there is a net increase directly/indirectly resulting from project*)	Number of Vessels (*if sum > 2, PDC 33 is not met and justification required in Section 4*)
	a)		
	b)		
		Type of Commercial Vessels Added (*only include if there is a net increase directly/indirectly resulting from project*)	Number of Vessels (*if > 0, PDC 33 is not met and justification required in Section 4*)
	a)		
	b)		
☐	30.	Speed limits below 10 knots for project vessels with buffers of 150 feet for all listed species (1,500 feet for right whales).	
☐	31.	While dredging, dredge buffers of 300 feet in the vicinity of any listed species (1,500 feet for right whales), with speeds of 4 knots maximum.	
☐	32.	The number of project vessels must be limited to the greatest extent possible, as appropriate to size and scale of project.	
☐	33.	The permanent net increase in vessels resulting from a project (e.g., dock/float/pier/boating facility) must not exceed two non-commercial vessels. A project must not result in the permanent net increase of any commercial vessels (e.g., a ferry terminal).	

Section 4: Justification for Review under the 2017 NLAA Program

If the action is not in compliance with all of the General PDC and appropriate stressor PDC, but you can provide justification and/or special conditions to demonstrate why the project still meets the NLAA determination and is consistent with the aggregate effects considered in the programmatic consultation, you may still certify your project through the NLAA program using

this verification form. Please identify which PDC your project does not meet (e.g., PDC 9, PDC 15, PDC 22, etc.) and provide your rationale and justification for why the project is still eligible for the verification form.

To demonstrate that the project is still NLAA, you must explain why the effects on ESA-listed species or critical habitat are **insignificant** (i.e., too small to be meaningfully measured or detected) or **discountable** (i.e., extremely unlikely to occur). Please use this language in your justification.

PDC#	Justification
f.21.	The proposed disposal sites are at James Island and Barren Island. James Island, once at least 1,250 acres in the 17th century, is now nearly lost in its entirety. Barren Island currently totals nearly 200 acres, but was recorded at 754 acres in the 1800s. These sites would be restored through the beneficial use of dredged material, and aquatic habitat would be restored, protected, and created. The existing conditions are of eroding islands, and erosion would continue if conditions are not modified. In-water placement operations require the placement of dredge materials to restore the islands. The placement of dredged material may cause a temporary increase in localized turbidity. While the increase in suspended sediments may cause sturgeon and sea
g.29.	The project would result in transformation of approximately 2,072 acres of open water habitat to island habitat. Additionally, the project would result in disturbance to approximately 101 acres of shallow water habitat due to dredging. The transformation of approximately 72 acres of eroding shoreline to wetland habitat would also occur. However, as a result of the project's activities, the restoration and creation of approximately 3,565 acres of remote island habitat is to occur, thus resulting in an environmental lift. The placement of materials on the seafloor at the site may affect benthic organisms. Benthic organisms living in areas may be buried by the addition of materials. Although sturgeon and sea turtles may opportunistically forage in the area

Section 5: USACE Verification of Determination

☐	In accordance with the 2017 NLAA Programmatic Consultation, the Corps has determined that the action complies with all applicable PDC and is not likely to adversely affect listed species.
☑	In accordance with the 2017 NLAA Programmatic Consultation, the Corps has determined that the action is not likely to adversely affect listed species per the justification and/or special conditions provided in Section 4.

USACE Signature:	Date:
OSTROFSKY.TARRIE.L.1033844049 Digitally signed by OSTROFSKY.TARRIE.L.1033844049 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=OSTROFSKY.TARRIE.L.1033844049 Date: 2018.02.05 11:59:04 -05'00'	02/05/2018

Section 6: GARFO Concurrence

☐	In accordance with the 2017 NLAA Program, GARFO PRD concurs with USACE's determination that the action complies with all applicable PDC and is not likely to adversely affect listed species or critical habitat.
☑	In accordance with the 2017 NLAA Program, GARFO PRD concurs with USACE's determination that the action is not likely to adversely affect listed species or critical habitat per the justification and/or special conditions provided in Section 4.
☐	GARFO PRD does not concur with USACE's determination that the action complies with the applicable PDC (with or without justification), and recommends an individual Section 7 consultation to be completed independent from the 2017 NLAA Program.

GARFO Signature:	Date:
HOPPER.BRIAN.D.1383186770 Digitally signed by HOPPER.BRIAN. . 186770 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HOPPER.BRIAN.D.1383186770 Date: 2018.02.05 12:44:39 -05'00'	02/05/2018

National Oceanic and Atmospheric Administraton - National Marine Fisheries Service

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

REPLY TO
ATTENTION OF

22 November 2022

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 requesting to reinitiate 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 Islands 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 Maryland Mid-Chesapeake Bay Islands Project, as described in the Chief's Report (https://planning.erdc.dren.mil/toolbox/library/ChiefReports/mid_chesapeake.pdf) dated August 2009, and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated June 2009. The record of decision (ROD) was signed in July 2019 initiating the next phase of the study, Preconstruction Engineering and Design. USACE will be preparing a supplemental Environmental Impact Statement (sEIS) to update documentation for the National Environmental Policy Act (NEPA) of 1969, as amended, focused on the James Island component of the project.

The purpose of this letter is to re-engage NMFS to coordinate on Section 305(b)(2) Magnuson-Stevens Conservation and Management Act and the Fish and Wildlife Coordination Act for the James Island component of the project. At this time there is no change in the proposed plan from that described in the report and final EIS (http://www.nab.usace.army.mil/DMMP). This letter follows one sent in 2017 requesting input to update the EFH assessment to facilitate signing of the ROD. Your response on May 12, 2017, provided a list of information needed to update the 2005 EFH assessment. USACE is initiating that updated EFH assessment at this time.

Based on feasibility-phase consultations, it was determined that the proposed project at Barren and James Island lies within waters designated as EFH for the following species

and their life stages: windowpane flounder (*Scopthalmus aquosos*), juvenile and adult stages; bluefish (*Pomatomus saltatrix*), juvenile and adult stages; summer flounder (*Paralicthys dentatus*), juvenile and adult stages; king mackerel (S*comberomorus cavalla*), eggs, larvae, juvenile, and adult stages; Spanish mackerel (*Scomberomorus maculatus*), eggs, larvae, juvenile, and adult stages; cobia (*Rachycentron canadum*), eggs, larvae, juvenile, and adult stages; and red drum (*Sciaenops occelatus*), eggs, larvae, juvenile, and adult stages. An EFH assessment was conducted as part of the supplemental Environmental Assessment completed in March 2022 for the Barren Island component of the project based on an updated, coordinated list for the following species and their lifestages: windowpane flounder, juvenile and adult stages; bluefish, juvenile and adult stages; summer flounder, larvae, juvenile and adult stages; Atlantic butterfish (*Peprilus triancanthus*), eggs and larvae stages; black sea bass (*Centropristus striata*), juveniles and adults; scup (*Stenotomus chrysops*), juveniles and adults; and clearnose skate (*Raja eglanteria*), juveniles and adults. Please confirm the species that should be included in the James Island project's EFH assessment.

Further, your agency has been identified as an agency that may have an interest in being a cooperating agency for the proposed project based on your jurisdiction by law and/or special expertise, specifically responsibilities to administer Section 7(a)(2) of the Endangered Species Act, the Fish and Wildlife Coordination Act, and the Magnuson-Stevens Conservation and Management Act. This invitation is also being made via a separate invitation to Jennifer Anderson, Assistant Administrator for Protected Resources. Your agency does not have to accept this invitation to be a cooperating agency. If, however, you elect not to become a cooperating agency, you must decline this invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, or does not intend to submit comments on the project. The declination may be transmitted electronically to Ms. Angela Sowers, Ph.D. the project's lead environmental planner, at angela.sowers@usace.army.mil. Please provide your written response within 30 days of receipt of this request.

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

Sincerely,

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

CC: Karen Greene, NMFS Mid-Atlantic Field Office, karen.greene@noaa.gov
Jonathan Watson, NMFS Annapolis, MD Field Office, Jonathan.watson@noaa.gov

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 01930-2276

December 19, 2022

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

RE: Mid-Bay Islands Ecosystem Restoration Project: James Island supplemental EA

Dear Mr. Bierly,

Thank you for your November 22, 2022, letter inviting us to be a cooperating agency on the preparation of environmental documents pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, regarding the James Island component of the Mid-Bay Islands Ecosystem Restoration Project (the Project). The goals of the Project include the restoration and expansion of the historical footprint and associated habitats of James Island using stone and sediments dredged from the Baltimore Harbor Channel and Approaches. Because this project appears to be covered under the provisions of Section 1005 of the Water Resources Reform and Development Act of 2014 (WRRDA 2014), and we have jurisdiction by law and/or special expertise, we accept your invitation to become a cooperating agency for this project.

Our role and degree of involvement is dependent on existing staff and fiscal resources, and our contribution to the process will be limited to participating in project meetings and providing written comments in response to your documents prepared as part of the NEPA process. We will provide technical information identifying aquatic species and habitats of concern, identification of issues to be considered and evaluated during the NEPA process and guidance on evaluating, avoiding, and minimizing project effects to our trust resources. At this time, we are unable to undertake any data collection, conduct analyses, or prepare any sections of the NEPA document as our staff and resources are fully committed to other obligatory programs of NOAA Fisheries.

Please note that our involvement as a cooperating agency does not constitute an endorsement of this project, nor does it obviate the need for consultations required under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), Fish and Wildlife Coordination Act (FWCA), and the Endangered Species Act (ESA). With respect to the latter, on November 22, 2022, we received your email and attached letter requesting re-initiation of consultation for ESA-listed species under our jurisdiction. On December 2, 2022, we informed you that we had 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.

Finally, your letter also included a request to confirm the species and corresponding life stages with designated essential fish habitat (EFH) in the project area. We confirm that those species included in the March 2022 supplemental Environmental Assessment (EA) for the Barren Island component of this project remain accurate for this study. However, we also note that The EFH final rule published in the Federal Register on January 17, 2002, defines an adverse effect as "any impact that reduces the quality and/or quantity of EFH". Adverse effects 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 ecosystem components. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. As such, prevalent prey for those federally managed species described should also be considered in your EFH assessment. Prey for this study should include invertebrates such as stout razor clam (*Tagelus plebeius*) and blue crab (*Callinectes sapidus*) as well as forage fishes including Atlantic menhaden (*Brevoortia tyrannus*), bay anchovy (*Anchoa mitchilli*), Atlantic silverside (*Menidia menidia*), and spot (*Leiostomus xanthurus*).

Similarly, any project impacts to designated Habitat Areas of Particular Concern (HAPC) including submerged aquatic vegetation (SAV) should be described in your updated assessment. A full description of project impacts on these resources, informed by recent survey results and responses observed at similar dredge material reuse projects (e.g., Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island) will help us to evaluate the proposed action during our formal EFH consultation. Please refer to our letter dated May 12, 2017, and our website (https://www.fisheries.noaa.gov/new-england-mid-atlantic/habitat-conservation/essential-fish-habitat-consultations-greater-atlantic-region) for further information regarding information necessary to inform our consultation under the MSA.

We look forward to working with you and your staff as the project moves forward. If you have any questions regarding this matter, please contact Jonathan Watson in our Annapolis, MD field office (jonathan.watson@noaa.gov) or Brian Hopper in our Protected Resources Division (brian.d.hopper@noaa.gov) regarding threatened and endangered species listed by us under the ESA.

Sincerely,

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

cc: C. Leasure, A. Sowers (USACE)
K. Greene, J. Watson (NMFS HESD)
J. Anderson, C. Vaccaro, B Hopper (NMFS PRD)

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 01930-2276

May 12, 2017

David Robbins
Acting Chief, Civil Project Development Branch
Department of the Army
Baltimore District, Corps of Engineers
10 S. Howard Street
Baltimore, MD 21201

Dear Mr. Robbins:

We have reviewed the updated essential fish habitat (EFH) assessment for the Mid-Chesapeake Bay Island Project in Dorchester County, Maryland, received April 10, 2017. The purpose of the Mid-Chesapeake Bay Island Ecosystem Restoration Study was to determine the technical, economic, and environmental feasibility of protecting, restoring, and creating aquatic, intertidal wetland, and upland habitat for fish and wildlife within the Mid-Chesapeake Bay Islands study area using suitable dredged material from the Upper Chesapeake Bay approach channels to the Port of Baltimore and the southern approach channels to the Chesapeake and Delaware (C&D) Canal. The final recommended plan (James 5/Barren E) described in the environmental impact statement (EIS) prepared for this project includes a 55/45 wetland/upland ratio of James Island Alignment 5 with dike heights of 20 feet and protection/restoration at Barren Island, alignment E. Of the total wetland cell acreage, 20% would be high marsh and 80% would be low marsh. Intertidal coverage would be 10% of the low marsh acreage.

The EFH assessment for this project was previously provided to us for review in April 2005. In the 12 years since we last commented on the project, local conditions have changed and additional information necessary before we can consider your EFH assessment complete.

Magnuson Stevens Fishery Conservation and Management Act

As discussed in your EFH assessment, this area of the Chesapeake Bay has been designated as EFH for several federally managed species of finfish, including juvenile and adult summer flounder (*Paralichthys dentatus*), and bluefish (*Pomatomus saltatrix*), which were also found during sampling efforts.

The Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies such as the Corps to consult with us on projects such as this that may adversely affect EFH. 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 EFH final rule published in the Federal Register on January 17, 2002, defines an adverse effect as "any impact that reduces the quality and/or quantity of EFH". Adverse effects 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 ecosystem components. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Your letter requesting coordination indicates that you are completing your National Environmental Policy Act (NEPA) compliance. As stated above, in the 12 years since the environmental impact statement (EIS) for this project was drafted, environmental and ecological conditions in the Chesapeake Bay have changed. The EIS should be updated or supplemented before a decision is made on if the project is supportable. The 2005 Dredged Material Management Plan (DMMP) that the original EIS relies on is also being updated, and it is unclear how any changes to the DMMP would impact the assumptions, evaluations and conclusions in that EIS. In addition, the mapping of local conditions provided in the EIS are out of date and should be updated to appropriately consider the impacts of the proposed project, for example:

- Aerial photo footprint & historical shoreline mapping (EIS figures 3-3 and 3-4).
- Submerged aquatic vegetation (SAV) mapping (EIS figures 3-10 add 3-11).
- Oyster restoration sites mapping (EIS figure 3-12 and 3-13).
- Habitat types mapping (EIS figures 3-17 to 3-19).

The updated EFH assessment is lacking similar information, which must be provided in order for us to fully assess the impacts to EFH. As a result, a revised assessment that incorporates current environmental and ecological data and assesses fully the direct, indirect, individual and cumulative effects of the proposed project should be provided to us for review. The required contents of an EFH assessment include: 1) a description of the action; 2) an analysis of the potential adverse effects of the action on EFH and the managed species; 3) the Corps' conclusions regarding the effects of the action on EFH; 4) proposed mitigation, if applicable. For projects of this size and scope, other information that should be contained in the EFH assessment includes: 1) the results of on-site inspections to evaluate the habitat and site-specific effects; 2) the views of recognized experts on the habitat or the species that may be affected; 3) a review of pertinent literature and related information; and 4) an analysis of alternatives to the action that could avoid or minimize the adverse effects on EFH.

The EFH assessment should consider the existing habitat at James Island and Barren Island and how this habitat and the species it supports would be impacted by the proposed action. The existing habitat has changed since the original EIS and EFH assessment were completed. The habitat conversions and the effects these conversions will have on EFH should be evaluated fully. For example, a review of the 2014 and 2015 VIMS submerged aquatic vegetation (SAV) mapping shows that SAV has been present in recent years on the west side of Barren Island, and overlaps with the area of proposed wetland creation in the Recommended Plan (EFH assessment Fig 3). Conversion of existing SAV to wetland is not addressed in the updated EFH assessment, and we are concerned by this oversight.

SAV has been designated as a habitat area of particular concern (HAPC) for summer flounder by the Mid-Atlantic Fishery Management Council. HAPCs are discrete subsets EFH that provide important ecological functions and/or are especially vulnerable to degradation. EFH is designated for federally managed species and is defined as those waters and substrates necessary for fish for spawning, breeding, feeding or growth to maturity. In accordance with the EFH provisions of the MSA, we are mandated to provide federal and state agencies with recommendations to avoid, minimize, and offset adverse effects to EFH. 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, due to its important role in the marine ecosystem for nesting, spawning, nursery cover, and forage areas for fish and wildlife.

SAV and their associated epiphytes are highly productive, produce a structural matrix on which many other species depend, improve water quality and stabilize sediments. Seagrasses are among the most productive ecosystems in the world and perform a number of irreplaceable ecological functions which range from chemical cycling and physical modification of the water column and sediments to providing food and shelter for commercial, recreational, as well as economically important organisms. Because of this, we are likely to recommend against any designs that would impact SAV.

The EFH assessment should also discuss if any restoration work has been done at or around Barren Island or James Island since the previous EFH assessment, and how the proposed project would impact this work.

The EFH assessment does not discuss the proposed ratio of low marsh to high marsh planned for James and Barren Islands. The 80% low marsh/20% high marsh described in the EIS should be maintained. The proposed project would result in burial of 2,072 acres of Chesapeake Bay bottom at James Island and up to 100 acres of shallow water habitat would be impacted at Barren Island. This has immediate impacts to essential fish habitat and the species that use it, and the higher proportion of low marsh provided by the restoration would create other types of habitat used by those species and their prey. If more high marsh were created, there would be minimal benefits to our resources.

Construction of the initial dike would include dredging a 12,720-foot long access channel from deep-water northwest of the proposed alignment. The channel would be dredged to a width of 400 feet and a depth of 25 feet, and approximately 1.7 mcy of material would be removed. As described in the EFH assessment, this depth has the potential to become hypoxic or anoxic in warmer months of the year, making it unsuitable as habitat for summer flounder. The Corps should restore this channel to ambient depths at the completion of the project. This channel would be through benthic habitat mapped as "Natural Oyster Rubble" (see http://dnrweb.dnr.state.md.us/MERLIN/). If useable shell is available in the area that would be dredged, the Corps should consider the potential for its use in planned oyster restoration projects.

The EFH assessment cannot be considered complete without the information discussed above. As such, we are unable to provide conservation recommendations at this time. Once you have provided the required information for us to adequately assess the impacts to EFH, we will continue our EFH consultation with you and provide any necessary conservation

recommendations at that time. In addition, based upon the scope of the project, including conversion of more than 2,170 acres of subtidal shallow water habitat to wetlands and uplands and the potential for this to result in significant impacts to EFH and other aquatic resources, an expanded EFH consultation as described in 50 CFR 600.920 (f) is warranted. An expanded consultation process allows the maximum opportunity for us to work together to review the action's impacts on EFH, and to develop EFH consultation recommendations. Under the expanded consultation procedures, we are allowed 60 calendar days to review, comment, and respond to the information that has been provided to us.

Choptank Habitat Focus Area

In 2014, the Choptank River Complex was selected as a NOAA Habitat Focus Area (HFA). The Choptank River and its tributaries provides important habitat for spawning striped bass (*Morone saxatilis*), alewife (*Alosa pseudoharengus*), and blueback herring (*Alosa aestivalis*), as well as historically abundant oyster reefs. Residents of the watershed, including many families who have lived there for multiple generations, have traditionally been employed in agriculture or commercial fishing. Recreational fishing, hunting, and boating attract millions of people each year and contribute significantly to the region's economy.

Our interest in the Choptank is driven by a significant public and private investment in native oyster restoration in three of the Choptank's major tributaries: the Little Choptank River, the Tred Avon River and Harris Creek. The population of oysters in the Chesapeake Bay has declined dramatically over the past century due to overfishing, habitat loss (including poor water quality), and disease.

From the information provided, it is not clear how the project, particularly the activities proposed at James Island, will impact the goals and objectives for the Choptank HFA including rebuilding and sustaining important fish populations. Further coordination with us and our Chesapeake Bay Office and Restoration Center is needed to determine the effects this project may have on the HFA and goals developed for the Choptank with our partners including, MDNER, the Chesapeake Bay Foundation, the Chesapeake Bay Program, Chesapeake Conservancy, Maryland Sea Grant, and many others.

Lastly, the Corps should also consider potential impacts of the project on active oyster leases to southeast of Barren Island.

If you have questions or would like to discuss this further, please contact Kristy Beard at (410) 573-4542 or kristy.beard@noaa.gov.

Sincerely,

Karen M. Greene
Mid-Atlantic Field Offices Supervisor
Habitat Conservation Division

Electronic copy:
A. Sowers (Planning Division)
T. Nies – NEFMC
C. Moore – MAFMC
L. Havel – ASFMC
C. Guy – USFWS
M. Mansolino - EPA

U.S. Environmental Protection Agency

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

REPLY TO
ATTENTION OF

22 November 2022

Planning Division

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

Dear Mr. Nevshehirlian,

The U.S. Army Corps of Engineers (USACE), Baltimore District, is requesting to reinitiate coordination with the U.S. Environmental Protection Agency (EPA) for the Mid-Chesapeake Bay Island Ecosystem Restoration Project at James Island. The Mid-Chesapeake Bay Islands 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 Maryland Mid-Chesapeake Bay Island Project, as described in the Chief's Report, dated August 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 June 2009. The record of decision (ROD) was signed in July 2019 initiating the next phase of the study, Preconstruction Engineering and Design.

The purpose of this letter is to inform your agency that USACE will be preparing a supplemental Environmental Impact Statement (sEIS) to update documentation for the National Environmental Policy Act (NEPA) of 1969, as amended, focused on the James Island component of the project. At this time there is no change in the proposed plan from that described in the report and final EIS (http://www.nab.usace.army.mil/DMMP). This letter follows one sent in 2017 requesting input to facilitate signing of the ROD. Your agency responded that they would not be providing any additional information, but requested that any follow-on NEPA documents be shared with EPA.

Further, your agency has been identified as an agency that may have an interest in being a cooperating agency for the proposed project based on your jurisdiction by law and/or special expertise. Your agency does not have to accept this invitation to be a cooperating agency. If, however, you elect not to become a cooperating agency, you must decline this invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, or does not intend to submit comments on the project. The declination may be transmitted electronically to Ms. Angela Sowers, Ph.D., the

project's lead environmental planner, at angela.sowers@usace.army.mil. Please provide your written response within 30 days of receipt of this request.

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

Sincerely,

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

CC: Carrie Traver, EPA Mid-Atlantic Region, traver.carrie@epa.gov

U.S. Fish and Wildlife Service

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

REPLY TO
ATTENTION OF

22 November 2022

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 requesting to reinitiate coordination with the U.S. Fish and Wildlife Service (FWS) for the Mid-Chesapeake Bay Island Ecosystem Restoration Project. The Mid-Chesapeake Bay Islands Project includes 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 Islands Project, as described in the Chief's Report (https://planning.erdc.dren.mil/toolbox/library/ChiefReports/mid_chesapeake.pdf), dated August 2009, and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated June 2009. The record of decision (ROD) was signed in July 2019 initiating the next phase of the study, Preconstruction Engineering and Design. USACE will be preparing a supplemental Environmental Impact Statement (sEIS) to update documentation for the National Environmental Policy Act (NEPA) of 1969, as amended, focused on the James Island component of the project.

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 James Island component of the project. At this time there is no change in the proposed plan from that described in the report and final EIS (http://www.nab.usace.army.mil/DMMP). This letter follows one sent in 2017 requesting input to facilitate signing of the ROD. At that time, your agency determined that given there had been no change in the project conditions since the 2009 EIS, and no species were identified in the updated Information for Planning and Consultation (IPaC) requests, dated December 23, 2016 and February 1, 2017, the Service had no additional comments. A current IPaC resource list and a Planning Aid Report provided by FWS (March 2021) identifies Eastern black rail (*Laterallus jamaicensis ssp. jamaicensis*) to be listed as threatened in the project area.

Further, your agency has been identified as an agency that may have an interest in being a cooperating agency for the proposed project based on your jurisdiction by law and/or special expertise, specifically responsibilities to administer the Endangered Species Act and the Fish and Wildlife Coordination Act. Your agency does not have to accept this invitation to be a cooperating agency. If, however, you elect not to become a cooperating agency, you must decline this invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, or does not intend to submit comments on the project. The declination may be transmitted electronically to Angela Sowers, the project's lead environmental planner, at angela.sowers@usace.army.mil. Please provide your written response within 30 days of receipt of this request.

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

Sincerely,

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

CC: Marcia Pradines, Chesapeake Marshlands Wildlife Refuge, marcia_pradines@fws.gov

Maryland Department of Natural Resources

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

REPLY TO
ATTENTION OF

November 22, 2022

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 requesting to reinitiate coordination with the Maryland Department of Natural Resources (DNR) for the Mid- Chesapeake Bay Islands Ecosystem Restoration Project. The Mid-Chesapeake Bay Islands 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 Islands Project, as described in the Chief's Report (https://planning.erdc.dren.mil/toolbox/library/Chief Reports/mid_chesapeake.pdf), dated August 2009, and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated June 2009. The record of decision (ROD) was signed in July 2019 initiating the next phase of the study, Preconstruction Engineering and Design.

The purpose of this letter is to inform your agency that USACE will be preparing a supplemental Environmental Impact Statement (sEIS) to update documentation for the National Environmental Policy Act (NEPA) of 1969, as amended, focused on the James Island component of the project. At this time there is no change in the proposed plan from that described in the report and final EIS (http://www.nab.usace.army.mil/DMMP). This letter follows one sent in 2017 requesting input to facilitate signing of the ROD. Your agency responded with updated information on state listed species.

Your agency has been identified as an agency that may have an interest in being a cooperating agency for the proposed project based on your jurisdiction by law and/or special expertise, specifically responsibilities to administer the Critical Areas Commission and State's Coastal Zone Management Program. Your agency does not have to accept this invitation to be a cooperating agency. If you would like to be a cooperating agency please send your request to Angela Sowers, Ph.D. the project's lead environmental planner, at angela.sowers@usace.army.mil.

Additionally, please provide any information or concerns that your agency may have that will assist USACE with preparation of the sEIS, within 30 days of the date of this letter. If you have any questions regarding this matter, please contact Ms. Sowers, at (410) 962-7440 or via the email address provided.

Sincerely,

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

CF: Lory Byrne, DNR Heritage, lori.byrne@maryland.gov

From:	Christopher Homeister -DNR-
To:	Sowers, Angela M CIV USARMY CENAB (USA)
Cc:	Tony Redman; roland.limpert@maryland.gov; lori.byrne@maryland.gov; Leasure, Charles W CIV USARMY CENAB (USA); Cyran, Trevor P CIV USARMY CENAB (USA); Amanda Penafiel; Maura Morris; Gwendolyn Gibson -DNR-
Subject:	[URL Verdict: Neutral][Non-DoD Source] Re: Mid-Chesapeake Bay Island Ecosystem Restoration Project at James Island
Date:	Thursday, December 8, 2022 12:02:06 PM

Hello Angie,

Thanks for sharing this information with the DNR. The DNR looks forward to serving as a cooperating agency for both James and Barren Island.

Chris Homeister
Maryland Environmental Service/MDOT Liaison
Environmental Review Program
Department of Natural Resources
580 Taylor Ave., B-3
Annapolis, Maryland 21401
Christopher.Homeister@maryland.gov
(301) 395-2306 (M)
Website | Facebook | Twitter

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On Tue, Nov 22, 2022 at 4:08 PM Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil> wrote:

> Mr. Redman,
>
> The U.S. Army Corps of Engineers, Baltimore District (USACE), is requesting to reinitiate coordination with the Maryland Department of Natural Resources (DNR) for the Mid-Chesapeake Bay Island Ecosystem Restoration Project at James Island as part of our efforts to prepare a supplemental Environmental Impact Statement. Please find attached a coordination letter and an invitation to serve as a cooperating agency as well as the Notice of Intent.
>
> Respectfully,
>
> Angie Sowers
>
> MidBay Lead NEPA/Environmental Planner
>
> Angie Sowers, Ph.D.

U.S. Army Corps of Engineers

Baltimore District- Planning Division

Civil Project Development Branch

Integrated Water Resources Management Specialist

2 Hopkins Plaza

10-E-04

Baltimore, MD 21201

angela.sowers@usace.army.mil

(410) 962-7440

From:	Roland Limpert -DNR-
To:	Sowers, Angela M CIV USARMY CENAB (USA)
Cc:	Leasure, Charles W CIV USARMY CENAB (USA); Johnson, Christopher A CIV USARMY CENAB (US); Maura Morris; Amanda Penafiel; Chris Judy -DNR-; Tony Redman -DNR-
Subject:	[Non-DoD Source] Re: Evaluation of Oyster Impacts for Mid-Bay
Date:	Wednesday, October 20, 2021 3:42:05 PM

Angie,

The Department of Natural Resources has reviewed the document you provided outlining impacts to oyster resources from the restoration projects at Barren Island and James Island in Dorchester County as part of the Mid-Chesapeake Bay Islands Ecosystem Restoration Project. The impacts to oyster resources at both locations would be to Bay bottom located within named Yates Bars but which are Yates Bars not incorporated into the legal boundaries of a Natural Oyster Bar (NOB). Based on our review of the document we are providing the following comments:

Barren Island

The proposed restoration project at Barren Island would impact a portion of a Yates Bar known as the Great Bay Oyster Bar to construct a portion of the stone sill. Construction of the sill will require the dredging of unsuitable foundation material and its replacement with clean sand fill. The dredged material would be placed behind the constructed stone sill structures at Barren Island.

- The Department does not anticipate that significant oyster resources on the Great Bay Oyster Bar will be impacted by the proposed sill construction due to the area having been impacted by past dredge material placement, and also the shallow depths and sand bottom type are not very suitable oyster habitat.
- From the plans provided it appears that the dredging of the unsuitable foundation will be more than 500 yards from the boundaries of a designated Natural Oyster Bar (NOB 23-4). However, as plans are further developed, if any dredging of the unsuitable foundation material would be within 500 yards of this NOB, the dredging would have time of year restrictions to protect oyster resources on the NOB. Mechanical dredging within 500 yards of the NOB boundary should not be performed during the periods 16 December through 14 March and 1 June through 30 September. Hydraulic dredging within 500 yards of the NOB boundary should not be performed during the period 1 June through 30 September.
- The Corps and Maryland Port Authority have proposed as part of the restoration project at Barren Island to recover any oyster shell encountered during the excavation of the sill area for relocation to another location to enhance oyster habitat. Additionally, the Corps and MPA have proposed adding shell and spat to the areas of the sills to provide oyster habitat. The Department supports both of those actions. The Corps and MPA should continue to coordinate with the Department's Shellfish Program regarding the placement of any recovered oyster shell.

James Island

The proposed restoration project at James Island would impact a portion of a Yates Bar known as the James Point Oyster Bar to construct a portion of the entrance channel that will be required to allow access to the restoration area at James Island.

- Although the James Point Oyster Bar was not incorporated into the boundaries of a legally designated Natural Oyster Bar, harvest data documents that oysters are being commercially harvested in small quantities annually from the James Point Oyster Bar. The harvest data does not identify where on the bar the harvest takes place.
- The Department recommends that to minimize impacts to oyster resources located on the James Point Oyster Bar but outside of the entrance channel footprint, no dredging within the boundaries of the James Point Oyster Bar should be performed during the periods 16 December through 14 March and 1 June through 30 September of any year regardless of the dredging method. Mechanical dredging within 500 yards of the James Point Oyster Bar boundary should not be performed during the periods 16 December through 14 March and 1 June through 30 September. Hydraulic dredging within 500 yards of the James Point Oyster Bar boundary should not be performed during the period 1 June through 30 September.
- The Corps and Maryland Port Authority have proposed as part of the restoration project at James Island to recover any oyster shell encountered during the excavation of the entrance channel for relocation to another location to enhance oyster habitat. The Department supports the recovery of any oyster shell and its use to enhance oyster habitat. In addition, given the documented harvest of oysters from the bar, some level of additional mitigation such as additional planting of shell and spat would be beneficial to offset the loss of area within the bar due to the entrance channel dredging. The Corps and MPA should continue to coordinate with the Department's Shellfish Program regarding the placement of any recovered oyster shell and any additional shell and spat placement.

Thank you for the opportunity to provide comments and the Department looks forward to continuing to work with the Corps and Maryland Port Authority on the Mid-Chesapeake Bay Islands Environmental Restoration Project as it moves forward in planning and implementation.

Roland

Roland Limpert
Natural Resources Planner,
Environmental Review Program
Department of Natural Resources
580 Taylor Ave., B-3
Annapolis, Maryland 21401
roland.limpert@maryland.gov
410-260-8333 (O)

Website | Facebook | Twitter

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On Thu, Sep 23, 2021 at 3:37 PM Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil> wrote:

> Hi Roland,
>
> This has been a long time in the works. Please find an evaluation for your review of potential impacts to oyster resources at James and Barren Islands associated with the Mid-Chesapeake Bay Islands Ecosystem Restoration Project. We look forward to your feedback on this matter and partnering with DNR to minimize impacts stemming from remote island habitat restoration.
>
> Thanks,
> Angie
>
> Angie Sowers, Ph.D.
>
> U.S. Army Corps of Engineers
>
> Baltimore District- Planning Division
>
> Civil Project Development Branch
>
> Integrated Water Resources Management Specialist
>
> 2 Hopkins Plaza
>
> 10-E-04
>
> Baltimore, MD 21201
>
> angela.sowers@usace.army.mil
>
> (410) 962-7440

Maryland Department of the Environment

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

REPLY TO
ATTENTION OF

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 requesting to reinitiate coordination with the Maryland Department of the Environment for the Mid-Chesapeake Bay Islands Ecosystem Restoration Project. The Mid-Chesapeake Bay Islands 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 Islands Project, as described in the Chief's Report (https://planning.erdc.dren.mil/toolbox/library/ChiefReports/mid_ chesapeake.pdf), dated August 2009, and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated June 2009. The record of decision (ROD) was signed in July 2019 initiating the next phase of the project, Preconstruction Engineering and Design.

The purpose of this letter is to inform your agency that USACE will be preparing a supplemental Environmental Impact Statement (sEIS) to update documentation for the National Environmental Policy Act (NEPA) of 1969, as amended, focused on the James Island component of the project. At this time there is no change in the proposed plan from that described in the report and final EIS (http://www.nab.usace.army.mil/DMMP). This letter follows one sent in 2017 requesting input to facilitate signing of the ROD. Your agency responded that they had no significant issues or concerns, and recognized that further coordination would be conducted during the next phase on the project.

Your agency has been identified as an agency that may have an interest in being a cooperating agency for the proposed project based on your jurisdiction by law and/or special expertise. Your agency does not have to accept this invitation to be a cooperating agency. If you would like to be a cooperating agency please send your request to Ms. Angela Sowers, Ph.D. the project's lead environmental planner, at angela.sowers@usace.army.mil.

Additionally, please provide any information or concerns that your agency may have that will assist USACE with preparation of the sEIS, within 30 days of the date of this letter. If you have any questions regarding this matter, please contact Ms. Sowers, at (410) 962-7440 or via the email address provided.

Sincerely,

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

December 16, 2022

US Army Corps of Engineers
Baltimore District- Planning Division
Civil Project Development Branch
Attention: Angie Sowers
2 Hopkins Plaza, 10-E-04
Baltimore, MD 21201

Via email: Angela.Sowers@usace.army.mil

Re: Mid-Chesapeake Bay Island Ecosystem Restoration Project, James Island Supplemental EIS

Dear Ms. Sowers:

The Maryland Department of the Environment (MDE) has reviewed the request dated November 22, 2022 to reinitiate coordination for the Mid-Chesapeake Bay Island Ecosystem Restoration Project. Specifically the US Army Corps of Engineers, Baltimore District (USACE) will be preparing a supplemental Environmental Impact Statement (sEIS) focused on the James Island portion of the project. In addition to providing notice of the USACE's intent to prepare the sEIS, the letter extended an invitation to MDE to be a cooperating agency for the proposed project. MDE hereby accepts the invitation to be a cooperating agency for the purposes of developing the James Island sEIS.

MDE has also reviewed the revised Purpose and Need statement provided on November 17, 2022, and is providing the following additional comments:

- How will priority new federal policies, specifically the new Biden-Harris Administration's Executive Order 140008 "Tackling the Climate Crisis at Home and Abroad" and related Justice40 initiative, be integrated in the MidBay Purpose and Need statement and the sEIS in order to ensure the project provides climate adaptation and resiliency benefits, such as erosion control, etc., to local disadvantaged communities? The MidBay Chief's Report, signed August 24, 2009, on page 8 (last paragraph) states, "The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program nor the perspective of higher review levels within the executive branch. Consequently, the recommendation may be modified before it is transmitted to the Congress as a proposal for authorization and implementation funding. However, prior to transmittal to the Congress, the sponsors, the State, interested Federal agencies, and other parties will be advised of any modifications and will be afforded an opportunity to comment further."

- The planning objectives for the Mid-Bay Island study (as documented on page 3 of the *2009 Feasibility Report and EIS*) are itemized below. The following objectives should all be reflected

in the Purpose and Need since they are important design objectives for MidBay and its nature-based features:

1. Restore and protect wetland, aquatic, and terrestrial island habitat for fish, reptiles, amphibians, birds, and mammals;
2. Protect existing island ecosystems, including sheltered embayments, to prevent further loss of island and aquatic habitat;
3. Provide dredged material placement capacity (3.2 mcy/yr) for Federal navigation channels;
4. Increase wetlands acreage in the Chesapeake Bay watershed to assist in meeting the Chesapeake 2000 Agreement goals;
5. Decrease local erosion and turbidity;
6. Promote conditions to establish and enhance submerged aquatic vegetation; and
7. Promote conditions that support oyster recolonization.

Including all 7 goals in the Purpose and Need will provide better overall project consistency with the USACE's Chesapeake Bay Comprehensive Water Resources and Restoration Plan (CBCP), and intent of the Chief's Report which states on page 3, "The restoration projects at James and Barren Islands would contribute to the goals of the Chesapeake Bay Program watershed partnership through its habitat and ecosystem recovery and preservation efforts. Both James and Barren Islands would contribute to the Chesapeake 2000 Agreement goals to restore tidal and non-tidal wetlands, to protect and restore submerged aquatic vegetation, and to develop strategies to address water clarity in areas of critical importance for submerged aquatic vegetation." For example and specifically, the Chesapeake 2000 agreement sets a goal to "by 2010, achieve, at a minimum, a tenfold increase in native oysters in the Chesapeake Bay, based upon a 1994 baseline." Including all of these important objectives into the Purpose and Need will ensure project design meets as many Chesapeake Bay goals as possible and delivers acceptable resource tradeoffs and ecological uplift to local communities and ecosystems.

- Additionally, a recreation component should also be included in the Purpose and Need statement since it is identified in the Chief's Report, page 2 (third paragraph), which states, "Cost sharing for recreation features requires that the non-Federal sponsor provide 50 percent of the cost associated with construction cost. Recreation facilities will be constructed on existing project lands required for the environmental restoration. Further, the non-Federal project sponsor must pay 100 percent of the operation, maintenance, repair, replacement, and rehabilitation costs associated with the project."

MDE looks forward to continued coordination with USACE to review this important project. Please do not hesitate to contact me at (410) 537-3528 or hnelson@maryland.gov with any questions or concerns regarding this letter.

Sincerely,

Heather L. Nelson, Manager
Wetlands and Waterways Protection Program

cc: Matt Rowe, MDE
Danielle Spendiff, MDE
Mary Phipps-Dickerson, MDE

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

REPLY TO
ATTENTION OF

22 November 2022

Planning Division

Jennifer Anderson
Assistant Administrator for Protected Resources
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 (USACE), is requesting to reinitiate 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 Islands 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 Maryland Mid-Chesapeake Bay Islands Project, as described in the Chief's Report (https://planning.erdc.dren.mil/toolbox/library/Chief Reports/mid_chesapeake.pdf), dated August 2009, and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated June 2009. The record of decision (ROD) was signed in July 2019 initiating the next phase of the study, Preconstruction Engineering and Design. USACE will be preparing a supplemental Environmental Impact Statement (sEIS) to update documentation for the National Environmental Policy Act (NEPA) of 1969, as amended, focused on the James Island component of the project.

The purpose of this letter is to re-engage with your agency on coordination for Section 7(a)(2) of the Endangered Species Act and the Fish and Wildlife Coordination Act for the James Island component of the project. At this time there is no change in the proposed plan from that described in the report and final EIS (http://www.nab.usace.army.mil/DMMP). This letter follows one sent in 2017 requesting input to facilitate signing of the ROD. Your agency's response on January 9, 2018 indicated no current objections to the project. USACE anticipates the reinitiated consultation to conclude with NMFS concurrence with a determination of may affect not likely to adversely affect.

Based on prior consultation, 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)

Descriptions of all species except the Atlantic sturgeon have been documented in a previously submitted biological assessment, dated May 2005. An Atlantic sturgeon description was provided via a prior coordination letter dated July 10, 2017. The supplemental sEIS will document updates to those descriptions, if needed.

Further, your agency has been identified as an agency that may have an interest in the proposed project based on your jurisdiction by law and/or special expertise, specifically responsibilities to administer Section 7(a)(2) of the Endangered Species Act, the Fish and Wildlife Coordination Act, and the Magnuson-Stevens Conservation and Management Act. This invitation is also being made via a separate invitation to Mr. Lou Chiarella, Assistant Regional Administrator for Habitat Conservation. Your agency does not have to accept this invitation to be a cooperating agency. If, however, you elect not to become a cooperating agency, you must decline this invitation in writing, indicating that your agency has no jurisdiction or authority with respect to the project, no expertise or information relevant to the project, or does not intend to submit comments on the project. The declination may be transmitted electronically to Angela Sowers, Ph.D. the project's lead environmental planner, at angela.sowers@usace.army.mil. Please provide your written response within 30 days of receipt of this request.

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

Sincerely,

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

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

From:	Brian D Hopper - NOAA Federal
To:	Sowers, Angela M CIV USARMY CENAB (USA)
Cc:	Leasure, Charles W CIV USARMY CENAB (USA); Jonathan Watson - NOAA Federal
Subject:	[URL Verdict: Neutral][Non-DoD Source] Re: Mid-Chesapeake Bay Island Ecosystem Restoration Project at James Island
Date:	Friday, December 2, 2022 9:46:52 AM

Hi Angie,

Your email and attached letter dated November 22, 2022, regarding the ACOE's Mid-Chesapeake Bay Island Ecosystem Restoration Project, requested re-initiation of consultation for ESA-listed species under our jurisdiction.

I've reviewed the information attached to your email requesting a determination from us regarding re-initiation of consultation 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. Please contact me (brian.d.hopper@noaa.gov), should you have any questions regarding these comments. For questions about Essential Fish Habitat, please contact Jonathan Watson with our Habitat Conservation Division at Jonathan.Watson@noaa.gov or (410) 295-3152.

As a friendly reminder, in the future, please send all correspondence to nmfs.gar.esa.section7@noaa.gov to ensure tracking and efficient processing.

Regards,
-Brian

On Tue, Nov 22, 2022 at 3:43 PM Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil> wrote:

> Dear Ms. Anderson,
>
> The U.S. Army Corps of Engineers, Baltimore District (USACE), is requesting to reinitiate 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 at James Island as part of our efforts to prepare a supplemental Environmental Impact Statement. Please find attached a coordination letter and an invitation to serve as a cooperating agency as well as the Notice of Intent.
>
> Respectfully,
>
> Angie Sowers
>
> MidBay Lead NEPA/Environmental Planner
>
> Angie Sowers, Ph.D.

U.S. Army Corps of Engineers

Baltimore District- Planning Division

Civil Project Development Branch

Integrated Water Resources Management Specialist

2 Hopkins Plaza

10-E-04

Baltimore, MD 21201

angela.sowers@usace.army.mil

(410) 962-7440

--

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/

From:	Kopec, Brett A
To:	Sowers, Angela M CIV USARMY CENAB (USA)
Cc:	Janowicz, Jon A
Subject:	[Non-DoD Source] Fw: ENVIRONMENTAL REVIEW (ER) NEW POSTING NOTIFICATION: ER22/0476 - Notice of Intent To Prepare a Supplemental Environmental Impact Statement for the Mid-Chesapeake Bay Islands Ecosystem Restoration Project at James Island, Maryland
Date:	Saturday, November 12, 2022 8:15:48 AM

Brett Kopec
USGS
Administrative Operations Assistant

From: Gordon, Alison D <agordon@usgs.gov>
Sent: Thursday, November 10, 2022 3:44 PM
To: Kopec, Brett A <bkopec@usgs.gov>
Cc: Janowicz, Jon A <jjanowicz@usgs.gov>
Subject: Fw: ENVIRONMENTAL REVIEW (ER) NEW POSTING NOTIFICATION: ER22/0476 - Notice of Intent To Prepare a Supplemental Environmental Impact Statement for the Mid-Chesapeake Bay Islands Ecosystem Restoration Project at James Island, Maryland

The USGS has no comment at this time. Thank you.

From: oepchq@ios.doi.gov <oepchq@ios.doi.gov>
Sent: Monday, November 7, 2022 7:47 AM
To: Alam, Shawn K <Shawn_Alam@ios.doi.gov>; Braegelmann, Carol <carol_braegelmann@ios.doi.gov>; Kelly, Cheryl L <cheryl_kelly@ios.doi.gov>; Hathaway, Ryan S <ryan_hathaway@ios.doi.gov>; Yazzie, Harrilene J <Harrilene.Yazzie@bia.gov>; Wilson, Wenona B <wenona.wilson@bia.gov>; ERs, FWS HQ <FWS_HQ_ERs@fws.gov>; Runkel, Roxanne <Roxanne_Runkel@nps.gov>; Stedeford, Melissa <Melissa_Stedeford@nps.gov>; Hamlett, Stephanie R <shamlett@osmre.gov>; Gordon, Alison D <agordon@usgs.gov>; Janowicz, Jon A <jjanowicz@usgs.gov>; McGhee, Chester <Chester.Mcghee@bia.gov>; oepchq@ios.doi.gov <oepchq@ios.doi.gov>; Raddant, Andrew <Andrew_Raddant@ios.doi.gov>; Lazinsky, Diane <Diane_Lazinsky@ios.doi.gov>
Subject: ENVIRONMENTAL REVIEW (ER) NEW POSTING NOTIFICATION: ER22/0476 - Notice of Intent To Prepare a Supplemental Environmental Impact Statement for the Mid-Chesapeake Bay Islands Ecosystem Restoration Project at James Island, Maryland

This e-mail alerts you to a Environmental Review (ER) request from the Office of Environmental Policy and Compliance (OEPC). This ER can be accessed here.
To access electronic ERs visit the Environmental Assignments website: https://ecl.doi.gov/ERs.cfm. For assistance, please contact the Environmental Review Team at 202-208-5464.
Comments due to Agency by: 12/07/22

Maryland
Department of the Environment

Wes Moore, Governor
Aruna Miller, Lt. Governor

Serena McIlwain, Secretary
Suzanne E. Dorsey, Deputy Secretary

March 24, 2023

US Army Corps of Engineers
Baltimore District- Planning Division
Civil Project Development Branch
Attention: Angie Sowers
2 Hopkins Plaza, 10-E-04
Baltimore, MD 21201

Via email: Angela.Sowers@usace.army.mil

Re: Mid-Chesapeake Bay Island Ecosystem Restoration Project, James Island sEIS Alternatives

Dear Ms. Sowers,

The Maryland Department of the Environment (MDE) reviewed the "Focused Array of Alternatives" for the James Island supplemental Environmental Impact Statement (sEIS) prepared by the US Army Corps of Engineers, Baltimore District (Corps) for the James Island portion of the Mid-Chesapeake Bay Island Ecosystem Restoration Project. MDE is providing the following comments in response to your request dated March 14, 2023.

MDE's overarching comment is that the array of project alternatives is too limited, consisting of only a "No Action" alternative and implementation of "the project as authorized with updates to account for developments and changed conditions since the study was completed." The alternative language for "the project as authorized" regarding "updates" and "changed conditions" is unclear and subjective. MDE recommends that this language be removed from the "project as authorized alternative" and that a third alternative be developed that reflects the recommendations provided to the project sponsors from state/federal resource agencies and NGOs on maximizing the project's nature-based solutions (NBS) through a collaborative design process. NBS create and enhance aquatic habitat that offsets the impacts of filling shallow-water tidal habitat, while also providing climate resiliency that can help restoration projects adapt to sea level rise and protect underserved communities. Some key state and federal statutes and policies supporting this third alternative include:

1. Maryland's Living Shoreline Protection Act of 2008 that establish living shorelines as the preferred method for erosion control by providing enhanced aquatic habitat value and climate resiliency;
2. Maryland statute in Environment Article §2–1305 through 1306, which established the Maryland Climate Change Commission, and compels each State agency to identify and recommend actions to consider climate change in planning, regulatory and fiscal programs;

3. Federal Executive Order 140008 "Tackling the Climate Crisis at Home and Abroad" that creates a whole of government approach to increase climate resilience and deliver environmental justice;
4. The White House roadmap on Opportunities to Accelerate Nature-Based Solutions: A Roadmap for Climate Progress, Thriving Nature, Equity, & Prosperity; and,
5. The 2014 Chesapeake Bay Agreement, and related USACE's Chesapeake Bay Comprehensive Water Resources and Restoration Plan, to achieve broad ecosystem restoration and public access goals.

In addition, the 2009 EIS for the MidBay project, 5.2.7 Habitat Enhancements, stated "*Design details will be investigated during the next project phase, PED, which would likely enhance the habitat value of the proposed island. For example, NMFS suggested diversification of proposed shorelines to provide more habitat benefits to finfish using adjacent waters. Specifically, small coves lined with smooth cordgrass marsh would be attractive foraging habitat for juvenile summer flounder. The east side of James Island could be diversified with a series of small coves and/or crenulations. The cove should tie into the 9 to 10 foot depth contour, to increase its value to recreational fishing. The southern tip of the proposed James Island may also be suitable to a cove. Maximizing the number of tidal ports is another design element that would enhance the export of detritus and other energy from the wetland cells."* And more recently (September 30, 2022), Maryland resource agencies and NGOs also formally recommended a collaborative and science/model-based design process to maximize NBS for both James and Barren Islands, which included many specific design suggestions (see enclosure).

There are also helpful and informative precedents within the Corps where NBS have been implemented for island restoration projects (e.g., Swan Island) through a collaborative process of iterative group-mediated workshops to develop project goals. At Swan Island the Corps implemented NBS using extensive living and soft shoreline approaches that promoted the natural tidal and land/water interactions, enhancing overall habitat value and ecological uplift. MDE appreciates the opportunity to work with the Corps and the Maryland Port Administration on the next generation of ecosystem restoration using dredged material. If you have any questions or if I can be of assistance, please contact me at 410-537-4023 or danielle.spendiff1@maryland.gov.

Sincerely,

Danielle A. Spendiff, Chief
Regulatory & Customer Service Division

Encl.

Cc: Matt Rowe, MDE
Heather Nelson, MDE
Mary Phipps-Dickerson, MDE
Gwen Gibson, DNR
Holly Miller, MPA

From:	Traver, Carrie
To:	Sowers, Angela M CIV USARMY CENAB (USA); Maura Morris
Cc:	Witman, Timothy; Jacobs, Stephanie; Fitzgerald, Megan; Brian D Hopper - NOAA Federal; Jonathan Watson (jonathan.watson@noaa.gov)
Subject:	[Non-DoD Source] RE: Mid-Bay: James Island sEIS - Alternatives
Date:	Thursday, March 23, 2023 3:57:02 PM

Hi Angie,

EPA concurs on the Focused Array of Alternatives. Alternative 1 is the No Action and Alternative 2 would "implement the project as authorized with updates to account for developments and changed conditions since the study was completed. The recommended plan consists of constructing a 2,072 acre island with a habitat proportion of 45% upland to 55% wetland and a +20 feet mean lower low water final upland dike height, including the option to reconfigure the wetlands and upland ratios during design…" We support including the option to potentially reassess the ratio of wetland to uplands to ensure sustainable and ecologically appropriate habitat and to allow planning for succession that may occur with sea level rise. We also encourage further evaluation of integrating bioengineering or nature-based design for stability in the final site design where feasible.

Have a great afternoon!
Carrie

Carrie Traver
Office of Communities, Tribes, & Environmental Assessment
U.S. Environmental Protection Agency, Region 3
215-814-2772
traver.carrie@epa.gov

From: Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil>
Sent: Tuesday, March 14, 2023 11:58 AM
To: Maura Morris <mmorris@menv.com>; Olsen Karin <kolsen@anchorqea.com>; Rebecca Golden <rebecca.golden@maryland.gov>; gwendolyn.gibson@maryland.gov; John Moulis -DNR- <john.moulis@maryland.gov>; Richard Ortt <Richard.ortt@maryland.gov>; roland.limpert@maryland.gov; Traver, Carrie <Traver.Carrie@epa.gov>; Witman, Timothy <witman.timothy@epa.gov>; O'donnell, Amy W <amy_odonnell@fws.gov>; Callahan, Carl R <carl_callahan@fws.gov>; sabrina_deeley@fws.gov; Danielle Spendiff <danielle.spendiff1@maryland.gov>; mary.phipps-dickerson@maryland.gov; matthew.rowe <matthew.rowe@maryland.gov>; Christine Offerman <COFFERMAN@menv.com>; Michelle Osborn <mosborn@menv.com>; troy.nowak@maryland.gov; Amanda Peñafiel <apenafiel@marylandports.com>; David Bibo <dbibo@mdot.state.md.us>; Holly Miller <hmiller2@marylandports.com>; Jonathan Watson - NOAA Affiliate <jonathan.watson@noaa.gov>; De Rosset, Armand J CIV USARMY CENAB (USA) <Armand.J.DeRosset@usace.army.mil>; Leasure,

Charles W CIV USARMY CENAB (USA) <Charles.W.Leasure@usace.army.mil>; Johnson, Christopher A CIV USARMY CENAB (USA) <Christopher.A.Johnson@usace.army.mil>; Delwiche, Ian L CIV USARMY USACE (USA) <Ian.L.Delwiche@usace.army.mil>; Cyran, Trevor P CIV USARMY CENAB (USA) <Trevor.P.Cyran@usace.army.mil>; Chandler, Joseph W CIV USARMY CENAB (USA) <Joseph.W.Chandler@usace.army.mil>
Cc: Kenna Oseroff <koseroff@menv.com>; Lauren Mentzer <lmentzer@menv.com>; Whitbeck, Matt <matt_whitbeck@fws.gov>
Subject: Mid-Bay: James Island sEIS - Alternatives

Hello,
In alignment with the prior One Federal Decision (OFD) process, please find attached the Focused Array of Alternatives (referred to in OFD as Concurrence Point #2) for the James Island supplemental EIS. This has been previewed at a prior meeting. We are asking the cooperating agencies to reply with any comments or their concurrence within 10 days (March 24, 2023).

Thank you,
Angie Sowers

Angie Sowers, Ph.D.
U.S. Army Corps of Engineers
Baltimore District- Planning Division
Civil Project Development Branch
Integrated Water Resources Management Specialist
2 Hopkins Plaza
10-E-04
Baltimore, MD 21201
angela.sowers@usace.army.mil
(410) 962-7440 (office)
(443) 676-4679 (cell)

From: Deeley, Sabrina M
To: Sowers, Angela M CIV USARMY CENAB (USA)
Cc: Callahan, Carl R; O"donnell, Amy W; Whitbeck, Matt; jonathan.watson
Subject: [Non-DoD Source] RE: [EXTERNAL] Mid-Bay: James Island sEIS - Alternatives
Date: Friday, March 17, 2023 10:02:02 AM

Hi Angie,

We concur. We support Alternative 2 *Implement the Recommended Plan from the Feasibility Study* and look forward to continuing to work with you all on this project.

Thank you,
Sabrina

Sabrina Deeley, PhD
Fish and Wildlife Biologist
Chesapeake Bay Field Office
U.S. Fish and Wildlife Service
Office: 410-573-4535
Sabrina_Deeley@fws.gov

From: Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil>
Sent: Tuesday, March 14, 2023 11:58 AM
To: Maura Morris <mmorris@menv.com>; Olsen Karin <kolsen@anchorqea.com>; Rebecca Golden -DNR- <rebecca.golden@maryland.gov>; gwendolyn.gibson@maryland.gov; John Moulis -DNR- <john.moulis@maryland.gov>; richard.ortt@maryland.gov; roland.limpert@maryland.gov; Traver, Carrie <traver.carrie@epa.gov>; Witman, Timothy <witman.timothy@epa.gov>; O'donnell, Amy W <amy_odonnell@fws.gov>; Callahan, Carl R <Carl_Callahan@fws.gov>; Deeley, Sabrina M <sabrina_deeley@fws.gov>; Danielle Spendiff -MDE- <danielle.spendiff1@maryland.gov>; mary.phipps-dickerson@maryland.gov; Matthew Rowe <matthew.rowe@maryland.gov>; Christine Offerman <COFFERMAN@menv.com>; Michelle Osborn <mosborn@menv.com>; troy.nowak@maryland.gov; Amanda Peñafiel <apenafiel@marylandports.com>; David Bibo <dbibo@mdot.state.md.us>; Holly Miller <hmiller2@marylandports.com>; jonathan.watson <jonathan.watson@noaa.gov>; De Rosset, Armand J CIV USARMY CENAB (USA) <Armand.J.DeRosset@usace.army.mil>; Leasure, Charles W CIV USARMY CENAB (USA) <Charles.W.Leasure@usace.army.mil>; Johnson, Christopher A CIV USARMY CENAB (USA) <Christopher.A.Johnson@usace.army.mil>; Delwiche, Ian L CIV USARMY USACE (USA) <Ian.L.Delwiche@usace.army.mil>; Cyran, Trevor P CIV USARMY CENAB (USA) <Trevor.P.Cyran@usace.army.mil>; Chandler, Joseph W CIV USARMY CENAB (USA) <Joseph.W.Chandler@usace.army.mil>
Cc: Kenna Oseroff <koseroff@menv.com>; Lauren Mentzer <lmentzer@menv.com>; Whitbeck, Matt <matt_whitbeck@fws.gov>
Subject: [EXTERNAL] Mid-Bay: James Island sEIS - Alternatives

Hello,

In alignment with the prior One Federal Decision (OFD) process, please find attached the Focused Array of Alternatives (referred to in OFD as Concurrence Point #2) for the James Island supplemental EIS. This has been previewed at a prior meeting. We are asking the cooperating agencies to reply with any comments or their concurrence within 10 days (March 24, 2023).

Thank you,
Angie Sowers

Angie Sowers, Ph.D.
U.S. Army Corps of Engineers
Baltimore District- Planning Division
Civil Project Development Branch
Integrated Water Resources Management Specialist
2 Hopkins Plaza
10-E-04
Baltimore, MD 21201
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(410) 962-7440 (office)
(443) 676-4679 (cell)

From:	Sowers, Angela M CIV USARMY CENAB (USA)
To:	"Danielle Spendiff -MDE-"
Cc:	Cyran, Trevor P CIV USARMY CENAB (USA); Leasure, Charles W CIV USARMY CENAB (USA); Maura Morris; Amanda Penafiel
Subject:	Re: Mid-Bay: James Island sEIS - Alternatives
Date:	Tuesday, May 23, 2023 9:45:00 AM
Attachments:	MBI_James_AlternativesArray_OFDConcurrencePt2_FinalDraft.docx

Hi Danielle,
Please disregard that first attempt. The attachment got dropped.

Thank you for your input regarding the James Island sEIS alternatives array. We have taken your input into consideration and have had lengthy team discussions about the best path forward. We agree with your desire to maximize the use of nature and nature-based solutions (NNBF), but do not see the necessity to add a third alternative. Given the increased understanding of climate change since 2009 when the Feasibility Study was completed, implementing the recommended plan as authorized without any changes does not meet USACE criteria for alternatives to be effective, complete, and acceptable. Further, the purpose of the sEIS is to update NEPA for the James Island component which includes updating the recommended plan. The effort does not include a feasibility-level analysis or re-analysis of alternatives. Regardless, USACE is committed to developing an innovative project that maximizes nature and nature-based features. I have attached the revised description of the two alternatives. We will continue to work with MDE and the full-breadth of project partners to evaluate and incorporate nature-based solutions to enhance the habitat value of the project.

Thank you for your partnership,
Angie

From: Danielle Spendiff -MDE- <danielle.spendiff1@maryland.gov>
Sent: Friday, March 24, 2023 4:54 PM
To: Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil>
Cc: gwendolyn.gibson@maryland.gov; mary.phipps-dickerson@maryland.gov; Matthew Rowe <matthew.rowe@maryland.gov>; Holly Miller <hmiller2@marylandports.com>; Heather Nelson - MDE- <hnelson@maryland.gov>
Subject: [URL Verdict: Neutral][Non-DoD Source] Re: Mid-Bay: James Island sEIS - Alternatives

Good afternoon Angie,

Attached please find MDE's comments on the Alternatives Array- looking forward to discussing in more detail at Tuesday's NEPA meeting, and please let me know if you have any questions.

Thank you,

--

Danielle A. Spendiff

Chief, Regulatory & Customer Service Division

Federal Consistency Coordinator

Water & Science Administration

Maryland Department of the Environment

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Baltimore, Maryland 21230

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Click here to complete a three question customer experience survey.

On Tue, Mar 14, 2023 at 11:59 AM Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil> wrote:

> Hello,
> In alignment with the prior One Federal Decision (OFD) process, please find attached the Focused Array of Alternatives (referred to in OFD as Concurrence Point #2) for the James Island supplemental EIS. This has been previewed at a prior meeting. We are asking the cooperating agencies to reply with any comments or their concurrence within 10 days (March 24, 2023).
>
> Thank you,
> Angie Sowers
>
> Angie Sowers, Ph.D.
> U.S. Army Corps of Engineers
> Baltimore District- Planning Division
> Civil Project Development Branch
> Integrated Water Resources Management Specialist
> 2 Hopkins Plaza
> 10-E-04
> Baltimore, MD 21201
> angela.sowers@usace.army.mil
> (410) 962-7440 (office)

From:	Jonathan Watson - NOAA Federal
To:	Sowers, Angela M CIV USARMY CENAB (USA)
Cc:	Deeley, Sabrina M; Traver, Carrie; Brian D Hopper - NOAA Federal; Karen Greene - NOAA Federal
Subject:	[Non-DoD Source] Re: Mid-Bay: James Island sEIS - Alternatives
Date:	Wednesday, March 22, 2023 1:16:41 PM
Attachments:	MidBay_NMFS_EFH_correspondence_without_originalEFH-Encl1.pdf

Angie,

We have received your March 14, 2023, request for concurrence for the Focused Array of Alternatives, which corresponds with Concurrence Point #2 under the One Federal Decision process. As you know, we have been involved with the Mid-Chesapeake Bay Islands Ecosystem Restoration Project (Mid-Bay Project) at James Island since the Feasibility Study phase, which was completed in 2008. The comments we provided in our memo dated May 20, 2005, in response to the draft Environmental Impact Statement (EIS) remain relevant today and we look forward to working with you to ensure their incorporation into the James Island component of this project to the fullest extent possible. That memo is attached for your continued consideration.

Because we have participated throughout the NEPA process for the James Island component of the Mid-Bay project, including providing comments that informed the development of Alternative 2, **we concur with the Focused Array of Alternatives**. Finally, please include our Protected Resources Division (Brian Hopper, cc'd) in all future concurrence requests associated with this project.

Best regards,

Jonathan

On Tue, Mar 14, 2023 at 12:01 PM Sowers, Angela M CIV USARMY CENAB (USA) <Angela.Sowers@usace.army.mil> wrote:

> Hello,
>
> In alignment with the prior One Federal Decision (OFD) process, please find attached the Focused Array of Alternatives (referred to in OFD as Concurrence Point #2) for the James Island supplemental EIS. This has been previewed at a prior meeting. We are asking the cooperating agencies to reply with any comments or their concurrence within 10 days (March 24, 2023).
>
> Thank you,
>
> Angie Sowers
>
> Angie Sowers, Ph.D.
>
> U.S. Army Corps of Engineers

From:	Sowers, Angela M CIV USARMY CENAB (USA)
To:	Maura Morris; "Olsen Karin"; Rebecca Golden -DNR-; gwendolyn.gibson@maryland.gov; John Moulis -DNR-; Richard Ortt; roland.limpert@maryland.gov; Traver, Carrie; Witman, Timothy; O"donnell, Amy W; Callahan, Carl R; sabrina_deeley@fws.gov; Danielle Spendiff -MDE-; mary.phipps-dickerson@maryland.gov; Matthew Rowe; Christine Offerman; Michelle Osborn; troy.nowak@maryland.gov; Amanda Peñafiel; David Bibo; Holly Miller; Jonathan Watson - NOAA Affiliate; De Rosset, Armand J CIV USARMY CENAB (USA); Leasure, Charles W CIV USARMY CENAB (USA); Johnson, Christopher A CIV USARMY CENAB (USA); Delwiche, Ian L CIV USARMY USACE (USA); Cyran, Trevor P CIV USARMY CENAB (USA); Chandler, Joseph W CIV USARMY CENAB (USA)
Cc:	Kenna Oseroff; Lauren Mentzer; Whitbeck, Matt
Subject:	Mid-Bay: James Island sEIS - Alternatives
Date:	Tuesday, March 14, 2023 11:58:00 AM
Attachments:	MBI_James_AlternativesArray_OFDConcurrencePt2_v3.docx

Hello,

In alignment with the prior One Federal Decision (OFD) process, please find attached the Focused Array of Alternatives (referred to in OFD as Concurrence Point #2) for the James Island supplemental EIS. This has been previewed at a prior meeting. We are asking the cooperating agencies to reply with any comments or their concurrence within 10 days (March 24, 2023).

Thank you,
Angie Sowers

Angie Sowers, Ph.D.
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EWN Input and Proposals from Resource Agencies

Maryland
Department of
the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Horacio Tablada, Secretary
Suzanne E. Dorsey, Deputy Secretary

September 30, 2022

Trevor Cyran
U.S. Army Corps of Engineers
2 Hopkins Plaza
Baltimore, MD 21201

RE: Mid-Chesapeake Bay Island Ecosystem Restoration Project (MidBay) Plans

Dear Mr. Cyran:

Thank you for your efforts on behalf of the Mid-Chesapeake Bay Island Ecosystem Restoration project (MidBay). Given the tremendous success of Poplar Island and our shared vision to expand beneficial reuses of dredged material, the potential for leveraging the MidBay project to expand partnerships and collaboration, showcase innovations in nature-based design, accelerate climate resiliency and test new restoration approaches present a once in a career opportunity to shape a $4-billion dollar green and blue infrastructure project. By implementing a side-by-side collaborative design process between the Corps and State/Federal resource agencies during the early design and NEPA stages, we can work together to improve overall project outcomes, reduce impacts and costs, maximize benefits to the ecosystem and local communities, vet and prioritize design enhancements, and facilitate efficient regulatory approvals while meeting overall project schedules.

In working towards this shared vision, a small group of regional scientists and agency experts (see list below) met on Friday September 23 for a preliminary charrette-style design exercise to develop consensus around MidBay master plan recommendations and identify specific nature-based design opportunities. On behalf of our group, please accept this letter summarizing key charette outcomes. The group identified two priority suggestions - expanding implementation of nature-based design elements and facilitating adaptive management, collaborative design processes, and engagement - each supported by a series of more specific recommendations.

Expanding Implementation of Nature-Based Design Elements: All participants were complementary of the nature-based design elements anticipated in the draft MidBay islands master plans. The group also unanimously concluded that much more should and can be done to incorporate further nature-based features into project planning and design. Among the specific recommendations were:

1. Habitat/drainage orientation - on James Island all habitat features (for example boundary between upland and wetland habitat, as well as the features like ridges) could be oriented northwest to southeast (rather than east/west) to mimic the more natural orientation found on other islands in the area. In addition, consideration could be given to reconnecting James Island to Taylor's Island for cost savings and to mimic the historic connection;
2. Vary island borders - consider not hardening the leeward side of both islands but incorporating broad scale living shoreline and wetland approaches open to tidal flow. On the windward side, consider use of more natural reef structures including subtidal and intertidal oysters, reef balls, incorporating wood as a natural structural component, beaches and dunes and other innovations in use in other areas to offset aquatic impacts. These more natural borders could partially replace or allow softening of containment structures and also mimic a more natural barrier island morphology;
3. Opportunities for Broader restoration applications beyond the programmed footprint - this could include offshore oyster-based breakwaters, subtidal oysters to soften wave action, other resiliency and nature-based applications that can provide more coastal protection to local communities. The nearby Little Choptank is a successful oyster restoration area with positive implications for natural oyster colonization at James Island; and,
4. Target species - identify target species for the project and incorporate appropriate habitat to attract and support species of concern.

Adaptive Management, Collaborative Design Processes, and Engagement: The group also concluded that there is tremendous opportunity to improve overall long-term success by following a more collaborative, iterative and adaptive design process - experimenting with varying applications and using that experience to drive innovation and improve later applications. This will be especially important as climate changes and sea levels rise over the life of the project. Some specific ideas for adaptive management at Mid-Bay include:

1. Develop and implement a collaborative process and timeline for the State/Federal Resource agencies and the different sides of USACE (ERDC, Engineering with Nature, Planning) to develop and refine recommended nature-based features, model their hydraulic implications, optimize them through collaborative modeling, design visualizations, provide iterative feedback channels, and vet/prioritize nature-based elements for implementation. This could be the MidBay Resiliency Adaptive Management team that will consolidate the recommendations from the various MidBay workgroups and work collaboratively with the Corps team to evaluate those. The USACE EWN and Landscape Architecture program is a valuable precedent for this kind of work. Also consider a role for Native Americans and other under-represented communities in the engagement process;

2. The acceleration of sea level rise over the next century may be dramatic, and thinking about how to design a resilient island that provides and sustains a variety of habitat, including tidal marsh, in the face of rapidly increasing sea level will be a grand challenge and opportunity for MidBay;
3. Testing - utilize Barren Island and Poplar Islands as test sites for applications later used at James Island by expanding upon the currently planned nature-based features using the ideas presented above and through monitoring the outcomes. Similarly, all islands restored with dredged material offer a fertile ground for experimentation and scientific study that can inform restoration projects well into the future. Integrate the Poplar and Mid-Bay programs in a way that would facilitate transfer of information on the testing that has been done and is underway at Poplar Island, so that these efforts are not unnecessarily duplicated at MidBay;
4. More varying applications - use smaller cells and more varied shoreline and cell treatments to allow for experimentation, testing, and feedback into later applications;
5. Adaptive Permitting – collaborate closely with MDE during design and construction to identify and implement permit adaptations that allow more flexibility when longer-term ecosystem uplift and more nature-based processes can be achieved;
6. Public access and programming - long term support for beneficial use of dredged materials will be enhanced by incorporating public access and or programming into the MidBay plan, including the potential for camps, environmental education centers, wildlife and trail cams, etc; and,
7. Carbon footprint considerations - use the best available tools to monitor operational and embodied carbon of the project, both construction and operations/maintenance. Create an iterative process by which decisions can be made in real-time through adaptive design/construction/management to minimize the carbon footprint.

To provide additional specificity and spatial reference points to illustrate the group's design suggestions, attached is a summary of the charette, including annotated images that are based on the island master plans provided by USACE.

Thank you again for considering our feedback and for your willingness to engage in ongoing consultation with stakeholders. Our group is most appreciative and very much looks forward to continuing a dialogue on the future of the Mid-Bay project.

Sincerely,

Matt Rowe
Assistant Director, Water and Science Administration
Maryland Department of the Environment

CC: Lee Currey, Director, MDE/WSA
Kristen Fidler, Director, MPA
Dr. Peter Goodwin, President, UMCES
Amy Guise, Chief, USACE Baltimore Planning
Workshop Participants Identified Below

Enclosures

Mid-Bay Design Charrette
September 23, 2022

Participants

- Jana Davis, *Chesapeake Bay Trust*
- Isaac Hametz, *The Nature Conservancy*
- Doug Meyers, *Chesapeake Bay Foundation*
- Dave Nemazie, *University of Maryland Center for Environmental Science*
- Mary Phipps-Dickerson, *Maryland Department of the Environment*
- Rich Ortt, *Maryland Geological Survey/Maryland Department of Natural Resources*
- Tammy Roberson, *Maryland Department of the Environment*
- Matt Rowe, *Maryland Department of the Environment*
- Ward Slacum, *Oyster Recovery Partnership*
- Danielle Spendiff, *Maryland Department of the Environment*
- Lorie Staver, *University of Maryland Center for Environmental Science*

Technical Advisor

- Karin Olsen, *Anchor QEA*

Facilitators

- Rob Etgen, *Council Fire*
- Holly Fowler, *Council Fire*

MDE Submittal

James Island Priority Nature-Based Solutions to Consider in Exterior Dike Construction

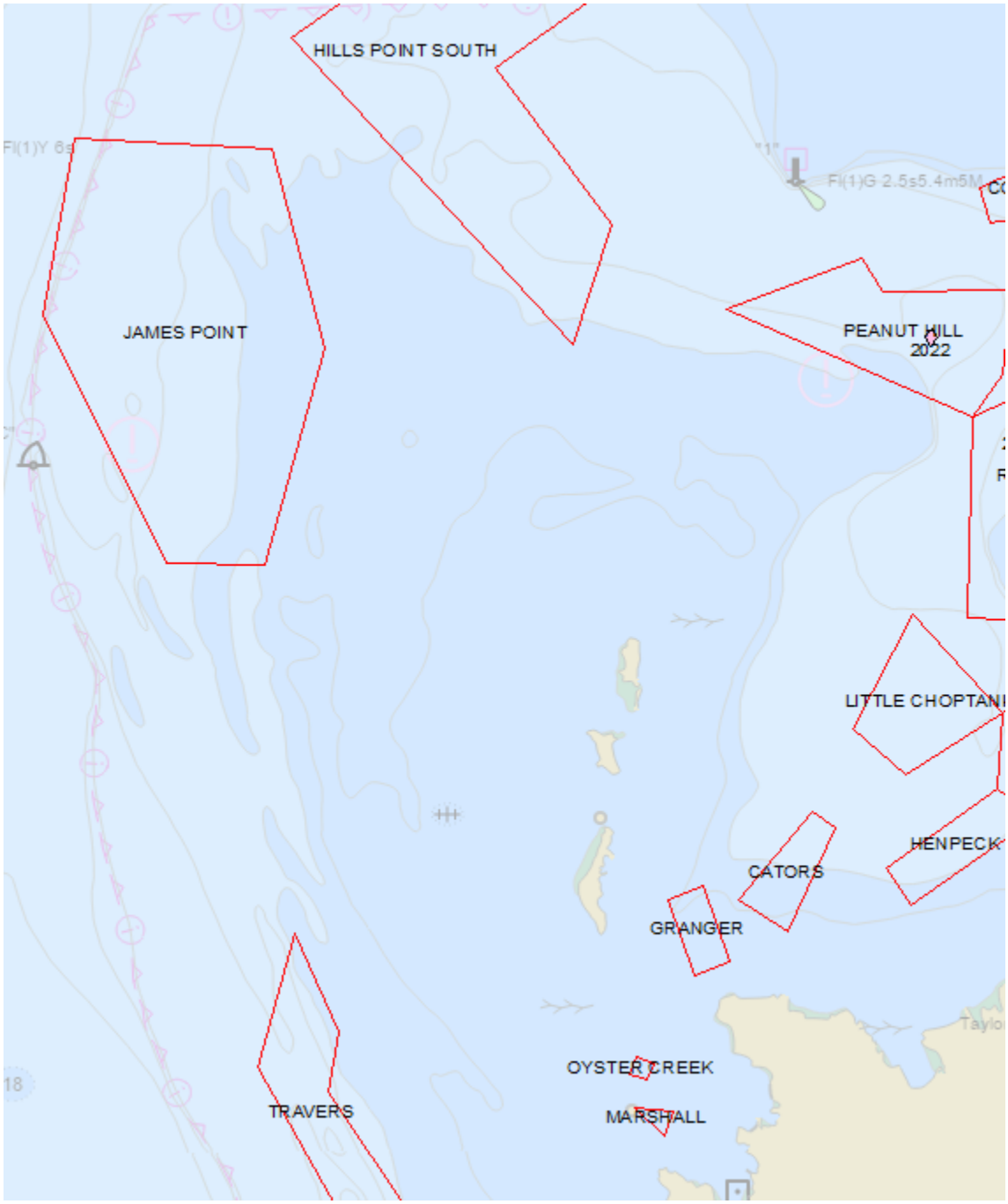
As the regulatory agency that issues recommendations to Maryland's Board of Public Works for tidal wetlands licensing, MDE reviews projects in tidal wetlands and waters to ensure impacts are avoided, minimized, and mitigated. Given MDE's role, we have been working closely with MPA, USACE, state and federal resource agencies to identify specific nature-based solutions (NBS) for the MidBay Islands design (James and Barren Islands) to help avoid, minimize, and mitigate impacts to aquatic resources with this project. The selected alignment for the MidBay project consists of James Island Alignment 5 plus Barren Island Alignment E that totals 2,144 acres (2,072 acres at James Island; 72 acres at Barren Island), with a habitat distribution of 45% upland and 55% wetland and an upland dike height of 20 ft. The MidBay project is an island restoration project and Table 2-1 below from page 2-17 of the 2008 Feasibility Report and EIS identifies the historical acreages for both James and Barren Islands. Note that the James Island alignment (2,072-acres) is approximately 53% larger than the historical island acreage (1,350-acres).

Table 2-1: Loss of Island Habitat in Chesapeake Bay (Leatherman et al, 1995)

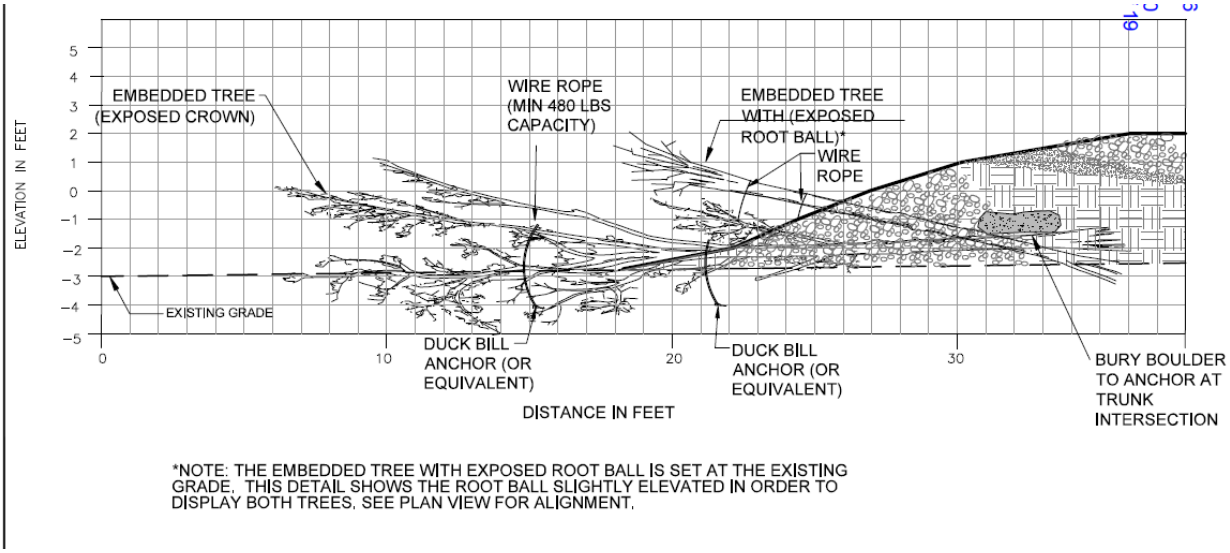
Island	Historic Acreage (date)	Recent Acreage (date)	Percent Lost	Comments
Poplar	1400 (1670)	125 (1990)	91	Abandoned in 1930
Sharps	890 (1660)	0	100	Drowned in 1962
St. Clements	400 (1634)	40 (1990)	90	Abandoned in 1920's
James	1350 (1680's)	269 (1980) <100 (2002)**	80	Abandoned in 1920's
Barren	700 (1664)	250 (1990) 180 (2005)***	64	Abandoned in 1916
Hoopers	3928 (1848)	3085 (1942)	21	Submerging
Bloodsworth	5683 (1849)	4700* (1973)	17	Submerging
Holland	217 (1668)	140* (1990)	35	Abandoned in 1922
Smith	11033 (1849)	7825* (1987)	29	Submerging
*Note: Mostly marshy land ** Updated by Maryland Environmental Services, et.al. *** Updated by Maryland Port Administration				

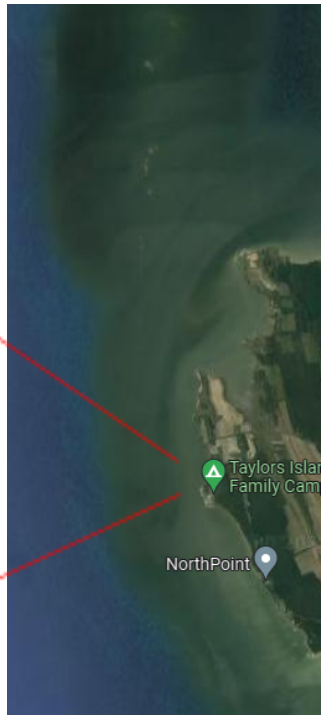
To assist USACE and MPA in the exterior containment design for James Island specifically, MDE met recently with state and federal resource agencies to further narrow down the suite of NBS to consider. These fall into the three categories below, with some related design details, within project and off-site opportunities. Through interactive workshops with USACE's ERDC and EWN groups, these designs can be further refined and vetted.

1. Oyster Reefs and Restoration:
    - *Within the Project Area and Offsite:* James Island is surrounded by multiple natural oyster bars that have degraded over time through a combination of harvest, disease, and water quality impacts. The resource agencies concur that opportunities to integrate oyster reefs into containment design must be fully assessed. One approach to including oyster reefs in the project footprint could entail pulling the exterior dike/containment inward at appropriate locations to allow space for reefs and help attenuate wave energy on the containment structure. Upland dikes could potentially be adjusted to gain capacity loss from pulling in the exterior dikes/containment structures.
      Efforts to seed reef or dike/containment structures with oyster spat and shell to promote oyster growth and colonization should also be considered, to include restoration of adjacent natural oyster bars if restoration within the project footprint is not practicable. Per MDNR, there have been no restoration or replenishment activities on these bars (see below figure) for at least 20 years, with the exception of Peanut Hill. This area is not a sanctuary but also not a high harvest area currently. The bars east of the island are hand tong only harvest areas whereas the other bars are a combination of diving, power dredge, patent tong, and skipkacks. There is a MDNR oyster sanctuary and restoration effort upriver in the tidal Little Choptank and this region has been identified as an area where natural oyster recruitment (details HERE) can facilitate recolonization.
    - *Design Considerations:* Chesapeake Bay has not historically supported intertidal oyster reefs. With the latest oyster restoration projects, MDNR indicates the minimum water depth clearance has been 6ft (after construction) but 7ft is typically preferred. UMCES is looking into their modeling and other data on oyster bars' ability to attenuate wave energy, so that will be a valuable contribution to design. The links below provide some design and configuration examples using reef structures including reef balls, oyster baskets, and oyster-shell filled gabions for greater coastal protection. Oysters shells may also be effectively imbricated into dike/containment structures.
        - https://glo.texas.gov/coast/coastal-management/forms/files/design-guides/final_oysterreef_designguide.pdf
        - https://www.ecoshape.org/en/cases/shellfish-reefs-as-shoreline-protection-eastern-scheldt-nl/planning-and-design-phase/
        - Potential EWN Resource at ERDC, Dr. Candice Pearcy, https://ewn.erdc.dren.mil/research/project/computational-modeling-of-man made-oyster-reefs-life-cycle-wave-attenuation-performance-and-reliability/

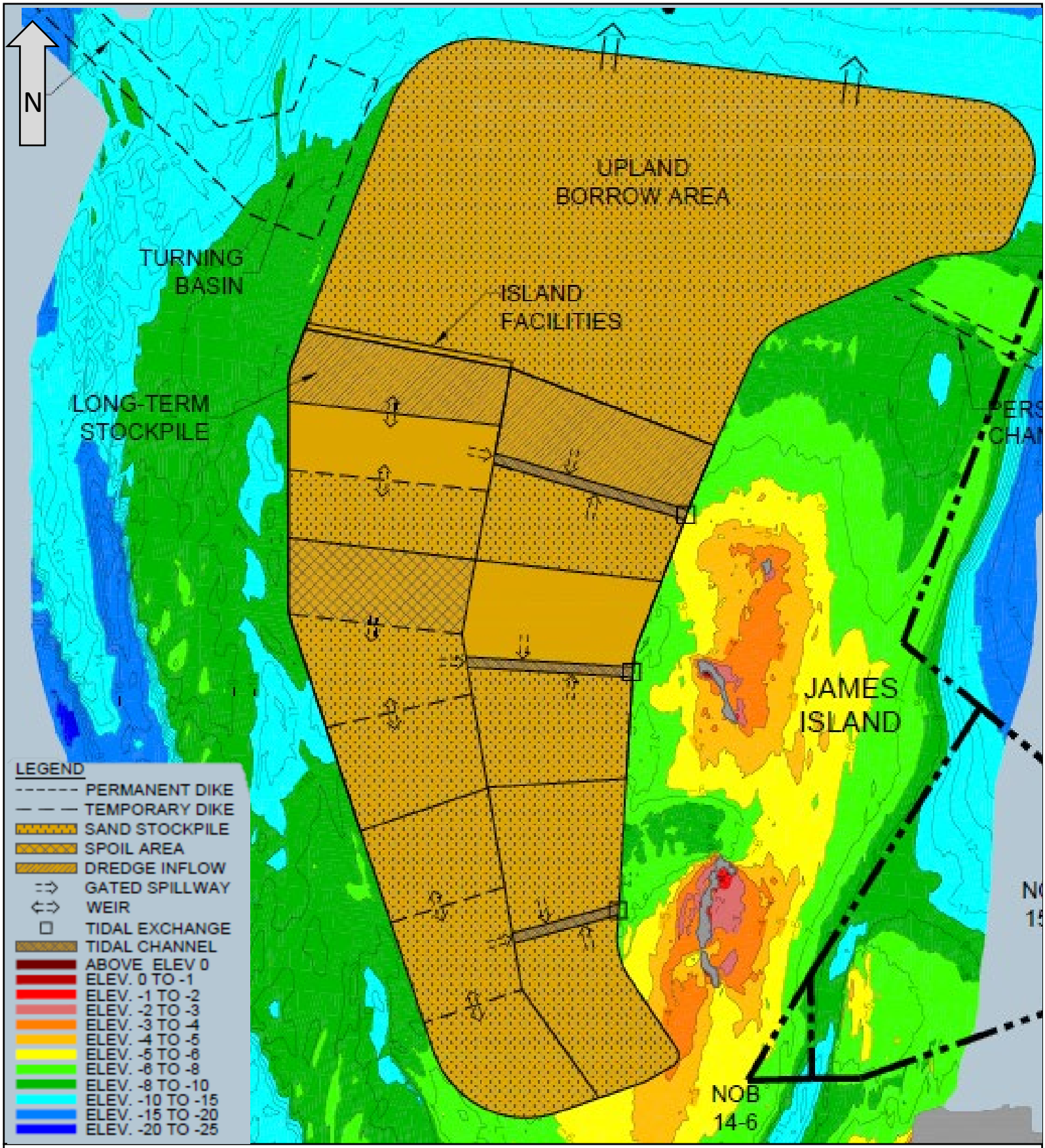

HILLS POINT SOUTH
JAMES POINT
PEANUT HILL
2022
LITTLE CHOPTANK
HENPECK
CATORS
GRANGER
OYSTER CREEK
MARSHALL
TRAVERS

2. <u>Greater hydrologic connection of James Island with the Bay, including using living shorelines (LS) and natural materials in exterior containment design</u>
    - *Within the Project Area:* Jonathan Watson provided some detailed sketches of LS designs for containment that provide for greater hydrologic connection and aquatic habitat. Also, as we move forward with interior design, we should enhance the Island's ability to function as an interconnected ecosystem such that the uplands directly connect, through channel features, with the constructed wetlands.
    - *Design Considerations:* See Jonathan Watson's/NOAA LS designs. Per below concept, evaluate use of large wood as a natural structural and habitat component in dike and LS designs.



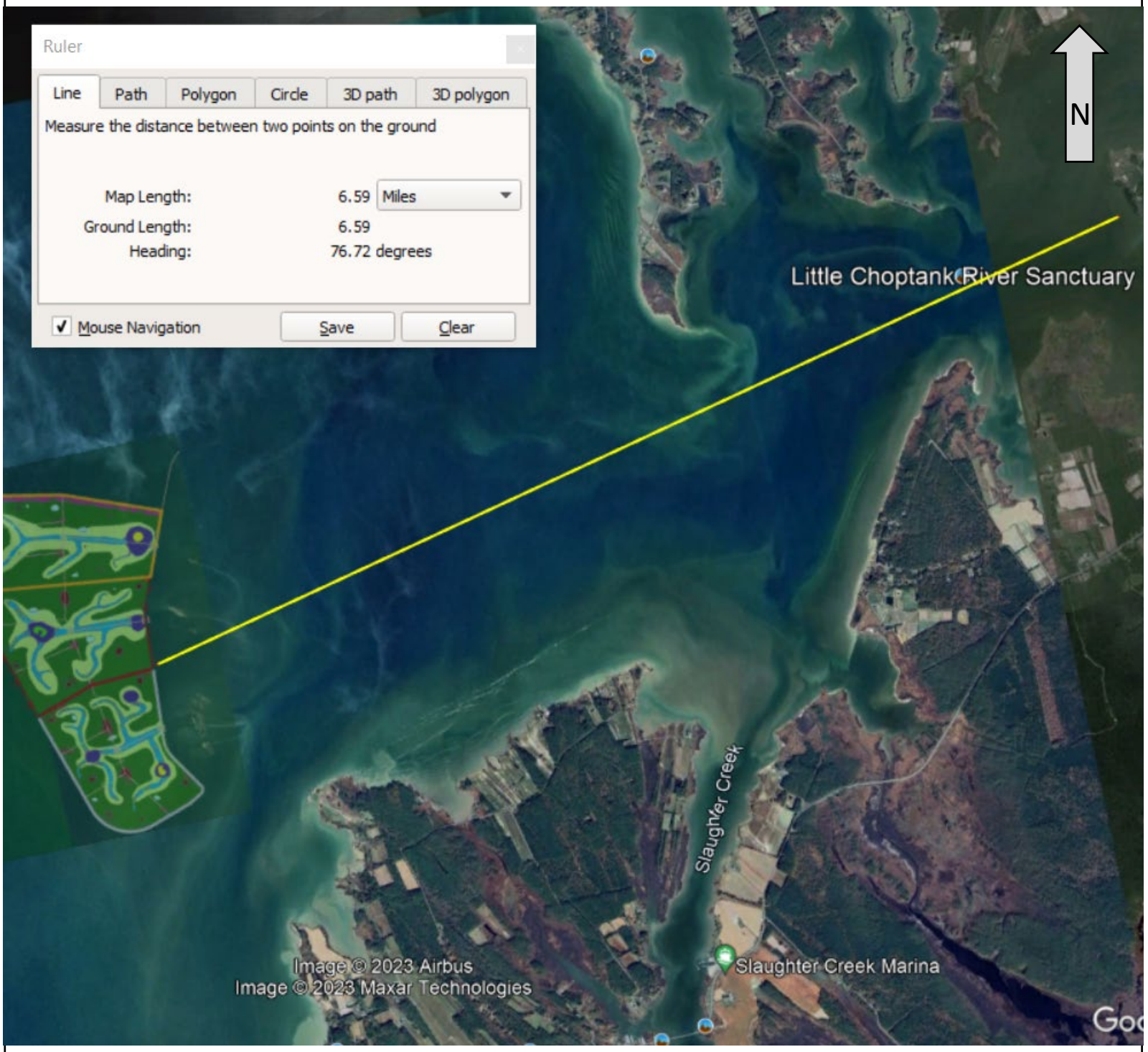


Example of Natural woody debris field adjacent to uplands south of Taylor's Family campground.



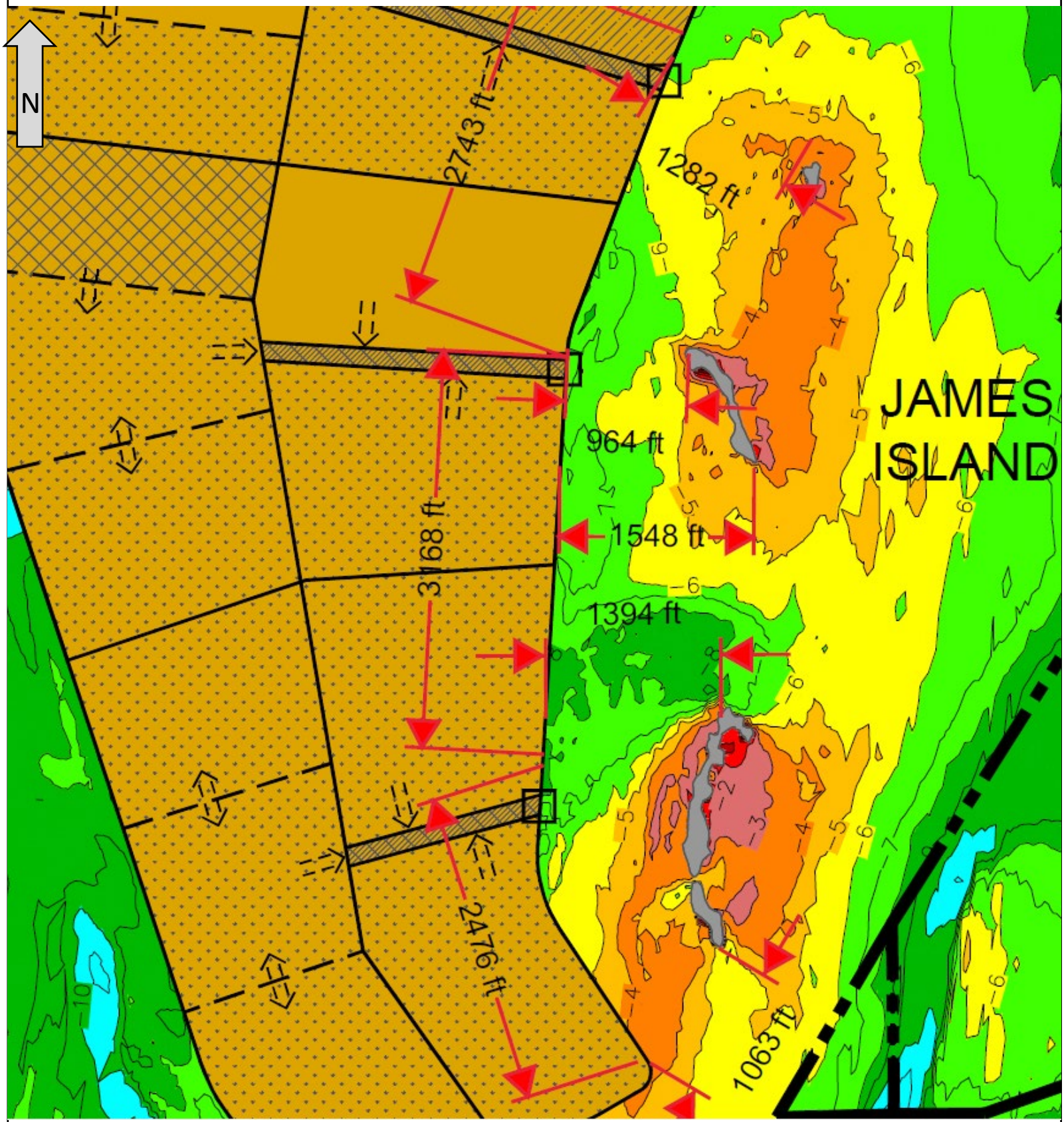
James Island Overview and surrounding bathymetry

NMFS Submittal



James Island Fetch

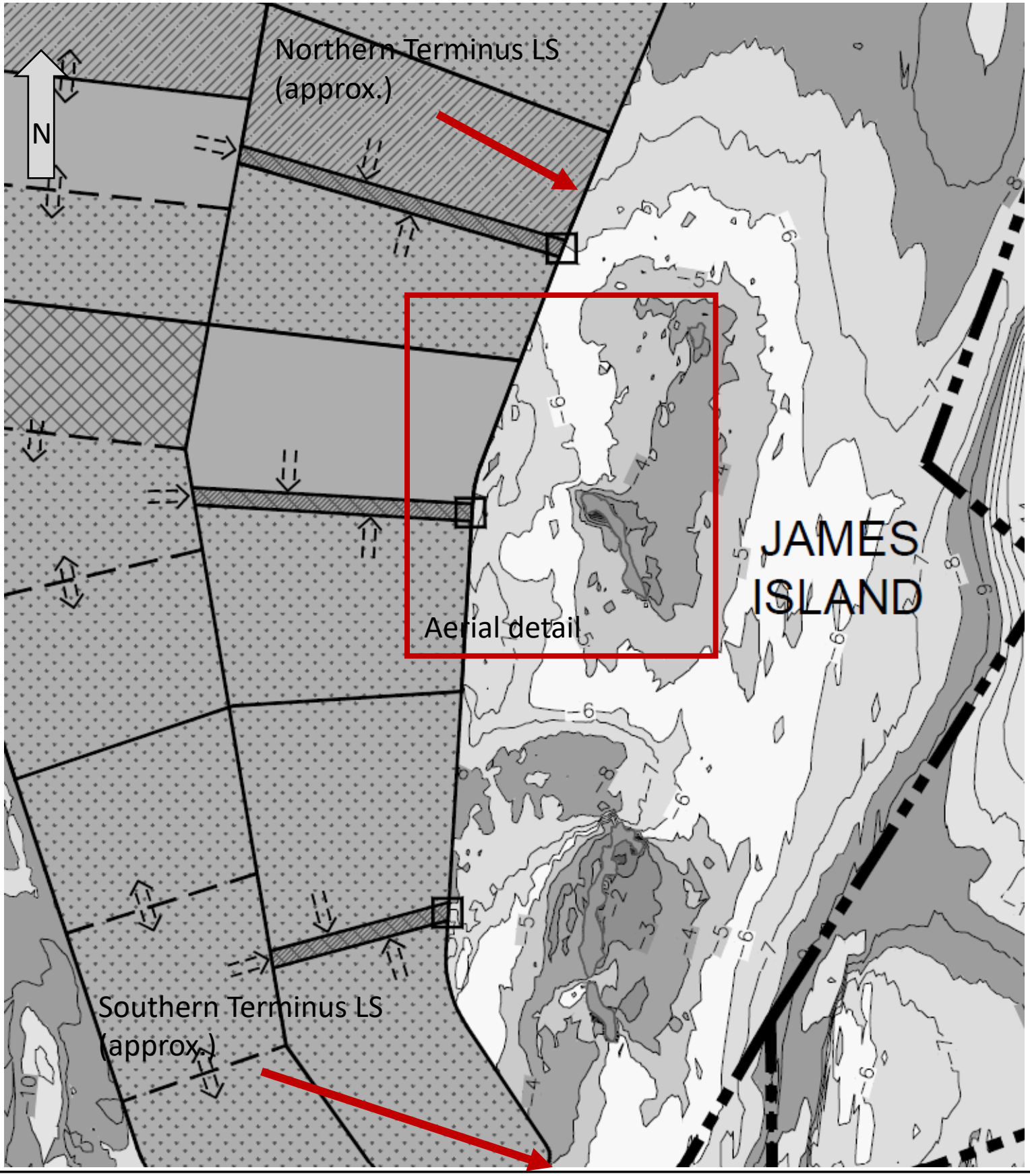
Overlay with partial image of proposed habitat design



James Island Overview and Bathymetry – Eastern Aspect

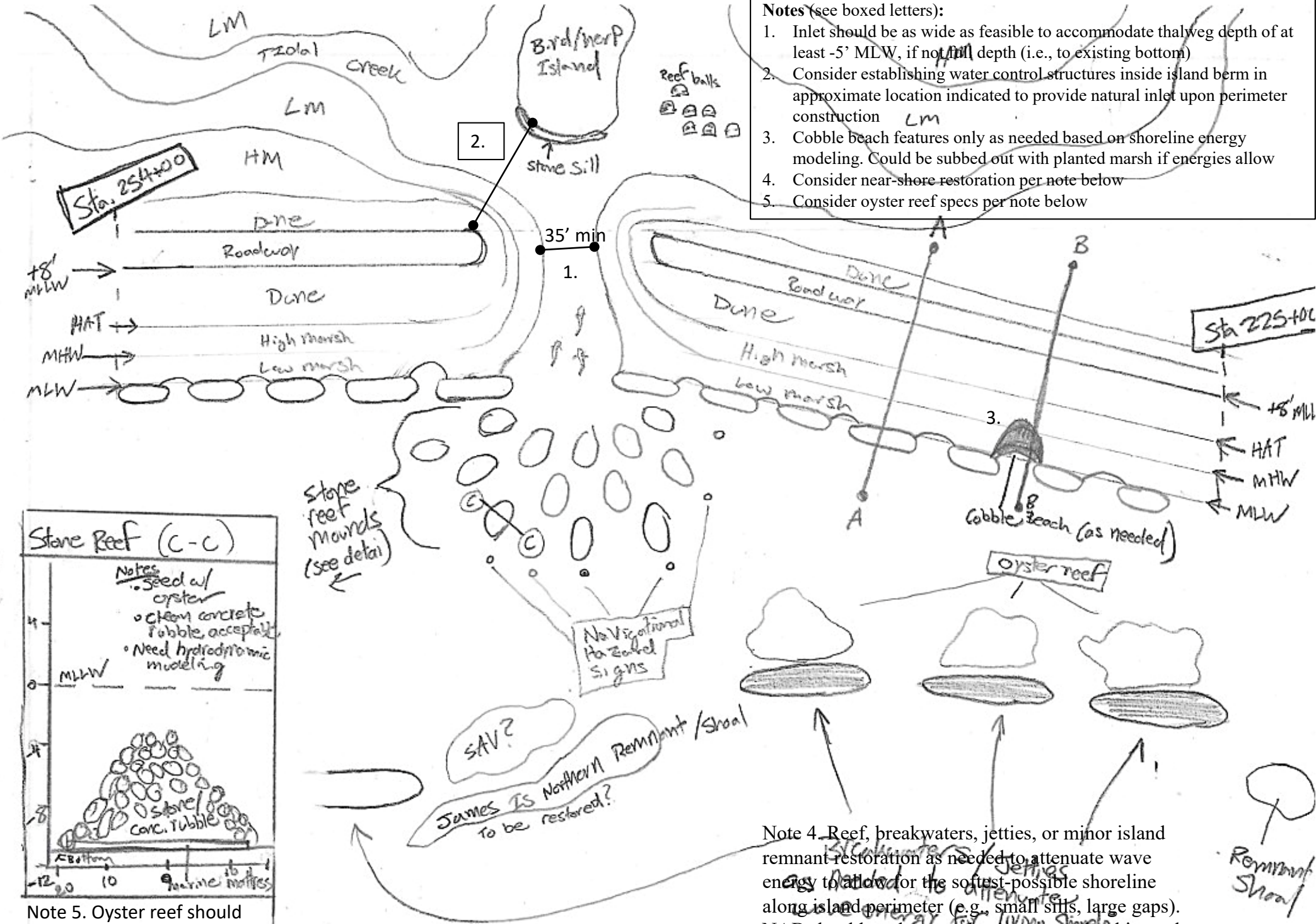
Measurements depict:

- approximate distance to remnants/shoals
- Approximate distance of proposed living shoreline method



James Island Overview and Bathymetry – Eastern Aspect

Detail depicted in subsequent sketches



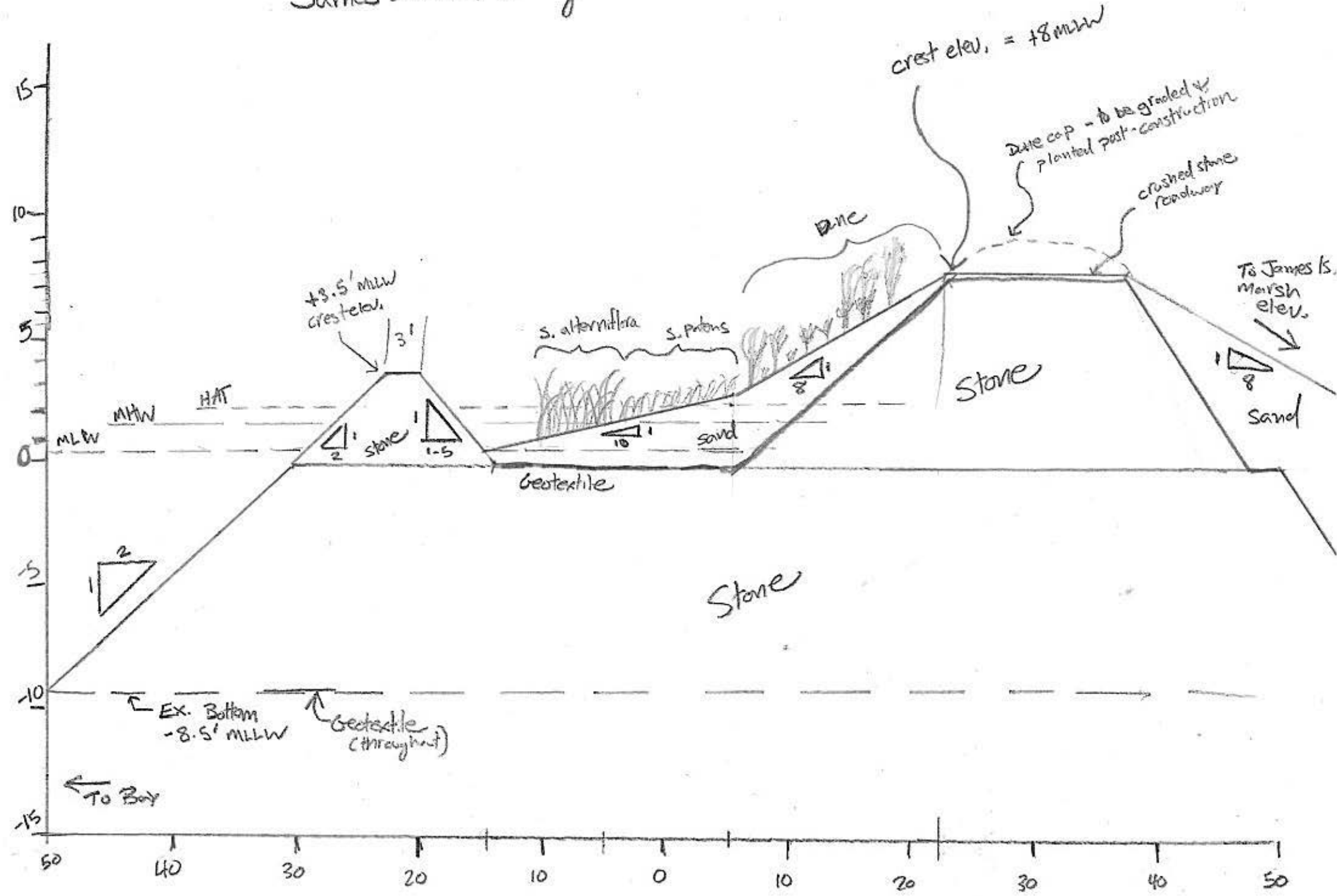
Notes (see boxed letters):

1. Inlet should be as wide as feasible to accommodate thalweg depth of at least -5' MLW, if not full depth (i.e., to existing bottom)
2. Consider establishing water control structures inside island berm in approximate location indicated to provide natural inlet upon perimeter construction
3. Cobble beach features only as needed based on shoreline energy modeling. Could be subbed out with planted marsh if energies allow
4. Consider near-shore restoration per note below
5. Consider oyster reef specs per note below

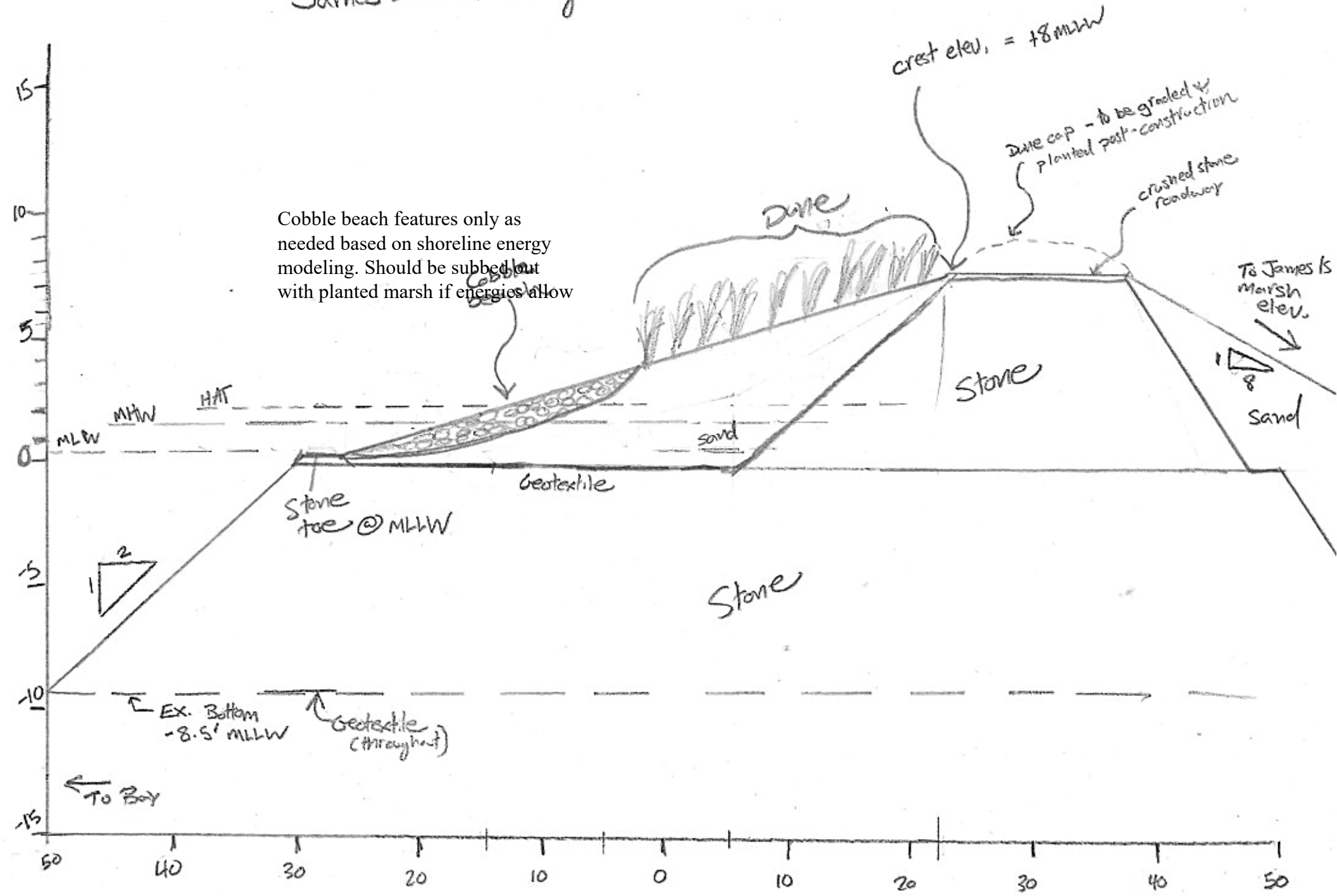
Note 5. Oyster reef should either be augmented with spat on shell veneer or direct set of oyster larvae

Note 4. Reef, breakwaters, jetties, or minor island remnant restoration as needed to attenuate wave energy to allow for the softest-possible shoreline along island perimeter (e.g., small sills, large gaps). NAB should explore mechanisms to make this work feasible in support of overall island restoration

James Island Living Shoreline Cross Section A-A



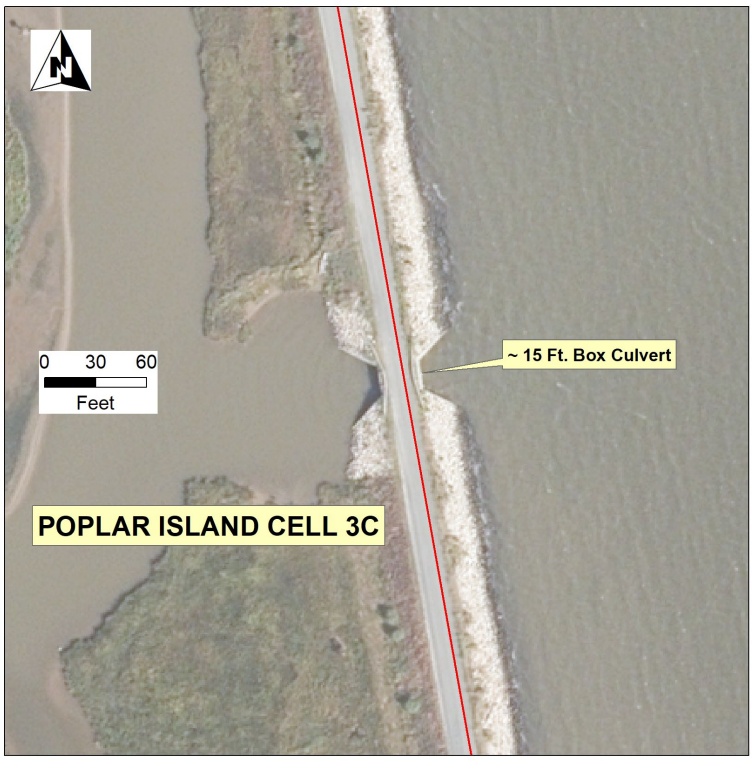
James Island Living Shoreline Cross Section B-B



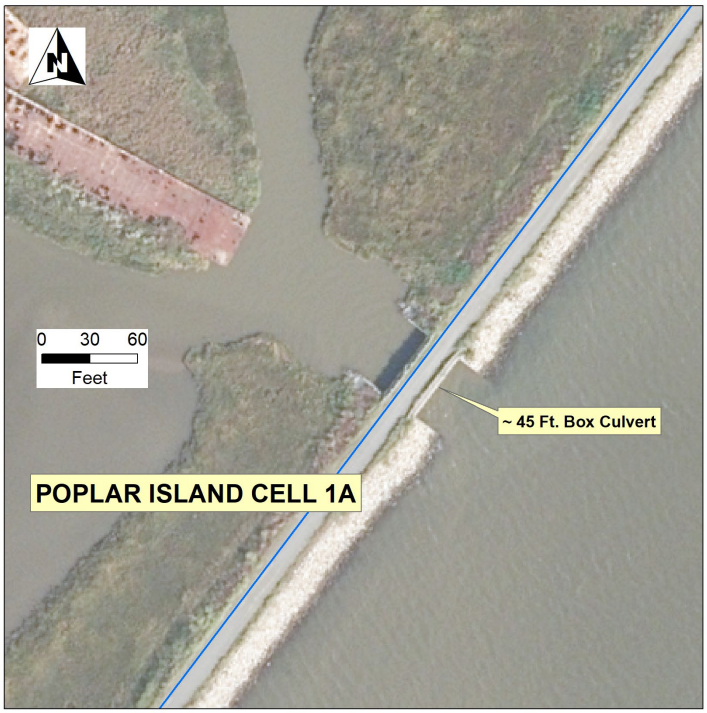
Cobble beach features only as needed based on shoreline energy modeling. Should be subbed out with planted marsh if energies allow

Suggested Water Control Structure Notes

a. Where weir structures are necessary to control cell watering/dewatering, we recommend making these structures as large as possible to facilitate nekton movement into/out of the project wetlands.
b. In the past, smaller weirs have been used at certain cells at Poplar Island, such as cell 3C (See below)



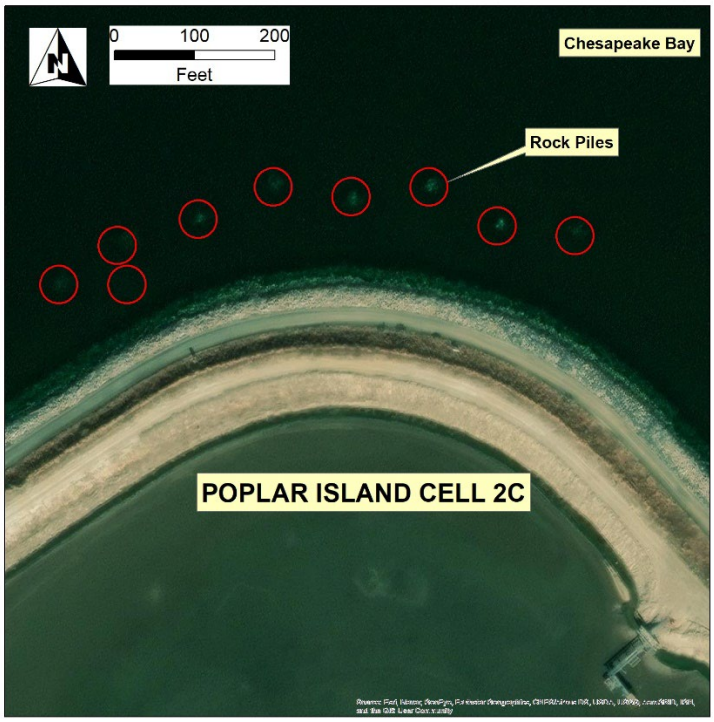
c. Larger structures have been used at other wetland cells at Poplar Island and we anticipate these to facilitate organism passage (see below)



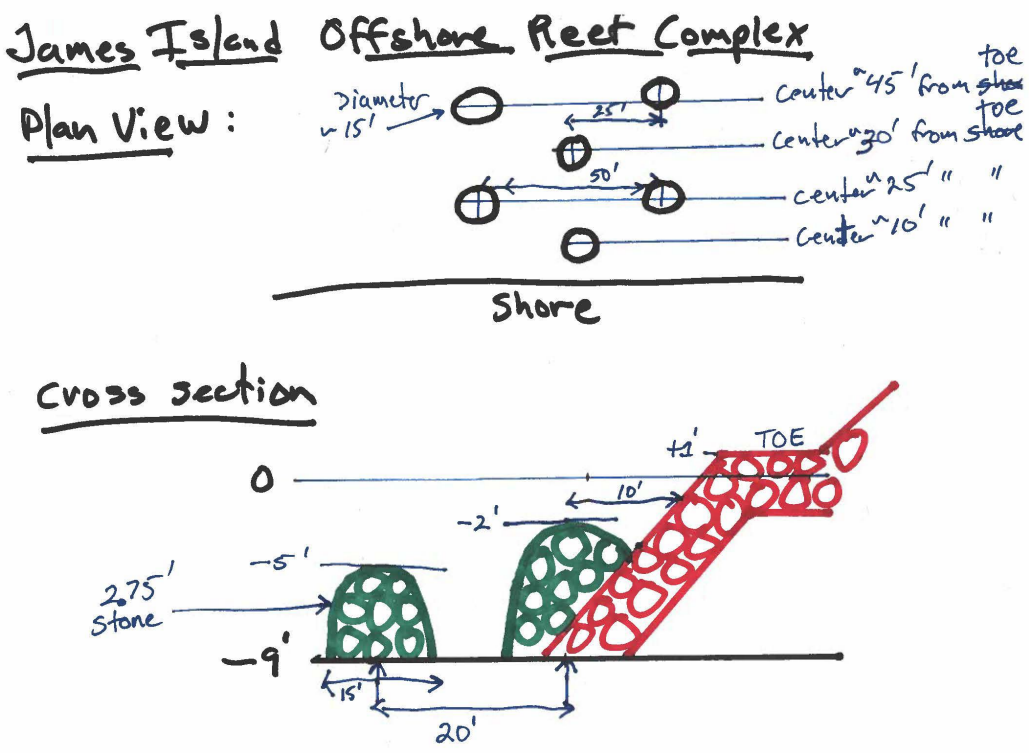
d. Finally, we recommend the Corps consider designing the main inlets (i.e., those that cross through the exterior containment dyke) to be natural from the start, with weirs confined to areas inside the project footprint (See slide 5, note 2).

Suggested Sub-Tidal Fish Habitat Features Associated with James Island Containment Dike

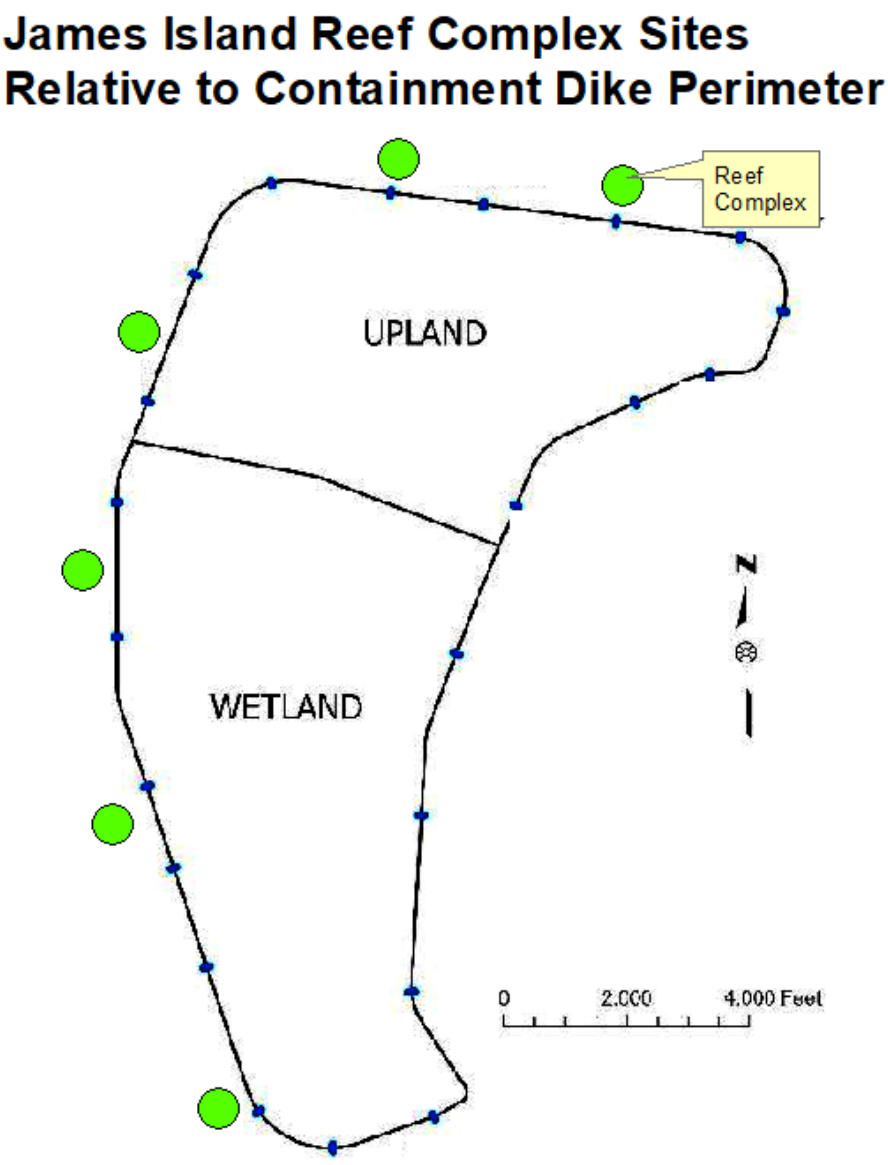
a. Purpose: maximize structural heterogeneity of dike toe region to enhance habitat value for fish communities.
b. Objective: create stone reef complexes similar to offshore rock piles adjacent to Poplar Island Cell 2C in 9-10 ft depths (image below).



c. James Island reef complex: rough schematic of offshore stone piles



d. Proposed locations for reef complexes relative to containment dike



3. Thin Layer Placement (TLP) and Enhanced Climate Resiliency
    - *Within the Project Area and Off site:* UMCES's coastal Wetland Equilibrium Model (CWEM) modeling at Poplar Island, in collaboration with Jim Morris (USC), has shown that without TLP, the marshes built to current specifications can be expected to last only about 40 years. Building them to higher starting elevations will buy them a little more time, but in the 50-100 year time frame (depending on future SLR) they are going to need TLP to avoid drowning. Constructed wetland health, sustainability and resiliency is critical to the overall success of the project and in helping to mitigate aquatic habitat lost through dredged material placement. Exterior dike/containment structure design, alignment, and inflow must consider this future need. Provision for thin layer placement must be a component of the marsh maintenance plan.
      James Island is also proximate to the land area and communities in Maryland most vulnerable to a combination of sea level rise and land subsidence. Creating a cell within the James Island upland that is a broader regional source of sediments for TLP and living shorelines can ensure sustained aquatic habitat and resiliency for the island and adjacent communities that can help mitigate aquatic habitat impacts. Importantly, such an approach will also recover dredged material placement capacity at James Island, extend facility life, and also potentially increase cost-effectiveness of the project.
    - *Design considerations:* Cells are typically created in upland containment facilities to allow for more efficient dewatering and consolidation. One of those cells could be reserved for an ongoing source of sediment supply for TLP or living shorelines. Possible innovations in cell design can be considered, like "stair-stepping" cells at slightly different elevations to allow for more efficient/contained dewatering before discharge. As the cells fill into uplands, a stair-stepped design may also facilitate sediment self-sorting, where more commercially valuable sands and gravel settle out of inflow for easier recovery. A sair-stepped design could also help achieve greater hydrologic connection between the wetlands and uplands, per above.

C2: Essential Fish Habitat Assessment

Mid-Chesapeake Bay Islands Ecosystem Restoration Project:
James Island
Dorchester County, Maryland
Essential Fish Habitat Impacts Assessment
February 2024

Prepared by U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers, Baltimore District, (USACE) in partnership with the Maryland Department of Transportation Maryland Port Administration (MDOT MPA), the non-federal sponsor, has prepared this essential fish habitat (EFH) impacts assessment for The Mid-Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay Island Project) at James Island. USACE prepared prior EFH impact assessments for the Mid-Bay project in 2005, 2017, and 2022 (Barren Island portion). The 2022 EFH assessment provided an update to the prior work. This EFH assessment is specific to the James Island project area.

I. Description of the Proposed Action

The Feasibility Phase for the Mid-Bay Island Project started in 2002. The feasibility report culminated in the recommendations for large-island restoration at James Island as well as island restoration actions to conserve and restore Barren Island. The study's Chief's Report (USACE, August 2009) and the Mid-Bay Integrated Feasibility Report and Environmental Impact Statement (FR/EIS) were completed in 2009. The record of decision was signed in July 2019 initiating the current phase of the study, Planning, Engineering, and Design (PED).

Mid-Bay will restore remote island habitat, a scarce and rapidly vanishing ecosystem component within the Chesapeake Bay region. Remote islands in the Chesapeake Bay serve as an important stop-over point for migratory avian species, providing forage and protected resting habitat during spring and fall migration along the Atlantic Flyway. Additionally, the remote island habitat restored at James Island will provide valuable wetlands and a vital connection between open-water and mainland terrestrial habitats within the region as well as valuable nesting habitat for a variety of colonial nesting and wading bird species.

The James Island Ecosystem Restoration Supplemental Environmental Impact Statement (sEIS) prepared by USACE provides detailed project description information, maps, and plans. At its time of settlement in the early 1600s, James Island was documented to be 1,350 ac (Cronin, 2005). At the time of the feasibility study investigation, James Island totaled less than 100 acres. The island eroded to multiple remnants of approximately 3 acres by 2020, and is now submerged (MES et al., 2002). Sea level rise and related erosion, as well as land subsidence and wave action are the primary drivers of island loss. The project provides an opportunity to utilize 90 – 95 million cubic yards of clean dredged material over a 30-year period to restore 2,072 acres of remote island habitat at James Island.

For James Island, the proposed action consists of a modernized design that would account for current conditions, climate resiliency, and inclusion of natural and nature-based features (NNBF) (also referred to as Engineering with Nature (EWN)). The Feasibility Study's recommended plan consists of the following features as depicted in Figure 1:

- A restored island with a 2,150-ac footprint (includes approximately 78 acres of perimeter dikes and 2,072 ac internal habitats),
- Armored dikes (approximately 47,000 linear feet), breakwaters, and/or other structures would be constructed to approximate the island's historical footprint. A +20 feet mean lower low water final upland dike height. The upland dike heights would initially be built above the authorized +20 ft to contain the dredged material prior to material dewatering and final grading.
- The restored island would provide the capacity to place 90 to 95 million cubic yards of clean dredged material from Federal navigation channels into the enclosed area to restore upland and wetland habitat over a 32-year period.
- Within the habitat restoration footprint, restoration of island habitats with a proportion of 45% upland to 55% wetland. Feasibility provided the option to reconfigure the wetlands and upland ratios during design (current phase).
- Wetland habitats are projected to include high and low marsh, hummocks, tidal channels, and mudflat and sand beaches.
- An access channel on the northwest end of the island, approximately 10,000 ft long and 600 ft wide with 3:1 side slope (240-acre footprint) dredged to -26 ft MLLW (-26.8 NAVD88).
- Breakwaters to protect the turning basin (25-acre footprint).
- A bulkhead along the cross dike adjacent to the turning basin (5-acre footprint).
- Dredging of sand for dike construction from within the island footprint and access channel.
- Dredging the access channel to a depth of – 15 ft MLLW (-15.8 NAVD88) in front of the bulkhead with a transition to -26 ft MLLW (-26.8 NAVD88),
- A personnel pier on the northeast shoreline (5-acre footprint),
- Running an electric supply line (buried to a depth of 8 ft) from Taylor's Island to the personnel pier, and
- Up to 50 acres of shoreline features (reefs, reefballs, breakwaters) to diversify the shoreline and protect the mouth of tidal inlets.

Since completion of the Feasibility Study, there has been an increased understanding of climate change projections and impacts. The proposed action would evaluate and incorporate NNBF that are determined to be scientifically practical and feasible, and acceptable with respect to future operations and maintenance, to provide resilient habitats that maximize value to terrestrial and aquatic species. As the footprint of the project is being evaluated by this sEIS, and not the full habitat design for the project, an aerial impact is included for shoreline features that would be needed to implement EWN features. To that extent, the proposed action would include up to 50 acres of nearshore features in waters adjacent to the James Island dike alignment within 150 feet of the perimeter dikes along the island's eastern and southern shoreline, in water depths less than 8 ft MLLW. The features could include breakwaters, reefs, or other structures that would enable a softer, more diversified natural design for the island perimeter. At this phase of the design, the exact form or location of these features has not been determined. Considering the

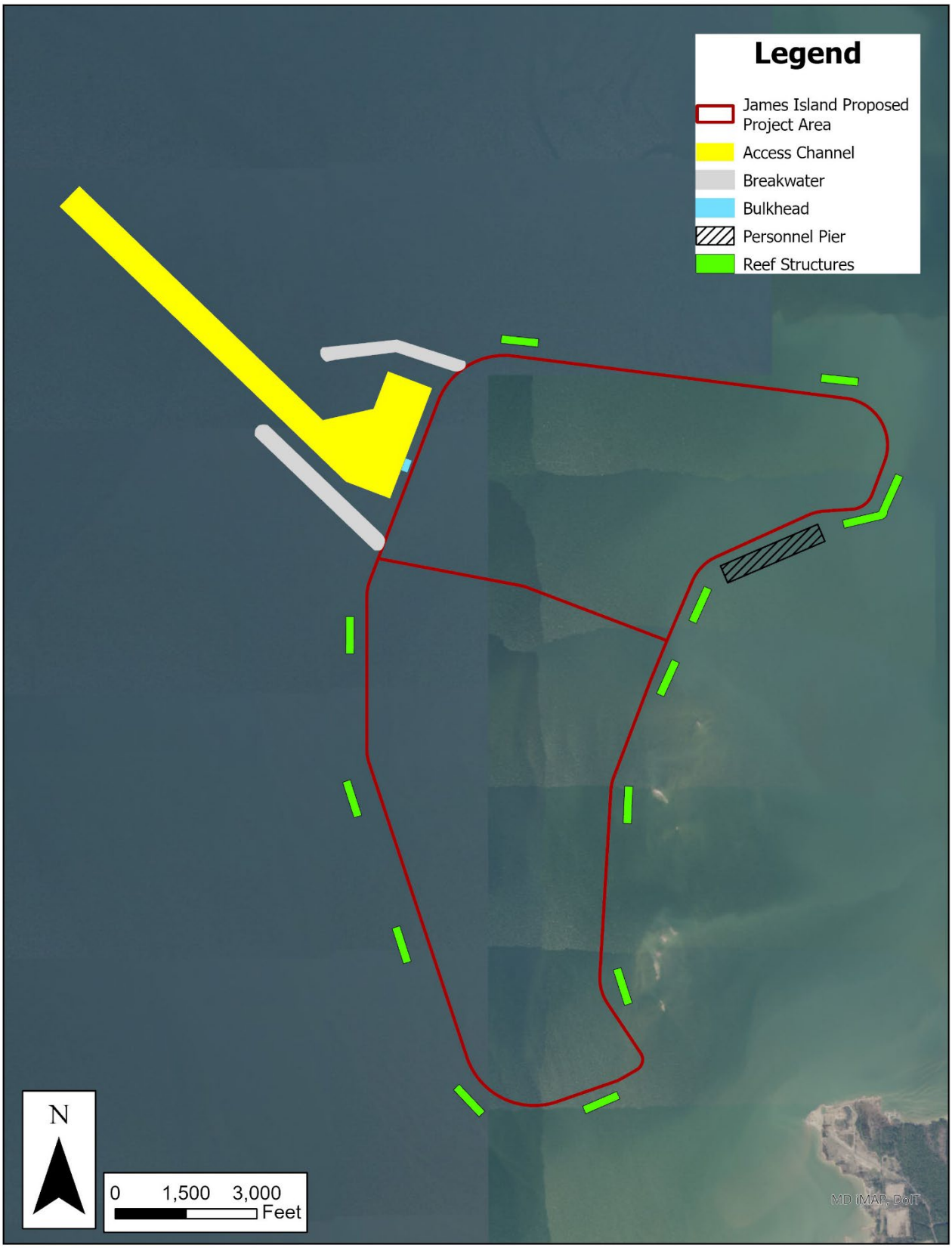


Figure 1. James Island Recommended Plan (Alternative 2)

potential for these features in the sEIS provides the capacity to implement those features once the design in further developed.

The sEIS provides a detailed overview of the affected environment at James Island, as well as environmental impacts of the proposed action.

A. Affected Environment

A summary of environmental conditions pertinent to this EFH impacts assessment drawn from the sEIS and other sources are provided below.

1. Sediments

Implementation of the preferred alternative would have a direct and long-term impact on the sediments within the project footprint. Approximately 2,235 acres of bay bottom within the restoration area would be buried under stone and dredged material. Further, sand within the uplands footprint, the access channel and turning basin would be dredged from the bottom and used in construction of the project. Another, approximately 7 acres would be temporarily disturbed to provide an electric supply line from Taylor's Island to the personnel pier on the island. Alternatively, it is expected that restoration of James Island would reduce the further erosion of the remaining island remnants.

2. Water Quality

Surface water sampling was completed at 10 nearshore locations and one background location around James Island in the summer and fall of 2020 and winter and spring of 2021. A water quality meter was placed at the surface, mid-depth, and bottom (within 1 foot) of the water column to measure temperature, salinity, dissolved oxygen (DO), turbidity, and pH. In addition, water samples were analyzed for total dissolved nitrogen, total dissolved phosphorous, orthophosphate, particulate phosphorous, particulate carbon, dissolved organic carbon, total nitrogen, total phosphorous, chlorophyll a, Phaeophytin a, and total suspended solids. A full description of the methods and results of the samples taken at all sampling events is available in Appendix A1 of the sEIS.

Salinity was found to be at its highest during the fall averaging 16.2 ppt, and the lowest levels occurred during the spring averaging 11.5 ppt. Water temperatures were found to be the highest during the summer ranging from 79ºF to 80ºF and were the lowest during the winter ranging 40.3ºF to 41.7ºF. Dissolved oxygen (DO) concentrations varied seasonally and tended to be lower during the summer months due to the physical properties of warmer water having less availability to contain DO then colder water. During the summer season DO concentrations ranged from 6.5 to 7.6 mg/L and during the winter concentrations peaked at (12.5 to 12.7 mg/L), which is considered healthy and allows the Chesapeake Bay's aquatic system to thrive.

The overall pH measurements were similar at each sample location throughout the testing period ranging from 7.9 to 8.3. Turbidity levels showed a similar trend and levels were similar throughout the testing period. The greatest value was during the summer and had a rating of 6.7 NTU while the lowest value was 0 NTU. During the spring 2021 sampling event Secchi depth was also recorded with a maximum reading of 5.7 feet.

Detectable nutrients were at low concentrations. Ammonium and orthophosphate were not detected in most surface water samples. Summer 2020 sampling resulted in the highest concentrations of chlorophyll, phaeophytin, organic phosphorous, particulate carbon, particulate nitrogen, particulate phosphorous, total dissolved phosphorous, and total phosphorous. Winter 2021 sampling resulted in the highest concentrations of nitrate + nitrate, total nitrogen, and total dissolved nitrogen, while nitrite and total suspended solids were measured in the greatest concentrations during spring 2021 surface water samples.

MDNR has a Chesapeake Bay Water Quality Monitoring Program (CBWQM) that has routinely sampled year-round in the Chesapeake Bay since 1985 and in the Coastal Bays since 1999. Scientists collect data from 22 stations in Maryland's Chesapeake Bay mainstem, from 60 stations in the Chesapeake Bay tidal tributaries, and from 30 stations throughout the Chesapeake and Coastal Bays (MDNR, 2023a). Five years of water quality data (1999 to 2003) from the CBWQM were summarized for the fixed monitoring station closest to James Island (stations EE2.2) for the 2009 Mid-Bay FR/EIS. Station EE2.2 is located in approximately 12.5 m (41 ft) of water, near the mouth of the Little Choptank River less than a mile east of the northeast corner of the James Island project footprint. Means and ranges for physical parameters and ranges for nutrients for these two stations are presented in Tables 3-5 through 3-8 of the 2009 Mid-Bay FR/EIS (USACE 2009). Updated surface (14 feet) water quality data for years 2016-2020 was taken from station EE2.2 and is summarized Table 5 alongside average results from the 2009 Mid-Bay FR/EIS.

Table 1. Average Water Quality Variables at CBWQM Station EE2.2 (1999-2003 & 2016-2020); results are averaged across sample period

		Sample Season							
		1999-2003				2016-2020			
	Unit	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring
Temperature	°C	23.7	13.9	6.2	17.18	27.5	19.3	6.5	17.5
Dissolved Oxygen (DO)	mg/L	7.38	9.14	11.02	8.42	6.9	8.4	12	8
Salinity	ppt	11.7	15.62	15.28	11.92	11.6	14.4	11.2	10.4
pH	su	8.12	6.78	8.04	8.14	8.1	8.1	8.2	7.9
Secchi Depth	ft	1.18	1.9	1.46	1.575	2.6	4.6	4.6	5.2

The waters surrounding James Island have warmed in the past 15 to 20 years, particularly in summer and fall. Average DO levels have slightly decreased in all seasons except winter, but are still well above the minimum 5 mg/L needed to support healthy aquatic communities. Average salinity has also decreased, but the difference is negligible in summer. Water clarity (represented by average Secchi depth) increases across all seasons at station EE2.2.

3. Benthic Macroinvertebrates

Macroinvertebrate sampling was conducted in the James Island area in 2002/2003 during preparation of the 2009 USACE feasibility report (USACE, 2009). and in 2020/2021 during the current project phase. All investigations found that the benthic macroinvertebrate assemblage is typical of mesohaline, shallow Bay waters (Anchor QEA, 2022) of this area of the Chesapeake Bay. The complete benthic community taxa collected from all seasons of the 2020-2021 surveys are reported in Appendix A1 (Tables 4-7 to 4-9 and Appendix C) and discussed in the sEIS (Section 3.8.3). A total of 57 unique benthic taxa were collected during the 2020-2021 sampling events. During all sampling events, bivalves and polychaetes were the most common, but most samples were dominated by the amethyst gem clam (*Gemma gemma*) which was similar to the 2001-2002 surveys. Based on the benthic community metrics the benthic community surrounding James Island is a diverse community.

The Chesapeake Bay Benthic Index of Biotic Integrity (B-IBI) was used to evaluate the benthic community. The B-IBI combines individual metrics and assigns a score to each of the metrics to describe the benthic community and to provide an assessment of benthic community conditions. The scores for each of the B-IBI metrics (scaled from 1 to 5) at each location are averaged across attributes to calculate an index value for each location. Total B-IBI values were calculated for benthic sampling stations around James Island in 2002-2003 and an updated B-IBI was calculated for the sampling stations around James Island in correlation with 2020-2021 benthic sampling events. The full results of the updated index can be found in Appendix A1 (Table 4-11) and are discussed in the sEIS (Section 3.8.3.3). The summer 2020 B-IBI scores for James Island stations were low at all stations, ranging from 2.0 to 2.9. These results are generally consistent with the 2002-2003 sampling results and indicate a degraded benthic community at James Island.

4. Fisheries Surveys and Relevant Data

Surveys were conducted in the summer and fall of 2002 and winter and spring of 2003 for fish and crab species in the proximity of James Island. The results are provided in the 2009 USACE feasibility report (USACE, 2009). Updated surveys were conducted in the summer and fall of 2020 and winter and spring of 2021. Collection methods that were used during both surveys included, bottom trawls, beach seines, gill nets, and pop nets. The results of all fishing surveys are found in Tables 2 through 5 below and discussed further in the sEIS.

Sampling during the 2002/2003 feasibility study phase and the current project phase has provided information on the presence of EFH species in the James Island vicinity. No windowpane flounder, Atlantic butterfish, black sea bass, and clearnose skate were identified in the 2002-2003 feasibility study or the 2020-2021 updated fish surveys. Scup was only identified during the 2002-2003 surveys. During the 2002-2003 feasibility study surveys, twenty-seven Bluefish were identified, while in the 2020-2021 survey only three individuals were caught. Similarly, Summer flounder was identified more during the 2002-2003 study then the updated 2020-2021 fish survey. In all surveys, prey species were identified in the vicinity of James Island.

To provide additional supporting information on occurrence of juvenile and adult life history stages to verify potential EFH designations, the Virginia Institute of Marine Science's Fisheries

Analyst web application "ChesMMAP" sampling data was explored. The ChesMMAP survey uses a large-mesh bottom trawl to sample juvenile-to-adult fishes from the head to the mouth of the

Table 2. James Island Bottom Trawl (Net) Survey Species (2002-2003 and 2020-2021); X=observed

Common Name	Scientific Name	Observed 2002 – 2003	Observed 2020-2021
American Shad	Alosa sapidissima	-	X
Atlantic Horseshoe Crab	Limulus polyphemus	X	-
Atlantic Menhaden	Brevoortia tyrannus	-	X
Atlantic Silverside	Menidia menidia	X	-
Bay Anchovy	Anchoa mitchilli	X	X
Black-fingered Mud Crab	Panopeus herbstii	X	-
Blue Crab	Callinectes sapidus	X	X
Feather Blenny	Hypsoblennius hentz	X	-
Hogchoker	Trinectes maculatu	X	X
Naked Goby	Gobiosoma bosc	X	-
Northern Pipefish	Syngnathus fuscus	X	-
Sand Shrimp	Crangon septemspinosa	X	-
Silver Hake	Merluccius bilinearis	X	-
Skilletfish	Gobiesox strumosus	-	X
Spot	Leiostomus xanthurus	X	-
Striped Bass	Morone saxatilis	X	-

Table 3. James Island Beach Seine Survey Species (2002-2003 and 2020-2021); X= observed

Common Name	Scientific Name	Observed 2002 – 2003	Observed 2020-2021
Atlantic Croaker	Micropogonias undulatus	X	-
Atlantic Menhaden	Brevoortia tyrannus	X	X
Atlantic Needlefish	Strongylura marina	X	X
Atlantic Silverside	Menidia menidia	X	X
Atlantic Threadfin	Polydactylus octonemus	-	X
Bay Anchovy	Anchoa mitchilli	X	X
Blackcheek Toungefish	Symphurus plagiusa	X	-
Blue Crab	Callinectes sapidus	X	X
Blueback Herring	Alisa aestivalis	X	-
Bluefish	Pomatomus saltatrix	X	-

Common Name	Scientific Name	Observed 2002 – 2003	Observed 2020-2021
Dagger Blade Grass Shrimp	Palaemonetes pugio	X	-
Halfbeak	Hemiramphidae	X	-
Hogchoker	Trinectes maculatus	X	-
Lined Seahorse	Hippocampus erectus	X	-
Mummichog	Fundulus heteroclitus	X	-
Naked Goby	Gobiosoma bosc	X	-
Northern Pipefish	Syngnathus fuscus	X	-
Rainwater Killifish	Lucania parva	X	-
Red Drum	Sciaenops ocellatus	X	X
Sheepshead Minnow	Cyprinodon variegatus	X	-
Silver Perch	Bidyanus	X	-
Skilletfish	Gobiesox strumosus	X	-
Spot	Leiostomus xanthurus	X	X
Spotted Seatrout	Cynoscion nebulosus	X	-
Striped Anchovy	Anchoa hepsetus	-	X
Striped Bass	Morone saxatilis	X	-
Striped Killifish	Fundulus majalis	X	-
Summer Flounder	Paralichthys dentatus	X	-
White Perch	Morone americana	X	-

Table 4. James Island Gillnet Survey Species (2002-2003 and 2020-2021); X= observed

Common Name	Scientific Name	Observed 2002 – 2003	Observed 2020-2021
Alewife	Alosa pseudoharengus	X	X
Atlantic Croaker	Micropogonias undulatus	X	-
Atlantic Herring	Clupea harengus	X	-
Atlantic Horseshoe Crab	Limulus polyphemus	X	-
Atlantic Menhaden	Brevoortia tyrannus	X	X
Blue Crab	Callinectes sapidus	X	X
Bluefish	Pomatomus saltatrix	X	X
Gizzard Shad	Dorosoma cepedianum	X	X
Hogchoker	Trinectes maculatus	X	-
Southern Kingfish	Menticirrhus americanus	X	-

Common Name	Scientific Name	Observed 2002 – 2003	Observed 2020-2021
Spanish Mackerel	Scomberomorus maculatus	-	X
Spot	Leiostomus xanthurus	X	X
Striped Bass	Morone saxatilis	X	X
Striped Mullet	Mugil cephalus	X	-
Summer Flounder	Paralichthys dentatus	X	X
Weakfish	Cynoscion regalis	X	X
White Perch	Morone americana	X	-

Table 5. James Island Pop Net Survey Species (2002-2003 and 2020-2021; X= observed

Common Name	Scientific Name	Observed 2003	Observed 2020-2021
Atlantic Needlefish	Strongylura marina	X	-
Atlantic Silverside	Menidia menidia	X	X
Bay Anchovy	Anchoa mitchilli	X	X
Blue Crab	Callinectes sapidus	X	-
Feather Blenny	Hypsoblennius hentz	X	-
Grass Shrimp	Palemonetes	X	-
Scud	Amphipoda	X	-
Spot	Leiostomus xanthurus	-	X
Striped Anchovy	Anchoa hepsetus	-	X

Bay. Species of interest to this assessment were detected in ChesMMAP surveys over the entire period of record available (2002 – 2023). The ChesMMAP data is limited to waters deeper than approximately 10 ft MLW (VIMS, 2012). No ChesMMAP sample data is available for James Island and its immediate proximity which are 5 ft deep MLW or shallower. The ability of the trawl to adequately sample species and life history stages would depend on additional factors, such as species vulnerability to sampling. To explore the latter topic, ChesMMAP data for the entire MD Chesapeake Bay for numerous species was visually explored. All the species of interest to this assessment are displayed within the Chesapeake Bay with generally much higher catch-counts occurring in the southern bay Virginia waters. Overall, the basic pattern of ChesMMAP with numerous total catch-counts in Virginia waters but substantially fewer total catch-counts in Maryland waters supports that salinity is a primary driver of these species' distribution (such as Buchheister et al., 2013). Salinity is generally less in shallower waters of the Bay. Accordingly, the sampling by ChesMMAP which occurs at greater depths would tend to catch numerous fish species for which the lower salinity shallows of James Island would be less suitable.

II. Listing of Life Stages of Species with EFH Designated in the Project Area

The NOAA EFH mapper website was consulted in July 2021 to generate an initial listing of the species and life history stages for which both the Barren Island and James Island project area could

potentially constitute EFH. This potential list was then screened in comparison to EFH textual descriptions and maps linkable from EFH mapper. The list was finalized in coordination with NMFS on August 11, 2021, and reaffirmed for James Island in coordination with NMFS on December 19, 2022. The list is provided in Table 5.

Table 6. List of Species and Life History Stage to be Evaluated

Species	Life History Stage			
	Eggs	Larvae	Juveniles	Adults
Bony Fish				
Atlantic butterfish (*Peprilus triacanthus*)	X	X		X
Black sea bass (Centropristus striata)			X	X
Bluefish (Pomatomus saltatrix)			X	X
Scup (Stenotomus chrysops)			X	X
Summer flounder (Paralicthys dentatus)[2]		X	X	X
Windowpane flounder (*Scopthalmus* aquosus)			X	X
Cartilaginous Fish				
Clearnose skate (*Raja eglanteria*)			X	X

III. Analysis of Effects of the Proposed Action

A. General Description of Impacts Applicable to All Species Evaluated

The sEIS provides a detailed overview of the environmental consequences of the proposed action. A summary of those effects is included below to facilitate consideration of potential EFH impacts in this assessment.

The sEIS states that impacts that would be incurred to implement the restoration project include both short-term impacts from construction and long-term impacts from conversion of open water habitat to wetland and upland habitat. Construction activities may affect the fish community in several distinct ways. Impacts include short-term degradation of water quality and clarity (increased turbidity), short-term bottom sediment disturbances, noise impacts during construction, as well as permanent shallow-water habitat loss from conversion to island habitat and dredging to deeper depths. Dredging of the access channel, construction of the breakwaters, personnel pier, external habitat features, and placement of the electric supply; as well as the subsequent stone placement along the dike alignment and infill of dredged material could disturb up to 2,477 ac of bottom habitat. This would constitute a loss of habitat across most of that 2,477 ac. The disturbance of the bottom along the electric supply route would be temporary, with recovery expected. The short-term elevated suspended solids levels associated with dredging within the project area are expected to have a negligible effect on larger members of the fish community that would likely avoid the areas of highest turbidity. Early life stages are expected to be most affected: eggs and larvae/juveniles of many fish species are sensitive to high turbidity. When construction is completed, fish enclosed within the proposed dike at James Island would

likely be lost. Existing conditions surveys confirmed that all species currently using the area are common in the Mid-Chesapeake Bay region. The loss of fish habitat within the diked area at James Island is not expected to be a significant impact to fishery resources at the population level as similar habitat is abundant in the region.

The most noteworthy long-term change in habitat character due to the James Island restoration is that existing open water within the project area would be reduced; however, the wetland portion of the habitat restoration areas would provide increased nursery habitat for aquatic species and add diversity to the existing habitat. The usage of the marsh creeks and ponds is expected to initially benefit earlier life stages and smaller species that commonly utilize marsh habitat. Following the establishment of smaller species, it is expected that larger species or later life stages would utilize these areas as well for foraging. Species composition in the waters surrounding the proposed island is not expected to change significantly in the long term.

Additionally, there is currently minimal SAV acreage in the James Island vicinity and no SAV resources are adjacent to the location of the access channel. The recommended plan for James Island would likely protect any existing SAV and potentially allow an increase in abundance.

B. Species-Specific Analysis of Effects

Species life history and other information pertinent to assessing effects of the proposed action is provided below. Table 6 provides a summary of information on habitat preferences of the managed species and life history stages of interest with respect to salinity, temperature, and substrate. Impacts of the proposed action upon individuals of the managed species, and their habitat, prey, and predators are then evaluated.

1. ATLANTIC BUTTERFISH (egg, larvae, adult)

a. Background Information

Butterfish winter near the outer edge of the continental shelf in the mid-Atlantic Bight and migrate inshore in the spring. During the summer, they occur over the entire mid-Atlantic shelf, including estuaries. In late fall, butterfish move southward and offshore in response to falling winter temperatures (Cross et al., 1999). In the Chesapeake Bay region, Butterfish spawn offshore in the Atlantic from May through July, and then move into coastal ocean waters and estuaries. Butterfish are common to abundant in the lower Chesapeake Bay, but only occasional in the upper Bay, ranging as far north as the Patapsco River. Butterfish occur in the middle and upper Chesapeake Bay from about May through November. All butterfish migrate out of the Chesapeake Bay by December to overwinter in deeper water offshore (Murdy et al., 2013).

No identified butterfish eggs or larvae were caught in ichthyoplankton sampling conducted for the study in 2002/2003 (MPA, 2005). No butterfish juveniles or adults were caught in finfish sampling conducted for the study in 2002/2003 (USACE 2009). Regionally, VIMS Fishery Analyst

ChesMMAP total catch count data over the period of record (2002 through 2023) shows butterfish (juveniles and adults) strongly concentrated in VA waters (more than 20 miles south of James Island) versus MD waters of Chesapeake Bay. However, a few ChesMMAP stations within the northern portions of the Chesapeake Bay show several butterfish individuals. Since 2022, only one station within five miles of James Island has a total catch count less than 5. Additionally,

no butterfish individuals were caught in any fish sampling conducted at James Island in 2020-2021 (Anchor QEA, 2021).

Butterfish are fast-growing and short-lived. Eggs, larvae, and adults are pelagic (live in open water) in inshore waters and estuaries (NOAA, 2021 [EFH text link]). Butterfish form loose schools, often near the surface (Cross et al., 1999). Butterfish adults feed on jellyfish, small fish, crustaceans, and worms (Murdy et al., 2013).

b. Proposed Action Effects

1. Impacts to Individuals

Eggs are unlikely to be present because the James Island waters are substantially fresher than egg salinity preferences (Table 6). James Island waters are within habitat preferences of larvae. Larval butterfish may be present from May to November and could potentially be impacted by construction disturbance and turbidity but would likely be widely dispersed in the James Island vicinity. James Island waters are within habitat preferences of adult butterfish from May to November. Adult butterfish would not likely be present in cold weather months based on their migration patterns. Adult butterfish are good swimmers and should easily be able to avoid disturbance (noise) and turbidity from construction in warm weather months. Accordingly, minimal to no impacts to butterfish individuals of any life history stage of interest are expected from dredging.

2. Habitat Impacts

James Island waters are fresher than butterfish egg salinity preferences. It is unlikely that the James Island area constitutes EFH for butterfish eggs. Accordingly, no impacts to butterfish egg EFH are expected.

James Island area waters are within butterfish larvae and adult salinity preferences. The proposed conversion of open water habitat to rock structure, restored tidal wetlands, and channel habitat would cause a loss of butterfish larvae and adult habitat. Butterfish larvae are presumably widely dispersed in James Island waters, as within Chesapeake Bay itself. James Island vicinity waters appear to constitute only marginal EFH for butterfish adults, based on substantial differences in sampling results between MD and VA Chesapeake Bay waters.

In summary, the proposed action would not impact butterfish egg EFH. However, the proposed James Island project would possibly cause loss of EFH for larvae, and cause loss of what is apparently marginal EFH for adult butterfish.

3. Impacts to Prey and Predators

James Island waters are substantially fresher than egg habitat preferences. Therefore, the proposed action would have no effect on butterfish egg predators. However, increased turbidity during construction could impair foraging and prey interactions of any larvae or adults in the area.

Fish larvae feed on plankton generally produced over large areas. Accordingly, loss of open water habitat by conversion to rock structures, tidal wetlands, channels, and bird islands would likely have negligible effect on plankton in the Bay that butterfish larvae forage on. Additionally, fish

larvae often are distributed over large areas and the loss of open water at James Island would likely have negligible impacts on organisms that prey on butterfish larvae.

Table 6. Occurrence and habitat preferences by life-stage in the mid-Atlantic, with focus on preferences applicable or potentially applicable to estuaries.

Species Common Name	Regulated EFH Life Stages	Habitat, Geomorphic Features	Substrate	Salinity (ppt)[a]	Depth (m)	Depth (ft)	Water Temperature (C)	Water Temperature (F)	References (except a)
Atlantic Butterfish	eggs	Surface waters		25 to 33			Most 11-17	Most 52-63	Cross et al., 1999
	larvae	Surface waters		6 to 37			Most 9-19	Most 48-66	"
	adult	Surface waters	Mud and sand	4 to 33	<120	<400	3 to 28	37 to 82	NMFS 2000 (Summary Tables); Cross et al., 1999
Black sea bass	juvenile	YOY: Estuarine - coastal; salt marsh edges & channels; high habitat fidelity. Winter: Continental Shelf	YOY: Rough bottom, shellfish, sponge, eelgrass beds, nearshore shell patches, manmade objects. Winter: nearshore	YOY: prefer 18-20. Winter: prefer>18	1 to 38	3 to 125	>6, prefer 17 to 25	>43, prefer 63 to 77	Steimle et al., 1999b

Species Common Name	Regulated EFH Life Stages	Habitat, Geomorphic Features	Substrate	Salinity (ppt)[a]	Depth (m)	Depth (ft)	Water Temperature (C)	Water Temperature (F)	References (except a)
			shell patches, other shelter on sandy bottoms						
	adult	Summer: Larger fish stay in deeper water. Winter: Continental Shelf	Summer: Mussel beds, rock, artificial reefs, wrecks and other structures. Winter: poorly known.	Summer: >20. Winter: 30 to 35	2 to 38	6 to 125	>6, prefer 13 to 21	>43, prefer 55 to 70	Same as above
Bluefish	juvenile	Day: shorelines, tidal creeks; night: open waters, channels	Sand, mud, sea lettuce patches, eelgrass beds, salt marshes	23 to 36			>20 immigrate into estuaries; 15 emigrate from estuaries	>68 immigrate into estuaries; 59 emigrate from estuaries	Fahay et al., 1999;
	adult	Oceanic, Not		Oceanic			>14 to 16	>57 to 61	Shepherd and

Species Common Name	Regulated EFH Life Stages	Habitat, Geomorphic Features	Substrate	Salinity (ppt)[a]	Depth (m)	Depth (ft)	Water Temperature (C)	Water Temperature (F)	References (except a)
		uncommon in bays							Packer, 2006
Scup	juvenile	YOY: Estuarine - coastal; Winter: most offshore	Sand, mud, mussel and eelgrass beds	YOY: >15; Winter: mostly >30, except in estuaries	0 to 38	0 to 125	9 to 27, prefer 16 to 22	48 to 81, prefer 61 to 72	Steimle et al., 1999a
	adult		Sand, mud, mussel beds, rock, and manmade features	Summer: >15, Winter: >30	2 to 38	6 to 125	7 to 25	44 to 77	Same as above
Summer flounder	larvae	Shallow estuarine	Sand				6 to 20	43 to 68	Packer et al., 1999
	juvenile	Lower estuary flats, channels, salt marsh creeks, eelgrass beds.	Mud and sand	10 to 30	0.5 to 5	1.5 to 15	>11	>52	NMFS 2000 (Summary Tables); Packer et al., 1999
	adult				0 to 25	0 to 80			Same as above

Species Common Name	Regulated EFH Life Stages	Habitat, Geomorphic Features	Substrate	Salinity (ppt)[a]	Depth (m)	Depth (ft)	Water Temperature (C)	Water Temperature (F)	References (except a)
Windowpane flounder	juvenile	Nearshore bays and estuaries	Fine sandy sediment	5.5 to 36	1 to 75	3 to 250	<25	<77	Chang et al., 1999
	adult		Mud and sand	5.5 to 36	1 to 75	3 to 250	<27	<80	Same as above
Clearnose skate			Sand	1-33 m, most 7-15 m	3-110 ft, most 20-50 ft	8-20C	46-68F	Range > 12 ppt, most at >22 ppt.	Packer et al., 2003

Butterfish adults appear to be only minimally present in James Island waters. Thus, project effects on their prey would be minimal to negligible. Because adult butterfish are minimally present in James Island waters, they are presumably minimally preyed upon by other species there. Accordingly, there would likely be negligible impacts to predators of butterfish.

4. Summary for Species

The proposed James Island action would cause a loss of open water, and loss of EFH for butterfish larvae and loss of apparently marginal EFH for adults. Butterfish and their prey and predators would permanently lose access to the project footprint and would be expected to temporarily avoid the project area during the dredging and construction activities. Butterfish that remain in the project area would be temporarily exposed to increased underwater noise and turbidity. Given their mobility, adult butterfish would be expected to relocate to adjacent waters where comparable habitat exists. Egg staged butterfish would have minimal to no impacts due to the project area not containing proper habitat.

Ongoing construction of the Poplar Island project and the proposed future Barren Island project are also causing loss of open water habitat. The total acreage of these losses would be approximately 4,700 ac of open water habitat, with subsequent conversion to approximately 3,909 acres of remote island habitats. There are no other foreseen comparable large-scale projects that would fill open water to restore/create habitat. The Clean Water Act and other regulations serve to protect open water habitat regionally. The loss of open water habitat caused by the Poplar, Barren, and James Island Projects would gradually be offset by natural growth of the Bay concomitant with sea-level rise (by hundreds of acres per year) and development of wetlands habitat at each of the restoration projects.

2. BLACK SEA BASS (juveniles, adults)

a. Background Information

Black sea bass is a warm temperate species. Their distribution changes seasonally as they migrate from coastal areas to the outer continental shelf while water temperatures decline in the fall and migrate from the outer shelf to inshore areas as temperature warms in the spring (Steimle et al., 1999b). Black sea bass occur commonly in Chesapeake Bay from spring through late fall, ranging as far north as the Chester River (Murdy et al., 2013).

Virginia Institute of Marine Science (VIMS) trawl surveys of the lower Chesapeake Bay and tributaries show juvenile black sea bass commonly occurring in higher salinity waters above 19 ppt, and most abundant in April through July. Juveniles were uncommon in beach seine surveys. VIMS trawl and beach seine surveys of Lower Chesapeake Bay and tributaries show that adults were more common during late summer and early fall on the eastern side of the Bay (Drohan et al., 2007).

No black sea bass were caught in sampling of James Island conducted for this study in 2002/2003 (MPA, 2005). Regionally, VIMS Fishery Analyst ChesMMAP total catch count data shows black sea bass strongly concentrated in VA waters of Chesapeake Bay versus MD waters. No ChesMMAP

stations within 10 miles of James Island show any sea bass catches since 2022. No black sea bass were caught at James Island in sampling conducted in 2020 and 2021 (Anchor QEA, 2021).

Black sea bass utilize open water and structured benthic habitats for feeding and shelter (Steimle et al., 1999b). Juvenile black sea bass are generally associated with structurally complex habitats and steep depth bottom slopes (Drohan et al., 2007). Estuarine habitat used as nurseries by juveniles is shallow, hard bottom with structure. Structures utilized include shells, sponge beds, sea grass beds, cobbles, and manmade objects. Juveniles are not as common on open unvegetated bottoms. Older juveniles may occur at the mouths of salt marsh creeks and along salt marsh edges. Adult black sea bass are also strongly associated with structurally complex habitats and tend to orient to structures during their summer residency in coastal waters. Unlike juveniles, adults tend to enter only larger estuaries, and are most abundant along the coast. Oysters were once important juvenile black sea bass habitat in estuaries. Larger fish occur in deeper water than smaller fish. Adults remain near structures during the day but can move away to feed on open bottom at dawn and dusk (Steimle et al., 1999b; Drohan et al., 2007).

Juveniles in estuaries prey upon small epibenthic invertebrates, especially crustaceans and mollusks. Crustaceans eaten include shrimp, isopods, and amphipods. Adults in estuaries prey upon benthic and near-bottom invertebrates and small fish. Fish eaten include sand lance, scup, sheepshead minnow, and butterfish. Invertebrates eaten by adults include crustaceans (particularly crabs), squid, mussels, razor clams, sand dollars, and polychaetes (Drohan et al., 1997; Murdy et al., 2013; Steimle et al., 1999b).

b. Proposed Action Effects

1. Impacts to Individuals

During construction activities during cooler weather months, black sea bass are unlikely to be present. Because James Island waters are generally fresher than black sea bass salinity preferences, black sea bass would only likely be present in drought years during times of higher salinities and in warmer months. Water depths in the James Island vicinity are marginal with respect to adult black sea bass preferred depths, although they are within juvenile habitat preferences. Accordingly, juveniles would more likely be present than adults, but black sea bass aren't likely to occur in substantial numbers in the project area. Juvenile and adult black sea bass are good swimmers and should easily be able to avoid disturbance and turbidity from construction. In summary, minimal to no direct physical impacts to individuals are expected.

2. Habitat Impacts

Based on black sea bass juvenile and adult salinity preferences as well as the lack of structure (Table 6), James Island area waters likely constitute marginal EFH or non-EFH for these black sea bass life history stages. VIMS Fishery Analyst data supports this determination for James Island vicinity waters indirectly based on the substantial total catch count data for VA waters versus comparatively minimal count for MD waters.

During time periods when salinities are sufficiently high in the James Island vicinity, such as during drought years, the proposed action could enhance habitat for black sea bass. Juveniles could utilize the exotic rock structure along the outer perimeter of James Island and the breakwaters, as well as the constructed salt marsh and channels. Also, during periods with high salinity, adult sea bass could make some use of the rock structures, although water depths are less than their preferred depths. Over the long-term, maintenance of water depths suitable for SAV on the east side of James Island would benefit juvenile black sea bass when they are infrequently present. In summary, the proposed action during infrequent high salinity periods could enhance marginal or non EFH for juvenile and adult black sea bass in James Island waters.

3. Impacts to Prey and Predators

Black sea bass juveniles and adults forage on organisms originating over large areas, although they would likely forage only minimally in James Island waters. Accordingly, loss of open water habitat in James Island waters by conversion to exotic rock structures, tidal wetlands, channels, and uplands would likely have negligible to positive effects on black sea bass forage species in the Bay. Black sea bass predators likely thrive minimally on black seabass within the James Island area waters because of the infrequency of individuals in the area. Prey such as butterfish are also not expected to be a substantial component of the James Island area assemblage. In summary, the proposed action would have negligible impacts on black sea bass prey or predators.

4. Summary for Species

As project area waters appear to constitute only marginal black sea bass adult and juvenile EFH due to salinity, water depths and lack of structure, negative and positive effects of proposed James Island construction work are anticipated to be minimal to negligible. Although the risk exists for individuals to be destroyed by construction and dredging activities, due to their great mobility, black sea bass should easily be able to relocate elsewhere and avoid the dredge. Accordingly, the proposed James Island work would not contribute cumulatively (negatively or positively) to other actions and stressors affecting black sea bass.

3. BLUEFISH (juvenile, adult)

a. Background Information

Bluefish undertake seasonal migrations, moving into the mid-Atlantic Bight during spring, and south or farther offshore during fall (Fahay et al., 1999). Juvenile and adult bluefish enter the Chesapeake Bay during spring through summer, leaving the Bay in late fall. Adults are uncommon north of Annapolis, and generally do not occur above the U.S. 50 bridge, except during years of greater up-Bay salt wedge encroachment. Juveniles tolerate lower salinities than adults and are therefore common in the upper Bay above the U.S. 50 Bridge (Lippson, 1973).

Bluefish juveniles and adults were among the most frequently caught fish in James Island waters in sampling conducted for the study in 2002 – 2003 (MPA, 2005). From a regional perspective though, VIMS Fishery Analyst ChesMMAP data over the 2002 to 2021 period of record shows bluefish strongly concentrated in VA waters of Chesapeake Bay versus MD waters, with some MD stations having total catch counts of 5 – 15 and 15 – 100 up the bay to the vicinity of Rock Hall

(north of the Route 50 bridge). Conversely, ChesMMAP data shows maximum total catch counts of only 5 or less at several stations within approximately 10 miles of James Island. Additionally, sampling conducted for this study collected only three bluefish individuals at James Island in 2020-2021 (Anchor QEA, 2021). Thus, the bluefish seem to inhabitat the mid-Chesapeake Bay waters around James Island less frequently than previously found during the initial Feasibility phase.

Bluefish travel in schools of like-sized individuals (Fahay et al., 1999). Adults are pelagic and not typically bottom feeders and are strong swimmers. Juveniles prefer shallower waters and tend to concentrate in shoal waters, and are opportunistic feeders, foraging on a wide variety of estuarine life in the pelagic zone and over a variety of bottom types (including SAV) (Lippson, 1973). Smaller individual bluefish prey upon a wide variety of fish and invertebrates. Large bluefish feed exclusively on fish (Murdy et al., 2013). Fish preyed upon by bluefish include Atlantic silversides (Menidia menidia), herrings, striped bass (Morone saxatilis), bay anchovy, and other fish (Fahay et al., 1999).

b. Proposed Action Effects

1. Impacts to Individuals

Any adults or juveniles that may be in the area during construction would be displaced. However, because of the comparatively small size of the project area in comparison with open waters of the Bay suitable for bluefish, no detrimental impacts to bluefish are expected. As pelagic species, direct impacts to bluefish are unlikely, even if construction occurs during warmer months, because juvenile and adult bluefish are good swimmers and can easily avoid construction activities. Bluefish are unlikely to be present around the project from late October through early May based on their temperature preferences (Table 6).

2. Habitat Impacts

Bluefish juvenile and adult EFH salinity preferences are higher than occurs in the James Island area waters (Table 6). However, sampling data demonstrates bluefish can occur in substantial numbers within the project area at least in some years. Thus, James Island appears to constitute EFH for bluefish juveniles and adults in at least occasional years. However, because of the great abundance of this habitat type in the Bay, no detrimental impacts to bluefish populations are expected. Restoration at James Island would convert open water to tidal wetlands, upland habitat, and rock structure that would produce a net loss of occasionally used EFH loss for juvenile and adult bluefish. However, the marshes, tidal creeks, and shorelines created as part of island restoration at Barren would be expected to support juvenile bluefish based on habitat preferences (Table 3), constituting occasional EFH, and compensating at least partially for loss of open water EFH.

3. Impacts to Prey and Predators

The permanent reduction of open water and benthic communities as a result of island restoration at James Island would reduce biomass available for consumption by finfish, including bluefish, but open unvegetated bottom is used minimally for foraging. The tidal marshes and creeks

created as part of the project would support a wide variety of forage species consumed by bluefish and generate detritus supporting the foodweb. This would be expected to partially compensate for conversion of open water and benthic habitats. It is expected that prey, similar to adult bluefish, would leave the area while construction activities occur. Subsequently, project effects on their prey would be minimal to negligible. These impacts will only be temporary and will cease upon construction completion. Accordingly, there would likely be negligible impacts to predators and prey of bluefish.

4. Summary for Species

Although the risk exists for individuals to be destroyed by construction activities, due to their great mobility, bluefish should easily be able to relocate elsewhere and avoid the construction activities. While the proposed action would constitute minor impacts to bluefish EFH, the comparatively small size of the project area in comparison with open waters of the Bay suitable for bluefish, the natural trend of open water habitat increase, and long-term protection of SAV habitat, no detrimental impacts to bluefish from the proposed action are expected. Construction activities during late fall and winter would be expected to have no direct impacts on bluefish as they would be unlikely to be present in the project area.

4. SCUP (juvenile and adult)

a. Background Information

Scup are a temperate species. During warmer months, juveniles live inshore in a variety of coastal habitats and can numerically dominate estuarine fish populations. Their distribution changes seasonally as fish migrate from estuaries to the edge of the continental shelf as water temperatures decline in the winter. They return from the edge of the continental shelf to inshore areas as water temperatures rise in the spring (Steimle et al., 1999a). Scup occur commonly to abundantly in the lower Chesapeake Bay from spring to fall, ranging as far north as the York River, VA. Scup migrate offshore to deeper waters in winter. Young-of-the-year scup inhabit polyhaline (brackish) Chesapeake Bay waters from June to October (Murdy et al., 2013).

Finfish sampling conducted for this study in 2002-2003 found scup (MPA, 2005). VIMS ChesMMAP maps and data for the period of record (2002 – 2021) show few total catch counts in the James Island vicinity, or within Maryland waters generally. Conversely, ChesMMAP data show that scup was caught at numerous stations with total catch-counts of 10 – 250 in Virginia waters (VIMS, 2021). Sampling for this study conducted in 2020 and 2021 collected no scup at James Island (Anchor QEA, 2021). Scup thus appear likely to be only occasional transients in James Island waters.

Scup are a demersal species that use several benthic habitats from open water to structured areas for feeding and possibly shelter (Table 6; Steimle et al., 1999a). Juveniles feed on small benthic invertebrates, fish eggs, and larvae. Adults prey on benthic and near bottom invertebrates, and small fish (Steimle et al., 1999a).

b. Proposed Action Effects

1. Impacts to Individuals

Sampling results indicate that scup juveniles and adults do not appear to occur in substantial numbers in James Island area waters. Scup juvenile and adult salinity preferences indicate that scup would only be in James Island waters during limited periods of a typical year. Scup are good swimmers and could easily avoid construction activities and turbidity disturbances if they are present. In combination, these considerations imply that minimal or negligible physical impacts to scup juvenile or adult individuals would be expected.

2. Habitat Impacts

James Island area waters appear to constitute only brief duration EFH in a typical year for scup juveniles and adults based on the species salinity preferences (Table 6). Additionally, water depths are generally too shallow to meet scup adult depth preferences. Sampling data does not support James Island area having a substantial number of scup. Accordingly, any effects upon scup EFH would likely be minimal to negligible.

The proposed action would cause a net loss of open water habitat, converting that instead to tidal wetlands, rock structures, and bird island habitat. Conversely, the proposed action would increase structures habitats that could favor adult scup and would maintain SAV habitat over the long-term. While the loss of open water foraging habitat would be unfavorable, the other habitat restoration/maintenance outputs of the proposed James Island project could be utilizable by juvenile and adult scup, if they are present.

3. Impacts to Prey and Predators

The proposed James Island project would cause a net loss of open waters that support organisms that could be prey for scup. Conversion of those waters to tidal wetlands, channels, and exotic rock structures would partially offset that habitat loss by providing habitat that would support scup forage. However, the portion of prey that scup feed on that originate from James Island waters is likely to be minor to negligible based on limited occurrence of scup at James Island. This reduction in prey produced by conversion of James Island waters to these habitats would have a minor to negligible impact on scup. Additionally, impacts to predators of scup would likely also be negligible as James Island waters present minimal opportunities for scup predators to forage on scup.

4. Summary for Species

Because project area waters appear to constitute only marginal scup juvenile or adult EFH, negative and positive effects of proposed James Island construction work are anticipated to be minimal to negligible. Accordingly, the proposed James Island work would not contribute cumulatively (negatively or positively) to other actions and stressors affecting scup EFH.

5. SUMMER FLOUNDER (larvae, juvenile, and adult life stages)

a. Background Information

Summer flounder exhibit strong seasonal inshore-offshore movements. Adult and juvenile summer flounder normally inhabit shallow coastal and estuarine waters during the warmer months of the year, and remain offshore during the fall and winter (Packer et al., 1999). Adult and older juvenile summer flounder enter the Chesapeake Bay during spring and early summer and exit the Bay in fall (Murdy et al. 1997). Adult summer flounder overwinter in the ocean and only enter the Bay in late spring. Larvae and young juveniles migrate into the Bay in October and prefer shallower waters; they typically overwinter and grow in the South portion of the Bay. Older juveniles are generally distributed inshore and in estuarine areas throughout their range during the spring, summer, and fall. During colder months they move into deeper (oceanic) waters and can be found offshore with adults (Murdy et al. 1997, Fahay et al. 1999).

No identified summer flounder larvae were caught in ichthyoplankton sampling conducted for the study in 2002/2003 (MPA, 2005). Finfish sampling in 2002/2003 caught several summer flounder individuals. The fish surveys identified summer flounder as a minor component of the fish community in the vicinity of James Island (MPA, 2005). However, VIMS ChesMMAP sampling data over the period of record (2002 – 2021) show summer flounder strongly present in both MD and VA waters of the Chesapeake Bay. According to ChesMMAP, since 2022, summer flounder have been found multiple times within 3 miles of James Island. A few summer flounder were caught in sampling conducted for this study in 2020 and 2021 (Appendix C, Anchor QEA, 2021).

Summer flounder smaller juveniles feed upon infauna such as polychaetes; larger juveniles feed upon fish, shrimp, and crabs in relation to their environmental abundance. Adults feed opportunistically on fish, crustaceans, and squid (Murdy et al., 2013; NMFS, 2000 [Summary Tables]; Packer et al., 1999). Summer flounder feed on a variety of small fish, shrimp, and crabs that occur in the Chesapeake Bay. Prey include species such as grass shrimp (*Palaemonetes pugio),* Atlantic silversides (*Menidia menidia*), and bay anchovy (*Anchoa mitchilli*). Grass shrimp prefers sand bottom and/or SAV, similar to summer flounder preferences, while forage finfish are generally widespread in occurrence in shallow waters. Each of these food items occurs in the vicinity of the study area (MPA, 2005).

b. Proposed Action Effects

1. Impacts to Individuals

Direct impacts to summer flounder juvenile and adult individuals are unlikely, even if construction occurs during warmer months, because flounder are strong swimmers and would be able to avoid construction disturbances. During cooler weather months no direct physical impacts to individuals are expected because they are unlikely to be present. Monitoring data for the James Island area indicates that water temperatures are below the optimum temperature for summer flounder (52°F (11.1°C), Table 6) from November through April. Larvae are not expected to be in the project area due the James Island area not containing larvae habitat.

2. Habitat Impacts

James Island waters constitute EFH for summer flounder, as evidenced by sampling data and EFH habitat preferences (Table 6). The proposed action would produce a net loss of summer flounder EFH, but similar habitat is plentiful within the vicinity. SAV constitutes HAPC for summer flounder. Project construction is not expected to directly impact SAV at James Island, since SAV is absent from the proposed project area. Therefore, there should be no direct impact to summer flounder Habitat Areas of Particular Concern (HAPC).

Parts of the northwestern access channel at James Island that are dredged to –26 feet NAVD88 have the potential to become hypoxic or anoxic in warmer months of years when impaired water quality problems are pervasive below the pycnocline in the Bay. Under these conditions, the bottom in the access channel would be unsuitable as habitat for summer flounder and they would be expected to avoid this area. This potential loss of habitat would not be expected to impact summer flounder populations because of the abundance of suitable habitat still remaining elsewhere in the Bay. Summer flounder utilize salt marsh creeks (Table 6), which will be created as part of the proposed James Island activities. This habitat enhancement is expected to compensate somewhat for proposed conversion of open water and benthic habitats to island habitat.

3. Impacts to Prey and Predators

Open water and shoreline habitat at James Island that support summer flounder prey would be converted to upland habitat, tidal wetlands, and rock structures for the proposed project. Prey individuals would be destroyed or displaced as a result of project expansion and borrow actions in both locations. The reduction of benthic macroinvertebrate communities as a result of island expansion would reduce biomass available for consumption by summer flounder that may use these areas as feeding grounds. However, forage fish and invertebrates consumed by summer flounder occur over a broad area of the Bay. And although the project would cause loss of open water and benthic habitat for summer flounder prey species, population levels of prey species are expected to remain regionally healthy because of ready availability of these lost habitats elsewhere in region. Restoration of salt marsh at James Island would support a wide variety of summer flounder forage species and partially compensate for the loss of open water habitat and disturbance to bottom habitats.

The James Island access channel will likely recover a benthic community within several years following cessation of dredging. However, given the change in depth, and possibly alternations to substrate and dissolved oxygen levels, the community within the access channel could shift to species tolerant of such conditions. Channel depths below the pycnocline following dredging have the potential to lose their benthic macroinvertebrate communities in the future if hypoxic or anoxic conditions occur for prolonged periods of time.

4. Summary for Species

Direct impacts to summer flounder juvenile and adult individuals are unlikely, even if construction occurs during warmer months when individuals are more likely to be in the James Island vicinity due to the species' mobility. The proposed action would produce a net loss of summer flounder EFH, but similar habitat is plentiful within the vicinity of the Bay. Project construction is not expected to have a direct negative impact on SAV (HAPC). Restoration of James Island could restore conditions that promote the reestablishment and expansion of SAV in shallow waters to the east near the island remnants. Restoration of salt marsh at James Island would support a wide variety of summer flounder forage species and partially compensate for the loss of open water habitat and disturbance to bottom habitats.

6. WINDOWPANE FLOUNDER (juveniles, adults)

a. Background Information

Windowpane inhabit estuaries, nearshore waters, and the Continental Shelf (Chang et al., 1999). Windowpane reside year-round in Chesapeake Bay. Windowpane occur commonly to abundantly in the lower Bay, occasionally to commonly in the middle Bay, and range as far north as the Choptank River (Murdy et al., 2013).

Sampling conducted for the study in 2002/2003 caught no juvenile or adult windowpane flounder (MPA, 2005). VIMS ChesMMAP data show minimal total catch-counts of windowpane flounder in the James Island vicinity or within Maryland waters generally over the period of record (2002 – 2021). Conversely juveniles and or adults of this species were caught in comparatively large numbers at numerous stations in Virginia waters near the Bay mouth over the same time period. Sampling conducted for this study in 2020 and 2021 caught no windowpane flounder juveniles or adults (Anchor QEA, 2021).

Windowpane feed on small fish, shrimp, and other crustaceans (Murdy et al., 2013). Major predators of windowpane include spiny dogfish, thorny skate, goosefish, Atlantic cod, black sea bass, weakfish and summer flounder. These fish prey primarily upon juvenile windowpane (Chang et al., 1999).

b. Proposed Action Effects

1. Impacts to Individuals

While the James Island area is within EFH salinity preferences of windowpane juveniles and adults (Table 6), multiple sampling data sets fail to support that windowpane flounder juveniles or adults are present. Juvenile and adult windowpane flounder are good swimmers, and any present should be able to avoid disturbance and turbidity from construction activities in warm weather months. During cooler weather months direct physical impacts to individuals are more likely because the fish may be more sluggish.

2. Habitat Impacts

Sampling in the James Island vicinity does not clearly support that windowpane flounder occur in sufficient numbers to warrant considering James Island consistent EFH for this species. Because James Island waters likely constitute only occasional or periodic EFH, minor to negligible impacts to windowpane flounder EFH would be expected from conversion of open water habitat to rock structure, tidal wetlands, and tidal channels.

3. Impacts to Prey and Predators

Based on minimal windowpane juvenile and adult presence in James Island waters, project effects on their prey would be minimal to negligible. Also, because juveniles and adult windowpane are minimally present in James Island waters, they are presumably minimally preyed upon by other species there such as summer flounder and black sea bass. Accordingly, there would likely be negligible impacts to predators of windowpane flounder.

4. Summary for Species

Although the project would convert open water that is potential windowpane flounder EFH to other habitat types (rock structures, tidal wetlands, tidal channels), the project is expected to have minimal to negligible impact upon windowpane flounder EFH because project area waters appear to constitute only marginal windowpane juvenile or adult EFH. Accordingly, the proposed James Island work would not contribute cumulatively (negatively or positively) to other actions and stressors affecting windowpane flounder EFH.

7. CLEARNOSE SKATE (juveniles and adults)

a. Background Information

Clearnose skate has been the most abundant inshore skate in the mid-Atlantic inshore waters from late spring to early fall (Robins et al., 1986). North of Cape Hatteras, it moves inshore and northward along the Continental Shelf during the spring and early summer, and offshore and southward during autumn and early winter. In estuaries, clearnose skate occur mostly in mainstem channels and near the mouth. In trawl surveys of Chesapeake Bay, most juvenile and adult clearnose skate appear in catches between April and December with peak catch per unit effort between May and August. Clearnose skate were most abundant near the Bay mouth during spring and summer but appeared throughout the Bay mainstem during all four seasons, although they rarely appeared in the tributaries (Packer et al., 2003). Clearnose skates are common in the lower Chesapeake Bay from mid-spring to mid-autumn but may move into deeper bay waters or into nearshore coastal waters in mid-summer when water temperatures are high. They are rare or absent in Chesapeake Bay in winter (Murdy et al., 2013).

No skate were captured in sampling conducted for this study in 2002/2003 (MPA, 2005). VIMS ChesMMAP data show no catches over the period of record within the vicinity of James Island, and only one station in MD waters with a total catch count of at least one. Conversely, ChesMMAP data shows abundant catches of clearnose skate in VA waters, concentrated near the mouth of Chesapeake Bay where total catch counts over the period of record reach a maximum of 15 – 150

individuals. No skate were captured in sampling conducted for this study in 2020 and 2021 (Anchor QEA, 2021).

Clearnose skate is a bottom-dweller. Clearnose skate feed on polychaetes, amphipods, shrimp, crabs, bivalves, squids, and small fish such as soles, weakfish, butterfish, and scup. Sharks, such as the sand tiger, regularly prey on the clearnose skate (Packer et al., 2003).

b. Proposed Action Effects

1. Impacts to Individuals

Based on salinity preferences, clearnose skate would most likely be present in summer and fall. However, it appears unlikely that clearnose skate would be present in substantial numbers in the James Island vicinity based on existing survey data and their general preference for higher salinities and greater depths (Table 6). If skates are present, juvenile and adults are good swimmers and should easily be able to avoid disturbance from dredging and construction in warm weather months. However, individuals may be less able to physically avoid disturbance in cold water months if they are present. Overall, direct impacts to clearnose skate individuals appear to be unlikely to occur.

2. Habitat Impacts

While the James Island area lies within clearnose skate EFH salinity preferences, the waters are generally shallower than clearnose skate preferences. Sampling data from multiple sources do not clearly support that James Island waters constitute EFH for clearnose skate. Accordingly, it appears likely that James Island waters constitute marginal clearnose skate EFH, or perhaps do not constitute clearnose skate EFH. As such, any impacts to clearnose skate open water EFH would be negligible to minor.

3. Impacts to Prey and Predators

The proposed James Island project would cause a net loss of open waters that support organisms that could be prey for clearnose skate. Conversion of those waters to tidal wetlands, channels, and exotic rock structures would partially offset that habitat loss by providing habitat that would support some skate forage organisms. However, the portion of prey that skate feed on that originate from James Island waters is likely to be minor to negligible based on likely limited occurrence of skate at James Island. This reduction in prey produced by conversion of James Island waters to these habitats would have a minor to negligible impact on skate. Additionally, impacts to predators of skate would likely also be negligible as James Island waters present minimal opportunities for skate predators to forage on skate.

4. Summary for Species

Proposed James Island project area waters appear to constitute only marginal clearnose skate juvenile or adult EFH. Accordingly, the proposed James Island project would be expected to have minimal to negligible impact upon clearnose skate EFH even though the project will convert open water that is potential clearnose skate EFH to other habitat types that would not support clearnose skate (rock structures, tidal wetlands, tidal channels). Due to the project area waters appearing to constitute only marginal clearnose skate, the proposed James Island work would

not contribute cumulatively (negatively or positively) to other actions and stressors affecting clearnose skate EFH.

C. Cumulative Impacts

Collectively, all species that have EFH listed for the James Island area would be displaced during dredging and construction activities and potentially experience decreased water quality and clarity if they are present. The James Island area is expected to provide marginal to little EFH value to Atlantic butterfish, black sea bass, scup, windowpane flounder, and clearnose skate. As nearshore waters are not a preferred habitat for butterfish, no significant impact to butterfish eggs, larvae, or adults are projected. However, the conversion of shallow water habitats would constitute a net loss of EFH habitat for summer flounder and occasionally-used EFH for juvenile and adult bluefish.

Impaired water quality, water clarity, and noise could affect predator/prey interactions for black sea bass, scup, juvenile summer flounder, and bluefish until dredging commences. All species are mobile, reducing the risk of entrainment and destruction by dredging and construction. All species except windowpane flounder and clearnose skate are expected to migrate from the project area in the late fall/winter, returning with warming waters in the spring. Black sea bass, scup, summer flounder, clearnose skate, and younger juvenile bluefish feed to some extent on benthic invertebrates. These species would permanently lose foraging habitat within the project footprint. The habitat value of the James Island area to these species would be diminished until construction disturbances end.

Cumulative long-term effects from the James Island restoration project are most notably the conversion of open water habitat to shoreline and upland habitat. Additionally, the project at James Island would both alter and protect the shoreline. The construction of dikes would reduce the amount of natural shoreline, but in turn would diversify the habitat in the area. The shift in the predominant aquatic habitat is expected to manifest fundamental changes within the fish community utilizing the area during the transition period following dike completion at James Island, particularly within and directly adjacent to the proposed dike alignment.

Some of the project's impacts to EFH would be offset by providing inlets and tidal connection through tidal channels to the existing shorelines on the northeast and northwest, and rock structure which could benefit black sea bass. As existing project area waters appear to constitute only marginal black sea bass adult EFH, negative effects of proposed James Island construction in conjunction with the other restoration activities throughout Mid-Bay could net value to black sea bass EFH.

Sandy substrates are predominant along the shoreline in much of this reach of the Bay. Thus, this loss of preferred habitat is not expected to impact summer flounder populations. Site filling (i.e. dredged material placement operations) would result in no additional alterations to or displacement of summer flounder habitat (post-construction). In fact, summer flounder utilize salt marsh creeks, which would be created as part of the proposed James Island activities. This

habitat enhancement is expected to compensate somewhat for proposed conversion of open water and benthic habitats to island habitat.

The proposed restoration at James Island is expected to contribute significantly to further protection of SAV habitat documented over the last several years in the waters to the east of James Island (by preventing wave erosion of the bottom and consequent deepening). As a result, indirect impacts of the project should benefit SAV, and thus provide for the sustainability of summer flounder HAPC and habitat for juvenile summer flounder and bluefish.

The Bay is increasing in area by up to several hundred acres per year driven by rising sea level (USACE, 2011), with the rate of rise accelerating. Concomitantly, the Bay is undergoing a net loss of tidal wetlands via erosion and drowning-in-place. The new open water habitat being created regionally would be expected to support bluefish, with such habitats in southerly areas of the Bay where higher salinities occur likely constituting regular-year, rather than occasional- year (such as at James), EFH. Accordingly, the future for tidal wetlands is looking increasingly bleak on a regional scale, and society is increasingly relying on engineering measures to maintain this diminishing resource. Acreage that can be maintained via engineering would be on a much smaller scale than historic acreage. The proposed James Island project, in combination with other large USACE beneficial use and restoration projects that restore tidal wetlands, are seen as being of increasing importance as a means to maintain diminishing tidal wetland resources along the Eastern Shore of Maryland. The new open water habitat being created regionally would be expected to provide EFH.

The State of Maryland and Baltimore District are presently completing the expansion of the Poplar Island Environmental Restoration Project (PIERP). PIERP is currently restoring 1,140 ac of open water to island habitat, half uplands and half tidal wetlands. Poplar Island Expansion has a target to restore approximately 575 ac of additional remote island habitat. This represents an additional conversion of EFH to uplands/wetlands within about 30 miles of James Island in areas that are known to support EFH habitat. Once Poplar Island has reached full capacity, placement needs will be met by the James Island component of the Mid-Chesapeake Bay Islands Project. James Island will be developed to restore 2,072 acres of uplands and wetlands within the island's prior location north of Taylors Island in Dorchester County. The other component of the Mid-Bay Island Project is restoration and protection at Barren Island. The Barren Island project will restore 83 ac of wetlands, 8.5 acres of remote island nesting habitat, and impact an additional 121 acres of shallow water habitat. Cumulatively, the proposed island restoration projects would restore 3,909 ac of remote island habitat while resulting in the loss of approximately 4,700 acres of bottom and open water habitat for EFH, immobile benthic invertebrates, and other species inhabiting shallow water habitats. Much of the bottom that will be converted to island had been island habitat lost to erosion. Regionally, shallow-water habitat is abundant and expanding with sea level rise and erosion.

Cumulatively, the multiple, on-going and proposed beneficial use USACE projects would constitute a loss of EFH, and thus an adverse effect, with associated benefits to EFH that prefer tidal inlets, marshes, structured habitat, and SAV. Regulations serve to prevent other large-scale conversions of open water to non-habitat, such as commercial or industrial islands that would not provide ecological benefits compensating for open water habitat loss. However, considering ongoing habitat changes concomitant with rising sea-level as described above, these losses would largely be offset by natural processes and no detrimental effect overall to species with EFH in the region.

Other regional activities impacting the bay bottom and EFH include shellfish harvests and recreational and commercial fishing. Privately-owned commercial fishing gear, such as hydraulic escalator dredges used to harvest soft clams (*Mya arenaria*), can also impact bottom habitat used by EFH species. Escalator dredges produce short-term modifications to bottom topography, which are generally not detrimental to EFH if occurring on non-vegetated bottoms. The operation of escalator dredges in SAV beds has been restricted within Maryland waters so minimal impact to SAV is occurring from these clamming activities.

The largest direct impact to some EFH species such as bluefish and summer flounder populations regionally is likely recreational and commercial fishing pressure, as well as water quality impairments. Proper management of fishing is of continuous importance to ensure stable fish populations. Bever and others (2013) determined that from 1985 to 2011, a median of 20 percent of the Bay volume was seasonally hypoxic in its bottom waters. Improvement of Bay water quality, particularly dissolved oxygen, would increase the volume of oxygenated open water habitat in the Bay suitable for fish, especially demersal species such as flounder, scup, and black sea bass in warm water months. To achieve this would depend primarily upon anthropogenic nutrient load reduction, as is required under the Chesapeake Bay Total Maximum Daily Load (TMDL).

IV. Federal Agency's Opinion of Project Impacts to EFH

1. James Island area waters clearly constitute EFH for adult and juvenile summer flounder based upon EFH habitat preferences and documented occurrences (during spring and summer). James Island waters appear to constitute EFH for adult and juvenile bluefish in occasional years, based upon EFH habitat preferences and documented occurrences. Accordingly, potential effects to summer flounder EFH are of principal importance for this assessment to ensure compliance with the Magnuson-Stevens Fishery Conservation and Management Act. Potential effects upon bluefish EFH are also of importance, but less so than for summer flounder.

2. James Island area waters do not appear to constitute EFH (or are perhaps only infrequent or transient EFH) for Atlantic butterfish, black sea bass, scup, windowpane flounder, and clearnose skate. Conversely to summer flounder and bluefish, potential project effects upon species for which the James Island area does not likely constitute EFH (Atlantic butterfish,

black sea bass, scup, windowpane flounder, and clearnose skate) are of minimal or negligible concern with respect to the Magnuson-Stevens Act.

3. The proposed project would impact up to 2,477 of EFH at James Island (entire project area is EFH) and convert approximately 2,235 acres of shallow, open water habitat to rock structures, tidal wetlands and uplands island habitat, resulting in a net loss of potential EFH for summer flounder and bluefish.

4. The marshes and tidal creeks created as part of island restoration at James would support juveniles of summer flounder and bluefish, as well as a wide variety of their forage species. The creation of this habitat is expected to compensate somewhat for loss of open water and benthic habitats.

5. The proposed project footprint at James Island does not contain any documented SAV resources, which would constitute designated HAPC for summer flounder.

6. Discharges from the new placement cells would be subject to compliance with state water quality standards, resulting in only short term, minor perturbation to water quality.

7. Although other federal, state and private sponsored projects occur in the project vicinity that cause the disturbance of bottom habitat, these projects are not expected to significantly affect EFH. Proposed large-scale island restoration and dredging projects (Poplar Island, Poplar Island Expansion, and Barren Island) would cause a loss of bottom and open water habitat for these species, however, regionally this habitat is abundant. Therefore, no significant cumulative impacts to habitat or populations of these species are expected to result from this project.

8. After reviewing relevant information and analyzing potential project impacts, USACE Baltimore District has determined that the proposed action would not have a substantial adverse effect on EFH, HAPC, or on species with designated EFH in the project area. Overall, direct, secondary, and cumulative impacts to EFH, associated species, and HAPC would be minimal, and, in the long term, the current project and proposed expansion would enhance some habitat features for species managed under the Magnuson-Stevens Act.

V. Proposed Mitigation

The recommended plan would result in minor adverse impacts to summer flounder and bluefish EFH, but is designed to protect and enhance EFH and HAPC over the long-term. Therefore, no mitigation specific to protection of populations of these species or their habitat has been proposed. It should also be noted that the proposed project incorporates numerous mitigation measures designed to maximize the environmental benefits of the project, while minimizing adverse impacts. Conducting project activities in the winter to the extent possible would avoid the likelihood of interactions with black sea bass, butterfish, bluefish, scup, summer flounder,

and clearnose skate within the project area. Dredging activities would be constrained by spatial and temporal restrictions to protect mapped oyster and SAV beds in the project area (to be described in subsequent NEPA documentation). Additional monitoring would be undertaken at James Island to avoid impacting viable SAV beds. USACE will be performing pre and post placement monitoring that measure outcomes at the restoration placement site.

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C3: Fish and Wildlife Coordination and Endangered Species Acts

Final
Planning Aid Report:
Mid-Chesapeake Bay Island Ecosystem Restoration Project

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Baltimore District

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Chesapeake Bay Field Office
U.S. Fish and Wildlife Service
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Executive Summary

This constitutes the planning aid report (PAR) of the U.S. Fish and Wildlife Service (Service) to assist the U.S. Army Corps of Engineers (Corps) with the development of the Barren Island and James Island ecosystem restoration projects. The first project focuses on restoration/expansion of island habitat at Barren Island. The second project focuses on creation/expansion of James Island. Though these are two separate projects, they occur in close proximity and are on similar timelines. Many of the natural resources overlap between the potential areas of effect of these two projects. In an effort to be efficient, the Service and the Corps agreed to evaluate both projects through a single PAR. Where a resource only occurs in the vicinity of one project site it is noted in the report. Otherwise, the resources are assumed for both projects.

The Mid-Chesapeake Islands Restoration Project is authorized to restore remote island habitat at James Island and Barren Island, in Dorchester County on the Eastern Shore of Maryland, through the beneficial use of dredged material. Section 7002 of the Water Resources Reform and Development Act of 2014 authorized the Maryland Mid-Chesapeake Bay Island Project, as described in the Chief's Report (https://planning.erdc.dren.mil/toolbox/library/Chief Reports/mid_chesapeake.pdf, accessed by the Corps) dated August 24, 2009 and the *Mid-Chesapeake Bay Island Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement (EIS)*, dated June 2009. The project is being completed in partnership with the nonfederal sponsor, the Maryland Port Administration. The project is focused on restoring/expanding island habitat to provide over a thousand acres of wetland and terrestrial habitat for fish, shellfish, reptiles, amphibians, birds, and mammals through the beneficial use of dredged material.

Contents

Introduction

The U.S Army Corps of Engineers (Corps) requested assistance from the U.S. Fish and Wildlife Service (Service) in identifying positive and/or negative effects from two projects located on two islands in western Dorchester County, Maryland. The Service developed this Planning Aid Report (PAR) to help the Corps identify, with respect to fish and wildlife resources, the least harmful and most beneficial alternatives for these projects. The project focuses on restoring/expanding the area of James and Barren Island to provide wetland and terrestrial habitat for fish and wildlife through the beneficial use of dredged material. The recommended plan consists of constructing environmental restoration projects to restore 2,144 acres of remote island habitat (2,072 acres at James Island and 72 acres at Barren Island). Though these are two separate projects, they occur in close proximity and are on similar timelines. Many of the natural resources overlap between the potential areas of effect of these two projects. In an effort to be efficient, the Service and the Corps agreed to evaluate effects to fish and wildlife resources for both projects through a single PAR. Where a resource only occurs in the vicinity of one project site it is noted in the report. Otherwise, the resources are assumed for both projects. The PAR only evaluates impacts to fish and wildlife resources and their habitats and is not meant to be the sole document in which decisions are made on the preferred alternatives for this project.

Project History

The projects are located in the Chesapeake Bay, on the islands of James and Barren in western Dorchester County, Maryland. Barren Island lies due west of Upper Hooper's Island, and James Island lies near the mouth of the Little Choptank River, northwest of Taylors Island. Presently, James Island is privately owned. Barren Island is federally owned and managed by the Service as part of the Chesapeake Marshlands National Wildlife Refuge Complex. Tar Bay, a small section of Barren Island, is owned by Maryland's Department of Natural Resources (MDNR) and managed by the Wildlife and Heritage Service to conserve and enhance wildlife and their habitats and provide recreational use of the wildlife resources (MDNR Tar Bay WMA 2020).

In the fall of 1981, the Corps dredged the Federal channel leading from the Chesapeake Bay to the Honga River, accumulating over 135,000 cubic meters of fine-grained material to deposit nearby. For economic purposes, the site needed to be within 3.2 kilometers (km) of the dredging area. The decision was made to deposit the material in a shallow water area off of the northeast corner of Barren Island. This cove area had a moderate erosion rate ranging from 1.2 to 2.4 meters (m) per year; north of this area was an accretion area dominated by smooth cordgrass (*Spartina alterniflora)*, south of the cove and into the interior of the island was dominated by loblolly pine (*Pinus taeda*). Seeding of the site with *S. alterniflora* following dredge disposal was completed in spring 1982, and saltmarsh hay (*Spartina patens)* was transplanted at uppermost elevations. A ditch (3.0m wide, 365.7m long, and -0.3m MLW) was developed using high pressure water along the western end of the disposal site. This was done to encourage tidal

flushing to a pond area, to improve access for fish and to discourage access to the disposal site by predators, ideally to maintain it as a predator-free least tern (*Sterna antillarium*) nesting site. In order to encourage nesting, 1,000 m^2 of shell was deposited at this location (Earhart and Garbisch 1983). This site was subsequently used by least terns in the summer of 1982, and the Corps estimated a minimum of 462 least terns in the area, 30 black skimmers (*Rynchops nigra),* 5 common terns (*Sterna hirundo*), herring gulls (*Larus argentatus*, and killdeer (*Charadrius vociferous*). To further enhance the nesting area, an additional 460 m^2 of oyster shell was placed in the winter of 1982 and then raked to create documented nesting preferences of the aforementioned species. *Spartina patens* was transplanted to the uppermost elevations of the disposal site in summer of 1982 (Earhart and Garbisch 1983).
In 1984, the same channel was dredged again, and the Corps deposited about 38,000 cubic meters of material on the northeast edge of the original wildlife habitat island that was established in 1981. North of the habitat island, over 76,000 cubic yards of material was deposited, and this created a 4.7 hectare (ha) island to provide additional protection, and habitat was developed by controlled elevation of material, and post-disposal landscaping. Following the dredging, *Spartina alterniflora* was planted in some areas, and sand and shell deposited in others to provide nesting substrate for the terns and skimmers that had historically been present (Earhart and Garbisch 1986).

Detailed Plan Description

Alternatives proposed by the Corps are addressed within this report. The Corps is expected to continue informal agency coordination with the Service and other relevant resource agencies as designs are finalized. Plans for Barren Island incorporate the use of sills to protect the current shoreline of the island and the SAV/shallow water habitat situated east and southeast of the existing island, and to create wetland habitat using dredged material. The plan includes modification of existing 4 foot (ft) sills (4,900ft in length), construction of a northern sill (9,760ft in length), and construction of a breakwater at the southern end (6ft in height, 8,200ft in length). Approximately, 23 and 49 acres of island habitat (72 acres total, with 65 acres for placement) will be created by dredged material placement on the north and west shoreline of the island, respectively. The Barren Island portion would protect up to 1,325 acres of SAV habitat that has been recorded east and southeast of the existing island since 1994. The capacity of Barren Island is 0.38 million cubic yards, and placement duration is expected to be approximately 7 years and planned to be 100 percent wetland creation/restoration. Barren Island will accept material from nearby shallow-draft channels. Additionally, Barren Island's existing wetland, upland, and intertidal areas would also be protected by the project (USACE MidBay Site 2020).

The James Island recommended plan (Alternative 2) consists of constructing a 2,072-acre island with a habitat proportion of 45% upland to 55% wetland and a +20 ft mean lower low water final upland dike height, including the option to reconfigure the wetlands and upland ratios during design. The upland dike heights will be initially built above +20 ft to contain the dredged

material prior to final grading. The recommended plan will provide the capacity to place 90 to 95 million cubic yards of clean dredged material over a 32-year period if placed efficiently. Armored dikes (approximately 45,000 linear feet), breakwaters, and/or other structures will be constructed to approximate the island's historical footprint from 1877 (Cronin, 2005). The enclosed area will be filled with clean dredged material from Federal navigation channels in the Chesapeake Bay to restore upland and wetland habitat (USACE MidBay Site 2020). This will provide direct benefits of improved health, richness, and sustainability to aquatic and wildlife species. In addition, it will provide indirect benefits of navigational safety, education, and passive recreation. Habitat may include submerged aquatic habitat, mudflat, low marsh, high marsh, islands, ponds, channels and upland areas. The project develops a long-term strategy for providing placement alternatives that meet the dredging need of the Port of Baltimore while also maximizing the use of dredged material as a beneficial resource. Restoration of island habitat is necessary and valuable to the Chesapeake Bay ecosystem. In the last 150 years, it is estimated that 10,500 acres of this habitat has been lost in the middle-eastern portion of the Chesapeake Bay. Remote island habitat is valuable resource, it is ideal nesting and resting sites for migratory birds and shorebirds (USACE MidBay Site 2020, Pers Comm Angela Sowers 2024).

The authorized project includes dredging an access channel on the northwest end of the island. The positioning and size of this access channel has been reevaluated during the design phase to move the turning basin outside the island footprint. The sand for dike construction will be hydraulically dredged from within the island footprint and from the access channel. Alternative 2 will also include breakwaters to protect the equipment within the turning basin, a bulkhead between the turning base and the island, and a personnel pier for accessing the island along the eastern shoreline. Since completion of the Feasibility Study, there has been an increased understanding of climate change projections and impacts. This Alternative would evaluate and incorporate nature-based features (engineering with nature, EWN) that are determined to be scientifically practicable and feasible and acceptable with respect to future operations and maintenance to provide resilient habitats that maximize value to terrestrial and aquatic species. An areal impact is included for shoreline features that would be needed to implement EWN features; Alternative 2 may include up to 50 acres of nearshore features in water adjacent to James Island dike alignment within 150 feet of the perimeter dikes along the east and south shoreline in water less than 8ft MLLW. These features could include breakwaters, reefs or other structures to enable a softer more natural design for the island perimeter. At the time of this report the exact form or location of these features has not been designed.

Resources Without the Project

Baseline Environmental Conditions

Dorchester County's land mass, including wetlands is 350,000 acres. The landscape is characterized by long narrow peninsulas scored with numerous creeks, guts, streams and ditches.

Extensive areas of tidal marshland lie along these peninsulas, with country roads cutting across the marshes to reach settlements on the southern tips. Nearly 60 percent of the county lies in the 100-year floodplain, and over 50 percent of the county is below elevation of 4.9ft above sea level (Cole 2008). This elevation is at risk to damage during storm surges, even those not related to tropical disturbances. It is inevitable that Dorchester County will experience significant loss of wetlands, with an increase in open water. Aerial photography of the last 50 years shows shifts in types of wetland habitat and increases in open water. Areas that were once hummocks and high marsh have converted to low marsh or open water habitat (Cole 2008).

Maryland is highly vulnerable to sea level rise; this has become apparent with shoreline erosion and deterioration of tidal wetlands. The State has warmed up by two degrees Fahrenheit in the last century, heavy storms have increased in frequency, and the sea is rising an inch every 7 to 8 years (Boesch et al. 2018, EPA Fact Sheet 2016). It is predicted that the relative rise of mean sea level between 2000 and 2050 will be 0.8 to 1.6 feet. If emissions continue to grow into the second half of the 21st century, sea level rise will likely be 2.0 to 4.2 feet (Boesch et al. 2018). Sea level rise is a major factor for wetland loss; the Chesapeake Bay's rate of sea level rise is higher than the current global rate of 3.2mm/yr due to regional subsidence. To avoid submergence, the surface elevation of coastal marshes must increase vertically in the tidal frame at rates that are equal to or exceed the increase in sea level rise. Coastal marshes are extremely dynamic, and surface elevation change is controlled by several different factors including accretion, decomposition, vegetation type and productivity, as well as sea level trends. Marshes can build through organic and inorganic inputs including root production, litter fall, and sediment capture. Up to a certain point, sea level rise increases marsh elevation; there is an increase in mineral sediment input, reducing decomposition rates and stimulation of plant growth which enhances sediment trapping. However, if sea level rise is too fast, plants will die from inundation. Accretion of mineral and organic matter was deemed uniformly high across the estuary, leading the conclusion that elevation loss is not due to a lack of accretion input (Beckett et al. 2016). A study inspecting land loss within the Chesapeake Bay estimates that since 1848, James and Barren Island have been reduced in size by more 88 percent and 89 percent, respectively. Long term land loss has remained somewhat constant for James and Barren Island, mean rates of loss from 1848 to 1987 are 1.9ha/yr and 2.1ha/yr, respectively (Wrayf et al. 1995).

Effects on Fish and Wildlife Resources

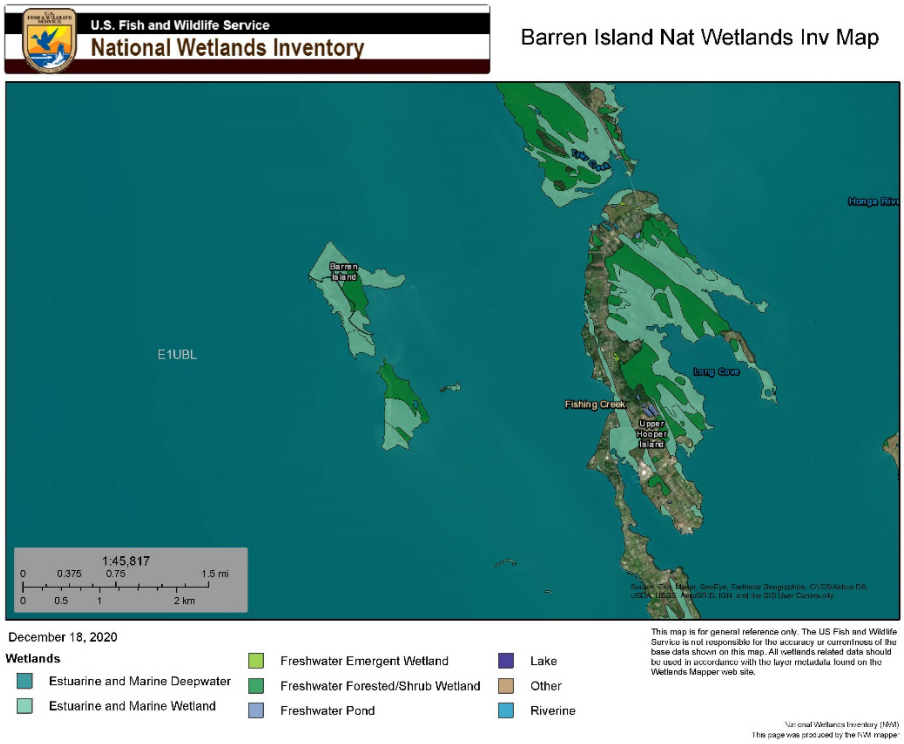
Data Quality

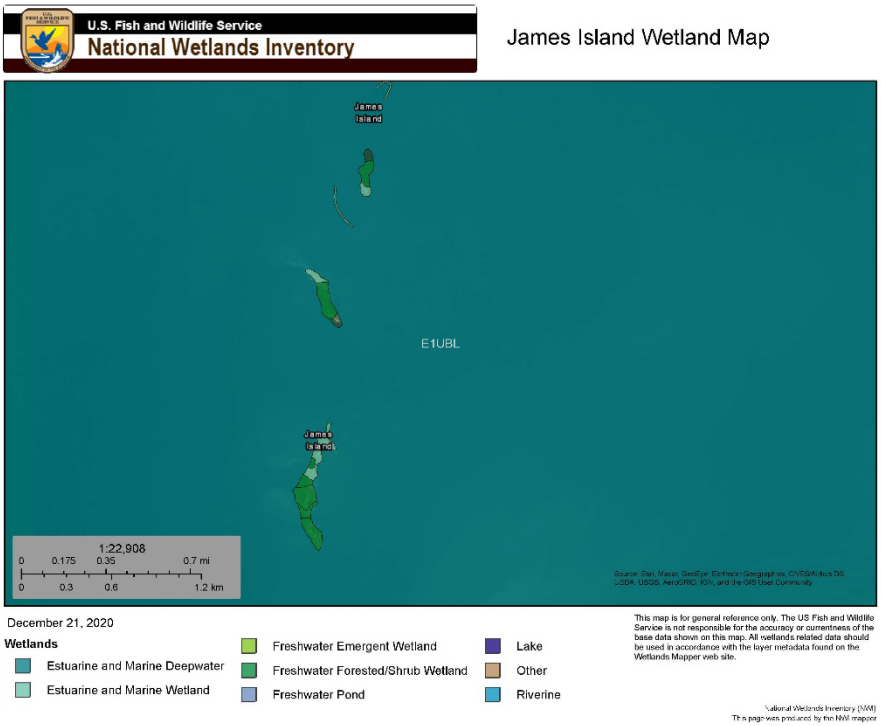
The following is a description of priority Service resources for the project area. The information represents the best available current information that could be gathered from existing sources. Whenever possible, project specific information was used. Many of the resources described may be relevant to the project area, or the overall species range as described in the supporting literature for each section.

Wetlands

The Service has always recognized the importance of wetlands to waterfowl, other migratory birds, and fish and wildlife, and considers this habitat a trust resource. Trust resources are natural resources that the Service has been entrusted with protecting for the benefit of the American people. The Service's responsibility for protecting wetland habitats comes largely from the Fish and Wildlife Coordination Act. Since the 1950s the Service has been particularly concerned about wetland losses and their impacts on fish and wildlife populations. According to the April 22, 2020 and February 2, 2024 Information, Planning and Consultation (IPaC) report (Appendix A), there are two wetland types in the study area: freshwater forested/shrub wetland, and estuarine/marine wetland. Freshwater/shrub wetland are generally described as forested swamp or wetland shrub bog. Estuarine/marine wetland are vegetated and non-vegetated brackish and saltwater marsh, shrubs, beach, bar, shoal or flat (US Fish and Wildlife Wetlands Inventory 2020). The project is expected to grow and enhance marshes in the area, benefiting migratory birds and at-risk species especially restoration of high marsh areas. High marsh habitat is critical to many of our at-risk species and is a priority for the Service.

Figure 1. Wetland Maps of Barren Island and James Island from USFWS Wetland Inventory



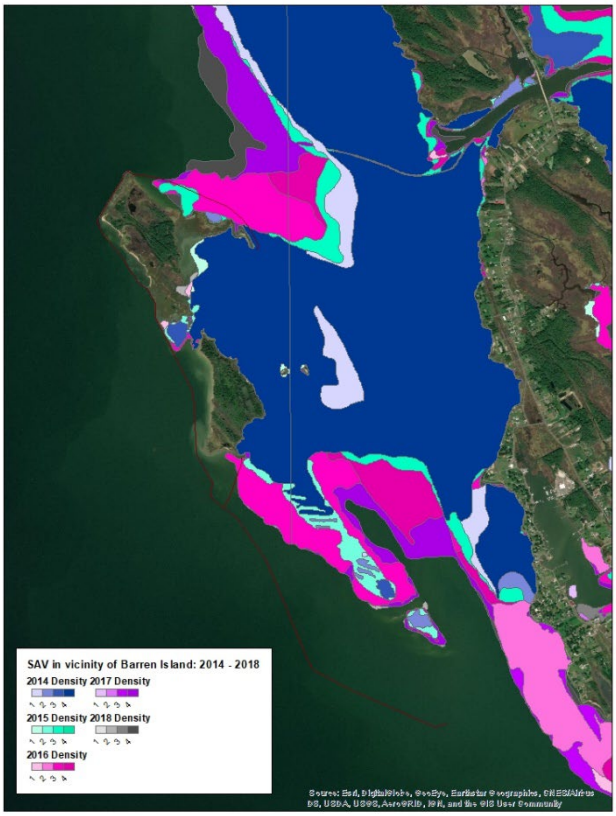


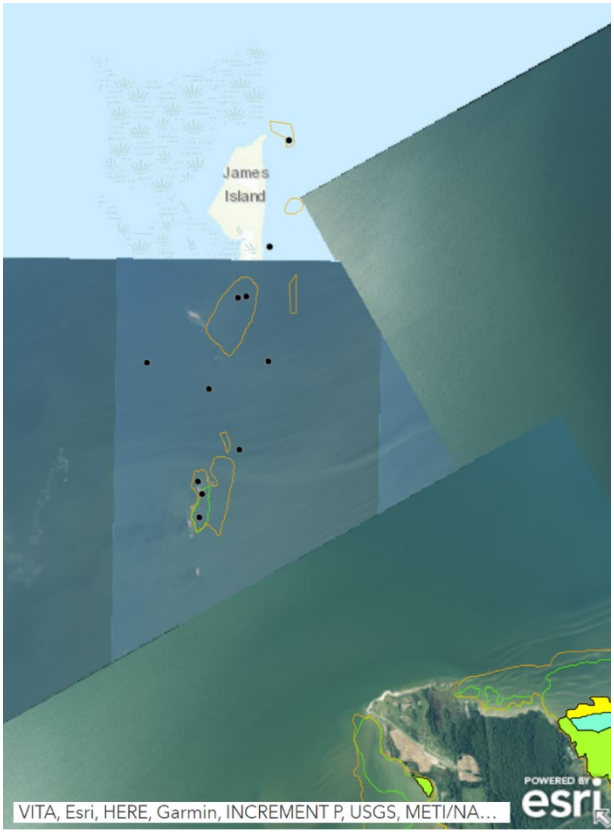
Submerged Aquatic Vegetation

Submerged aquatic vegetation (SAV) are vascular, rooted, underwater flowering plants, and they play an important role in the Chesapeake Bay (Bay). Researchers with Virginia Institute of Marine Science have monitored the Bay's SAV coverage since 1978. The Bay is home to over

20 species of SAV, including freshwater, estuarine and marine species. SAV beds provide habitat and nursery areas, food and refuge for many species including blue crab (*Callinectes sapidus*), striped bass (*Morone saxatillis)*, bay scallops (*Argopecten irradians*), waterfowl and other aquatic species (VIMS 2020a). SAV benefits the environment directly by taking up nutrients, reducing shoreline erosion, trapping suspended particles, stabilizing sediments and adding oxygen to the water. SAV requires a high level of sunlight for successful photosynthesis and growth. Runoff from deforestation, urban sprawl, and other watershed disturbances has increased the turbidity of water in the Bay, which blocks sunlight needed for SAV growth. Turbidity restricts grasses to shallow water and could even cause them to die back altogether. Excess nitrogen can fuel phytoplankton blooms that shade out underlying SAV beds. Boat propellers, fishing and shellfish equipment damage SAV beds by cutting shoots and uprooting the plants (VIMS 2020a). SAV is historically found at both project areas (Figure 2, VIMS 2020b). The restoration of Barren Island and the breakwater could benefit SAV in the project area where it would slow waves and create a more quiescent environment that is favorable for SAV growth. James Island would offer protection and has potential to create more favorable conditions for SAV to reestablish itself in the area.

Figure 2. SAV presence at both project sites





Mammals

Through a cooperative agreement with U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS), qualitative surveys will be conducted to identify mammalian predators inhabiting Barren and James Islands (Appendix E). Remote cameras with scent stations will be used and transects will be walked to record wildlife species and signs (scat, tracks, etc). During these surveys, any observations of rare, threatened, or endangered species (state or federal), along with species being considered for listing under the Endangered Species Act (ESA) will be recorded. As of October 2021, 8 rounds of surveys consisting of point counts, flush surveys, opportunistic surveys, and remote sensing camera traps were conducted at Barren and James Island. Mammalian species identified at Barren Island are red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), river otter (*Lontra canadensis*), white-tailed deer (*Odocoileus virginianus*), muskrat (*Ondatra zibethicus*). Six reptile species were noted at Barren Island, box turtle (*Terrapene carolina carolina*), diamondback terrapin (*Malaclemys terrapin*), spotted turtle (*Clemmys guttata*), mud turtle (*Kinosternon subrubrum*) black rat snake (*Pantherophis obsoletus*), and black racer (*Coluber constrictor*). At James Island no mammals were documented or any sign of them observed. The only reptile species noted was diamondback terrapin, although a deceased loggerhead turtle (*Caretta caretta*) was also discovered.

Migratory Birds

Data Metrics

Migratory birds are an important trust resource, and the Service works with partners to protect, restore, and conserve bird populations and their habitats for the benefit of future generations. The following databases were used to gather information on migratory birds within the project area, including data from the Service's IPaC system (IPaC; Appendix A), eBird (Table 4, Appendix B), Audubon Society (Appendix C), MDNR (Appendix D), and Atlantic Coast Joint Venture (ACJV). Avian surveys completed by USDA APHIS (Appendix E), Audubon Society (Appendix C), and Anchor Qea (Appendix F), specifically for this project, are discussed below. Surveys were recommended in order to provide a more complete analysis of the resources that are found within the described project area and represents the "best available science" for this project. IPaC is a project planning tool that is used to streamline the Service's environmental review process; it is used to identify migratory birds, endangered species, interjurisdictional fish, marine mammals, wetlands, and Refuge lands. IPaC official species list are valid for 90 days. After 90 days, project proponents should reconfirm their results by requesting an updated species list for their project area to ensure an accurate and up-to-date list. This area has a high level of bird diversity; southern Dorchester County is designated as an Important Bird Area by the National Audubon Society (Audubon Important Bird Areas 2020). Another resource used to examine bird presence in a geographic area is eBird, a website launched in 2002 by the Cornell Lab of Ornithology and National Audubon Society, which provides rich data sources for bird abundance and distribution at a variety of spatial and temporal scales (Sullivan et al. 2009). This site primarily uses data

collected through citizen science, so data should be interpreted cautiously, however, when unusual birds or unusual high counts are reported, the regional experts review the data and verify the potential for incorrect species identification.

USDA APHIS conducted point count and flush count surveys on James and Barren Island from January 2021 to October 2021 on 8 separate occasions. At James Island 22 different species of birds were observed (Table 1.). Of these, three were observed nesting on James Island; 1) American oystercatcher (*Haematopus palliates*), 2) Canada goose (*Branta canadensis*), and 3) great blue heron (*Ardea herodias*).

Table 1. Avian Species Observed on James Island

Common name	***Latin name***
American Black Duck	*Anas rubripes*
American Oystercatcher	*Haematopus palliatus*
Bald Eagle	*Haliaeetus leucocephalus*
Black Scoter	*Melanitta americana*
Bufflehead	*Bucephala albeola*
Canada Goose	*Branta canadensis*
Common Grackle	*Quiscalus quiscula*
Common Tern	*Sterna hirundo*
Double-crested Cormorant	*Phalacrocorax auritus*
Forster's Tern	*Sterna forsteri*
Great Blue Heron	*Ardea herodias*
Herring Gull	*Larus argentatus*
Laughing Gull	*Leucophaeus atricilla*
Least Sandpiper	*Calidris minutilla*
Long-tailed Duck	*Clangula hyemalis*
Osprey	*Pandion haliaetus*
Red-winged Blackbird	*Agelaius phoeniceus*
Ruddy Turnstone	*Arenaria interpres*
Sanderling	*Calidris alba*
Semipalmated Plover	*Charadrius semipalmatus*
Semipalmated Sandpiper	*Calidris pusilla*
Surf Scoter	*Melanitta perspicillata*

At Barren Island 65 bird species were observed with the highest number observed on the southern half of the Island (Table 2). A large rookery of great blue herons and great egrets (*Ardea alba*) were observed nesting on the southern end of Barren Island, along with nesting Canada geese and a nesting bald eagle (*Haliaeetus leucocephalus)* on the northern end of the island.

Table 2. Avian species observed at Barren Island

Common name	**Latin name**

American Bittern	*Botaurus lentiginosus*
American Black Duck	*Anas rubripes*
American Crow	*Corvus brachyrhynchos*
American Goldfinch	*Spinus tristis*
American Redstart	*Setophaga ruticilla*
Bald Eagle	*Haliaeetus leucocephalus*
Barn Swallow	*Hirundo rustica*
Belted Kingfisher	*Megaceryle alcyon*
Black-and-white Warbler	*Mniotilta varia*
Black-crowned Night-Heron	*Nycticorax nycticorax*
Blue Grosbeak	*Passerina caerulea*
Brown-headed Cowbird	*Molothrus ater*
Brown-headed Nuthatch	*Sitta pusilla*
Brown Pelican	*Pelecanus occidentalis*
Bufflehead	*Bucephala albeola*
Canada Goose	*Branta canadensis*
Carolina Chickadee	*Poecile carolinensis*
Carolina Wren	*Thryothorus ludovicianus*
Clapper Rail	*Rallus crepitans*
Common Grackle	*Quiscalus quiscula*
Common Yellowthroat	*Geothlypis trichas*
Cooper's Hawk	*Accipiter cooperii*
Double-crested Cormorant	*Phalacrocorax auritus*
Downy Woodpecker	*Picoides pubescens*
Eastern Bluebird	*Sialia sialis*
Eastern Kingbird	*Tyrannus tyrannus*
Eastern Phoebe	*Sayornis phoebe*
European Starling	*Sturnus vulgaris*
Forster's Tern	*Sterna forsteri*
Golden-crowned Kinglet	*Regulus satrapa*
Gray Catbird	*Dumetella carolinensis*
Great Blue Heron	*Ardea herodias*
Great Crested Flycatcher	*Myiarchus crinitus*
Great Egret	*Ardea alba*
Greater Yellowlegs	*Tringa melanoleuca*
Green Heron	*Butorides virescens*
Herring Gull	*Larus argentatus*
Laughing Gull	*Leucophaeus atricilla*
Mallard	*Anas platyrhynchos*
Marsh Wren	*Cistothorus palustris*
Mute Swan	*Cygnus olor*
Northern Cardinal	*Cardinalis cardinalis*
Northern Flicker	*Colaptes auratus*
Northern Mockingbird	*Mimus polyglottos*
Osprey	*Pandion haliaetus*
Pine Warbler	*Setophaga pinus*

Purple Martin	*Progne subis*
Red-bellied Woodpecker	*Melanerpes carolinus*
Red-eyed Vireo	*Vireo olivaceus*
Red-winged Blackbird	*Agelaius phoeniceus*
Royal Tern	*Thalasseus maximus*
Ruby-crowned Kinglet	*Regulus calendula*
Ruby-throated Hummingbird	*Archilochus colubris*
Sanderling	*Calidris alba*
Seaside Sparrow	*Ammodramus maritimus*
Song Sparrow	*Melospiza melodia*
Summer Tanager	*Piranga rubra*
Swamp Sparrow	*Melospiza georgiana*
Tufted Titmouse	*Baeolophus bicolor*
Tundra Swan	*Cygnus columbianus*
Turkey Vulture	*Cathartes aura*
Virginia Rail	*Rallus limicola*
White-throated Sparrow	*Zonotrichia albicollis*
Yellow-rumped Warbler	*Setophaga coronata*
Yellow Warbler	*Setophaga petechia*

A polygon of the project area was mapped in IPaC. From this data a list of migratory birds as well as Birds of Conservation Concern (BCC) was created (Table 3). IPaC identified migratory bird species for this site (accessed 12/21/2020 and 2/2/2024). The relevant species of conservation concern are presented below and are the subset of birds identified in IPaC that relate to the 1988 Fish and Wildlife Coordination Act mandating the Service to, "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973.". The birds listed within this report are of particular concern either because they are on the Fish and Wildlife Birds of Conservation Concern or warrant special attentionin this project's location. There are also particular Time of Year (TOY) restrictions that need to be taken into account. TOY restrictions provide general guidance for the protection of wildlife; they focus on the time of year that species may be more sensitive to human activities. These should be considered as guidance for project planning, as well as the scheduling of construction activities that may impact the species identified (VDGIF 2020).

Several species identified in project specific surveys are listed species within the state of Maryland. These species are defined as those native to Maryland that are among least understood, rarest and in most need of conservation efforts under assessment by the Wildlife and Heritage Service. The Wildlife and Heritage Service within Maryland's Department of Natural Resources (DNR) is the lead state agency that is responsible for identification, ranking, protection and management of these species in Maryland.

Table 3. Birds of Conservation Concern known to occur in the project area (data from USFWS IPaC Trust Resource Report).

Common Name	Scientific Name	Breeding Season/TOY Restrictions
American Oystercatcher*	*Haematopus pilliatus*	Apr 15 to Aug 31
Black-billed Cuckoo*	*Coccyzus erythropthalmus*	May 15 to Oct 10
Black Scoter*	*Melanitta nigra*	Breeds elsewhere
Bobolink*	*Dolichonyx oryzivorous*	May 20 to Jul 31
Brown Pelican	*Pelecanus occidentail*	Jan 15 to Sep 30
Clapper Rail*	*Rallus crepitans*	Apr 10 to Oct 31
Common Loon	*Gavia immer*	Apr 15 to Oct 31
Double-crested Cormorant*	*Phalacrocorax auratus*	Apr 20 to Aug 31
Dunlin*	*Calidris alpine arcticola*	Breeds elsewhere
King Rail*	*Rallus elegans*	May 1 to Sep 5
Least Tern*,***	*Sterna antillarum*	Apr 20 to Sep 10
Long-tailed Duck	*Clangula hyemalis*	Breeds elsewhere
Prairie Warbler*	*Dendroica discolor*	May 1 to Jul 31
Prothonotary Warbler	*Protonaria citrea*	Apr 1 to Jul 31
Purple Sandpiper*	*Calidris maritima*	Breeds elsewhere
Red-breasted Merganser	*Mergus serrator*	Breeds elsewhere
Red-headed Woodpecker*	*Melanerpes erythrocephalus*	May 10 to Sep 10
Red-throated Loon	*Gavia stellate*	Breeds elsewhere
Ring-billed Gull	*Larus delarensis*	Breeds elsewhere
Royal Tern	*Thalasseus maximus*	Apr 15 to Aug 31
Ruddy Turnstone	*Arenaria interpres morinella*	Breeds elsewhere
Seaside Sparrow*	*Ammodramus maritimus*	May 10 to Aug 20
Semipalmated Sandpiper*	*Calidris pusilla*	Breeds elsewhere
Surf Scoter	*Melanitta perspicillata*	Breeds elsewhere
White-winged Scoter**	*Melanitta fusca*	Breeds elsewhere
Willet	*Tringa semipalmata*	Apr 20 to Aug 5
Wilson's Storm-petrel **	*Oceanites oceanicus*	Breeds elsewhere
Wood Thrush	*Hylocichla mustelina*	May 10 to Aug 31

*Barren Island only, ** James Island only, ***State Listed T&E Species

Table 4. eBird data for bird species listed on Barren Island

American Crow	American Goldfinch	American Oystercatcher	American White Pelican
Bald Eagle	Barn Swallow	Blue Jay	Brown Pelican
Brown-headed Nuthatch	Canada Goose	Canvasback	Carolina Wren
Clapper Rail	Common Grackle	Common Tern	Common Yellowthroat

Double-crested Cormorant	Eastern Kingbird	Eastern Meadowlark	Forster's Tern
Great Black-backed Gull	Great Blue Heron	Great Egret	Greater Scaup
Greater Yellowlegs	Green Heron	Herring Gull	House Wren
Indigo Bunting	Killdeer	Laughing Gull	Least Sandpiper
Mourning Dove	Northern Cardinal	Northern Flicker	Northern Mockingbird
Orchard Oriole	Osprey	Palm Warbler	Purple Martin
Redhead	Red-winged Blackbird	Ring-billed Gull	Royal Tern
Ruddy Turnstone	Sanderling	Seaside Sparrow	Snowy Egret
Spotted Sandpiper	Tundra Swan	Turkey Vulture	Yellow-rumped Warbler

SHARP Surveys

Wetland bird abundance were measured by Audubon at Barren Island and James Island in spring 2021 to document baseline conditions. The principal focus was on saltmarsh sparrow (*Ammodramus caudacutus*) and black rail (*Laterallus jamaicensis*), although the methodology documents all wetland bird species, and most other bird species on the islands. Wetland birds will be quantified using the Saltmarsh Habitat & Avian Research Program (SHARP) callback survey protocol. Six SHARP survey points were established on Barren Island and one point was to be established on James Island. Each point was surveyed three times during May-July. Results (mean # individuals of each species detected per visit) were tabulated.

Audubon conducted reconnaissance surveys of James and Barren Island before conducting SHARP surveys of the areas. Based on reconnaissance surveys it was of Audubon's professional opinion that James Island had deteriorated to the point that no suitable nesting habitat remained for wetland bird species therefore surveys there were not conducted. At Barren Island six SHARP survey points were initially established but after reconnaissance surveys five surveys points were established. The survey protocol consists of point count surveys and include call broadcasts to elicit responses from secretive marshbirds and other selected species. In Maryland, 7 species are included in the broadcast: Black Rail, Least Bittern, Virginia Rail, King Rail, Clapper Rail, Common Moorhen, Song Sparrow. The broadcast section of the survey is preceded by a 5-minute period of silence and the entire point count survey lasted 12 minutes. Surveys were conducted in morning hours between sunrise (5:45am) and 10am at five points across Barren Island. Two replicate surveys were completed at each point. The first survey visit at all points was on May 18 and the second survey visit was on June 7.

A total of 37 bird species was observed on Barren Island during the two days on which surveys were conducted in 2021 (Table 5, reported linked in Appendix C). 13 species of marsh birds were documented but only one salt marsh obligate species, Clapper Rail, was detected on the surveys.

Table 5. Mean relative abundance (detections/survey point) of birds at Barren Island in 2021. P indicates species observed but not within the 12-minute survey period.

Species	**Habitat Assemblage**	**Detections <100m/survey visit (n=10 pts)**	**Detections all distances /survey visit (n=10 pts)**
American Crow	Generalist	0	0.2
Bald Eagle	Generalist	0.1	0.2
Barn Swallow	Aerial	0.2	0.2
Blackburnian Warbler	Forest	0.1	0.1
Black-crowned Night Heron	Marsh	0	0.1
Blackpoll Warbler	Forest	0	0.1
Boat-tailed Grackle	Marsh	0.8	1.2
Canada Goose	Marsh	0.2	0.2
Carolina Chickadee	Forest	0	0.1
Carolina Wren	Forest	0.4	1.5
Chimney Swift	Aerial	0.1	0.1
Clapper Rail	Marsh	2.3	2.9
Common Grackle	Generalist	0.3	0.3
Common Yellowthroat	Marsh	0.2	0.4
Double-crested Cormorant	Marsh	0.1	0.1
Eastern Kingbird	Generalist	0.6	0.9
European Starling	Generalist	0.1	0.1
Great Blue Heron	Marsh	1.3	2.3
Great Egret	Marsh	0	0.6
Great-crested Flycatcher	Forest	0.1	0.4
Least sandpiper	Marsh	1.1	2.1
Mallard	Marsh	0.3	0.3
Northern Cardinal	Forest	0	0.4
Northern Mockingbird	Forest	0.1	0.1
Northern Parula	Forest	0.1	0.1
Orchard Oriole	Forest	0	0.6
Osprey	Generalist	0.2	0.3
Pine Warbler	Forest	0.2	0.6
Prairie Warbler	Forest	0	0.1
Purple Martin	Aerial	0.4	0.4

Red-winged Blackbird	Marsh	5.7	7.5
Summer Tanager	Forest	0	0.1
Tree Swallow	Aerial	0.3	0.3
Tricolored Heron	Marsh	0	0.1
Turkey Vulture	Generalist	0	0.2
Willet	Marsh	P	P
Yellow Warbler	Forest	0.2	0.3

American Bittern (*Botaurus lentiginosus)*

The American bittern is a member of the heron family, and is state listed as threatened in Maryland. This species has declined serious in the southern part of its breeding range, primarily due to habitat loss, and remains vulnerable due to its reliance on large marshes. They feed mostly on fish and aquatic species including eels, frogs, aquatic insects, snakes and salamanders. Nesting sites are typically in dense marsh growth above shallow water; they are a platform style nest composed of grasses, reeds, cattails, lined with finer grass. They forage by standing still at the edge of water or moving slowly, and capture prey with a sudden thrust of the bill. They can be found foraging anytime of day or night, may be more active during dawn and dusk (Audubon 2021).

Black Skimmer (*Rynchops niger*)

The black skimmer is the only American representative of the skimmer family *Rynchopidae,* and is listed as state endangered in Maryland. The bill of the black skimmer sets it apart from all other American birds. The large red and black bill is knife-thin and the lower mandible is longer than the upper. The bird drags the lower bill through the water as it flies along, hoping to catch small fish. Although the black skimmer is active throughout the day, it is largely crepuscular (active in the dawn and dusk). Its use of touch to catch fish allows it be successful in low light or darkness (MDNR Black Skimmer 2020). This species historically has nested within the project area. The alternatives that place sand material at historic nesting sites that mimics natural coastal features could be beneficial to black skimmer nesting habitat. The remaining alternatives would not change the current conditions for black skimmer, and population trends in the project area would remain the same.

Willet (*Tringa semipalmata*)

Willets are large shorebirds with grey-brown plumage and a long, thick, grey bill. They have a white rump, eyebrow, and wing stripe that is visible in flight. Willets also have long grey legs and slightly webbed toes. Plumage is similar for both sexes, but females are slightly larger. The eastern subspecies, which can be seen within the project area, are slightly smaller and darker than their western cousins (Ellison 2010). On the east coast, willets are commonly found on beaches, mudflats, and tidal salt marshes. Willets primarily breed in high marsh areas dominated by saltmeadow hay (*Spartina patens*) and in coastal dune areas dominated by beach grass (*Ammophila breviligulata*). Willets migrate south to winter on mudflats and beaches in northern South America. While willets are usually solitary, they may gather in flocks to migrate and roost

(Ellison 2010). Willets feed by probing with their bills into mud and sand flats, searching for a wide variety of invertebrates. They eat insects, crustaceans, mollusks, worms, grasses, seeds, and occasionally fish. Aside from probing in the sand, willets also hunt by walking through shallow water and holding their bills open under the surface (Ellison 2010). Willets breed from May to July. There is no current conservation status for willets within this region, as they have had no significant declines in population recently. However, habitat degradation in breeding, wintering, and migration areas may put this species at risk (Ellison 2010). None of the proposed alternatives are expected to impact willet habitat and the population trends would be expected to remain unchanged in the project area. If dredge material is used to restore marsh habitat such that it mimics the natural conditions of the coastal barrier island marshes, the Service would expect increased use of the marshes by willet for foraging, nesting and breeding.

Colonial Nesting Waterbirds

Colonial nesting waterbirds refer to species such as terns, cormorants, gulls, and wading birds which nest in dense colonies ranging from small numbers of single-species pairs to many thousands in mixed species colonies.

Brown pelicans (*Pelecanus occidentalis*) are huge, stocky seabirds. They have thin necks and very long bills with a throat pouch used for capturing fish. Their wings are very long and broad and are often noticeably bowed when the birds are gliding. Brown pelicans feed by plunging into the water, stunning small fish with the impact of their large bodies, and scooping them up in their expandable throat pouches. When not foraging, pelicans stand around fishing docks, jetties, and beaches or cruise the shoreline. Pelicans nest in colonies, often on isolated islands free of land predators. Breeding populations of brown pelicans in the project area are fairly low. Surveys completed by Anchor Qea showed brown pelicans inhabiting the island during the summer (Appendix F). Brown pelicans annually nest in Dorchester County and in the early 2000's on Barren Island. While the more recent nesting sites are south of the Barren Island project area, they are less than 20 miles from the project site. If habitat islands are planned for the islands, they could create nesting habitat for this species and allow them suitable habitat to breed on Barren Island again.

A large number of wading birds have used islands in the Bay to breed. Within the project area these species include great egrets (*Ardea alba*), snowy egrets (*Egretta thula*), green herons (*Butorides virescens*), and great blue herons (*Ardea herodias*) (D. Brinker Pers. Comm. Appendix B). They are all primarily fish eaters, but will also eat invertebrates, benthic organisms, reptiles, and amphibians. If the project includes marsh restoration with shrubs or trees in hummock areas, it is possible to create additional nesting habitat for these birds.

Gulls (Family *Laridae)* and double-crested cormorant (*Phalacrocorax auritus*) are common colonial nesting waterbirds found throughout Maryland, and are often thought of as nuisance species because of their abundance and ability to adapt to the human environment. Nesting

cormorants compete with other priority colonial nesting birds and displace them. In addition, concentrated guano kills vegetation and exacerbates island erosion. Cormorants and several species of gulls (ring-billed (*Larus delawarensis*), herring (*Larus argentatus*), great black-backed (*Larus marinus*), Bonaparte's (*Croicocephalus philadelphia*), and laughing (*Leucophaeus atricilla*)), were identified in the preliminary screening, only cormorants, herring gull and great black-backed gull have been known to nest within the project area. The alternatives that create additional nesting habitat on beaches may create more preferred nesting habitat for gulls and cormorants. If nesting occurs, deterrents may be needed in order to decrease competition for other less abundant and high priority species, and to reduce damage on native vegetation.

Terns are seabirds in the family *Sternidae* that have a worldwide distribution and are normally found near the sea, rivers, or wetlands. They are slender, lightly built birds with long, forked tails, narrow wings, long bills, and relatively short legs. Most species are pale grey above and white below, with a contrasting black cap to the head. From late April to August, terns use barren to sparsely vegetated sandbars along shorelines for nesting. Terns feed in a variety of ways, including capture of prey while in-flight or by diving to the water's surface. Prey items include small fish, shrimp, and insects. Pairs generally occupy and defend a feeding territory, which may be more than 20 km away from the breeding colony. Terns are colonial breeders that often associate with gulls or other tern species. Nests are simple depressions in the sand or shallow cups of dead grass formed on beaches or open rocky areas. Typical clutch size is two to three eggs. One study found that 90 percent of terns observed had returned to the territory occupied the previous year. Data gathered from IPaC, eBird, and MDNR has shown presence and historic nesting of least (*Sterna antillarum*), royal (*Thalasseus maximum*), common (*Sterna hirundo*), and Forster's (*Sterna forsteri*) terns. Least terns are state listed as threatened, common tern is state listed as endangered, and royal tern is state listed as endangered. Much of the historic tern nesting habitat in Maryland has disappeared because of climate change or altered for human development. Placement of the dredge material and including a constructed habitat island could provide additional suitable nesting substrate for the terns within the project area.

Summary of the Alternatives on Black Skimmer, Willet, and colonial Nesting Waterbirds

Placement of the dredge material could provide additional suitable nesting substrate for black skimmers and some gull and tern species. Black skimmers along with least, royal and common terns are state listed, and restoration of breeding and nesting habitat for these species is particularly important. The populations of brown pelicans, cormorants, or non-nesting gulls and terns could benefit from beneficial reuse of dredge material as it would provide nesting substrate desirable for these species. The no action alternative will not change the overall health of habitat and will have a negligible impact on their populations. Trends for these species would likely continue to decrease in the project area.

Bald eagle (*Haliaeetus leucocephalus*)

The bald eagle is a North American species that historically occurred throughout the contiguous United States and Alaska. In 1978, it was listed under the ESA as endangered throughout most of the lower 48 states. This segment of the population was down-listed to threatened in 1995, and in 2007 it was deemed recovered and removed from the list of threatened and endangered species. The bald eagle is federally protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA) from a variety of human induced conditions and activities (BGEPA 1940, MBTA 1939). Bald eagle distribution varies seasonally; eagles nesting in southern latitudes frequently move northward in late spring, often summering as far north as Canada. Bald eagles have nested within the project area as recently as 2020. Nest building typically occurs between early December and early March, followed by egg laying/incubation between late January and early May, hatching/rearing of young between late February and early July, and fledging of young between late May and late August. Proposed projects in the Chesapeake Bay watershed region must consider the protection standards for bald eagles, which include: time-of-year restriction from activities (December to June); habitat/nest protection buffers (330-foot and 660-foot zones); and Important High Eagle Use Areas such as communal roosts/concentration area. "Take" includes pursuing, shooting, poisoning, killing, capturing, trapping, wounding, collecting, destroying, and disturbing (USFWS, 2011). An aerial survey in 2020 confirmed nesting activity in 2020, however, surveys have not been accomplished yet in 2021 due to COVID restrictions.

Other non-BCC Species

Other migratory bird species of concern that may be observed commonly migrating through the project area in spring and fall but do not breed near the project area include black scoter (*Melanitta nigra*), dunlin (*Calidris alpine arcticola*), golden eagle (*Aquila chrysaetos*), lesser yellowlegs (*Tringa flavipes*), long-tailed duck (*Clangula hyernalis*), northern gannet (*Morus bassanus*), purple sandpiper (*Calidris maritima*), red-breasted merganser (*Mergus serrator*), red-throated loon (*Gavia stellate*), ruddy ternstone (*Arenaria interpres morinella*), semipalmated sandpiper (*Calidris pusilla*), surf scoter (*Melanitta perspicillata*), and white-winged scoter (*Melanitta fusca).* Several species have been identified by IPaC as present and breeding in the project area, but these are terrestrial nesting species, and due to the lack of appropriate nesting habitat these species are not likely to breed within the project area. These species include black-billed cuckoo (*Coccyzus erythropthalmus*), bobolink (*Dolichonyx oryzivorus*), common loon (*Gavia immer*), prairie warbler (*Dendroica discolor*), prothonotary warbler (*Protonotaria citrea)*, red-headed woodpecker (*Melanerpes erythrocephalus*), and wood thrush (*Hylocichlia mustelina*). These species are identified as species of conservation concern for the Service, and it is possible that some of these species could experience temporary disturbance during construction, but the project area is not within their breeding habitat. Because it is not in their

breeding habitat and forage areas are not limited, none of the proposed alternatives are expected to have any impacts on these species.

Atlantic Coast Joint Venture

The ACJV has identified the project area as a landbird, shorebird, waterbird, and waterfowl focus area. The ACJV is another resource used to identify potential fish and wildlife resources that could be found within the project area. The bay and associated wetlands surrounding the project area support ACJV priority species such as bald eagle (*Haliaeetus luecocephalus*), black scoter (*Melanitta nigra*), clapper rail (*Rallus crepitans*), dunlin (*Calidris alpine arcticola*), golden eagle (*Aquila chrysaetos*), lesser yellowlegs (*Tringa flavipes*), long-tailed duck (*Clangula hyernalis*), northern gannet (*Morus bassanus*), purple sandpiper (*Calidris maritima*), red-breasted merganser (*Mergus serrator*), red-throated loon (*Gavia stellate*), ruddy ternstone (*Arenaria interpres morinella*), seaside sparrow (*Ammodramus maritimus*), semipalmated sandpiper (*Calidris pusilla*), surf scoter (*Melanitta perspicillata*), white-winged scoter (*Melanitta fusca).* Species that have been identified as present and breeding in the project area but are terrestrial and/or not likely to be found breeding in the project area include black-billed cuckoo (*Coccyzus erythropthalmus*), bobolink (*Dolichonyx oryzivorus*), common loon (*Gavia immer*), prairie warbler (*Dendroica discolor*), prothonotary warbler (*Protonotaria citrea)*, red-headed woodpecker (*Melanerpes erythrocephalus*), and wood thrush (*Hylocichlia mustelina*) (ACJV 2008, IPaC list Appendix A). With the exception of bald eagle, American black duck, saltmarsh sparrow, ruddy turnstone, and seaside sparrow, which are discussed further below, these species are not known to nest in the project area and other than the possibility of temporary disturbance during construction these species are not expected to see any impact from these projects.

At-Risk Species

At-risk species are those that are: already proposed but not finalized for listing under the ESA; candidates for listing under the ESA; or petitioned for listing under the ESA, which means a citizen or group has requested that the Service evaluate them to see if they need the ESA's protection. Many Species of Greatest Conservation Need (SGCN) identified in State Wildlife Action Plans may also be included as at-risk species based on their range and degree of rarity.

American Oystercatcher (*Haematopus palliates)*

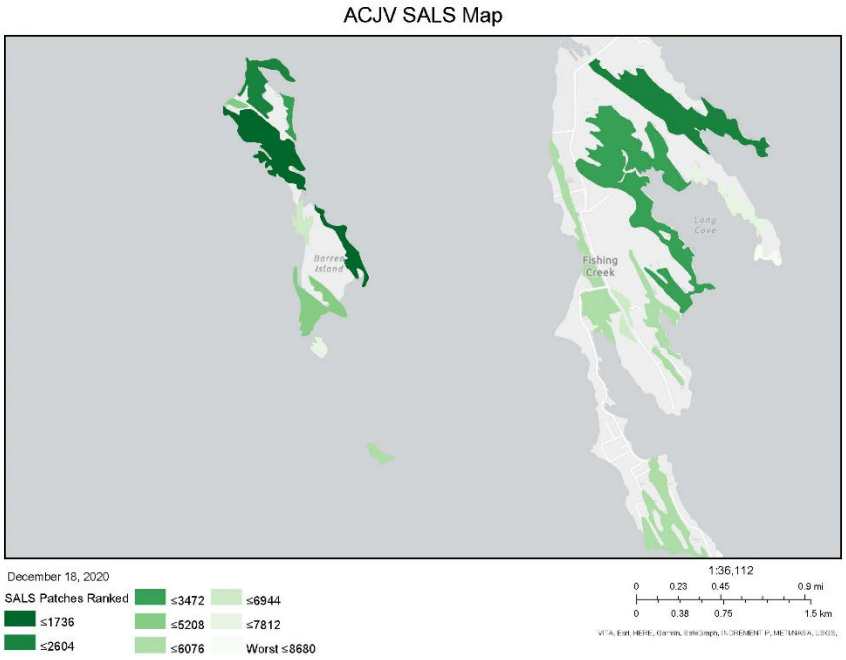
The American oystercatcher is a common coastal salt marsh and sandy beach shorebird. Its bright red-orange bill is sturdy and laterally flattened, built for opening mussels and oysters. In young birds, the bill is pinkish brown and dusky black toward the tip. It has a yellow eye and an orange-red eye ring. Breeding and non-breeding plumage is almost identical in American oystercatchers. They have black heads and necks, dark blackish-brown underparts, and white wing and upper-tail patches. Their legs are a tan or sand color. Males and females look alike but females are larger and heavier (Prince William Network 2017). American oystercatchers are shy and intolerant of people. Since coastal property is always in demand for recreation and development, human disturbance is perhaps the greatest threat to breeding American

oystercatchers. The American oystercatcher builds nests in open, sandy areas where they are vulnerable to predators like red fox, cats, dogs, or other birds (Prince William Network 2017). Pollution is another threat to the oystercatcher population if the levels are high enough to affect the shellfish these shorebirds feed on (Prince William Network 2017). This species was found nesting on the James Island remnant. Alternatives that place sand material on historic nesting sites that mimics natural coastal features could be beneficial to enhance oystercatcher nesting habitat and ideally offer new secure nesting habitat for the local nesting population. The remaining alternatives would not change the current condition for oystercatcher, and population trends in the project area would remain the same.

Saltmarsh Sparrow (*Ammodramus caudacutus*)

Saltmarsh sparrow is a species that is endemic to East Coast salt marshes and has experienced an 80 percent decline in its population size during the last 15 years. They nest in high marsh grasses, just above mean high tide. Due to this precarious location of nesting habitat, they have adapted to occasional flooding events. Eggs can survive short periods of being underwater, and young birds are able to climb grass into high areas above the nest. However, due to increasing sea levels, their adaptive traits are not able to keep up with the higher frequency of flooding as well as the higher water levels. Nest flooding is their greatest threat, followed by depredation of eggs and young (ACJV Saltmarsh Sparrow 2020). Figure 3 shows the project area using the Saltmarsh Sparrow Habitat Prioritization Tool. This tool is intended to help identify areas of salt marsh that are likely to be valuable by looking at factors such as resiliency to sea level rise, tidal restriction, development potential, presence of *Phragmites*, potential for marsh migration, and other factors important for this sparrow's habitat. By identifying these areas, this tool can provide a way to focus work on high priority marshes. Currently, there are few marshes that provide high-quality habitat to support population growth. Patches in darker green color are assumed to have higher potential to provide higher quality habitat than those in lighter green, and should be focused on first when considering conservation action. The Barren Island project area was the only site that the tool designated as high-quality habitat for Saltmarsh Sparrow (ACJV Saltmarsh Sparrow 2020). If dredge material is used to restore high marsh habitat such that it mimics the natural conditions of the Bay's island marshes, with elevation high enough to reduce the potential for flooding nesting habitat, the Service would expect increased use of the marshes by saltmarsh sparrow for foraging, nesting, and breeding.

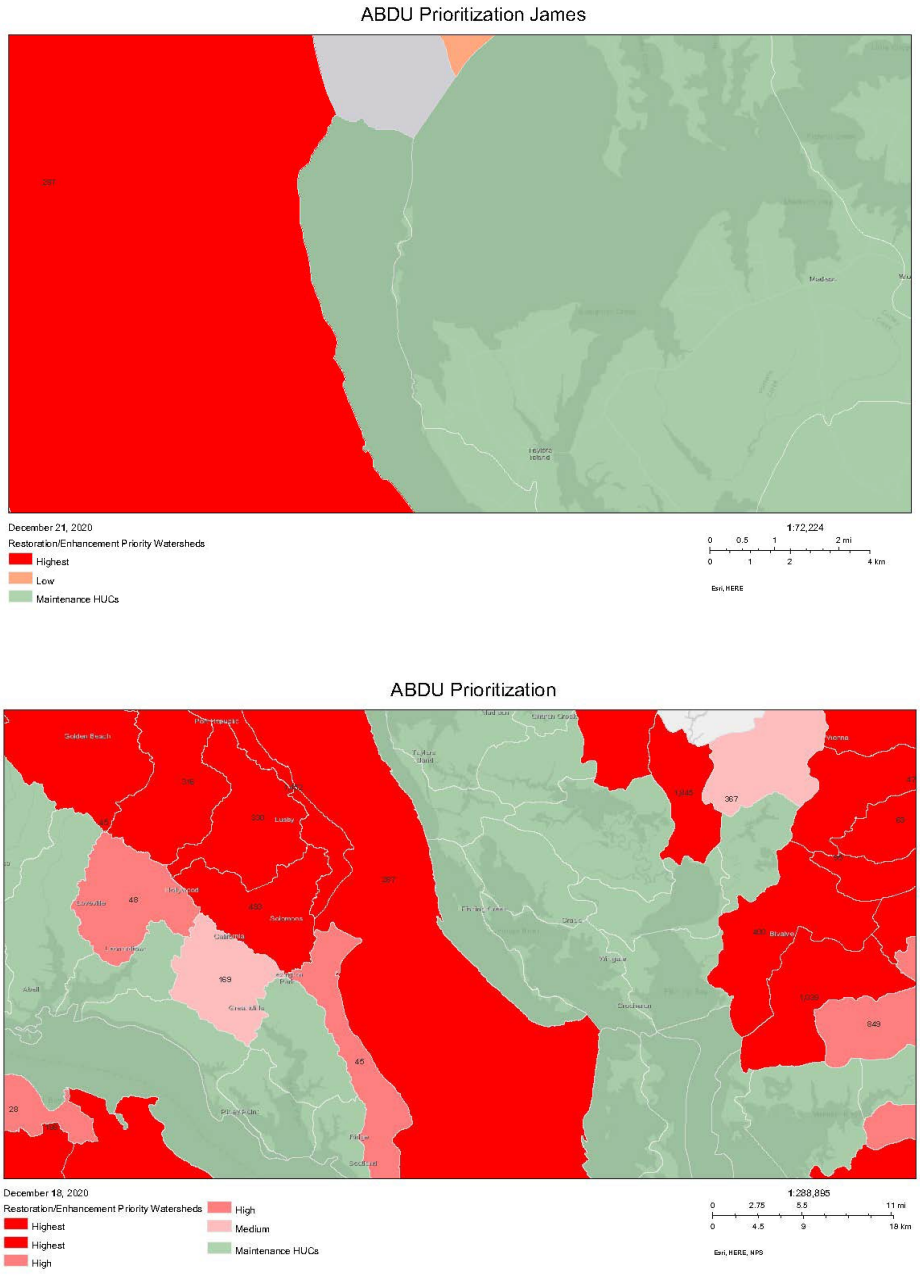
Figure 3. Priority areas for SALS habitat conservation



American Black Duck (*Anas rubripes*)

The American black duck was at one time one of the most abundant dabbling ducks in North American. Populations began to decline in the 1950s and by the 1980s this species had lost more than half of their population. While populations have stabilized since then, they are still below objectives set by the 2018 North American Waterfowl Management Plan (NAWMP 2018). The Atlantic Coast supports the majority of wintering populations, which are commonly found in coastal salt marshes. Threats to this species includes urbanization of coastal winter areas and sea level rise due to climate change. There is also an ACJV Prioritization Tool for black duck, which helps identify the number of acres to protect, restore, or maintain at the watershed scale (ACJV American Black Duck 2020). In Figure 4, the project area shows prioritized habitat for American black duck, highlighting the bay and essentially all marsh habitat within the project area. The project area is defined as a Maintenance HUC, which currently contains enough food to support population objectives. Work within these watersheds is focused on maintaining habitat quality to support the population, including restoring or protecting additional habitat. None of the proposed alternatives are expected to impact American black duck habitat other than possible temporary displacement during construction. The population trends for American black duck would be expected to remain unchanged in the project area. If dredge material is used to restore marsh habitat such that it mimics the natural conditions of the Bay's island marshes, the Service would expect increased use of the marshes by American black duck for foraging, nesting and breeding.

Figure 4. American Black Duck Habitat Prioritization Tool, https://acjv.org/american-black-duck/, accessed 12/18/2020



Seaside Sparrow (*Ammodramus maritimus*)

The seaside sparrow (*Ammodramus maritimus)* is a relatively common species found within its limited range on the east coast, and has been identified to be within the project area according to the IPaC report (Table 1). Similar to its close relative, the saltmarsh sparrow, the seaside sparrow is a tidal-marsh specialist found only in small localized populations (Post and Greenlaw 2009). The extensive tidal saltmarshes of the lower Delmarva Peninsula counties (Dorchester,

Wicomico, and Somerset) provide high quality nesting habitat for the species. Contraction of the species range has been associated with habitat degradation and loss (Ellison 2010). Their primary nesting habitat is at the summer high tide mark within saltmarshes, close to the ground, and typically in a clump of smooth cordgrass (*Spartina alterniflora)* or black needle rush (*Juncus roemerianus*). Periodic tidal flooding in many, perhaps most, salt marshes is the chief source of nest mortality in this species in our region. This species is a ground feeder that prefers to feed in open areas of vegetation and mud where it forages mostly for insects and other small invertebrates (Ellison 2010, Post and Greenlaw 2009). During the winter, when invertebrates are less available, seeds make up a good portion of their diet. Most seaside sparrows within this range typically migrate to saltmarsh systems located south of Chesapeake Bay, returning in April to breed; however, a few individuals do overwinter in the Delmarva peninsula, mixing in with migrants from the north (Ellison 2010). None of the proposed alternatives are expected to impact seaside sparrow habitat, other than possible temporary displacement during construction. The population trends for seaside sparrow would be expected to remain unchanged in the project area. If dredge material is used to restore marsh habitat such that it mimics the natural conditions of the Bay island marshes, the Service would expect increased use of the marshes by seaside sparrow for foraging, nesting and breeding.

Ruddy Turnstone *(Arenaria interpres*)

The ruddy turnstone is a chunky sandpiper with short legs. This species nests on high arctic tundra of North America and Eurasia, and is commonly found wintering along the coastlines of six continents. While migrating, it is seen mostly along the coast. Its preferred habitats are beaches, mudflats, jetties, and rocky shores. This bird is named for its unusual feeding habit; it inserts its bill under stones or shells, and flips them over to find food underneath. For a larger object, several will work together to flip it over. They lay up to 4 eggs which are olive-green with spots of brown. Their diet is variable and includes insects, crustaceans and mollusks. They have also been known to eat worms, small fish, sea urchins and other bird eggs (Audubon 2020b). This species is not known to nest within the project area, but summer surveys (Anchor Qea) has recorded their presence within the project area and it is not uncommon to see this species during migration periods. The proposed alternatives are not expected to impact population trends for ruddy turnstone other than temporary displacement during construction. If material used mimics preferred habitat for ruddy turnstone, it may benefit the species by offering substrate used for feeding.

Monarch (*Danuas plexippus plexippus*)

The monarch butterfly is a brush-footed butterfly with large, orange and black wings that uses open prairie, meadow, open woodland, gardens, and roadside habitat with suitable milkweed species for larvae and nectar plants for adults. This monarch butterfly subspecies is unique, however, in that its multi-generational migration life strategy necessitates widespread breeding and food resources at the right places at the right times (MAFWA 2018). Destruction and

alteration of breeding, migrating, and wintering habitats, including loss of adult and larval food and places to live during critical stages of its life cycle, have reduced its range and abundance over the last 30 years. At one time, the monarch was common in most states east of the Rocky Mountains during the breeding season and gathered in large numbers on the wintering grounds in Mexico. Based on 20 years of wintering ground surveys, the eastern population has fallen from approximately one billion to fewer than 35 million monarchs, representing a decline of 97 percent from the 1997 high count and a 90 percent decline from the 20-year average (Rendon-Salinas and Tavera-Alonso 2014). Monarchs are considered vulnerable in Maryland (NatureServe 2019), a state that provides summertime breeding habitat. In 2014, the Service was petitioned to protect the monarch butterfly under the Endangered Species Act. On December 15, 2020, the Service announced that listing the monarch as endangered or threatened is warranted but precluded by listing of other species in greater need. This decision is the result of an extensive status review of the monarch that compiled and assessed the monarch's current and future status (USFWS 2020). The monarch is now a candidate under the ESA. The Service will review its status annually until a listing decision is made. In the interim, significant and expansive conservation measures are being undertaken throughout the species' range to boost populations (USFWS 2020b). These projects have the potential to create resting and feeding habitat for the monarch populations migrating through Maryland. Creating appropriate feeding sources will depend on the plantings associated with the project.

Spotted Turtle (*Clemmys guttata)*

Spotted turtles are aquatic turtles that are black in color with yellow spots. They are small, measuring between 3.5 and 4.5 inches. This species can be found throughout the east coast of the United States, and they favor shallow water habitats with vegetation. This includes ditches, bays, bogs and swamps. Their specific habitat requirements and slow reproductive rates are what designates them as an At-Risk species. Their primary threats are collection, habitat loss (isolated freshwater wetlands without protection), habitat fragmentation (contiguous habitat fragmented by development and roads) and climate change (changes in rainfall patterns may alter favored wetlands, and warming temperatures can skew sex ratios) (USFWS Spotted Turtle Factsheet 2021). Maintaining freshwater ponding and wetlands on Barren Island will allow for continued use of the island by spotted turtles, as well as maintaining upland habitat to enable this species to move between different wetlands on Barren Island.

Fish and Shellfish Resources

Eastern Oyster (*Crassostrea virginiana*)

The eastern oyster is a natural filter feeder, pumping water from their gills they trap particles of food, nutrients, suspended sediment and chemical contaminants. This keeps the water clean and lessens turbidity for other aquatic life. Oyster beds are formed in layers; larvae settle on top of the adults, forming shelfs of oysters that spread up and out. They form numerous nooks and crannies, which in turn provides habitat for hundreds of other animals (CBP 2020).

The decline of oysters has been attributed to several factors: over-harvesting, disease, and habitat loss. The decline is further illustrated by the impact on water quality; in the late nineteenth century, the oysters present in the Bay could filter a volume of water equal to that of the entire bay in three to four days, the process today takes nearly a year to filter the same amount. Over-harvesting has removed huge volumes of oysters and led to a decline in the health of the Bay's reefs. Reefs have been further scraped away by dredges, so oyster habitat is limited to flat, thin layers of shell spread over the bottom. This is less beneficial for reef-dwelling organisms and can be easily buried by sediment (CBP 2020).

Disease events are attributed to Dermo (*Perkinsus marinus*), which infects oysters in their second year and slows growth rates and can lead to death, and MSX (*Haplosporidium nelsoni*), which leads to oyster death and effects all age groups of oysters. Overcoming the effects of these diseases has posed challenges to restoration efforts. It has been estimated that by age three over 80 percent of a single year class in a high disease area will die due to disease (CBP 2020).

Habitat loss over the past century has affected the watershed. This is mostly attributed to land use changes. It has caused an increase in the amounts of nutrients and sediment entering the watershed and contributes to poor water quality. Excess nutrients fuel growth of algae blooms which leads to low-oxygen zones that can hinder oyster development (CBP 2020). This project has the potential to increase quiescent conditions and decrease wave action, and could provide additional substrate along the shoreline of a newly constructed landscape for oyster reefs to develop and thrive.

In accordance with COMAR 23.02.04.13, dredging is prohibited during certain times of the year to protect shellfish. Mechanical dredging within 500 yards of shellfish areas is prohibited from December 16 through March 14, and June 1 through September 30. Hydraulic dredging within 500 yards of shellfish areas is prohibited from June 1 through September 30. MDNR has also requested TOY restrictions for non-dredging activities that are within 500 yards of shellfish resources and have potential to produce significant suspended sediment such as bank grading associated with shoreline stabilization or placement of dredge material for a living shoreline (R. Limpert, pers. comm). It is expected that the benefits this project provides will outweigh the negative effects. The use of oyster reef balls and/or castles could enhance oyster populations within the project area as well as provide wave attenuation for SAV in the area.

Anadromous and Catadromous Fish

The Anadromous Fish Conservation Act (Act) is a Federal law enacted in 1965 to conserve, develop, and enhance the anadromous fish resources of the U.S. that are subject to depletion from water resources development and other causes, or with respect to which the U.S. has made conservation commitments by international agreements, and the fish in the Great Lakes and Lake Champlain that ascend streams to spawn. The provisions of the Act are found under 16 USCS §§ 757a-757f. Inter-jurisdictional, catadromous and anadromous fish are a Service trust resource. Anadromous fish spend most of their adult lives in saltier water but return each year to spawn in freshwater. Catadromous fish spend most of their adult lives in fresh water and return to salt

water to spawn. The Service and our partners are working to protect the health of aquatic habitats, recover and restore populations of native fish, and provide opportunities to enjoy the many benefits of healthy aquatic resources. The Bay is a nursery area for summer flounder (*Paralichthys dentatus*), Atlantic butterfish (*Peprilus triacanthus*), and red hake (*Urophycis chuss*), see EFH section below. Many other species are often encountered (Table 3). The action of dredging disrupts sediments and buries benthic macroinvertebrates, which could temporarily negatively impact anadromous and catadromous fish. The placement of the dredge material is not expected to affect these species and has potential to benefit some species that use sandy substrate for spawning. Best management practices should be implemented to avoid detrimental impacts to aquatic resources.

Essential Fish Habitat

One of the priorities of National Oceanic and Atmospheric Administration (NOAA) is Essential Fish Habitat (EFH). Using the best available science, NOAA Fisheries along with regional fishery management councils identify and map EFH for each life stage of over 1,000 federally managed species (see species present within the project area in Table 3). EFH includes a variety of habitat in which fish are able to spawn, breed, feed, and grow to maturity; these habitats include wetlands, reefs, seagrass, rivers, and coastal estuaries. High priorities for EFH are referred to as Habitat Areas of Particular Concern (HAPC) due to major ecological functions, sensitivity to decline, stress from development, and/or rare habitat. Using NOAA's EFH Mapper, several species were identified to use the habitat around the project area (NOAA EFH 2020). The Service recommends that the Corps pursue appropriate coordination and consultation with National Marine Fisheries Service (NMFS) who has Federal jurisdiction over EFH.

Table 6. Species and Lifestage Associated with EFH

Little Skate (*Leucoraja erinacea*)	Adult
Atlantic Herring (*Clupea harenus*)	Juvenile, Adult
Red Hake (*Urophycis chuss*)	Adult, Eggs/Larvae, Juvenile
Windowpane Flounder (*Scophthalmus aquosus*)	Adult, Juvenile
Winter Skate (*Leucoraja ocellata*)	Adult
Clearnose Skate (*Raja eglanteria*)	Adult, Juvenile
Bluefish (*Pomatomus saltatrix*)	Adult, Juvenile
Atlantic Butterfish (*Peprilus triacanthus)*	Adult, Eggs/Larvae, Juvenile
Scup (*Stenotomus chrysops*)	Juvenile, Adult
Summer Flounder (*Paralichthys dentatus*)	Larvae, Juvenile, Adult
Black Sea Bass (*Centropristis striata*)	Juvenile, Adult

Marine Mammals

According to MDNR (MDNR Marine Mammals 2020), over 20 species are known to migrate through Maryland waters; the most common marine mammal species found in Maryland waters

are the bottlenose dolphin (*Tursiops truncates*), harbor porpoise (*Phocoena phocoena*), harbor seal (*Phoca vitulina*), and humpback whale (*Megaptera novaeangliae*). In the warmer months, bottlenose dolphins are common sightings, and occasionally manatees are spotted as well (MDNR Marine Mammals 2020). Months where water temperatures are at their warmest (May to October) is when Maryland experiences their highest numbers of marine mammal sightings. The Service recommends that the Corps pursue appropriate coordination (confirming time of year restrictions) and consultation with NMFS who has Federal jurisdiction under the Marine Mammal Protection Act for species that may be using this area.

Threatened and Endangered Species

The following species were shown to be present in the project area as of an April IPaC report. This was done to provide a more complete analysis of the resources that are found within the described project area and represents the "best available science" for this project. The Service recommends that the Corps pursue appropriate coordination and consultation with NMFS who has Federal jurisdiction over the marine species detailed below.

Eastern Black Rail (*Laterallus jamaicensis jamaicensis*)

The eastern black rail federally listed as threatened is now considered to be one of the rarest wetland birds in North America. Since the 1990s, rail populations have declined by more than 90 percent. They hide in dense grass, are often nocturnal, and are found in salt, brackish and freshwater marshes. They tolerate water that is only deep enough to wet the bottom of a boot. Black rail have suffered from conversion/alteration of wetland habitat, and declines are also believed to be driven by sea level rise and nest inundation. This species nests close to the ground so it is very vulnerable to fluctuating water levels (ACJV Saving the Eastern Black Rail 2020). Current surveys are underway to identify locations in Maryland being used by black rail. The IPaC search did identify Barren Island as a potential place that black rail could occupy. A Section 7 Consultation with the Service will be required if surveys detect the presence of the species on the Island. Saltmarsh specific surveys will be performed by Maryland Audubon Society this spring to identify presence of black rail at the project sites. If dredge material is used to restore high marsh habitat such that it mimics the natural conditions of the marsh, the Service would expect increased use of the marshes by black rail for foraging, nesting, and breeding.

Green Sea Turtle (*Chelonia mydas*)

The green sea turtle, federally listed as threatened, grows to a maximum size of approximately 1 meter in shell length, and can weight nearly 200 kg. They have a small head, single-clawed flippers and a heart-shaped shell. The carapace of the shell has 5 vertebral scutes, 4 pairs of coastal scutes, and 12 pairs of marginal scutes. The head has a single pair of prefrontal scales and four postorbital scales behind each eye, with are distinguishing characteristics that differentiate this species from other hard-shell sea turtles. The term "green" refers to the subdermal fat, the carapace is generally light to dark brown and changes as the turtle grows from hatchling to adult. This species is globally distributed, and is believed to inhabit coastal waters of over 140

countries and nest in over than 80 countries worldwide (Seminoff et al. 2015). They spend a majority of their lives in coastal foraging grounds, including shallow waters on open coastline and in protected bays and lagoons. They rely primarily on marine algae and SAV for their diet, with some populations feeding extensively on invertebrates. Green turtles nest on sandy, ocean-facing beaches; characteristics vary but typically nesting beaches have intact dune structures and native vegetation. The clutches are laid at night at the base of a primary dune. Mean clutch size varies, an average is about 100 eggs per clutch (Seminoff et al. 2015). This species is regarded as a species of conservation concern; they are impacted by a variety of sources such as coastal development, beachfront lighting, erosion from sand mining, non-native vegetation, and sea level rise which affects hatchlings and nesting turtles. Fishing and marine pollution are shown to affect foraging and migrating green turtles, and fishery bycatch (trawling, gill net, and dredging) are also continued threats (Seminoff et al. 2015). Disease and predation are continuing threats to the North American population. The Service recommends that the Corps pursue appropriate coordination and consultation with NMFS who has Federal jurisdiction over the green sea turtle.

Atlantic Sturgeon (*Acipenser oxyriynchus oxyriynchus*)

Atlantic sturgeon, federally listed as endangered, is an anadromous species occurring on the Atlantic Coast of North America. Atlantic sturgeon are long-lived, anadromous fish reported to reach lengths of 459 cm and body weights of 364.9 kg. The Atlantic sturgeon is a bottom-feeder without teeth and has four whiskers halfway between its snout and mouth. The species has five rows of armor-like scales – called scutes – and the tail is longer on the top than on the bottom (ASSRT 2007). The species tends to reach maturity at 16 and 17 years for males and females, respectively. The number of eggs that can be produced is about 25,000 eggs per kg of body weight and females are thought to spawn once every 2 to 6 years, whereas males are thought to spawn every 1 to 5 years. Juveniles tend to spend 1 to 3 years in freshwater before spending their adult life in the marine environment. Spawning typically occurs in the spring over large gravel and other substrates when flow, pH, and other cues are optimal (ASSRT 2007). Populations of Atlantic sturgeon can be found from Quebec, Canada down along the Atlantic Coast and Gulf Coast to Louisiana with possible extirpation in Rhode Island and presumed extirpation in Washington, D.C. (NatureServe 2017). The primary threats for this species include habitat degradation including alteration and obstruction, vessel strikes, urbanization, pollution, and fishery by-catch (ASSRT 2007). The Service recommends that the Corps pursue appropriate coordination and consultation with NMFS who has Federal jurisdiction over Atlantic Sturgeon.

Kemp's Ridley Sea Turtle (*Lepidochelys kempii*)

The Kemp's Ridley sea turtle, federally listed as endangered, is one of the smallest of the sea turtles with adults reaching about 2 feet in length. The core habitat for Kemp's Ridley occurs in the nearshore and inshore waters of the northern Gulf of Mexico, 95 percent of worldwide nesting occurs in Tamaulipas, Mexico with occasional nesting in North Carolina, South Carolina, and Florida. Adult and sub-adult Kemp's Ridley primarily occupy nearshore habitat that contain

muddy or sandy bottoms where prey can be found. Hatchlings typically associate with floating Sargassum seaweed and juveniles remain within Gulf of Mexico currents while others are swept into the Atlantic Ocean by the Gulf Stream. Nesting occurs from April into July along the coast of Mexico, with an average of 2.5 times per season. Clutch size is around 100 eggs. The decline of Kemp's Ridley is due primarily to human activities, including the direct harvest of adults and eggs and incidental capture in commercial fishing operations. Other threats include marine debris, disease, chemical pollution, noise, and habitat degradation (NMFS et al. 2011). The Service recommends that the Corps pursue appropriate coordination and consultation with NMFS who has Federal jurisdiction over Kemp's Ridley sea turtle.

Leatherback Sea Turtle (*Dermochelys coriacea*)

The leatherback, federally listed as endangered, is the largest, deepest diving, and most migratory and wide ranging of all the sea turtles. They inhabit open ocean and nest on sandy beaches backed with vegetation and sloped sufficiently so that distance to dry sand is limited. The leatherback sea turtle is distributed worldwide in tropical and temperate waters of the Atlantic, Pacific, and Indian Oceans. Nesting occurs from March to July at an average of five to seven times within the nesting season. Clutch size averages 80 to 85 eggs. The decline of leatherback sea turtles is attributed to exploitation by humans for their eggs and meat, as well as incidental take in numerous commercial fisheries in the Pacific. Other factors include degradation of nesting habitat from coastal development, disorientation of hatchlings by beachfront lighting, nest predation by native and non-native predators, degradation of foraging habitat, marine pollution and debris, and watercraft strikes (NMFS and USFWS 2013). The Service recommends that the Corps pursue appropriate coordination and consultation with NMFS who has Federal jurisdiction over leatherback sea turtle.

Loggerhead Sea Turtle (*Caretta caretta*)

The loggerhead sea turtle, federally listed as endangered, is characterized by a large head with blunt jaws. It is found worldwide in tropical and temperate waters of the Atlantic, Pacific, and Indian Oceans, and is widely distributed throughout its range. The loggerhead sea turtle may be found hundreds of miles out to sea as well as in inshore areas such as bays, lagoons, salt marshes, creeks, ship channels, and the mouths of large rivers. Foraging occurs in coral reefs, rocky places, and ship wrecks. Nesting occurs mainly on open beaches or along narrow bays having suitable sand and it is often found in association with other species of sea turtles. Loggerheads are known to nest from one to seven times within a nesting season with an average of 4.1 nests. Average clutch size varies from 100 to 126 eggs. Threats include loss or degradation of nesting habitat from coastal development and beach armoring, disorientation of hatchlings by beachfront lighting, nest predation by native and nonnative predators, degradation of foraging habitat, marine pollution and debris, watercraft strikes, disease, and incidental take from channel dredging and commercial trawling, longline, and gill net fisheries (NMFS and

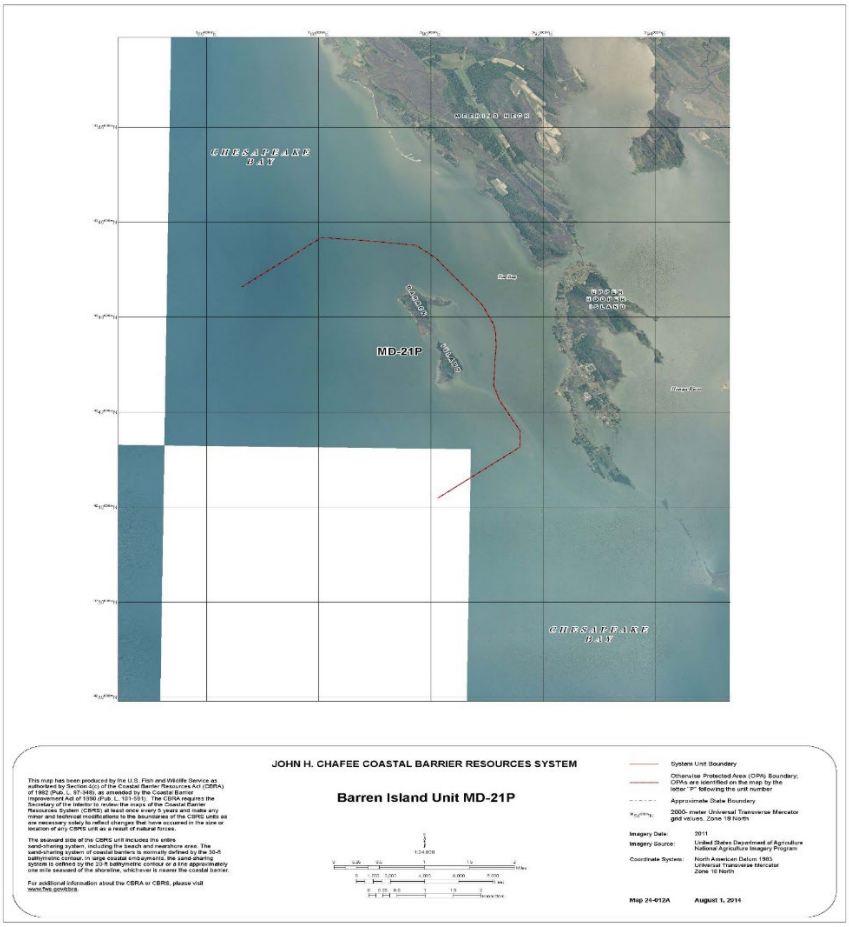
USFWS 2008). The Service recommends that the Corps pursue appropriate coordination and consultation with NMFS who has Federal jurisdiction over loggerhead sea turtle.

Shortnose Sturgeon (*Acipenser brevirostrum*)

Shortnose sturgeon is an anadromous species occurring on the Atlantic Coast of North America (Collins et al. 2000). Sturgeon grow in freshwater and then spend their adult life in saltwater. Juveniles tend to spend 1 to 3 years in freshwater before entering the marine environment. Spawning typically occurs in the spring over large gravel and other substrates when flow, pH, and other cues are optimal (Florida Fish and Wildlife Conservation Commission, 2013). The primary threats for this species include habitat degradation including alteration, urbanization, pollution, and fishery by-catch (Florida Fish and Wildlife Conservation Commission, 2013). Because there is a lack of available research for this area and a lack of documented use of this species in the Chesapeake Bay in the winter, it could be assumed that adults could be found in the Chesapeake Bay year-round. The Service recommends that the Corps pursue appropriate coordination and consultation with NMFS who has Federal jurisdiction.

Coastal Barrier Resources Act

The Coastal Barrier Resources Act (CBRA) and its amendments prohibit most new Federal expenditures that tend to encourage development or modification of coastal barriers. The laws do not restrict activities carried out with private or other non-Federal funds and only apply to the areas that are within the defined John H. Chafee Coastal Barrier Resource System (CBRS). The Barren Island project area is defined as an Otherwise Protected Area (OPA), therefore construction of the project would not be prohibited. The James project area has no CBRA areas. Figure 5 shows the extent of the mapped CBRA zone relative to the proposed Barrier Island project.



Invasive Species

The disturbance associated with the placement of fill material could encourage recruitment and/or spread of the invasive common reed (*Phragmites australis*) within or adjacent to the project area. Factors like construction, exposed soil, and the availability of nearby seed all contribute to the invasion of the species discussed in this section. The Service recommends that the project include a monitoring plan for this species pre- and post-construction, and include adaptive management measures such as identifying a threshold of acreage that would trigger implementing control measures if the need arises. The risk of common reed invasion will be greatest during the first years after construction and should decrease when the native vegetative cover becomes well established.

Nutria (*Myocastor coypus)* are large semi-aquatic mammals native to South America. They are about two feet long, with a large head, short legs and stout body; adults weigh 15-20 pounds, about one-third the size of a beaver, and 5-8 times larger than a muskrat. They are dark brown in color and are highly adapted for semi-aquatic life. The species was originally brought to the United States in the late 1800's for its fur. The nutria fur market collapsed about fifty years later,

and subsequently thousands of nutria were released or escaped by those who could no longer afford to feed and house them. Nutria are herbivores, and can destroy crops, native aquatic vegetation and have been known to decimate marsh and wetland areas. Their preferred diet includes roots, rhizomes and tubers of cattails, cordgrass and bulrush. Nutria feed on these plants that hold wetland soil together, which intensifies the loss of coastal marshes that has been exacerbated by sea level rise (USDA Aphis 2020). Their style of eating, digging, rooting and swimming exacerbates erosion and accelerates the conversion of healthy marsh into open water. They have a high reproductive rate and have been found in over 20 states. Maryland's eastern shore has lost thousands of acres of marshland due to nutria's feeding habits. The Chesapeake Bay Nutria Eradication Project (CBNEP) began in 2002 to remove nutria from the marshes of the Delmarva and to protect, enhance and restore the ecosystems damaged by nutria feedings. Because of CBNEP's efforts, the team has nearly eradicated nutria from Blackwater National Wildlife Refuge and continues to monitor the area to confirm absence (USDA Aphis 2020). The Service recommends that the project include monitoring for the presence of nutria and provide for implementing control measures if the need arises.

Mute Swan (*Cygnus olor)* are an invasive species, native to Eurasia that was brought to the United States in the late 19th century. They are recognizable by their large size, all white feathers and orange bills (the bill color is what distinguishes them from other swan species). Their weight ranges from 16 to 25 pounds, with a wingspan of up to 8 feet. Their nests are 5 to 6 feet in diameter, and about 1.5 to 2 feet high. They typically use emergent wetland vegetation to construct their nests (USDA Aphis 2018). Mute swans have a clutch size of between 5 to 6 eggs and nesting begins around March. They are primarily diurnal and feed exclusively on submerged aquatic vegetation, up to 8 pounds of vegetation each day, which destroys a valuable resource for other wildlife and fish. Mute swans only consume about half of the SAV they uproot, remnant SAV is often found floating in areas where they have fed. SAV is critical to the health of many organisms, it protects water quality, prevents erosion and provides food and shelter for fish, shellfish, invertebrates and waterfowl. MDNR completed research that provided evidence that SAV grazing by mute swans, especially during spring and fall growth, during reproductive periods, and when SAV is planted is an impediment to achieving objectives that were identified in the Vital Habitat Protection and Restoration Section of the Chesapeake 2000 Agreement (MDNR 2011). The Chesapeake 2000 Agreement is a cooperative agreement that was signed by Governors of Maryland, Virginia, and Pennsylvania, Mayor of the District of Columbia, Chesapeake Bay Commission and the Environmental Protection Agency. It includes goals that address invasive species and SAV restoration. The Agreement directed jurisdictions to identify invasive species that were of significant negative impact to the Bay's ecosystem and required the formulation and development of management plans for those species. Mute swan was identified as one of the priority species requiring regional management and population control. They are direct competitors for other waterfowl with respect to food and nesting habitat and can be extremely aggressive when nesting and raising young. During one incident on Barren Island, a

large flock of swans caused a colony of state-listed least terns and black skimmers to abandon their nesting colony, and had trampled nests, eggs and chicks (USDA Aphis 2018; Matt Whitbeck Pers. Comm.). MDNR promulgated regulations that guide captive swan management and prohibit the sale, transfer, importation, and exportation of mute swans. MDNR management objectives include reducing the mute swan population to as few birds as possible to restore and enhance the Bay's Living Resources (MDNR 2011). The Service recommends that the project include monitoring for the presence of mute swans and provide for implementing control measures if the need arises through coordination with MDNR.

Conclusion

The Mid-Chesapeake Bay Ecosystem Restoration Project at Barren and James Islands will use clean dredged material from the bay's channels to restore and create tidal wetland and upland areas. These newly created areas should provide critical island habitat for many of the Service's trust resources and priority species. Construction occurring in habitat areas where black rail is present will require a Section 7 consultation. Consultation pursuant to the Endangered Species Act of 1973 will also be required with the Service if the presence of any other threatened and endangered species occurs within the project area of impact. Additionally, there are several species that utilize the project area that are state listed as threatened or endangered (least tern, common tern, and royal tern). The Wildlife and Heritage Services within MDNR is responsible for the identification and protection of these species in Maryland. Invasive species detection and monitoring (principal concern being common reed, nutria, and mute swan) should be a component of project implementation. Best management practices should be implemented to avoid detrimental impacts to aquatic resources. Coordination with NMFS is recommended regarding potential impacts to EFH and NMFS trust resources.

The preferred alternative should minimize any adverse effects to Service trust resources by optimizing for environmentally compatible options such as maintaining and enhancing important habitats through beneficial use of dredge material. Many of the species mentioned require high marsh habitat and would benefit most with alternatives proposing a greater percentage of high marsh. Irregularly flooded high marsh is of particular value in this area. High marsh habitat is critical for the survival of several at-risk species, including black rail and saltmarsh sparrow. Maryland's Eastern Shore was historically a center of abundance for black rails, but populations have declined more than 90 percent in less than 25 years (Watts 2016). Saltmarsh sparrows are specialists of irregularly flooded high marsh habitat. Range wide, saltmarsh sparrow populations are estimated to have declined 87 percent since the late 1990s (USFWS 2020). Managing and restoring high marsh habitat is critical to the survival of these species in the Chesapeake Bay. From a longevity standpoint, maximizing the elevation of the marsh surface within the tide range will maximize the resilience of the marsh to relative sea level rise, as well as provide critical habitats for at-risk species. The higher the marsh surface within the tidal zone (i.e. elevation capital), the longer the marsh can remain vegetated given the pressure of relative sea level rise (Cahoon and Guntenspergen 2010). Equally important, belowground biomass for *Spartina*

patens is highest at higher elevations and decreases with increasing rates of inundation (Kirwan and Guntenspergen 2015). Below ground plant biomass is an important biological mechanism for building marsh elevation and keeping pace with sea level rise (Kirwan and Megonigal 2013).

The Service also recommends placing bird islands on the southern boundary of the project area. These islands should be placed as far from Barren Island as possible. Increasing distance will create isolation for the nesting colonies and make it more difficult for predators to access the bird islands. The islands should be between 1-3 ac (based on what has been successful at Poplar Island), and at least 12" of shell material placed on top to encourage colony nesting as well as discourage vegetation growth.

We also recommend that the Corps consider altering the design and direction of the breakwater proposed to be placed at the south end of the project area. We recommend extending the breakwater to allow for a more southern placement of bird islands. This could mean potentially encroaching on the natural oyster beds (NOB) and SAV sites. If the breakwater is extended in a more eastern direction this could affect SAV and oyster growth during construction phase, but would protect SAV and oyster beds in the long term, and could offer protection to the leeward side of Barren Island and the bird islands.

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Appendices

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Dorchester County, Maryland

Local office

Chesapeake Bay Ecological Services Field Office

(410) 573-4599
(410) 266-9127

177 Admiral Cochrane Drive
Annapolis, MD 21401-7307

http://www.fws.gov/chesapeakebay/
http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

THERE ARE NO ENDANGERED SPECIES EXPECTED TO OCCUR AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE.

"BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

American Oystercatcher Haematopus palliatus — Breeds Apr 15 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8935

Bald Eagle Haliaeetus leucocephalus — Breeds Oct 15 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Black Scoter Melanitta nigra — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Black-billed Cuckoo Coccyzus erythropthalmus — Breeds May 15 to Oct 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9399

Bobolink Dolichonyx oryzivorus — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Bonaparte's Gull Chroicocephalus philadelphia — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Brown Pelican Pelecanus occidentalis — Breeds Jan 15 to Sep 30
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/6034

Clapper Rail Rallus crepitans — Breeds Apr 10 to Oct 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Common Loon gavia immer — Breeds Apr 15 to Oct 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/4464

Common Tern Sterna hirundo — Breeds May 10 to Sep 10

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/4963

Double-crested Cormorant phalacrocorax auritus — Breeds Apr 20 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/3478

Dunlin Calidris alpina arcticola — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Golden Eagle Aquila chrysaetos — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Great Black-backed Gull Larus marinus — Breeds Apr 15 to Aug 20

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Herring Gull Larus argentatus — Breeds Apr 20 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

King Rail Rallus elegans — Breeds May 1 to Sep 5

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8936

Least Tern Sterna antillarum — Breeds Apr 20 to Sep 10
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Long-tailed Duck Clangula hyemalis — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/7238

Northern Gannet Morus bassanus — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Prairie Warbler Dendroica discolor — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prothonotary Warbler Protonotaria citrea — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Purple Sandpiper Calidris maritima — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-breasted Merganser Mergus serrator — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-throated Loon Gavia stellata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Ring-billed Gull Larus delawarensis — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Royal Tern Thalasseus maximus — Breeds Apr 15 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Ruddy Turnstone Arenaria interpres morinella — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Seaside Sparrow Ammodramus maritimus — Breeds May 10 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Semipalmated Sandpiper Calidris pusilla — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Surf Scoter Melanitta perspicillata — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

White-winged Scoter Melanitta fusca — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Willet Tringa semipalmata — Breeds Apr 20 to Aug 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wood Thrush Hylocichla mustelina — Breeds May 10 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

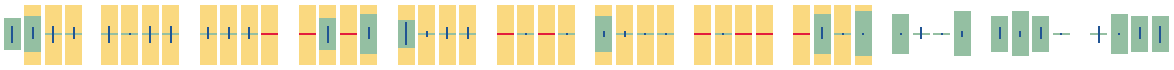
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

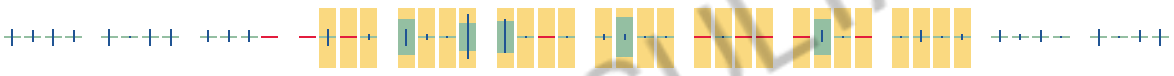
■ probability of presence ■ breeding season | survey effort – no data

Bonaparte's Gull
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Brown Pelican
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



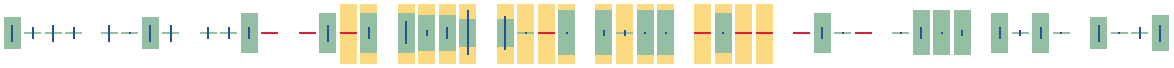
Clapper Rail
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Common Loon
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Common Tern
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Double-crested Cormorant
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Dunlin
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

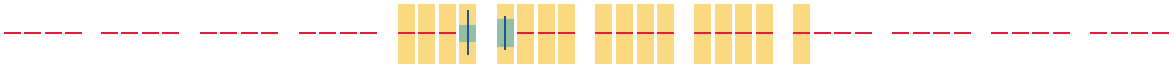
SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Great Black-backed Gull
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Herring Gull
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

King Rail
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



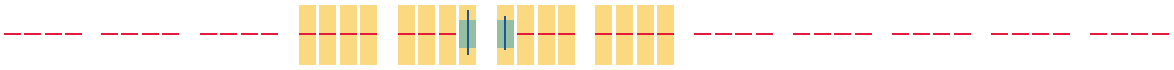
Least Tern
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Long-tailed Duck
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Northern Gannet
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Prairie Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

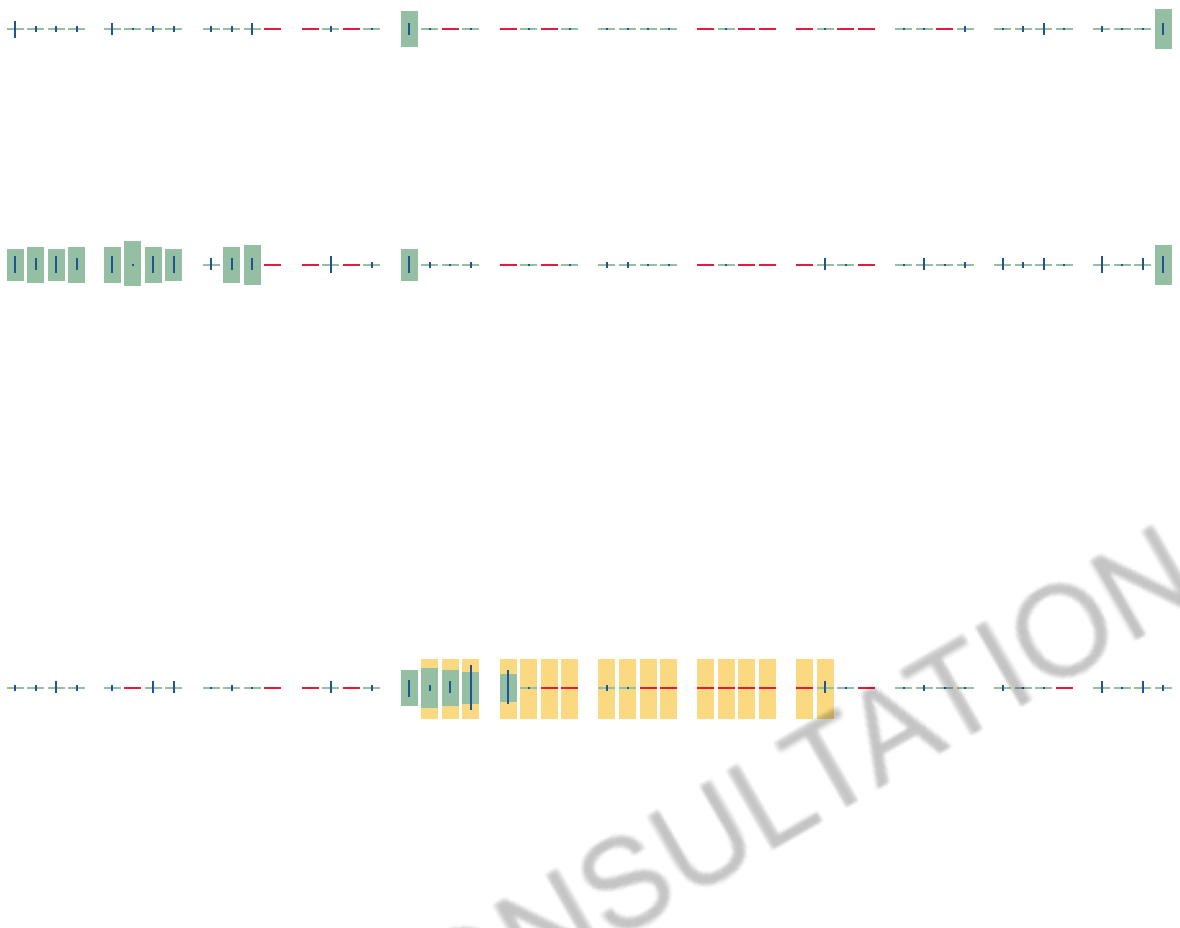
Prothonotary Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Purple Sandpiper
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Red-breasted Merganser
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

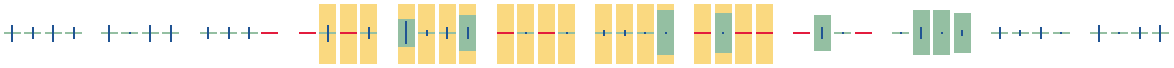
Red-headed Woodpecker
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Red-throated Loon
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

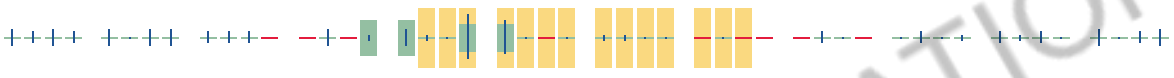
Ring-billed Gull
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Royal Tern
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Ruddy Turnstone
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

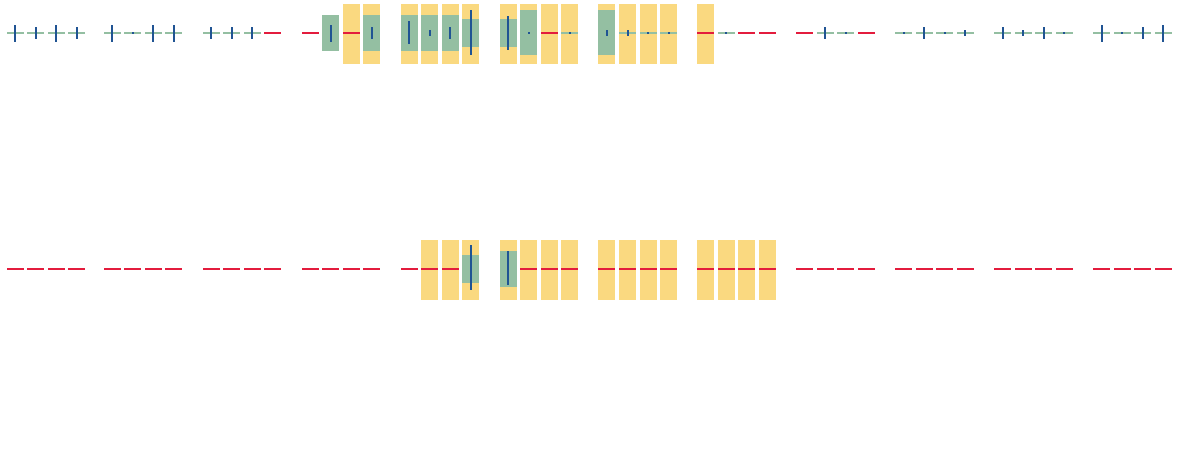
Seaside Sparrow
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Semipalmated Sandpiper
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Surf Scoter
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

White-winged Scoter
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wood Thrush
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds

guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize

potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly a ected by activities in the project area. However, determining the likelihood and extent of e ects a project may have on trust resources typically requires gathering additional site-speci c (e.g., vegetation/species surveys) and project-speci c (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS o ce(s) with jurisdiction in the de ned project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Dorchester County, Maryland

Local office

Chesapeake Bay Ecological Services Field O ce

(410) 573-4599
(410) 266-9127

177 Admiral Cochrane Drive
Annapolis, MD 21401-7307

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of in uence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly a ected by activities in that area (e.g., placing a dam upstream of a sh population even if that sh does not occur at the dam site, may indirectly impact the species by reducing or eliminating water ow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential e ects to species, additional site-speci c and project-speci c information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local o ce and a species list which ful lls this requirement can **only** be obtained by requesting an o cial species list from either the Regulatory Review section in IPaC (see directions below) or from the local eld o ce directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an o cial species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the sheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an o ce of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially a ected by activities in this location:

Insects

NAME	STATUS
Monarch Butter y Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential e ects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have e ects on all above listed species.

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service o ce.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/ les/documents/nationwide-standard-conservation-measures.pdf

- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

What does IPaC use to generate the potential presence of bald and golden eagles in my speci ed location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and ltered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identi ed as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my speci ed location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and ltered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identi ed as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to o shore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field O ce if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Speci cally, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/ les/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may nd in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur o the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black Scoter Melanitta nigra This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.	Breeds elsewhere

Brown Pelican Pelecanus occidentalis — Breeds Jan 15 to Sep 30

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/6034

Common Loon gavia immer — Breeds Apr 15 to Oct 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/4464

Long-tailed Duck Clangula hyemalis — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/7238

Red-breasted Merganser Mergus serrator — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.

Red-throated Loon Gavia stellata — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.

Ring-billed Gull Larus delawarensis — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.

Royal Tern Thalasseus maximus — Breeds Apr 15 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.

Surf Scoter Melanitta perspicillata — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.

White-winged Scoter Melanitta fusca — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.

Wilson's Storm-petrel Oceanites oceanicus — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in o shore areas from certain types of development or activities.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", speci cally the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence ( )

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey e ort (see below) can be used to establish a level of con dence in the presence score. One can have higher con dence in the presence score if the corresponding survey e ort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum

probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

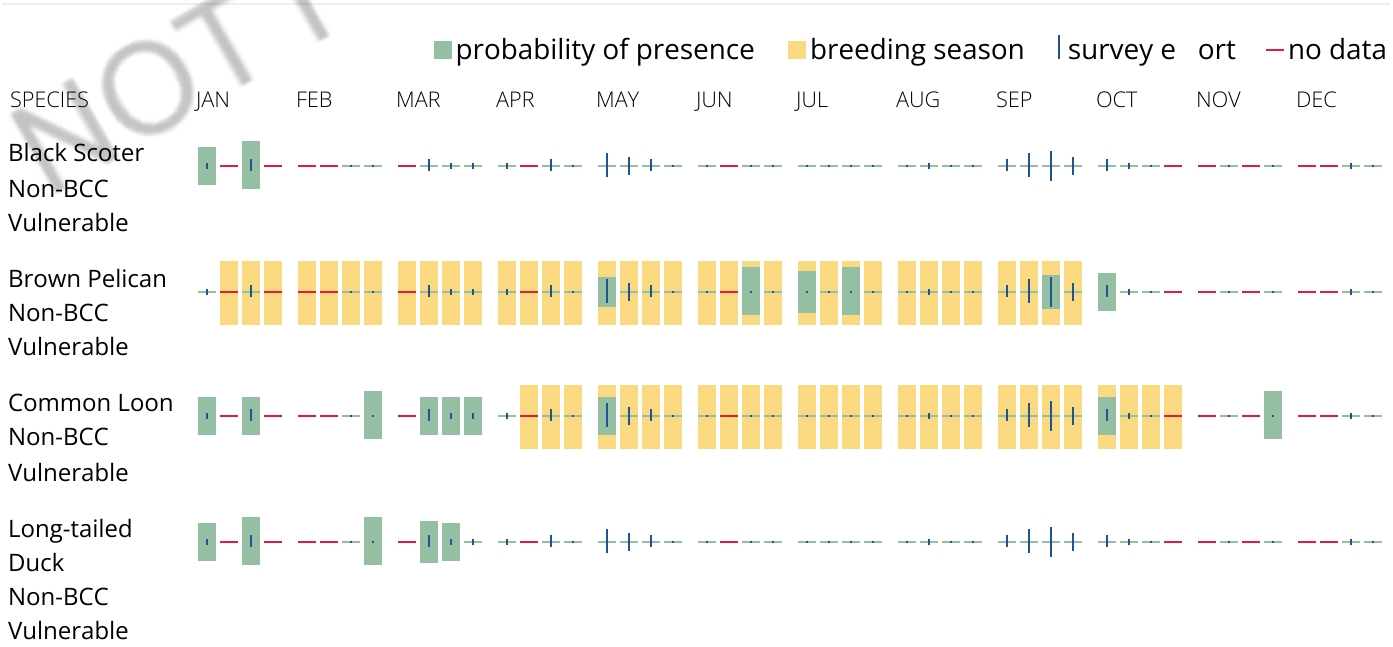
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey e ort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas o the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my speci ed location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and ltered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identi ed as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to o shore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my speci ed location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the pro les provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe speci ed. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Paci c Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in o shore areas from certain types of development or activities (e.g. o shore energy development or longline shing).

Although it is important to try to avoid and minimize impacts to all birds, e orts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially a ected by o shore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area o the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also o ers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results les underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my speci ed location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey e ort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey e ort is the key component. If the survey e ort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey e ort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to con rm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be con rmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also

been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may de ne and describe wetlands in a di erent manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to de ne the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modi cations within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning speci ed agency regulatory programs and proprietary jurisdictions that may a ect such activities.

Change location | Year-round, All years

Barren Island

Dorchester County (/region/US-MD-019?yr=all&m=), Maryland (/region/US-MD?yr=all&m=), US (/region/US?yr=all&m=)

Map(/hotspots?hs=L630506&yr=all&m=)

Directions(https://www.google.com/maps/search/?api=1&query=38.3415216,-76.2627983)

Hotspot navigation

Overview (/hotspot/L630506?yr=all&m=)

Illustrated Checklist (/hotspot/L630506/media?yr=all&m=)

VIEW MY...

My eBird (/myebird/L630506)

Life List (/MyEBird?cmd=lifeList&time=life&listType=L630506)

Target Species (/targets?r1=L630506&bmo=1&emo=12)

EXPLORE...

Hotspot Map (/hotspots?hs=L630506&yr=all&m=)

Bar Charts (/barchart?r=L630506&yr=all&m=)

Media (https://ebird.org/media/catalog?regionCode=L630506)

Printable Checklist (/printableList?regionCode=L630506&yr=all&m=)

55
Species observed
(/hotspot/L630506?yr=all&m=)

6
Complete checklists
(/hotspot/L630506/activity?yr=all&m=)

Sightings

Updated 93 sec ago.

Last seen (/hotspot/L630506?yr=all&m=&rank=mrec) | **First seen (/hotspot/L630506?yr=all&m=&rank=lrec)**

High counts (/hotspot/L630506?yr=all&m=&rank=hc)

Show all details | Sort by

SPECIES NAME (/HOTSPOT/L630506?YR=ALL&M=&RANK=MREC&HS_SORTBY=TAXON_ORDER&HS_O=ASC)	COUNT (/HOTSPOT/L630506?YR=ALL&M=&RANK=MREC&HS_SORTBY=COUNT&HS_O=DESC)	DATE (/HOTSPOT/L630506?YR=ALL&M=&RANK=MREC&HS_SORTBY=DATE&HS_O=ASC)	OBSERVER

1. **Clapper Rail(/species/clarai11/L630506)**

1 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

2. **Sanderling(/species/sander/L630506)**
5 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

3. **Laughing Gull(/species/laugul/L630506)**
25 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

4. **Ring-billed Gull(/species/ribgul/L630506)**
3 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

5. **Forster's Tern(/species/forter/L630506)**
6 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

6. **Double-crested Cormorant(/species/doccor/L630506)**
100 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

7. **American White Pelican(/species/amwpel/L630506)**
1 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

8. **Brown Pelican(/species/brnpel/L630506)**
30 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

9. **Great Blue Heron(/species/grbher3/L630506)**
2 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

10. **Great Egret(/species/greegr/L630506)**
5 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

11. **Bald Eagle(/species/baleag/L630506)**
3 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

12. **Northern Flicker(/species/norfli/L630506)**
1 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

13. **Palm Warbler(/species/palwar/L630506)**
2 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

14. **Yellow-rumped Warbler(/species/yerwar/L630506)**
1 23 Sep 2020 (/checklist/S73966346) Matt Whitbeck

15. **Ruddy Turnstone(/species/rudtur/L630506)**
1 17 Sep 2020 (/checklist/S73707535) Matt Whitbeck

16. **Greater Yellowlegs(/species/greyel/L630506)**
1 17 Sep 2020 (/checklist/S73707535) Matt Whitbeck

17. **Royal Tern(/species/royter1/L630506)**
4 17 Sep 2020 (/checklist/S73707535) Matt Whitbeck

18. **Seaside Sparrow(/species/seaspa/L630506)**
1 17 Sep 2020 (/checklist/S73707535) Matt Whitbeck

1 17 Sep 2020 (/checklist/S73707535) Matt Whitbeck

19. **Common Tern(/species/comter/L630506)**
    # 1 3 Aug 2019 (/checklist/S58713136) Cliff Lamm

20. **Osprey(/species/osprey/L630506)**
    # 3 3 Aug 2019 (/checklist/S58713136) Cliff Lamm

21. **Red-winged Blackbird(/species/rewbla/L630506)**
    # 3 3 Aug 2019 (/checklist/S58713136) Cliff Lamm

22. **Least Sandpiper(/species/leasan/L630506)**
    # 4 21 Sep 2018 (/checklist/S48667585) Matt Whitbeck

23. **Spotted Sandpiper(/species/sposan/L630506)**
    # 1 21 Sep 2018 (/checklist/S48667585) Matt Whitbeck

24. **American Crow(/species/amecro/L630506)**
    # 2 21 Sep 2018 (/checklist/S48667585) Matt Whitbeck

25. **Brown-headed Nuthatch(/species/bnhnut/L630506)**
    # 2 21 Sep 2018 (/checklist/S48667585) Matt Whitbeck

26. **Mourning Dove(/species/moudov/L630506)**
    # 2 9 Jul 2016 (/checklist/S30622730) Fred Shaffer

27. **Killdeer(/species/killde/L630506)**
    # 1 9 Jul 2016 (/checklist/S30622730) Fred Shaffer

28. **Herring Gull(/species/hergul/L630506)**
    # 48 9 Jul 2016 (/checklist/S30622730) Fred Shaffer

29. **Great Black-backed Gull(/species/gbbgul/L630506)**
    # 20 9 Jul 2016 (/checklist/S30622730) Fred Shaffer

30. **Snowy Egret(/species/snoegr/L630506)**
    # 4 9 Jul 2016 (/checklist/S30622730) Fred Shaffer

31. **Green Heron(/species/grnher/L630506)**
    # 3 9 Jul 2016 (/checklist/S30622730) Fred Shaffer

32. **Turkey Vulture(/species/turvul/L630506)**
    # 3 9 Jul 2016 (/checklist/S30622730) Fred Shaffer

33. **Eastern Kingbird(/species/easkin/L630506)**
    # 3 9 Jul 2016 (/checklist/S30622730) Fred Shaffer

34. **Blue Jay(/species/blujay/L630506)**
    # 1 9 Jul 2016 (/checklist/S30622730) Fred Shaffer

35. **Purple Martin(/species/purmar/L630506)**

15 | 9 Jul 2016 (/checklist/S30622730) | Fred Shaffer

36. **Barn Swallow(/species/barswa/L630506)**
8 | 9 Jul 2016 (/checklist/S30622730) | Fred Shaffer

37. **House Wren(/species/houwre/L630506)**
1 | 9 Jul 2016 (/checklist/S30622730) | Fred Shaffer

38. **Carolina Wren(/species/carwre/L630506)**
3 | 9 Jul 2016 (/checklist/S30622730) | Fred Shaffer

39. **Northern Mockingbird(/species/normoc/L630506)**
1 | 9 Jul 2016 (/checklist/S30622730) | Fred Shaffer

40. **American Goldfinch(/species/amegfi/L630506)**
1 | 9 Jul 2016 (/checklist/S30622730) | Fred Shaffer

41. **Eastern Meadowlark(/species/easmea/L630506)**
1 | 9 Jul 2016 (/checklist/S30622730) | Fred Shaffer

42. **Orchard Oriole(/species/orcori/L630506)**
1 | 9 Jul 2016 (/checklist/S30622730) | Fred Shaffer

43. **Common Grackle(/species/comgra/L630506)**
1 | 9 Jul 2016 (/checklist/S30622730) | Fred Shaffer

44. **Common Yellowthroat(/species/comyel/L630506)**
2 | 9 Jul 2016 (/checklist/S30622730) | Fred Shaffer

45. **Northern Cardinal(/species/norcar/L630506)**
1 | 9 Jul 2016 (/checklist/S30622730) | Fred Shaffer

46. **Indigo Bunting(/species/indbun/L630506)**
1 | 9 Jul 2016 (/checklist/S30622730) | Fred Shaffer

47. **American Oystercatcher(/species/ameoys/L630506)**
2 | 5 Jul 2016 (/checklist/S37796513) | Tom Feild

48. **Canada Goose(/species/cangoo/L630506)**
37 | 29 Feb 2016 (/checklist/S27929140) | David Bent

49. **Tundra Swan(/species/tunswa/L630506)**
X | 29 Feb 2016 (/checklist/S27929140) | David Bent

50. **Canvasback(/species/canvas/L630506)**
X | 29 Feb 2016 (/checklist/S27929140) | David Bent

51. **Redhead(/species/redhea/L630506)**
X | 29 Feb 2016 (/checklist/S27929140) | David Bent

52. **Greater Scaup(/species/gresca/L630506)**

# 100	29 Feb 2016 (/checklist/S27929140)	David Bent	

53. **Lesser Scaup(/species/lessca/L630506)**

# X	29 Feb 2016 (/checklist/S27929140)	David Bent

Show all sightings

Top media UPLOADED IN LAST 30 DAYS

No media submitted

Latest media (https://ebird.org/media/catalog?regionCode=L630506)

Recent visits

OBSERVER	DATE	SPECIES
Matt Whitbeck	23 Sep 2020 (/checklist/S73966346)	14
Matt Whitbeck	17 Sep 2020 (/checklist/S73707535)	12
Cliff Lamm	3 Aug 2019 (/checklist/S58713136)	7
Matt Whitbeck	21 Sep 2018 (/checklist/S48667585)	15
Fred Shaffer	9 Jul 2016 (/checklist/S30622730)	32
Tom Feild	5 Jul 2016 (/checklist/S37796513)	1
David Bent	29 Feb 2016 (/checklist/S27929140)	6
Lynn Davidson	9 May 2015 (/checklist/S23482501)	9
David Palmer	13 Dec 2014 (/checklist/S20879260)	5
MD Historical Data	26 May 1985 (/checklist/S4455981)	1

Checklists submitted within the last hour are not shown.

More recent visits (/hotspot/L630506/activity?yr=all&m=)

Top eBirders

Updated 93 sec ago.

Species (/hotspot/L630506?yr=all&m=&sortBy=spp) **Checklists (/hotspot/L630506?yr=all&m=&sortBy=cl)**

1	Fred Shaffer	32
2	Matt Whitbeck	23
3	Lynn Davidson	9
4	Cliff Lamm	7

5	David Bent		6
6	David Palmer		5
7	Tom Feild	1	

Audubon | MID-ATLANTIC

Breeding Bird Monitoring at Barren Island, 2021

Draft Report – September 28, 2021

David Curson, Director of Bird Conservation

Introduction

A breeding season survey of birds was completed at Barren Island during 2021 using SHARP marshbird survey protocol in order to collect baseline data on marshbirds prior to the application of dredged materials as part of the Mid-Bay project. The bird survey was completed by David Curson of Audubon Mid-Atlantic, under contract from USFWS Chesapeake Bay Field Office (CBF0). Christina Olson of the USACE Baltimore District assisted with survey planning, field data collection, and data entry and created the location map, while interning at CBFO. Boat transport to Barren Island was provided by CBFO staff.

Methods

Birds at Barren Island were surveyed during the breeding season (May – July), using the SHARP marshbird monitoring protocol (Saltmarsh Habitat and Avian Research Project – see http://www.tidalmarshbirds.org/). This protocol consist of point count surveys, and include call broadcasts to elicit responses from secretive marshbirds and other selected species. In Maryland, 7 species are included in the broadcast: Black Rail, Least Bittern, Virginia Rail, King Rail, Clapper Rail, Common Moorhen, Song Sparrow. The broadcast section of the survey is preceded by a 5-minute period of silence and the entire point count survey lasted 12 minutes. Surveys were conducted in morning hours between sunrise (5:45am) and 10am at five points across Barren Island. Two replicate surveys were completed at each point. The first survey visit at all points was on May 18 and the second survey visit was on June 7.

A vegetation survey was completed within a 50m-radius circle centered on each bird survey point, following SHARP protocol. The vegetation survey measured the approximate extent (in six categories) of different wetland habitats including: low marsh, high marsh, salt marsh terrestrial border, brackish marsh terrestrial border, invasive species (*Phragmites*), "pannes, pools and creeks", open water, upland, and wrack. The number of dead snags was counted and the extent (percentage cover) of any dominant plant species was estimated by eye on the ground. This methodology describes the vegetation types sufficiently to interpret bird abundance measurements.

Survey points were selected in order to maximize the coverage of potential habitat for tidal marsh birds across the two remaining fragments of Barren Island. Initial inspection of aerial imagery yielded six potential survey points, but one of these (on the southern island fragment) was rejected after a field reconnaissance visit found it to be dominated by *Phragmites* and regenerating loblolly pine. Of the final

array of five survey points, four points were located on the northern island fragment and one was located on the southern island fragment (see Figure 1). During surveys, all birds detected over an unlimited distance were counted, and these were recorded in one of three distance categories: 0-50m, 51-100m, and >100m. The aerial image in Figure 1. indicates that a little over half of the marsh habitat on Barren Island lies within 100m of a survey point, and virtually all of the marsh habitat lies within 200m of a survey point. Since most marshbirds can be detected upto 200m, our survey covered the great majority of marsh habitat on the island.

Figure 1. SHARP marshbird survey points at Barren Island in 2021.

Table 1 shows the dominant marsh vegetation at each of the survey points. In the northwestern portion of the island, at points BAR1 and BAR2, the marsh is dominated by black needlerush (*Juncus roemerianus)*. In the southeastern part of the island at points BAR3, BAR4 and BAR5, meadows of *Spartina patens*, *Spartina alterniflora* (shortform), and *Distichlis spicata* predominate.

Table 1. Percentage extent of dominant plant species at each of five survey points at Barren Island in 2021.

	Cover (%) within 50m-radius circle				
Plant species	**BAR1**	**BAR2**	**BAR3**	**BAR4**	**BAR5**
Iva frutescens	0	0	0	0	5
Juncus roemerianus	75	75	0	0	0
Distichlis spicata	10	0	0	0	30
Spartina patens	10	10	5	50	45
Spartina alterniflora (short)	0	0	95	50	15

Results and Discussion

A total of 37 bird species was observed on Barren Island during the two days on which surveys were conducted in 2021. Table 2 shows the mean relative abundance of each species across the five survey points. Although tidal marsh birds were the focus of the surveys, the survey points were close enough to neighboring forest, shrub and open water habitats to document species in these habitats. Of the 37 species detected, 13 species predominantly use marsh habitats, 13 inhabit forest or forest edge habitats, seven species are habitat generalists and four species are aerial insectivores (swallows and swifts). Two of the forest species, Blackpoll Warbler and Blackburnian Warbler, were migrant individuals on their way to breeding grounds in Appalachian/Boreal coniferous forest further north. All other forest and generalist bird species were within breeding range and habitat and could have been breeding on the island.

Table 2. Mean relative abundance (detections/survey point) of birds at Barren Island in 2021. P indicates species observed but not within the 12-minute survey period.

Species	**Habitat Assemblage**	**Detections <100m/survey visit (n=10 pts)**	**Detections all distances /survey visit (n=10 pts)**
American Crow	Generalist	0	0.2
Bald Eagle	Generalist	0.1	0.2
Barn Swallow	Aerial	0.2	0.2
Blackburnian Warbler	Forest	0.1	0.1
Black-crowned Night Heron	Marsh	0	0.1
Blackpoll Warbler	Forest	0	0.1
Boat-tailed Grackle	Marsh	0.8	1.2
Canada Goose	Marsh	0.2	0.2
Carolina Chickadee	Forest	0	0.1
Carolina Wren	Forest	0.4	1.5
Chimney Swift	Aerial	0.1	0.1
Clapper Rail	Marsh	2.3	2.9

Common Grackle	Generalist	0.3	0.3
Common Yellowthroat	Marsh	0.2	0.4
Double-crested Cormorant	Marsh	0.1	0.1
Eastern Kingbird	Generalist	0.6	0.9
European Starling	Generalist	0.1	0.1
Great Blue Heron	Marsh	1.3	2.3
Great Egret	Marsh	0	0.6
Great-crested Flycatcher	Forest	0.1	0.4
Least sandpiper	Marsh	1.1	2.1
Mallard	Marsh	0.3	0.3
Northern Cardinal	Forest	0	0.4
Northern Mockingbird	Forest	0.1	0.1
Northern Parula	Forest	0.1	0.1
Orchard Oriole	Forest	0	0.6
Osprey	Generalist	0.2	0.3
Pine Warbler	Forest	0.2	0.6
Prairie Warbler	Forest	0	0.1
Purple Martin	Aerial	0.4	0.4
Red-winged Blackbird	Marsh	5.7	7.5
Summer Tanager	Forest	0	0.1
Tree Swallow	Aerial	0.3	0.3
Tricolored Heron	Marsh	0	0.1
Turkey Vulture	Generalist	0	0.2
Willet	Marsh	P	P
Yellow Warbler	Forest	0.2	0.3

Marshbird Community

Table 3 shows relative abundance of marshbirds at each survey point individually in order to show variation across the marsh habitat patches on the island. Not all of the 13 species breed on Barren Island. Least Sandpiper is a long-distance migrant that nests in the American sub-arctic region. The nearest known nesting colonies of Black-crowned Night Heron and Tricolored Heron are on Bloodsworth Island and birds from these colonies visit other islands to forage. Most of the remaining species in Table 3 are common birds which use a wide variety of wetland habitat types. Great Blue Heron and Great Egret nest in trees on Barren Island and are documented more fully by Maryland DNR's colonial waterbird survey.

Only one salt marsh obligate species, Clapper Rail, was detected on the surveys. Clapper Rails were common at points BAR3 and BAR4 in the *Spartina* meadows of the southern and eastern portions of the northern island fragment. Clapper Rails were detected much less frequently in the needlerush marsh, and were not detected in the small patch of *Spartina* meadow at the southern tip of the island (BAR5). Another salt marsh obligate breeder, Willet, was not detected during the surveys but two individuals

were present at point BAR1 outside the survey period on May 18. These may have been migrants or may have been prospecting for a nest site – however they were not detected on the second visit on June 7.

Table 3. Mean relative abundance (detections/survey point) of marshbirds at each of five survey points at Barren Island in 2021. P indicates species observed but not within the 12-minute survey period.

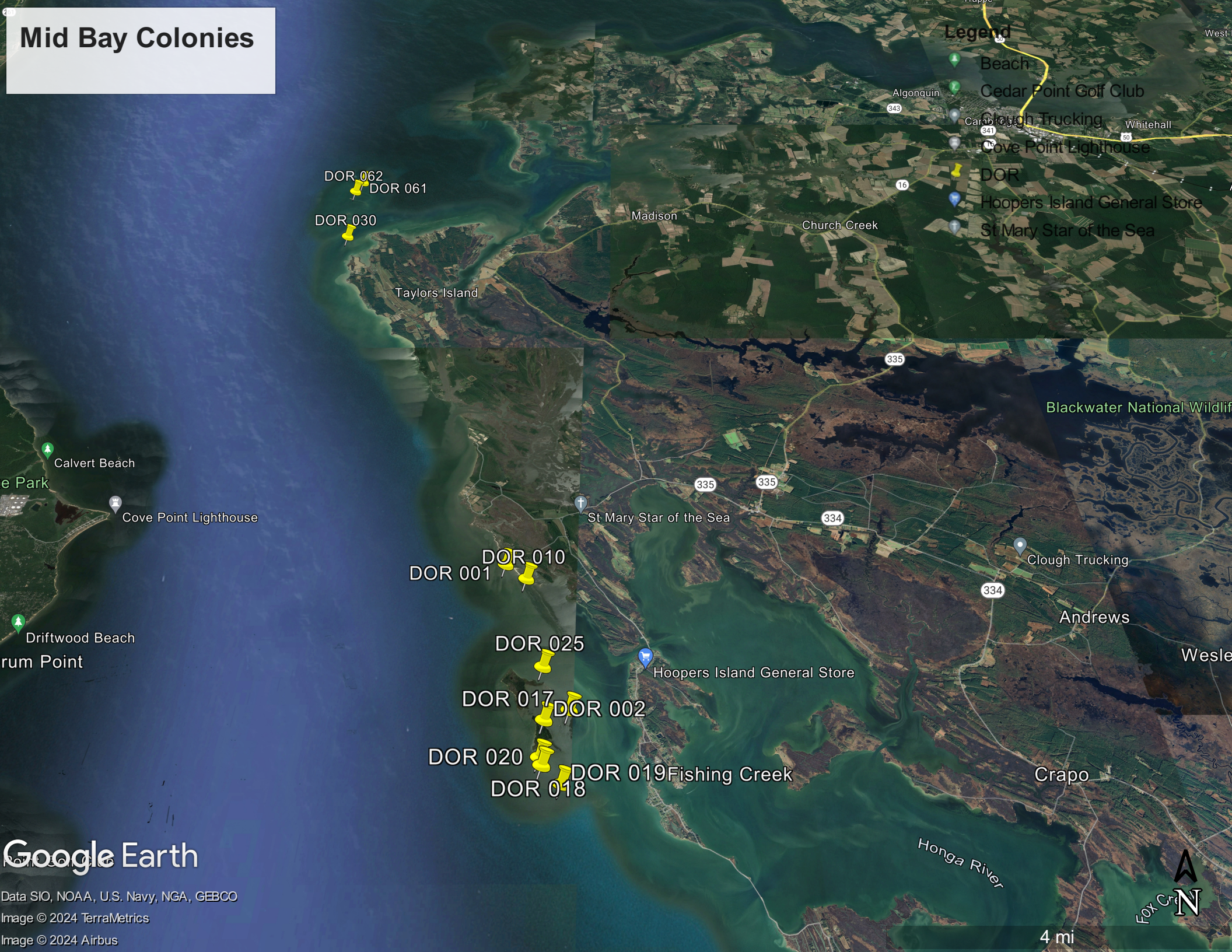
		Mean detections/survey visit (n=2) at each survey point				
Species	**Habitat assemblage**	**BAR1**	**BAR2**	**BAR3**	**BAR4**	**BAR5**
Black-crowned Night Heron	Marsh	0	0	0.5	0	0
Boat-tailed Grackle	Marsh	2	1.5	1	1.5	0
Canada Goose	Marsh	1	0	0	0	0
Clapper Rail	Marsh	0	1	5.5	8	0
Common Yellowthroat	Marsh	1.5	0	0.5	0	0
Double-crested Cormorant	Marsh	0	0.5	0	0	0
Great Blue Heron	Marsh	0	0	3	2	6.5
Great Egret	Marsh	0.5	0.5	2	0	0
Least sandpiper	Marsh	3	6.5	0	0	1
Mallard	Marsh	0	0	0	1	0.5
Red-winged Blackbird	Marsh	9.5	9	4.5	7.5	7
Tricolored Heron	Marsh	0	0	0	0.5	0
Willet	Marsh	P	0	0	0	0

The absence of tidal marsh sparrows and Marsh Wrens during the surveys was notable. Seaside Sparrow was found historically on Barren Island, during both Breeding Bird Atlas projects (1983-1987 and 2002-2006) and more recently (M. Whitbeck, pers.comm). This species' apparent absence from Barren Island in 2021 is likely due to the small size of the remaining patches marsh habitat as well as the island's isolation from populations in mainland Dorchester County. Saltmarsh Sparrows were not recorded on Barren Island during earlier Breeding Bird Atlas projects. Marsh Wren was recorded as probably breeding on the southern portion of Barren Island during the first Breeding Bird Atlas (1983-1987), but was not detected during 2002-2006.

Overall, the marshird community at Barren Island is depauperate compared to similar marsh habitat in mainland Dorchester County, and this reflects the small size of the remaining marsh patches and their isolation from the nearest areas of similar habitat on the mainland.

Field datasheets are stored at the offices of Audubon Mid-Atlantic in Baltimore, digital data from the surveys are in Excel files available from Audubon Mid-Atlantic. For questions on this project please contact David Curson by email at david.curson@audbon.org.

Mid Bay Colonies



MDSIN	LATITUDE	LONGITUDE	COLONY_NAME	SPECIES	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
DOR001	38.36734	-76.26755	Tar Bay	BLSK						13	50	0	0	0	0	0	0		0	0	0	0	0													
DOR001	38.36734	-76.26755	Tar Bay	COTE			7	0		60	50		0	0	1				0	0	0	0	0	42	12			0	0				9			
DOR001	38.36734	-76.26755	Tar Bay	GBBG				1	1				1			2			1	0			0			0		0								
DOR001	38.36734	-76.26755	Tar Bay	HERG	1	1	1	5	2		1		6		36	79			0	0			0			0		0								
DOR001	38.36734	-76.26755	Tar Bay	LETE	0		247	0	17	1	60	11		0	32	1	0		20	2	6	2	0	6	0			0	0	0			31	6	0	
DOR001	38.36734	-76.26755	Tar Bay	MXGU				6													0								0	0						
DOR001	38.36734	-76.26755	Tar Bay	MXTE								0														0				0					0	
DOR002	38.32832	-76.25509	Barren Island	BCNH																																
DOR002	38.32832	-76.25509	Barren Island	CAEG																																
DOR002	38.32832	-76.25509	Barren Island	GBBG																						1										
DOR002	38.32832	-76.25509	Barren Island	GLIB																																
DOR002	38.32832	-76.25509	Barren Island	GREG	60	35	60		75	65	75	120	0	0	175	0	0	0	200	0	100	0	37								150					
DOR002	38.32832	-76.25509	Barren Island	GTBH	0		300	522	300	0	90	300	0		400	0	0	0	930	0	1015		810								600					
DOR002	38.32832	-76.25509	Barren Island	MXHE											0						0															
DOR002	38.32832	-76.25509	Barren Island	SNEG															1																	
DOR002	38.32832	-76.25509	Barren Island	TRHE																																
DOR010	38.36337	-76.26168	Oyster Bar	BLSK	13	0	0	0	0	0	0		0	0	0	0	0		0	0	0		0													
DOR010	38.36337	-76.26168	Oyster Bar	COTE	8	0	0	0		0	0		0	0	0				0	0	0	0	0													
DOR010	38.36337	-76.26168	Oyster Bar	GBBG																			0													
DOR010	38.36337	-76.26168	Oyster Bar	HERG									4	18	3	4	16		0	0	0		0													
DOR010	38.36337	-76.26168	Oyster Bar	LETE	0		2	135	36		0	0	0	0						0			0													
DOR010	38.36337	-76.26168	Oyster Bar	MXGU															7							0										
DOR010	38.36337	-76.26168	Oyster Bar	MXTE								0														0										
DOR017	38.33058	-76.24898	Opossum Island	COTE																								0								
DOR017	38.33058	-76.24898	Opossum Island	DCCO																						3							4		0	
DOR017	38.33058	-76.24898	Opossum Island	FOTE																						269	123	62	121	10		241				
DOR017	38.33058	-76.24898	Opossum Island	GBBG																						3		3			2					
DOR017	38.33058	-76.24898	Opossum Island	GNBH			15	8					0		0				0	0	0															
DOR017	38.33058	-76.24898	Opossum Island	GTBH																																
DOR017	38.33058	-76.24898	Opossum Island	HERG																						6		11		3	6					
DOR017	38.33058	-76.24898	Opossum Island	MXGU																								14						4		
DOR017	38.33058	-76.24898	Opossum Island	MXTE																															0	
DOR017	38.33058	-76.24898	Opossum Island	SNEG																									35	15	38			3		
DOR018	38.31848	-76.25513	North Sand Point	COTE	170	111	150	203	149																											
DOR018	38.31848	-76.25513	North Sand Point	GREG																																
DOR018	38.31848	-76.25513	North Sand Point	GTBH																																
DOR018	38.31848	-76.25513	North Sand Point	HERG											0																					
DOR018	38.31848	-76.25513	North Sand Point	MXTE						0	0	0	0		0																					
DOR019	38.31461	-76.25033	South Sand Point	ALLSP								0		0																						
DOR019	38.31461	-76.25033	South Sand Point	BLSK	6	38	43	39	36				0		0																					
DOR019	38.31461	-76.25033	South Sand Point	COTE	977	686	796	542	900		65																									
DOR019	38.31461	-76.25033	South Sand Point	DCCO									2	0	0																					

DOR019	38.31461	-76.25033	South Sand Point	FOTE	166	323	796	519	262		7																	1								
DOR019	38.31461	-76.25033	South Sand Point	GBBG	1		1	1	2		1		0																							
DOR019	38.31461	-76.25033	South Sand Point	GREG																																
DOR019	38.31461	-76.25033	South Sand Point	GTBH																																
DOR019	38.31461	-76.25033	South Sand Point	HERG		2	5	3	16	0	43		20		0																					
DOR019	38.31461	-76.25033	South Sand Point	LAGU					9	0	0		0																							
DOR019	38.31461	-76.25033	South Sand Point	MXTE			1463	1061		0	72		0		0																					
DOR019	38.31461	-76.25033	South Sand Point	ROST					0																											
DOR019	38.31461	-76.25033	South Sand Point	ROYT					40				0		0																					
DOR020	38.32012	-76.25577	South Barren Island	COTE	20	19	32	14	9																											
DOR020	38.32012	-76.25577	South Barren Island	GREG																																
DOR020	38.32012	-76.25577	South Barren Island	GTBH																																
DOR020	38.32012	-76.25577	South Barren Island	HERG									0		0																					
DOR020	38.32012	-76.25577	South Barren Island	MXTE						0	0	0	0		0																					
DOR025	38.34069	-76.25604	Corps Island	LETE				0					0		0																					
DOR030	38.49117	-76.33563	Oyster Cove Point	BLSK						2	4	0	0	0	0	0	0		0	0	0	0	0													
DOR030	38.49117	-76.33563	Oyster Cove Point	COTE				48	302	1286				0					82	24	31	3	0													
DOR030	38.49117	-76.33563	Oyster Cove Point	FOTE						0					0				0	0	0	0	0													
DOR030	38.49117	-76.33563	Oyster Cove Point	MXTE						0	550	312	53				8																			
DOR061	38.52029	-76.33542	James Island	COTE																															16	30
DOR061	38.52029	-76.33542	James Island	FOTE																															185	55
DOR061	38.52029	-76.33542	James Island	MXTE																															201	
DOR062	38.51512	-76.33746	James Island North	COTE																																24
DOR062	38.51512	-76.33746	James Island North	FOTE																																94


Barren Island
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C8
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Barren Island
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Cameras
Sampling Locations
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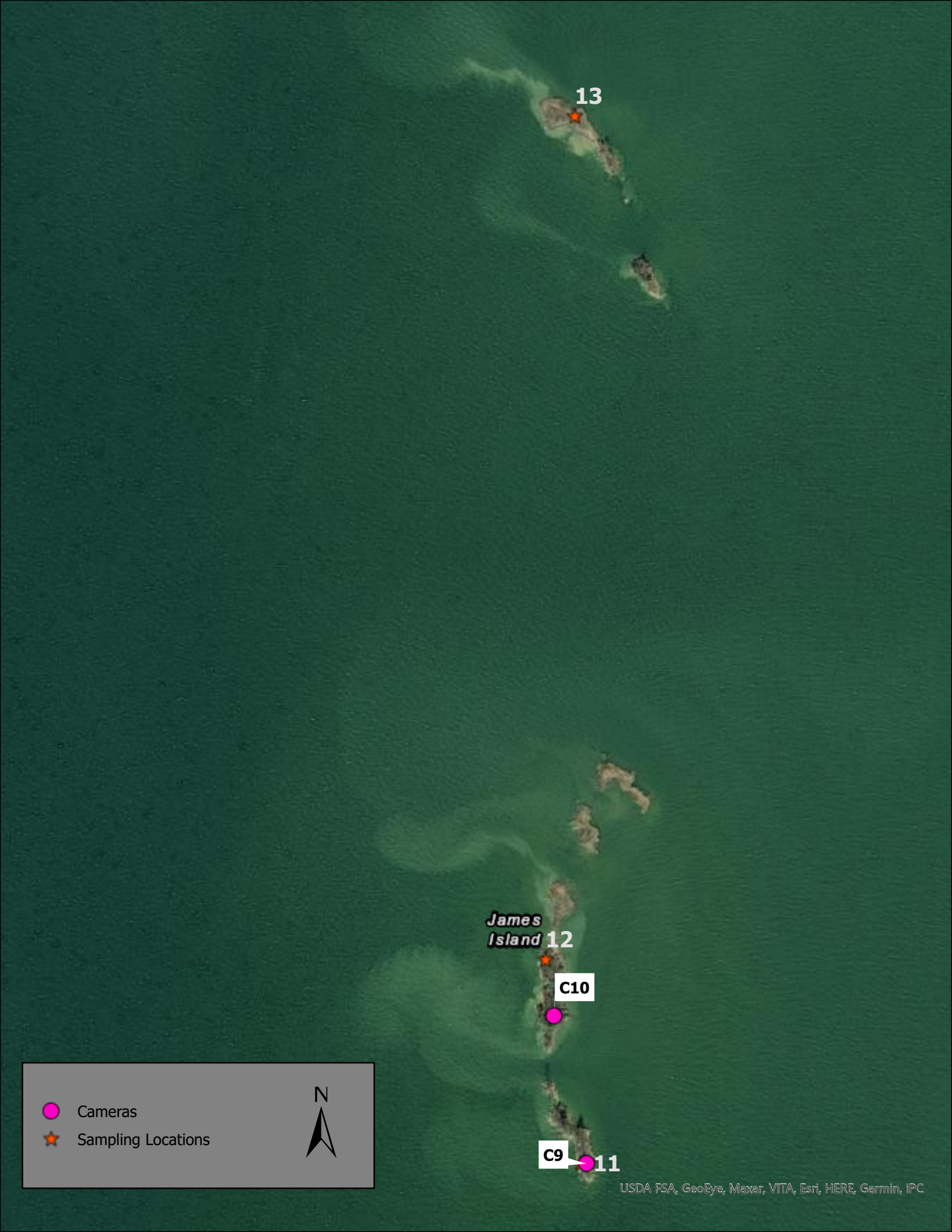
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James Island
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Cameras
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USDA FSA, GeoEye, Maxar, VITA, Esri, HERE, Garmin, iPC

2021 Mid-Chesapeake-Bay Islands Bird and Mammal Surveys Report

Submitted to: United States Army Corps of Engineers (USACE) and United States Fish and Wildlife Service (USFWS)

Submitted by: Trevor Michaels, District Supervisor, USDA APHIS Wildlife Services (USDA WS)

Background:

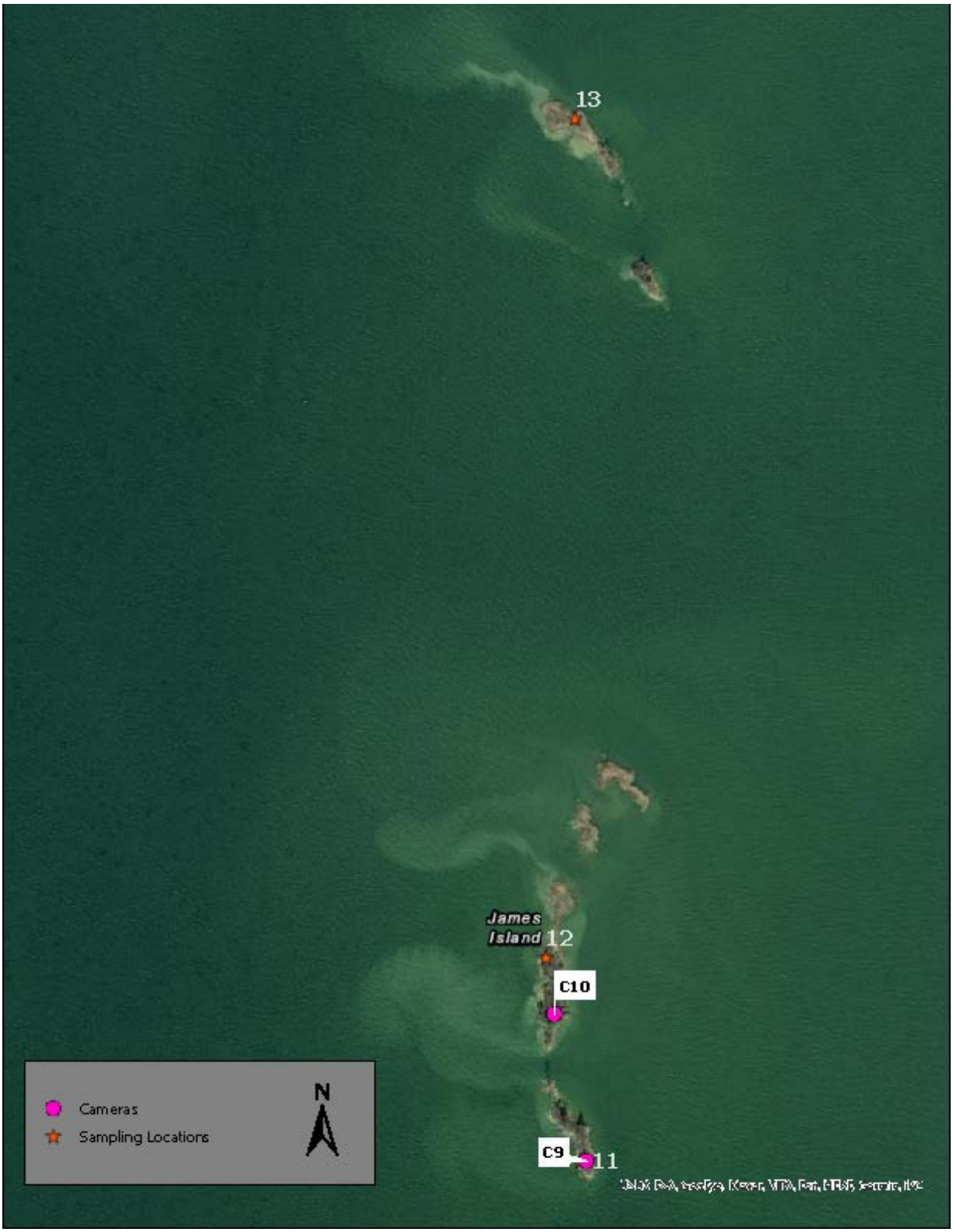
Photo 1. James Island view looking North

The Mid-Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay Island), located in Dorchester County Maryland (MD), specifically encompasses the islands of James, in the Little Choptank River, and Barren, directly west of Upper Hooper Island in the Chesapeake Bay. The purpose of the project is to restore and expand wetland and terrestrial habitat for fish, shellfish, reptiles, amphibians, birds, and mammals. This habitat will be formed using dredged material from the Port of Baltimore (United States Army Corps of Engineers 2021).

Barren Island, documented at 582 acres in 1848 (Cronin 2005) is most recently estimated to encompass 72 acres (United States Army Corps of Engineers 2020). James Island was once estimated at 1,350 acres in the 17th century (Cronin 2005) and is now less than two acres in size and quickly diminishing. This project will seek to restore these islands to a combination of wetland and upland habitat encompassing 2,144 acres (United States Army Corps of Engineers 2020). This interagency project includes the USACE, USFWS, and the Port of Baltimore, amongst other partners. USFWS reached out to Wildlife Services (WS) in 2020 to conduct bird and predatory mammal surveys on the islands during the calendar year of 2021. These surveys would serve to document existing species currently using the islands.

Project Area:

James Island consists of eight separate fragmented islands directly north of Taylor's Island in the Little Choptank River in Dorchester County, MD. Total land area is roughly two acres. Barren Island is located to the south of Taylor's island, directly west of Upper Hooper Island in the Chesapeake Bay. Total land area is roughly 72 acres.



Map 1. James Island Camera and Sample locations

Map 2. Barren Island Camera and Sample locations

Methods:

WS used four observation types while conducting work on James and Barren Islands: 1) point counts, 2) flush surveys, 3) opportunistic surveys, and 4) remote sensing camera traps. All data collection was performed using custom-made forms in ESRI Survey123 application. A handheld Kestrel unit was used to obtain real time weather data. Vegetation data for sampling locations was taken during initial setup.

Sampling Locations

ArcPro Desktop was used to identify sampling locations for point counts. USFWS property boundaries were isolated to create polygons for James and Barren Islands. We then used Grid Index Features in the ESRI Cartography Tools to overlay a 0.2 x 0.2-mile grid and used the resulting intersections as our sampling locations (see Maps 1 & 2).

Point Count Surveys

Point count surveys were conducted at each of the identified sampling locations. The total number of bird species were recorded during a passive 5-minute survey. Records specify whether birds were less than or greater than 50 meters away when detected. Birds occurring further than 100 meters away were not reported in the point count survey.

Flush Surveys

These surveys consisted of two observers walking an established 100-meter flushing transect in suitable areas. A total of four flush survey transects were established adjacent to sampling location 1, 5, 6, and 10 on Barren IIsland as these were the locations with suitable habitat for a flush survey.

Opportunistic Surveys

These are observations made onsite but not during specific surveys or at an identified sampling location. Observations were made from boat (adjacent to Island) or by foot.

Camera Traps

Cameras were set up at intersections, crossings, or trails based on the biologist's professional opinion (see Map 1 & 2). Cabela's Outfitter Gen 3 Model CAB30MP-BLKIR and Bushnell Bandit Model 119637 cameras were used. Both models employ black infrared for nighttime pictures. Cameras were set to take one video on a one second interval. A two-foot section of bamboo was inserted into the ground four feet in front of each camera. A craft pipe cleaner (chenille stem) was attached to the top of the bamboo. Leggett's beaver lure, commercially available, was applied to the pipe cleaner. This lure contains primarily castor, a near universal mammal attractant. A total of eight camera traps were set on Barren Island and a total of two camera locations were set on James Island.

Mammals are recorded within three nights of the camera deployment. Duplicate species ***were not recorded***.

Results:

WS conducted eight rounds of surveys, a round consisting of visiting both Barren and James Islands. This resulted in a total of 17 sampling events. All sampling locations were set up on January 7th 2021.

Table 1. Mid-Bay Island trip dates and rounds

Sampling Date	Island	Round
1/13/2021	Barren	1
1/13/2021	James	1
1/15/2021	Barren	1

2/24/2021	Barren	2
3/3/2021	James	2
3/9/2021	Barren	3
3/11/2021	Barren	3
4/7/2021	Barren	4
4/21/2021	James	4
8/6/2021	Barren	5
8/6/2021	James	5
8/27/2021	Barren	6
9/7/2021	James	6
9/20/2021	Barren	7
9/21/2021	James	7
10/7/2021	James	8
10/14/2021	Barren	8

On James Island there were 22 different species of birds observed. Of these, three were observed nesting on James Island; 1) American oystercatcher (*Haematopus palliates)*, 2) Canada goose (*Branta canadensis)*, and 3) great blue heron (*Ardea Herodias)*.

Table 2. Avian species observed on James

Common name	***Latin name***	**State Conservation Status***
American Black Duck	*Anas rubripes*	Demonstrably secure
American Oystercatcher	*Haematopus palliatus*	Vulnerable/watchlist
Bald Eagle	*Haliaeetus leucocephalus*	Apparently secure
Black Scoter	*Melanitta americana*	Demonstrably secure
Bufflehead	*Bucephala albeola*	Demonstrably secure
Canada Goose	*Branta canadensis*	Demonstrably secure
Common Grackle	*Quiscalus quiscula*	Demonstrably secure
Common Tern	*Sterna hirundo*	Endangered
Double-crested Cormorant	*Phalacrocorax auritus*	Demonstrably secure
Forster's Tern	*Sterna forsteri*	In Need of Conservation
Great Blue Heron	*Ardea herodias*	Demonstrably secure
Herring Gull	*Larus argentatus*	Demonstrably secure
Laughing Gull	*Leucophaeus atricilla*	Demonstrably secure
Least Sandpiper	*Calidris minutilla*	Demonstrably secure
Long-tailed Duck	*Clangula hyemalis*	Demonstrably secure
Osprey	*Pandion haliaetus*	Demonstrably secure
Red-winged Blackbird	*Agelaius phoeniceus*	Demonstrably secure
Ruddy Turnstone	*Arenaria interpres*	Demonstrably secure
Sanderling	*Calidris alba*	Demonstrably secure
Semipalmated Plover	*Charadrius semipalmatus*	Demonstrably secure

Semipalmated Sandpiper	*Calidris pusilla*	Demonstrably secure
Surf Scoter	*Melanitta perspicillata*	Demonstrably secure

*State Conservation Status is 2016 data obtained from MD Department of Natural Resources

Map 3. Number of species observed by sampling location on James Island

Photo 2. American oystercatcher nests on James Island

On James Island no mammals were observed on camera and no mammal sign was observed.

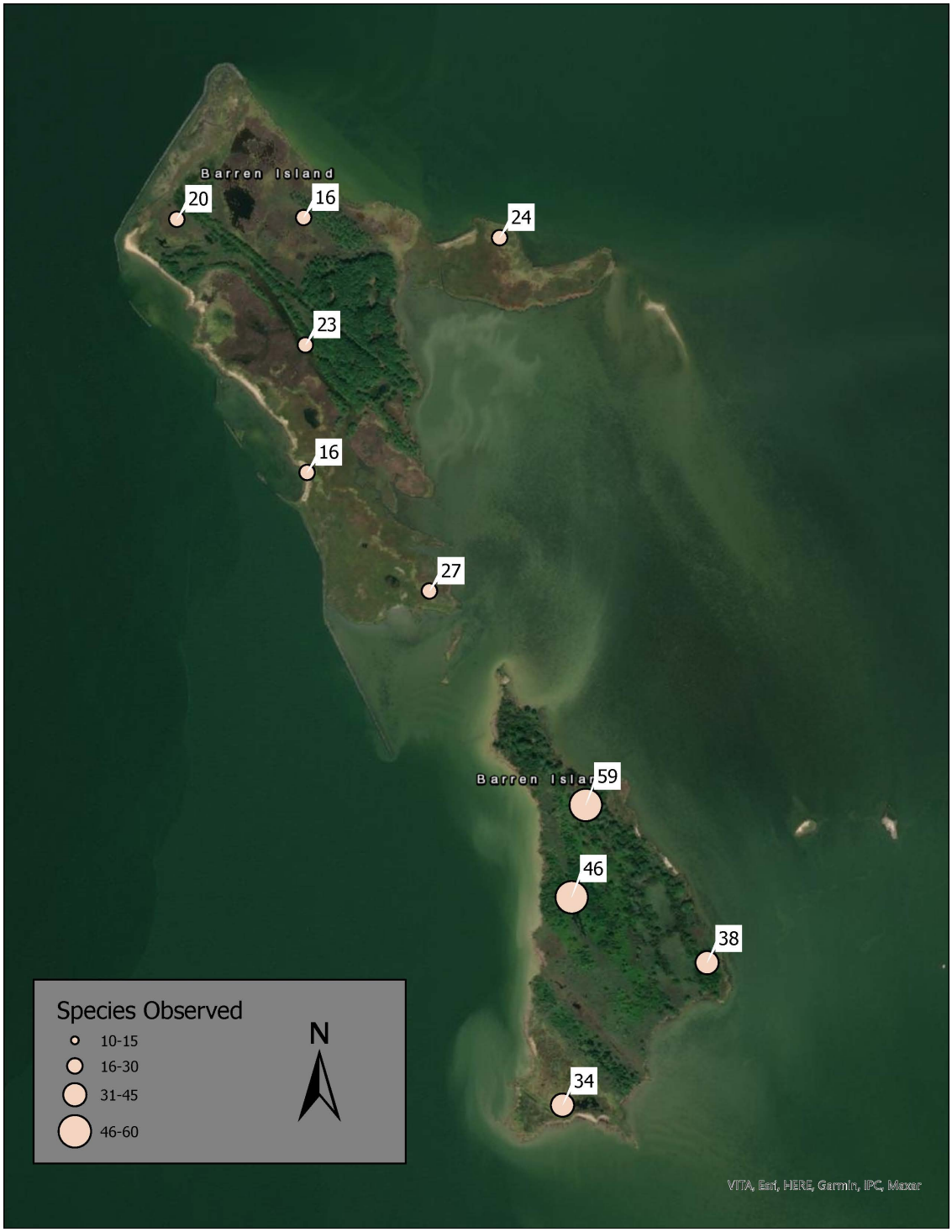
On Barren Island, 65 bird species were observed with the highest number observed on the southern half of the Island. (See Map 3. Number of species observed by sampling location on Barren Island). A large rookery of great blue herons and great egrets (*Ardea alba*) were observed on the southern end of Barren Island. Two Canada goose nests were also observed on the southern end of the Island. A bald eagle (*Haliaeetus leucocephalus)* nest was observed on the northern end of the Island.

Table 3. Avian species observed on Barren island

Common name	**Latin name**	**State Conservation Status***
American Bittern	*Botaurus lentiginosus*	Threatened
American Black Duck	*Anas rubripes*	Demonstrably secure
American Crow	*Corvus brachyrhynchos*	Demonstrably secure
American Goldfinch	*Spinus tristis*	Demonstrably secure
American Redstart	*Setophaga ruticilla*	Demonstrably secure
Bald Eagle	*Haliaeetus leucocephalus*	Apparently secure
Barn Swallow	*Hirundo rustica*	Demonstrably secure
Belted Kingfisher	*Megaceryle alcyon*	Demonstrably secure
Black-and-white Warbler	*Mniotilta varia*	Demonstrably secure
Black-crowned Night-Heron	*Nycticorax nycticorax*	Demonstrably secure
Blue Grosbeak	*Passerina caerulea*	Demonstrably secure
Brown-headed Cowbird	*Molothrus ater*	Demonstrably secure
Brown-headed Nuthatch	*Sitta pusilla*	Demonstrably secure
Brown Pelican	*Pelecanus occidentalis*	Apparently secure
Bufflehead	*Bucephala albeola*	Demonstrably secure
Canada Goose	*Branta canadensis*	Demonstrably secure
Carolina Chickadee	*Poecile carolinensis*	Demonstrably secure
Carolina Wren	*Thryothorus ludovicianus*	Demonstrably secure
Clapper Rail	*Rallus crepitans*	Demonstrably secure
Common Grackle	*Quiscalus quiscula*	Demonstrably secure
Common Yellowthroat	*Geothlypis trichas*	Demonstrably secure

Cooper's Hawk	*Accipiter cooperii*	Demonstrably secure
Double-crested Cormorant	*Phalacrocorax auritus*	Demonstrably secure
Downy Woodpecker	*Picoides pubescens*	Demonstrably secure
Eastern Bluebird	*Sialia sialis*	Demonstrably secure
Eastern Kingbird	*Tyrannus tyrannus*	Demonstrably secure
Eastern Phoebe	*Sayornis phoebe*	Demonstrably secure
European Starling	*Sturnus vulgaris*	Demonstrably secure
Forster's Tern	*Sterna forsteri*	In Need of Conservation
Golden-crowned Kinglet	*Regulus satrapa*	Vulnerable/watchlist
Gray Catbird	*Dumetella carolinensis*	Demonstrably secure
Great Blue Heron	*Ardea herodias*	Demonstrably secure
Great Crested Flycatcher	*Myiarchus crinitus*	Demonstrably secure
Great Egret	*Ardea alba*	Demonstrably secure
Greater Yellowlegs	*Tringa melanoleuca*	Demonstrably secure
Green Heron	*Butorides virescens*	Demonstrably secure
Herring Gull	*Larus argentatus*	Demonstrably secure
Laughing Gull	*Leucophaeus atricilla*	Demonstrably secure
Mallard	*Anas platyrhynchos*	Demonstrably secure
Marsh Wren	*Cistothorus palustris*	Demonstrably secure
Mute Swan	*Cygnus olor*	Demonstrably secure
Northern Cardinal	*Cardinalis cardinalis*	Demonstrably secure
Northern Flicker	*Colaptes auratus*	Demonstrably secure
Northern Mockingbird	*Mimus polyglottos*	Demonstrably secure
Osprey	*Pandion haliaetus*	Demonstrably secure
Pine Warbler	*Setophaga pinus*	Demonstrably secure
Purple Martin	*Progne subis*	Demonstrably secure
Red-bellied Woodpecker	*Melanerpes carolinus*	Demonstrably secure
Red-eyed Vireo	*Vireo olivaceus*	Demonstrably secure
Red-winged Blackbird	*Agelaius phoeniceus*	Demonstrably secure
Royal Tern	*Thalasseus maximus*	Endangered
Ruby-crowned Kinglet	*Regulus calendula*	Demonstrably secure
Ruby-throated Hummingbird	*Archilochus colubris*	Demonstrably secure
Sanderling	*Calidris alba*	Demonstrably secure
Seaside Sparrow	*Ammodramus maritimus*	Demonstrably secure
Song Sparrow	*Melospiza melodia*	Demonstrably secure
Summer Tanager	*Piranga rubra*	Demonstrably secure
Swamp Sparrow	*Melospiza georgiana*	Demonstrably secure
Tufted Titmouse	*Baeolophus bicolor*	Demonstrably secure
Tundra Swan	*Cygnus columbianus*	Demonstrably secure
Turkey Vulture	*Cathartes aura*	Demonstrably secure
Virginia Rail	*Rallus limicola*	Demonstrably secure
White-throated Sparrow	*Zonotrichia albicollis*	Demonstrably secure
Yellow-rumped Warbler	*Setophaga coronata*	Demonstrably secure
Yellow Warbler	*Setophaga petechia*	Demonstrably secure

*State Conservation Status is 2016 data obtained from MD Department of Natural Resources.



Map 4. Number of species observed by sampling location on Barren Island

The camera surveys conducted on Barren Island revealed white-tailed deer (*Odocoileus virginianus)*, red fox (*Vulpes vulpes)*, and river otter (*Lontra canadensis)*. WS also observed raccoon (*Procyon lotor*) and muskrat (*Ondatra zibethicus*) sign while conducting surveys.

Table 4. Mammal species observed on Barren Island

Common name	**Latin name**	**State Conservation* Status**
Red Fox	*Vulpes vulpes*	Demonstrably secure
White-tailed Deer	*Odocoileus virginianus*	Demonstrably secure
River Otter	*Lontra canadensis*	Demonstrably secure

*State Conservation Status is 2016 data obtained from MD Department of Natural Resources.

Diamondback terrapin (*Malaclemys terrapin*) was the only reptile observed on James Island. A deceased loggerhead turtle (*Caretta caretta*) was also discovered on the northernmost island of James.

Photo 3. Spotted turtles on Barren Island

On Barren Island, six reptile species were observed during opportunistic surveys.

Table 5. Reptile species observed on Barren Island

Species	***Latin***	**State Conservation Status***
Black Racer	*Coluber constrictor*	Demonstrably secure
Black Rat Snake	*Pantherophis obsoletus*	Demonstrably secure
Eastern Box Turtle	*Terrapene carolina carolina*	Demonstrably secure
Spotted Turtle	*Clemmys guttata*	Demonstrably secure
Diamondback Terrapin	*Malaclemys terrapin*	Demonstrably secure
Mud Turtle	*Kinosternon subrubrum*	Demonstrably secure

*State Conservation Status is 2016 data obtained from MD Department of Natural Resources.

Photo 4. Diamondback terrapin (L) and eastern box turtle (R) observed on Barren Island

Constraints

We attempted to perform all surveys at both Barren and James on the same day or in very close proximity. However, due to weather and time constraints, the surveys were occasionally a couple of weeks apart. At minimum, we attempted to complete all the surveys on a single Island in one day. There was only one occasion, January 13th, 2021 that we were not able to complete all Barren surveys on the same day. This was due to tide limitations.

Water levels on the eastern side of Barren Island were extremely shallow making boat access difficult; we planned for this by monitoring for the best wind/tide combinations, and in some situations, this delayed the surveys. In addition, data from three point counts on March 11, 2021 at James Island were lost due to technical issues.

Photo 5. James Island January 2021

Photo 6. James Island August 2021- notice the results of erosion in 8 months

Discussion/Recommendations:

James Island is eroding at such a fast rate WS doesn't expect it to last much longer than a year. During our survey period (January 2021-October 2021), WS estimated it lost over half of the existing ground. Therefore, any additional work conducted on James should be conducted soon. (See Photo 5 & 6)

WS never observed squirrels (*Sciurus carolinensis*) or squirrel sign on Barren Island, either in person or on camera. Raccoon sign was observed on Barren, no raccoons were observed on camera. Based on lack of sign and video, there did not appear to be a large raccoon population on the Island.

Some additional discoveries of note were the five spotted turtles (*Clemmys guttata)* found on Barren Island. Observations were in different locations, and therefore most these were most likely different individuals. WS also discovered two recently deceased eastern box turtles (*Terrapene carolina Carolina)* on the north end of Barren Island before later finding a live eastern box turtle on the very southern end of the Island.

James Island has breeding pairs of American oystercatchers, one was located on a southern sand island and one located on a sand island to the north. WS also discovered a deceased loggerhead turtle on the northernmost island.

Photo 7. Loggerhead turtle carcass discovered on James Island

Acknowledgements

WS is grateful for the opportunity to work with USACE and USFWS on such an extensive Chesapeake Bay restoration project. If any other wildlife survey or protection work arises, WS would be happy to assist. Additional questions should be directed to District Supervisor, Trevor Michaels at 443-205-2726 or via email at trevor.a.michaels@usda.gov

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ANCHOR QEA

February 3, 2021

Mid-Chesapeake Bay Island Ecosystem Restoration Project

Avian Survey - Summer 2020 Results

The summer 2020 timed avian surveys were conducted at the four locations on James Island on September 2, 2020. Each survey point occurred on a separate fragment of the island and covered the range of habitats available, including salt marsh, open water, mud flat, and shoreline. A total of 24 species and 469 individuals were observed on or from James Island during the summer 2020 surveys (Table 1).

The summer 2020 timed avian surveys were conducted at the five locations on Barren Island (Table 2) on September 3, 2020. The surveys covered a representative range of habitats on the island, including forest, saltmarsh, open water, scrub-shrub, and shoreline. A total of 37 species and 2,490 individuals were observed at Barren Island during the summer 2020 surveys (Table 2).

Table 1
Birds Observed at James Island During Timed Surveys

Common Name	Scientific Name	Status[1]	Habitat[2]	Number Observed Summer 2020
Canada Goose	*Branta canadensis*	R	FO	3
Chimney Swift	*Chaetura pelagica*	M	FO	1
Ruby-throated hummingbird	*Archilochus colubris*	M	S	1
Semipalmated plover	*Charadrius semipalmatus*	M	FO, MF, SH	4
Ruddy turnstone	*Arenaria interpres*	M	FO, MF	4
Sanderling	*Calidris alba*	M	FO, MF	4
Least sandpiper	*Calidris minutilla*	M	MF, SH	8
Unidentified peep	*Calidris* sp.	M	FO	1
Spotted sandpiper	*Actitis macularius*	M	MF, SH	3
Laughing gull	*Leucophaeus atricilla*	S, M	S, O, FO, MF	164
Ring-billed gull	*Larus delawarensis*	M, W	O	1
Herring gull	*Larus argentatus*	R, M	O	7
Great black-backed gull	*Larus marinus*	R, M	O, FO	2
Caspian tern	*Hydroprogne caspia*	M	FO	1
Forster's tern	*Sterna forsteri*	S, M	S, O, FO, MF, SH	99
Double-crested cormorant	*Phalacrocorax auritus*	S, M	O, FO	82
Brown pelican	*Pelecanus occidentalis*	S	O, FO	32

Common Name	Scientific Name	Status[1]	Habitat[2]	Number Observed Summer 2020
Great blue heron	*Ardea Herodias*	R	FO	1
Turkey vulture	*Cathartes aura*	R, M	FO	5
Osprey	*Pandion haliaetus*	S, M	O, FO, SH	15
Bald eagle	*Haliaeetus leucocephalus*	R, M	O, FO	28
Peregrine falcon	*Falco peregrinus*	M	SH	1
Unidentified crow	*Corvus* sp.	R	FO	1
Barn swallow	*Hirundo rustica*	M	FO	1

Notes:
[1]Status: S=summer resident, R=year-round resident, M=migrant, W=winter resident
[2]Habitat: F=forest, S=saltmarsh, O=open water, FO=flyover, MF=mud flat, SH=shore

Table 2
Birds Observed at Barren Island During Timed Surveys

Common Name	Scientific Name	Status[1]	Habitat[2]	Number Observed Summer 2020
Ruby-throated hummingbird	*Archilochus colubris*	M	F, FO, S/S	4
Clapper rail	*Rallus crepitans*	R	S	3
Semipalmated plover	*Charadrius semipalmatus*	M	SH	2
Sanderling	*Calidris alba*	M	FO, SH	6
Spotted sandpiper	*Actitis macularius*	M	SH	1
Laughing gull	*Leucophaeus atricilla*	S, M	O, FO, SH	106
Ring-billed gull	*Larus delawarensis*	M, W	O, FO	3
Herring gull	*Larus argentatus*	R, M	O	17
Great black-backed gull	*Larus marinus*	R, M	O, FO	5
Forster's tern	*Sterna forsteri*	S, M	O, FO	62
Royal tern	*Thalasseus maximus*	S, M	O, FO	10
Double-crested cormorant	*Phalacrocorax auratus*	S, M	O, FO, SH	723
Brown pelican	*Pelecanus occidentalis*	S	O, FO, SH	1192
Great blue heron	*Ardea Herodias*	R	F, O, FO, SH	18
Great egret	*Ardea alba*	S, M	S, FO, SH	15
Turkey vulture	*Cathartes aura*	R, M	FO	3
Osprey	*Pandion haliaetus*	S, M	F, O, FO	27
Bald eagle	*Haliaeetus leucocephalus*	R, M	F, FO	11
Eastern wood-pewee	*Contopus virens*	S, M	F	1

Common Name	Scientific Name	Status[1]	Habitat[2]	Number Observed Summer 2020
Least flycatcher	*Empidonax minimus*	M	S	1
Great crested flycatcher	*Myiarchus crinitus*	S, M	F	3
Eastern kingbird	*Tyrannus tyrannus*	S, M	S	1
American crow	*Corvus brachyrhynchos*	R	FO	6
Tree swallow	*Tachycineta bicolor*	M	FO	5
Bank swallow	*Riparia riparia*	M	FO	9
Barn swallow	*Hirundo rustica*	M	FO	217
Brown-headed nuthatch	*Sitta pusilla*	R	F	3
Blue-gray gnatcatcher	*Polioptila caerulea*	S, M	S/S	2
Carolina wren	*Thryothorus ludovicianus*	R	F, S/S	10
Gray catbird	*Dumetella carolinensis*	S, M	S/S	1
Bobolink	*Dolichonyx oryzivorus*	M	FO	1
Red-winged blackbird	*Agelaius phoeniceus*	R	F, S/S	6
Black-and-white warbler	*Mniotilta varia*	M	F	2
Common yellowthroat	*Geothlypis trichas*	S, M	S/S	1
American redstart	*Setophaga ruticilla*	M	S/S	1
Pine warbler	*Setophaga pinus*	S, M	F	3
Northern cardinal	*Cardinalis cardinalis*	R	F, S/S	9

Notes:
[1]Status: S=summer resident, R=year-round resident, M=migrant, W=winter resident
[2]Habitat: F=forest, S=saltmarsh, O=open water, FO=flyover, MF=mud flat, SH=shore

C4: Clean Water Act Section 404(b)1 Evaluation

CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION

MID-CHESAPEAKE BAY ISLANDS ECOSYSTEM RESTORATION PROJECT:
JAMES ISLAND
DORCHESTER COUNTY, MARYLAND

FEBRUARY 2024

Prepared by:
U.S. Army Corps of Engineers
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Clean Water Act Section 404(b)(1) Evaluation
James Island Ecosystem Restoration

1.0 PROJECT DESCRIPTION

1.1 Location

The Mid-Chesapeake Bay Islands Ecosystem Restoration Project (Mid-Bay Island Project) focuses on James and Barren Islands, both in Dorchester County in Chesapeake Bay. This 404(b)1 evaluation will focus on the James Island component of the project. James Island was a private island located at the mouth of the Little Choptank River in the Chesapeake Bay (Figure 1). Until being submerged in 2022, James Island was one of the last remaining uninhabited islands, providing critically important remote island habitat. Historic mapping of the island indicates that the island once covered approximately 1,350 acres when it was settled in 1660 (Cronin). Today, James Island has completely eroded, and the island footprint is under water. The remnants of James Island lie approximately one mile to the north-northwest of Taylor Island.

1.2 Project Background and Description

A full description of the history of the project is provided in the supplemental Environmental Impact Statement (sEIS) to which this evaluation is attached. The Mid-Bay Island Project is an environmental restoration and beneficial use of dredge material project proposed for the Chesapeake Bay. Clean dredged material from the Upper Chesapeake Bay Approach Channels that service the Port of Baltimore will be beneficially used to restore wetland and upland habitat at James Island. This James Island sEIS will serve as an update and compliment of the June 2009 Mid-Bay FR/EIS. Similar data, results, and methods used in 2002, 2003, and 2004 for the Mid-Bay FR/EIS will be referenced for existing affected environment conditions. However, new studies have been performed in 2020 and 2021 to update information. Subsequently, new findings have occurred since original surveys were performed in the early to mid-2000s. These updated findings will be detailed and included in this sEIS.

The objective of the Mid-Bay Island Project is to restore and protect valuable but threatened Chesapeake Bay remote island ecosystems through the beneficial use of dredged material. A final design for the James Island component of the Mid-Bay Island Project will be determined through the Planning Engineering Design (PED) phase that incorporates resilience to climate change and coastal storms. The final design will provide for habitat restoration that contributes to multiple Baywide restoration goals. The internal features of the design will not be determined by this sEIS, but rather the island footprint, external features, and impact area.

The James Island portion of the project involves constructing approximately 47,000 ft of perimeter dikes, breakwaters, and/or other structures approximating the island's historical footprint and filling the enclosed area with clean dredged material from Federal navigation channels in Chesapeake Bay. The 2,072-acre fill area would be subdivided to provide approximately 55% tidal wetland habitats and 45% upland island habitats. Construction at James Island would necessitate the dredging of an access channel on the northwest. Dredging within the island footprint (uplands) and the access channel would provide sand for dike construction. The access channel would be approximately 10,000 ft in length, 600 ft in width at base with 3:1 side slopes. All the access channel will lie outside the island footprint. The total footprint of the access channel is approximately 140 ac. The potential impact area is approximately 2,477 acres including up to 50 acres of shoreline features within approximately 150 feet of the island in waters $\leq$ 15 ft NAVD88.

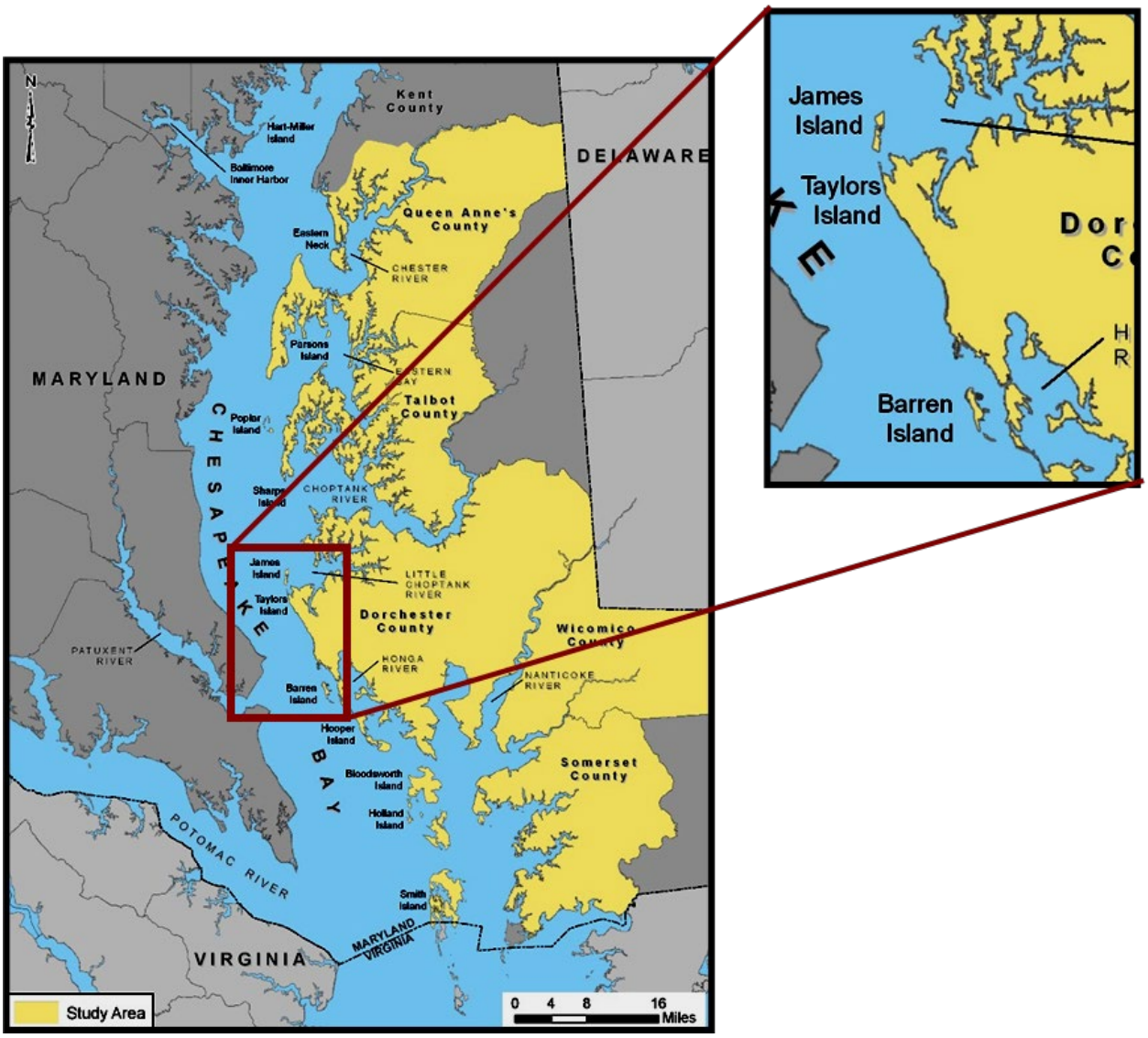

Figure 1 - Study Area

1.3 Purpose

The 2009 Mid-Bay Island FR/EIS built upon the Federal and State's Dredged Material Management Plan (DMMP) planning efforts to identify beneficial use sites to meet dredged material capacity needs and habitat restoration goals. The purpose of the prior study was to determine the technical, economic, and environmental feasibility of protecting, restoring, and creating aquatic, intertidal wetland, and upland habitat for fish and wildlife within the Mid-Bay Island Project study area using suitable dredged material from the Upper Chesapeake Bay Approach Channels. The purpose of the James Island project is to beneficially use dredged material to restore remote Chesapeake Bay Island habitat. The purpose of the current sEIS is to update the NEPA documentation for the James Island component of the Mid-Bay Island Project during the PED phase.

1.4 Alternatives Considered

Two alternatives were formulated for evaluation. Alternative 1 is the 'No Action' or base condition that represents existing conditions without any future Federal actions. Alternative 2 is to implement the authorized plan with alterations to modernize the original 2009 design. Alternative 2 is the recommended plan due to its ability to achieve the project purpose, need, and objectives while incorporating sustainability and resiliency.

1.4.1 Alternative 1

Alternative 1 is the No Action Alternative. The No Action Alternative would involve no further actions to implement a restoration project at James Island. There is no remaining habitat to protect as James Island has been lost to erosion. The No Action alternative would result in no additional restoration of remote island habitat. Further, there would be no additional capacity for placement or beneficial use of dredged material from the approach channels once Poplar Island and Poplar Island Expansion Projects are complete. The alternative would not meet the project purpose, need, or objectives.

1.4.2 Alternative 2

Alternative 2 would implement a modernized authorized project. The authorized project is the Recommended Plan from the 2009 FR/EIS. A modernized design would account for current conditions and incorporate climate resiliency and Natural and Nature-based Features (NNBF). The alternative would meet the project purpose, need, and objectives.

The recommended plan (Alternative 2) consists of the following features:

- A restored island with a 2,150-ac footprint (includes approximately 78 acres of perimeter dikes and 2,072 ac internal habitats),
- Armored dikes (approximately 47,000 linear feet), breakwaters, and/or other structures would be constructed to approximate the island's historical footprint. A +20 feet mean lower low water final upland dike height. The upland dike heights would initially be built above the authorized +20 ft to contain the dredged material prior to material dewatering and final grading.
- The restored island would provide the capacity to place 90 to 95 million cubic yards of clean dredged material from Federal navigation channels into the enclosed area to restore upland and wetland habitat over a 32-year period.
- Within the habitat restoration footprint, restoration of island habitats with a proportion of 45% upland to 55% wetland. Feasibility provided the option to reconfigure the wetlands and upland ratios during design (current phase).
- Wetland habitats are projected to include high and low marsh, hummocks, tidal channels, and mudflat and sand beaches.
- An access channel on the northwest end of the island, approximately 10,000 ft long and 600 ft wide with 3:1 side slope (240-acre footprint) dredged to -26 ft MLLW (-26.8 NAVD88).
- Breakwaters to protect the turning basin (25-acre footprint).
- A bulkhead along the cross dike adjacent to the turning basin (5-acre footprint).
- Dredging of sand for dike construction from within the island footprint and access channel.
- Dredging the access channel to a depth of – 15 ft MLLW (-15.8 NAVD88) in front of the bulkhead with a transition to -26 ft MLLW (-26.8 NAVD88),
- A personnel pier on the northeast shoreline (5-acre footprint),

- Running an electric supply line (buried to a depth of 8 ft) from Taylor's Island to the personnel pier, and
- Up to 50 acres of shoreline features (e.g. reefs, reefballs, breakwaters, etc.) to diversify the shoreline and protect the mouth of tidal inlets.

Since completion of the 2009 FR/EIS, there has been an increased understanding of climate change projections and impacts. Alternative 2 would evaluate and incorporate NNBF that are determined to be scientifically practical and feasible, and acceptable with respect to future operations and maintenance, to provide resilient habitats that maximize value to terrestrial and aquatic species. As the footprint of the project is being evaluated by this sEIS, and not the full habitat design for the project, an areal impact is included for shoreline features that would be needed to implement NNBF or Engineering with Nature (EWN) features. To that extent, Alternative 2 would include up to 50 acres of nearshore features in waters adjacent to the James Island dike alignment within 150 feet of the perimeter dikes along the island's eastern and southern shoreline, in water depths less than approximately 15 ft MLLW. The features could include breakwaters, reefs, or other structures that would enable a softer, more natural design for the island perimeter. At this phase of the design, the exact form or location of these features has not been designed. Considering the potential for these features in the sEIS provides the capacity to implement those features once the design in further developed.

Alternative 2 is selected as the recommended plan as presented in Figure 2. The recommended plan (Alternative 2) was selected due to its ability to achieve the project purpose, need, and objectives while incorporating sustainability and resiliency. The recommended plan will be referred to as the recommended plan throughout the remainder of the sEIS.

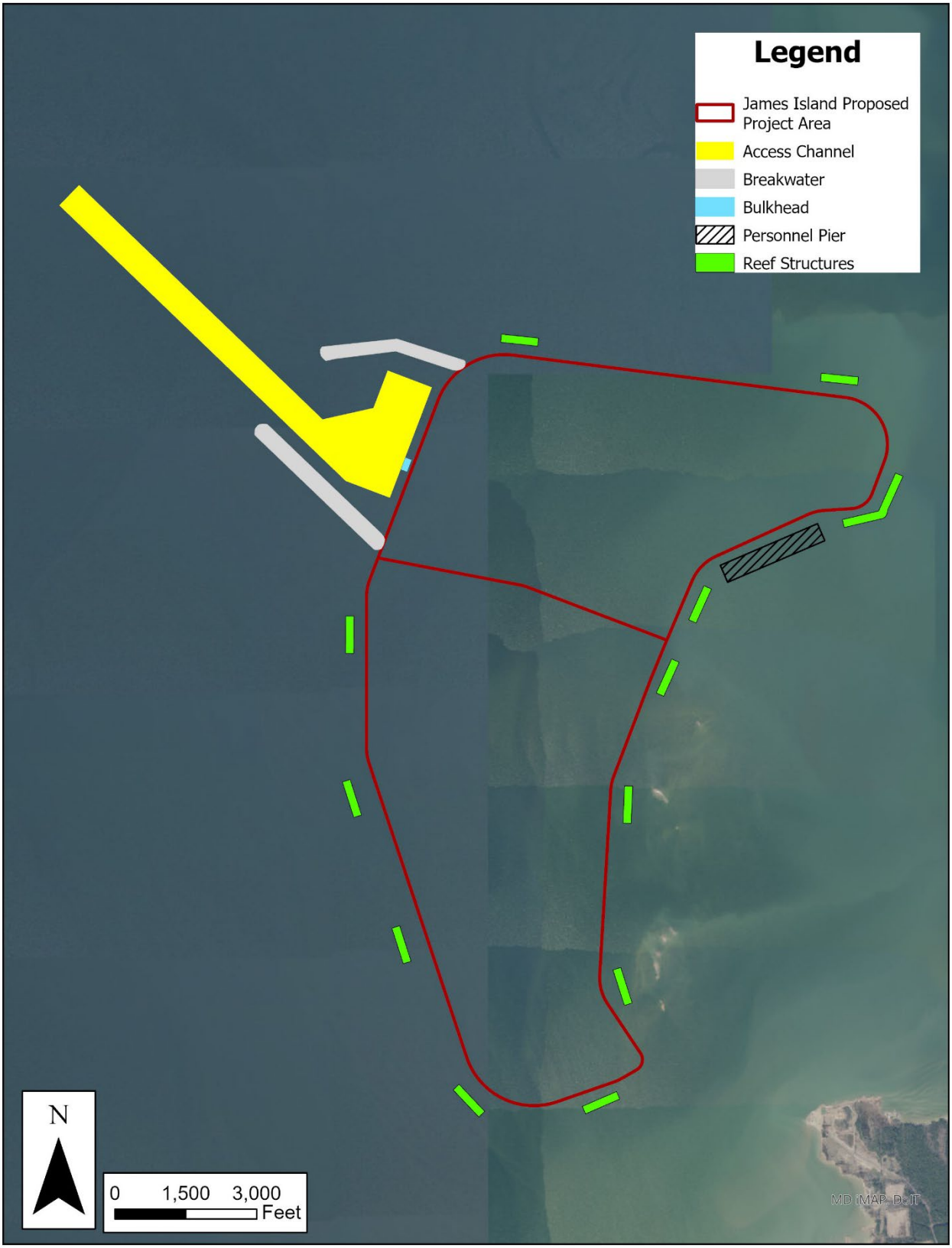

Figure 2 – James Island Recommended Plan

2.0 DISCHARGE MATERIAL

2.1 Characteristics of Fill Material

The materials to construct the dikes at James Island would be 1) sand excavated from the upland cells or from the access channel, and 2) stone from a regional quarry. The dredged materials are expected to consist of sand with some silt and clay lenses. Most project sediments would be excavated during periodic episodes of maintenance dredging. Accordingly, the fill sediment is expected to consist of relatively low cohesion silts and clays with some fine sands. Armor stone would be placed to stabilize 47,000 ft of perimeter dikes at James Island. Because the channels are removed from known point sources, anthropogenic contaminant concentrations are likely to be consistent with background levels in the Chesapeake Bay sediments.

2.2 Fill Material Quantities

90 to 95 million cubic yards (MCY) of dredged material would be placed at James Island over the project life. 13.2 MCY of sand would be dredged from within the project footprint to be used for dike construction. An additional 2.7 MCY of sand would be dredged from the access channel for use in dike construction. 843,800 cy of rock would be needed to construct the perimeter dikes.

2.3 Source of Material

The sediment to construct the proposed wetland and upland habitat area at James Island would be dredged from the following Federal navigation channels in the Chesapeake Bay leading to Baltimore Harbor: the Craighill Entrance Channel; the Craighill Channel; the Craighill Angle, the Craighill Upper Range; the Cutoff Angle; the Brewerton Channel Eastern Extension; the Tolchester Channel, the Swan Point Channel, Inland Waterway from Delaware River to Chesapeake Bay, and other non-federal projects as determined by the Project Delivery Team (PDT). The sand for dike construction would be hydraulically dredged from within the island footprint or from the access channel. Rock would be obtained from commercial quarries.

2.4 Discharge Method

Thr fine grained sand to be used in constructing the proposed dikes would be dredged hydraulically from either within the alignment footprint or the access channel and pumped to the dike alignment. Some mechanical shaping of the sand would be required before armor stone can be placed on the exterior slopes. A small amount of fine-grained sediment unsuitable for dike construction may be sidecast near the borrow site within the proposed dike alignment. Rock to construct sills and breakwaters would be placed first using a crane from a barge. The material from the Federal channels would most likely be dredged mechanically and placed in barges. The barges would be towed or pushed to the proposed placement sites where the sediments would be pumped into the containment cells. The dredged material would be allowed to settle and consolidate. Supernatant water would be returned to the Bay through weirs or similar control structures in the eastern perimeter dike.

3.0 FACTUAL DETERMINATIONS

3.1 Physical Substrate Determinations

1) Substrate elevation and slope: Upland dike elevations along the proposed eastern, northern, and western perimeter would initially higher than 20’ MLLW to contain the dredged material. Once the dredged material has been dewater, consolidated, and habitat development is complete

these dikes would be reduced to 20' MLLW. Substrate elevation would be 20' MLLW. Wetland dike elevations along the proposed western and southern perimeter dikes are 10'MLLW. Wetland dike elevations along the proposed eastern perimeter dikes are 8' MLLW. Water depths within the vicinity of the James Island restoration project area vary from -0.3 m to -8.2 m (–1 ft to –27 ft) MLLW (USACE, NAVD88). Water depths range from -0.6m to -2.7m (-2 ft to -9 ft) in the waters east of the project footprint where the island remnants are located. Within the footprint, the shallowest water depths are at the southern tip of the proposed project. The deepest water depths are -3.9 m (13 ft). The perimeter dike is situated in waters that range from -1.2 m to -3.9 m (-4 ft to -13 ft) in depth. The depth of sand mining within the island footprint would range between 5 and 30 ft, with a mean of 12 ft; not exceeding -40 ft NAVD88. The depth of sand mining for the access channel would extend to -26.8 ft NAVD88. The water depth where the access channel would be dredged ranges from -2.4 m to -7.6 m (-8 to -25 ft) NAVD88.

2) Sedimentation, soils, and erosion – The sediments at James Island are typical of lowland sedimentary deposits and consist mainly of sand, silt, and clay, with some gravel. Four of five James Island sediment samples were predominantly sand. One sample was largely silt/clay. The sediment to be used to construct the containment dikes at James Island is fine grained sand with some silt and clay lenses. The dredged materials proposed for filling at James Island are likely to be silt, with some clay and some fine sand. The fine-grained sand used to construct the perimeter dikes would be excavated, placed, and shaped to avoid unnecessary loss of materials. When completed, the containment dikes would control movement of the dredged material placed in the site. Discharge spillways would be managed to minimize movement of dredged material beyond the containment dikes.

3) Physical Effects on Benthic Macroinvertebrates – -There would be direct, long-term, negative impacts to benthic macroinvertebrates specifically, immobile species within the island footprint as perimeter dikes are constructed and then dredged material placed. Immobile benthic macroinvertebrates in those areas would be buried permanently. Shallow water habitat that will be converted to upland or dikes will be permanently lost to the current benthic assemblages. Mobile species would likely move from the area during construction, but could become trapped. Areas adjacent to the footprint of the recommended plan would likely experience a short-term, minor, and direct impact characterized by increased turbidity, reduced dissolved oxygen, and possibly a small increase in nutrients as bottom sediments are disturbed during construction. This impact would be expected to subside following the completion of construction. The stone sills and breakwaters constructed would provide structured habitat for colonization by a diverse assemblage of macroinvertebrates. Dredging of the access channel would be expected to destroy immobile species within that footprint.

3.2 Water Circulation, Fluctuation, and Salinity Determinations

1) Water quality
    a. Salinity – No change expected.
    b. Chemistry – No change expected.

c. Clarity – Water clarity is expected to decrease temporarily during construction and implementation of the various structures. However, long term water clarity is expected to increase as erosion of island remnants is projected to decrease.
d. Color – Minor and temporary change is expected during construction due to minor increase in turbidity.
e. Odor – No change expected.
f. Taste – Not applicable.
g. Dissolved Gas Levels – Activities such as placement of dredged material, rock structure placement and general construction activities may result is localized increases in turbidity and thus, decreasing dissolved oxygen levels.
h. Nutrients – Construction activities may cause unexposed nutrients within the sediment to become present; however, levels are anticipated to be within the state guidelines.
i. Eutrophication – No change expected.

2) Current patterns and Circulation
   a. Current Patterns and Flow – The Project may have minimal impacts on local tide elevations in areas adjacent to James Island. Following construction (long-term impacts), current velocities may be impacted. Peak ebb and flood currents in the main Bay are not predicted to change with the proposed restoration. Flow is expected to be displaced northward and southward and current velocity is expected to increase north and south of James Island. Current velocity is predicted to decrease primarily around the east of James Island where flow is impeded by the proposed project. Velocity decreases are also expected to the west of the restoration project but to a lesser extent. Open water areas converted to upland at James Island would experience a complete cessation of tides and currents.
   b. Velocity – See preceding discussion of flow.
   c. Stratification – No change expected.
   d. Hydrologic regime – No change expected.
3) Normal water level fluctuations – Ambient water levels would not be affected by implementation of the Project; however, water levels will fluctuate with the recommended plan during storms. This impact would be temporary, intermittent, and direct. During storm conditions, the sills and breakwaters would have a direct and positive impact on water levels in the areas protected by the structures.
4) Salinity Gradients – No change expected.
5) Actions to Minimize Impacts – All construction activities will follow a sediment and erosion control plan. The plan will be developed, and specifications will state that compliance is mandatory for all applicable environmental protection regulations for pollution control and abatement.

3.3 Suspended Particulate/Turbidity Determinations

1) Expected changes in Suspended Particulates and Turbidity Levels within the vicinity of the Project site are expected to be minor and short-term during dredging and placement of stone. Turbidity is anticipated to subside to normal levels within a tidal cycle and upon construction completion. Best management practices will be implemented to further reduce excess sediment from reaching areas outside of the Project vicinity.
2) Effects on Chemical and Physical Properties of the Water Column

a. Light Penetration – Minor and temporary reduction may occur during construction from turbidity.
b. Dissolved Oxygen –Minor, temporary, and localized reduction in dissolved oxygen in conjunction with elevated turbidity levels may occur in the immediate vicinity of dredging and construction operations. Parts of the northwestern access channel at James Island that are dredged to -25 feet or greater have the potential to become hypoxic or anoxic in warmer months of years when impaired water quality problems are pervasive below the pycnocline in the Bay. Under these conditions, the bottom in the access channel would be unsuitable as habitat for benthic dwelling organisms such as summer flounder. These species would be expected to avoid this area during low oxygen periods. This temporary loss of habitat would not be expected to impact species populations because of the abundance of suitable habitat still remaining elsewhere in the Bay.
c. Toxic Metals and Organics – No evidence exists that suggests the presence of toxic metals or organics in the proposed project area.
d. Pathogens – No change expected.
e. Aesthetics – The aesthetics of the water column may be temporarily impacted due to the presence of equipment and materials, as well as increased turbidity. The impact is projected to be minor, localized, and temporary.
f. Temperature – No change expected.

3) Actions Taken to Minimize Impacts – During perimeter dike construction at James, the toe dike would be constructed first to minimize turbidity plumes resulting from dredging associated with the sand borrow activities and placement of sand to construct the dikes. Dredged material transported to the James Island site would be contained within the armored dikes. Discharges through the spillways would be monitored, and must meet State water quality standards. A Water Quality Certification and Wetlands License would be obtained. Turbidity and TSS limits would be prescribed in these documents. Dredged material transported to the James Island site would be contained behind dikes.

3.4 Contaminant Determinations

All the materials to be used to construct the projects would be free of contaminants. There is no knowledge of Hazardous, Toxic, or Radioactive Waste (HTRW) at the Project site. If HTRW is encountered during construction, the responsible party would be responsible for all HTRW response costs and solely responsible for ensuring that required HTRW response actions are accomplished in accordance with applicable requirements of Federal, State and local regulations.

3.5 Aquatic Ecosystem and Organism Determinations

1) Effects on Plankton – Some plankton may be destroyed during placement of materials during construction. No long-term effect is expected.
2) Effects on Benthic – There would be direct, long-term, negative impacts to benthic macroinvertebrates within the project footprint. Non-motile species would be buried. Mobile species would likely move from the area during construction. Areas adjacent to the footprint of the recommended plan would likely experience a short-term, minor, and direct impact characterized by increased turbidity, reduced dissolved oxygen, and possibly a small increase in nutrients as bottom sediments are disturbed during construction. This impact would be expected to subside following the completion of construction. The stone dikes, breakwaters, and reef

features constructed would provide structured habitat for colonization by a diverse assemblage of macroinvertebrates.

3) Effects on Nekton – Implementation of the recommended plan would have a direct, short-term, and minor impact on nekton in the vicinity of James Island. Species affected are mobile and would be expected to vacate the Project area during construction. These impacts would cease when construction is over. Indirect, short-term, and minor impacts could result from disruptions to foraging during construction due to increased turbidity and the possibility that prey may move from the area.
4) Effects on Food Web – A minor reduction in benthic food sources may occur from the burial and destruction of benthos within the project footprints, as well as disturbance of adjacent benthic habitat. The disturbance of adjacent habitats outside the project footprint would subside once construction has concluded.
5) Effects on Special Aquatic Sites
    a. Sanctuaries and Refuges – While the Project is located near the Little Choptank River Oyster Sanctuary, no structural or non-structural impacts are expected.
    b. Wetlands – Implementation of the preferred plan would result in the restoration of approximately 1,140 acres of wetlands habitat, but would have no impacts on existing wetlands within the Chesapeake Bay. Approximately 429,000 cubic yards of dredged material will be placed behind the confining stone sills up to the suitable elevation to restore targeted habitats. It is anticipated that approximately 50% of the marsh acreage would be high marsh and 50% would be low marsh. Incorporating higher percentages of high marsh in the design than what was planned during the feasibility phase (80% low marsh to 20% high marsh) would add resiliency to sea level rise and enable migration of wetland habitat to low marsh as opposed to shallow, subtidal open water. Tidal exchange will be established through use of open tidal guts or outfall structures after the material is stabilized. To the extent practicable, wetlands will be designed to allow for estuarine connectivity via gaps and tidal creeks to maximize value to fisheries resources. Long-term effects of the project on wetlands is expected to be positive.

6) Threatened and Endangered Species –USACE consulted Federal and State agencies including U.S. Fish and Wildlife Service (USFWS), National Oceanic Atmospheric Administration National Marine Fisheries Service (NMFS), and the Maryland Department of Natural Resources (MDNR) on the potential impacts to rare, threatened, and endangered species. Additionally, USFWS has prepared a Planning Aid Report (PAR) that identifies species utilizing the habitat within the project area. Several T&E species were identified through the USFWS Information for Planning and Consultation (IPaC) report (included with PAR) and subsequent coordination:

    - Eastern Black Rail *(Laterallus jamaicensis)*
    - Green Sea Turtle *(Chelonia mydas)*
    - Atlantic Sutrgeon *(Acipenser oxyriynchus oxyriynchus)*
    - Kemp's Ridley Sea Turtle *(Lepidochelys kempii)*
    - Leatherback Sea Turtle *(Demochelys coriacea)*
    - Loggerhead Sea Turtle *(Caretta caretta)*

Surveys conducted in 2020 and 2021 did not identify the presence of any listed species. Additionally, USFWS is reviewing the saltmarsh sparrow's status and will make a determination of whether or not the saltmarsh sparrow warrants protection under the Endangered Species Act. Restoration of high marsh may benefit salt-marsh sparrow.

7) Other Wildlife – An Essential Fish Habitat (EFH) Assessment has been prepared for the Project. Prior coordination with NMFS during feasibility and in 2017 to complete the Record of Decision identified that the proposed Project lies within waters designated as EFH; however, based on updated coordination the following species were the focus of the updated EFH Assessment:

   - Atlantic butterfish (*Peprilus triancanthus*) – eggs, larvae, and adults;
   - Black sea bass (*Centropristus striata*) – juveniles and adults;
   - Scup (*Stenotomus chryops*) – juveniles and adults;
   - windowpane flounder (*Scopthalmus aquosos*) - juvenile and adult stages;
   - bluefish (*Pomatomus saltatrix*) - juvenile and adult stages;
   - summer flounder (*Paralicthys dentatus*) – larvae, juvenile and adult stages; and
   - Clearnose skate (*Raja eglanteria*) – juveniles and adults.

8) Natural Oyster Bars (NOB) – There are three NOBs in the vicinity of James Island. The island footprint does not directly impact any oyster bar habitat, but the access channel runs directly through the James Point bar, a Maryland Historic Bar and Yates Bar, but not a Legal NOB (Figure 21). Dredging of the access channel would have a direct impact on the James Point bar. Approximately 99 acres of the James Point bar would be dredged to establish the access channel. Shell recovered during dredging would be preserved and utilized to rehabilitate oyster bar habitat at the direction of MDNR.

   Sediment transport modeling during the feasibility study did not indicate that the modeled hurricanes and northeasters would negatively impact oyster habitat in the vicinity. Modeling results propose minimal reductions in sediment accretion over these areas, but no erosion or accumulation.

   It is anticipated that time of year restrictions (TOYR) will be applied to the dredging work to protect oyster habitat. A TOYR within the Chesapeake Bay prohibits hydraulic or mechanical dredging from being conducted within 500 yards of the boundary of an oyster bar from June 1st through September 30th to avoid impacts to oyster resources. A winter time of year restriction prohibits mechanical dredging within 500 yards of the boundary of an oyster from December 16th to March 14th to protect oyster bars during periods of low metabolic rates when oysters are more susceptible to smothering by suspended sediments. Project construction would comply with any TOYR presented by resource agencies to protect oyster habitat and minimize impacts.

3.6 Proposed Disposal Site Determinations

1) Mixing Zone Determinations – N/A
2) Determination of Compliance with Applicable Water Quality Standards – Work would be performed in accordance with all applicable State water quality standards. An application has

been made to the Maryland Department of the Environment (MDE) for a Tidal Wetlands License including a Water Quality Certification (WQC) by the Maryland Port Administration.

3) Potential Effects on Human Use Characteristics
   a) Municipal and Private Water Supply – No negative impacts expected.
   b) Recreational and Commercial Fisheries – The project is not expected to have a significant effect on the abundance or catch of clams or finfish, but could have a minor impact on oyster harvests from the James Point bar. The James Island project site would be lost permanently to recreational and commercial fisheries, particularly crabbing. Crabbing activity would be displaced from the project area and disrupted during construction. Approximately 99 acres of the James Point oyster bar that lies within the path of the access channel would be permanently lost to oyster harvesting. Three pound net locations (currently inactive) are situated within the project footprint and would be permanently displaced. It is anticipated that the project will not have a significant effect on spawning or critical habitat areas (i.e. SAV beds (HAPC), unique forage areas, or overwintering areas). The armor stone perimeter dikes are expected to provide reef habitat for structure-oriented fish species such as striped bass adding value to recreational fishing, as well as providing a surface for oyster spat to set. Some shallow-water recreational fishing areas will be lost, but because the number of recreational fishermen who seek out these soft-bottom areas is small, they should be able to shift to the abundant shallow areas adjacent to or near the site with no significant effect on congestion levels or catch rates.

      James Island lies in shallow water. The project would not affect any typical commercial boat navigation routes.
   c) Water Related Recreation – Implementation of the recommended plan would be expected to result in a direct and minor impact to recreational activities in the vicinity of James Island during construction. Construction activities would displace any recreational activities. Areas near the rock face of the containment dike would attract recreational boaters and recreation fishing as sections of the project are completed. Over the long-term, the waters within the footprint would be converted to island habitat and would no longer be accessible to boaters. Boaters would need to transit around the island, potentially lengthening trips.
   d) Aesthetics – Implementation of the recommended plan would have a temporary reduction in aesthetic values during construction. Large island restoration at James Island would be a significant element in the landscape for some sensitive viewpoints (i.e., selected residential areas), but from the majority of vantage points, it is anticipated that the island, once completed, would blend into the existing landscape.
   e) Parks, National and Historical Monuments, National Seashore, Wilderness Areas, Research Sites and Similar Preserves – No impacts expected.

3.7 Determination of Secondary Effects on the Aquatic Ecosystem

The proposed project would have a direct and long-term benefit to improving connectivity of existing island habitats throughout the Chesapeake Bay. Being situated adjacent to the Little Choptank River Large-scale Oyster Restoration Project and within the vicinity of the Harris Creek and Tred Avon River Large-scale Oyster Restoration Projects, it is anticipated that the project's stone structures will receive natural spat set. If reef communities develop as expected on external stone structures and reef features, the aquatic ecosystem will be enhanced with structural habitat and diversity.

4.0 FINDING OF COMPLIANCE

a. No adaptations of the Section 404(b)(1) Guidelines were made relative to this evaluation.
b. The proposed project will comply with State water quality standards.
c. The proposed placement of material will not violate the Toxic Effluent Standard of Section 307 of the Clean Water Act.
d. The proposed project will not negatively affect any rare, threatened or endangered species.
e. No Marine Sanctuaries, as designated in the Marine Protection, Research and Sanctuaries Act of 1972, are in the project area.
f. The proposed project will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, wildlife and special aquatic sites. There will be no long-term, adverse effects to life stages of aquatic life and other wildlife.
g. Appropriate steps to minimize potential impacts to the aquatic ecosystem associated with construction of James Island will be followed.
h. On the basis of the guidelines, the Recommended Plan is specified as complying with the inclusion of appropriate and practical conditions to minimize contamination or adverse effects to the aquatic ecosystem.

5.0 REFERENCES

Cronin, W.B. 2005. *The Disappearing Islands of the Chesapeake*. Johns Hopkins University Press.

C5: Greenhouse Gas Emissions Analysis

Mid-Chesapeake Bay Island Ecosystem Restoration Project:
James Island sEIS
Greenhouse Gas Emissions Analysis

Introduction

USACE is proposing to undertake implementing a modernized version of the Congressionally-authorized restoration project at James Island in Dorchester County, MD (Alternative 2). The project area is in attainment for all priority air pollutants. This analysis estimates the Greenhouse Gas (GHG) emissions associated with implementing Alternative 2, construction of the restoration project.

ALTERNATIVE 2 – Modernized Recommended Plan (from 2009 FR/EIS)

Methods

Construction of the James Island project is planned to occur over 43 years followed by the 50-year project service life. Equipment used, effort, and tasks undertaken over the course of those 43 years will vary. Operations and Maintenance (O&M) activities are expected to be carried out annually during the 50-year project service life. Although the James Island project is currently in the Planning Engineering and Design Phase that will formulate equipment usage, at least for the beginning years of construction, specific equipment use over the full construction time period has not been determined. However, an estimate exists for operational hours of equipment per year as part of efforts completed in 2017 to achieve a signed Record of Decision (ROD). The information on operational hours was combined with 2022 GHG emission estimates for the Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island to generate a GHG estimate for the James Island project.

The Poplar Island GHG assessment calculated emissions from known fuel use in calendar year 2022 (construction year 24) for various sources of emissions: mobile, stationary combustion, refrigeration, and electricity for construction and operations and maintenance activities on the island. The Poplar Island GHG assessment computes emissions in CO_2 equivalency for emissions stemming from the production of carbon dioxide, methane, and nitrous oxide. Poplar Island provides a comparable estimate to James Island for mobile source emissions as both sites have equipment lists and operational hours which are closely aligned. Poplar Island GHG emissions for stationary combustion, refrigeration, and electricity also serves as a reasonable proxy as there will be similar needs for these sources to implement restoration activities on James Island as are present on Poplar Island. However, a similar equipment list and operation hours for these non-mobile sources is unable to be formulated for James Island until further in the Planning Engineering and Design Phase. As a result, the non-mobile emissions from construction year 24 for Poplar Island were applied to each year for James Island. This is a conservative estimate given that there will be some years in the beginning of the project that do not produce these emissions because it will take a number of years to fully establish the island's infrastructure.

The emissions for the 50-year service life would cover O&M activities. The emissions produced in construction year 43 were assumed to represent emissions generated from O&M activities that would occur annually through the 50-year service life. For the calculation, the emissions from construction year 43 of James Island were adopted for annual emissions throughout the 50-year service life.

Poplar Island is in its 24th construction year. An assumption was made that construction will progress at a similar pace for the James Island project as it did for the Poplar Island project; i.e. the emissions calculated from fuel usage at Poplar Island in 2022 (Construction year 24 at Poplar Island) are a realistic representation of the level of effort expected at James Island in construction year 24 (FY2048). Therefore, the combined GHG emission estimate (mobile, stationary combustion, refrigeration, and electricity for construction and operations and maintenance activities) from Poplar for 2022 was assigned to construction year 24 (FY2048) for James Island. Mobile GHG emission estimates were then generated for all other construction years based on a ratio of the equipment hours between each year and those of the 24th construction year. This provided an expected range of mobile GHG emissions for the project over the project lifetime based on the annual hours of effort estimated. The non-mobile emissions were added to this calculation to estimate full emissions in each year.

Assumptions

- Construction will progress at a similar pace for the James Island project as it did for Poplar Island, i.e. the emissions calculated from fuel usage at Poplar Island in 2022 (Construction year 24 at Poplar Island) are a realistic representation of the level of effort expected at James Island in construction year 24 (FY2048).
- The projection of hours from the 2017 ROD update effort remains a valid representation of the James Island effort.
- Since the equipment and operational hours data available for James Island only addresses mobile emission sources and not the non-mobile emissions (stationary combustions, refrigeration, and electricity), the construction year 24 from Poplar Island for non-mobile emissions was added to each year to capture those contributions even though this will likely be an overestimate for early years of construction.
- O&M activities during the 50-year service life will be similar to activities conducted in the last construction year, i.e. emissions from construction year 43 were replicated annually for the 50-year service life.

Data and Equations

Table 1. Greenhouse Gas Emissions Estimate for Poplar Island in year 2022 (source: MES, 2023)

Mobile Sources	801.8 metric tons CO2
Stationary Combustion	35.5 metric tons CO2
Refrigeration	18.2 metric tons CO2
Electricity	96.2 metric tons CO2
Total	951.7 metric tons CO2

Table 2. James Island Projected Operational Hours (Mobile Equipment)

FY	Equipment	Projected FY Hours (median)	Total FY Hours
2025	Hydraulic Excavator	1332	
2025	Truck Hwy	3144	
2025	Pontoon	2797	
2025	Boat Transportation	2000	9273
2026	Hydraulic Excavator	1332	
2026	Truck Hwy	3144	
2026	Pontoon	2797	
2026	Boat Transportation	2000	9273
2027	Hydraulic Excavator	1596	
2027	Truck Hwy	3776	
2027	Pontoon	3267	
2027	Boat Transportation	2000	10639
2028	Hydraulic Excavator	1596	
2028	Truck Hwy	3776	
2028	Pontoon	3267	
2028	Boat Transportation	2000	10639
2029	Hydraulic Excavator	1859	
2029	Truck Hwy	4409	
2029	Pontoon	3490	

FY	Equipment	Projected FY Hours (median)	Total FY Hours
2029	Boat Transportation	2000	11758
2030	Hydraulic Excavator	1859	
2030	Truck Hwy	4409	
2030	Pontoon	3490	
2030	Boat Transportation	2000	11758
2031	Hydraulic Excavator	929	
2031	Truck Hwy	2204	
2031	Pontoon	1745	
2031	Boat Transportation	2000	6878
2032	Hydraulic Excavator	465	
2032	Truck Hwy	1102	
2032	Pontoon	872	
2032	Boat Transportation	2000	4439
2033	Hydraulic Excavator	465	
2033	Truck Hwy	1102	
2033	Pontoon	872	
2033	Boat Transportation	2000	4439
2034	Hydraulic Excavator	2123	
2034	Truck Hwy	5042	
2034	Pontoon	4207	
2034	Boat Transportation	2000	13372
2035	Hydraulic Excavator	2123	
2035	Truck Hwy	5042	
2035	Pontoon	4207	
2035	Boat Transportation	2000	13372
2035	Dozer	24,200 cy	
2035	Excavator	24,200 cy	
2036	Hydraulic Excavator	2123	
2036	Truck Hwy	5042	

FY	Equipment	Projected FY Hours (median)	Total FY Hours
2036	Pontoon	4207	
2036	Boat Transportation	2000	13372
2036	Dozer	24,200 cy	
2036	Excavator	24,200 cy	
2037	Hydraulic Excavator	2623	
2037	Truck Hwy	5542	
2037	Pontoon	4707	
2037	Boat Transportation	2000	14872
2037	Dozer	24,200 cy	
2037	Excavator	24,200 cy	
2038	Hydraulic Excavator	2623	
2038	Truck Hwy	5542	
2038	Pontoon	4707	
2038	Boat Transportation	2000	14872
2038	Dozer	24,200 cy	
2038	Excavator	24,200 cy	
2039	Hydraulic Excavator	2623	
2039	Truck Hwy	5542	
2039	Pontoon	4707	
2039	Boat Transportation	2000	14872
2039	Dozer	24,200 cy	
2039	Excavator	24,200 cy	
2040	Hydraulic Excavator	2623	
2040	Truck Hwy	5542	
2040	Pontoon	4707	
2040	Boat Transportation	2000	14872
2040	Dozer	24,200 cy	
2040	Excavator	24,200 cy	
2041	Hydraulic Excavator	2623	
2041	Truck Hwy	5542	
2041	Pontoon	4707	

FY	Equipment	Projected FY Hours (median)	Total FY Hours
2041	Boat Transportation	2000	14872
2041	Dozer	24,200 cy	
2041	Excavator	24,200 cy	
2042	Hydraulic Excavator	2936	
2042	Truck Hwy	6174	
2042	Pontoon	5227	
2042	Boat Transportation	2000	16337
2043	Hydraulic Excavator	3150	
2043	Truck Hwy	6806	
2043	Pontoon	5647	
2043	Boat Transportation	2000	17603
2044	Hydraulic Excavator	3413	
2044	Truck Hwy	7439	
2044	Pontoon	6117	
2044	Boat Transportation	2000	18969
2045	Hydraulic Excavator	3150	
2045	Truck Hwy	6806	
2045	Pontoon	5647	
2045	Boat Transportation	2000	17603
2045	Dozer	24,200 cy	
2045	Excavator	24,200 cy	
2046	Hydraulic Excavator	2936	
2046	Truck Hwy	6174	
2046	Pontoon	5227	
2046	Boat Transportation	2000	16337
2046	Dozer	24,200 cy	
2046	Excavator	24,200 cy	
2047	Hydraulic Excavator	2623	
2047	Truck Hwy	5542	
2047	Pontoon	4707	

FY	Equipment	Projected FY Hours (median)	Total FY Hours
2047	Boat Transportation	2000	14872
2047	Dozer	24,200 cy	
2047	Excavator	24,200 cy	
2048	Hydraulic Excavator	2359	
2048	Truck Hwy	4909	
2048	Pontoon	3990	
2048	Boat Transportation	2000	13258
2048	Dozer	24,200 cy	
2048	Excavator	24,200 cy	
2049	Hydraulic Excavator	2096	
2049	Truck Hwy	4276	
2049	Pontoon	3767	
2049	Boat Transportation	2000	12139
2049	Dozer	24,200 cy	
2049	Excavator	24,200 cy	
2050	Hydraulic Excavator	1832	
2050	Truck Hwy	3644	
2050	Pontoon	3297	
2050	Boat Transportation	2000	10773
2050	Dozer	24,200 cy	
2050	Excavator	24,200 cy	
2051	Hydraulic Excavator	1569	
2051	Truck Hwy	3012	
2051	Pontoon	2827	
2051	Boat Transportation	2000	9408
2051	Dozer	24,200 cy	
2051	Excavator	24,200 cy	
2052	Hydraulic Excavator	1569	
2052	Truck Hwy	3012	
2052	Pontoon	2827	
2052	Boat Transportation	2000	9408

FY	Equipment	Projected FY Hours (median)	Total FY Hours
2052	Dozer	24,200 cy	
2052	Excavator	24,200 cy	
2053	Hydraulic Excavator	1569	
2053	Truck Hwy	3012	
2053	Pontoon	2827	
2053	Boat Transportation	2000	9408
2054	Hydraulic Excavator	1569	
2054	Truck Hwy	3012	
2054	Pontoon	2827	
2054	Boat Transportation	2000	9408
2055	Hydraulic Excavator	1569	
2055	Truck Hwy	3012	
2055	Pontoon	2827	
2055	Boat Transportation	2000	9408
2056	Hydraulic Excavator	1569	
2056	Truck Hwy	3012	
2056	Pontoon	2827	
2056	Boat Transportation	2000	9408
2057	Hydraulic Excavator	1069	
2057	Truck Hwy	2512	
2057	Pontoon	2327	
2057	Boat Transportation	2000	7908
2058	Hydraulic Excavator	1069	
2058	Truck Hwy	2512	
2058	Pontoon	2327	
2058	Boat Transportation	2000	7908
2059	Hydraulic Excavator	1069	
2059	Truck Hwy	2512	
2059	Pontoon	2327	

FY	Equipment	Projected FY Hours (median)	Total FY Hours
2059	Boat Transportation	2000	7908
2060	Hydraulic Excavator	1069	
2060	Truck Hwy	2512	
2060	Pontoon	2327	
2060	Boat Transportation	2000	7908
2061	Hydraulic Excavator	1069	
2061	Truck Hwy	2512	
2061	Pontoon	2327	
2061	Boat Transportation	2000	7908
2062	Hydraulic Excavator	1069	
2062	Truck Hwy	2512	
2062	Pontoon	2327	
2062	Boat Transportation	2000	7908
2063	Boat Transportation	2000	2000
2064	Boat Transportation	2000	2000
2065	Boat Transportation	2000	2000
2066	Boat Transportation	2000	2000
2067	Hydraulic Excavator	500	
2067	Truck Hwy	500	
2067	Pontoon	500	
2067	Boat Transportation	2000	3500

$$\text{Effort} = \frac{James\ Island\ Projected\ Operational\ Hours\ in\ Project\ Year\ i}{James\ Island\ Projected\ Operational\ Hours\ in\ Project\ Year\ 24} \quad (1)$$

Results

Table 3. James Island GHG Emissions Estimate By Project Year

	Project Year	Year	Projected Operational Hours	Effort Ratio	James Island estimated GHG (MT CO2 eq)
CONSTRUCTION	1	2025	9273	0.70	710.70
	2	2026	9273	0.70	710.7
	3	2027	10639	0.80	793.3
	4	2028	10639	0.80	793.3
	5	2029	11758	0.89	861.0
	6	2030	11758	0.89	861.0
	7	2031	6878	0.52	565.9
	8	2032	4439	0.33	418.4
	9	2033	4439	0.33	418.4
	10	2034	13372	1.01	958.6
	11	2035	13372	1.01	958.6
	12	2036	13372	1.01	958.6
	13	2037	14872	1.12	1049.3
	14	2038	14872	1.12	1049.3
	15	2039	14872	1.12	1049.3
	16	2040	14872	1.12	1049.3
	17	2041	14872	1.12	1049.3
	18	2042	16337	1.23	1137.9
	19	2043	17603	1.33	1214.5
	20	2044	18969	1.43	1297.1
	21	2045	17603	1.33	1214.5
	22	2046	16337	1.23	1137.9
	23	2047	14872	1.12	1049.3
	24	2048	13258	1.00	951.7
	25	2049	12139	0.92	884.0
	26	2050	10773	0.81	801.4
	27	2051	9408	0.71	718.9
	28	2052	9408	0.71	718.9
	29	2053	9408	0.71	718.9
	30	2054	9408	0.71	718.9
	31	2055	9408	0.71	718.9
	32	2056	9408	0.71	718.9

	Project Year	Year	Projected Operational Hours	Effort Ratio	James Island estimated GHG (MT CO2 eq)
	33	2057	7908	0.60	628.1
	34	2058	7908	0.60	628.1
	35	2059	7908	0.60	628.1
	36	2060	7908	0.60	628.1
	37	2061	7908	0.60	628.1
	38	2062	7908	0.60	628.1
	39	2063	2000	0.15	270.9
	40	2064	2000	0.15	270.9
	41	2065	2000	0.15	270.9
	42	2066	2000	0.15	270.9
	43	2067	3500	0.26	361.6
50-YEAR SERVICE LIFE	44	2068	3500	0.26	361.6
	45	2069	3500	0.26	361.6
	46	2070	3500	0.26	361.6
	47	2071	3500	0.26	361.6
	48	2072	3500	0.26	361.6
	49	2073	3500	0.26	361.6
	50	2074	3500	0.26	361.6
	51	2075	3500	0.26	361.6
	52	2076	3500	0.26	361.6
	53	2077	3500	0.26	361.6
	54	2078	3500	0.26	361.6
	55	2079	3500	0.26	361.6
	56	2080	3500	0.26	361.6
	57	2081	3500	0.26	361.6
	58	2082	3500	0.26	361.6
	59	2083	3500	0.26	361.6
	60	2084	3500	0.26	361.6
	61	2085	3500	0.26	361.6
	62	2086	3500	0.26	361.6
	63	2087	3500	0.26	361.6
	64	2088	3500	0.26	361.6
	65	2089	3500	0.26	361.6
	66	2090	3500	0.26	361.6
	67	2091	3500	0.26	361.6
	68	2092	3500	0.26	361.6

Project Year	Year	Projected Operational Hours	Effort Ratio	James Island estimated GHG (MT CO2 eq)
69	2093	3500	0.26	361.6
70	2094	3500	0.26	361.6
71	2095	3500	0.26	361.6
72	2096	3500	0.26	361.6
73	2097	3500	0.26	361.6
74	2098	3500	0.26	361.6
75	2099	3500	0.26	361.6
76	2100	3500	0.26	361.6
77	2101	3500	0.26	361.6
78	2102	3500	0.26	361.6
79	2103	3500	0.26	361.6
80	2104	3500	0.26	361.6
81	2105	3500	0.26	361.6
82	2106	3500	0.26	361.6
83	2107	3500	0.26	361.6
84	2108	3500	0.26	361.6
85	2109	3500	0.26	361.6
86	2110	3500	0.26	361.6
87	2111	3500	0.26	361.6
88	2112	3500	0.26	361.6
89	2113	3500	0.26	361.6
90	2114	3500	0.26	361.6
91	2115	3500	0.26	361.6
92	2116	3500	0.26	361.6
93	2117	3500	0.26	361.6

Discussion

Table 3 provides the calculated GHG emissions estimate for the James Island construction phase spanning 2025 to 2067 (43 years) plus the 50-year service life (2068 to 2117). There are a few years (2035 – 2052) where equipment is identified in the projected effort without associated operational hours. Therefore, there are unaccounted GHG emissions associated with that equipment above the estimate calculated. Projections range between 271 (years 39 to 42) and 1297 (project year 20) metric tons CO_2 equivalency with an average of 778 metric tons CO_2 equivalency. It would also be expected that there would be technological advances made over the course of the project that would result in emission reductions over the 43 years of construction at James Island that would contribute to reduced GHG emissions compared to current emission projections.

EPA's Greenhouse Gas Equivalencies Calculator projects that the average estimated emissions (554 metric tons $CO_{2)}$ would be similar to operating 132 gas-powered vehicles for one year or the energy consumed by 69.8 homes for a year (EPA 2023). Running 0.154 wind turbines for a year or preserving 3.7 acres of forest would offset these emissions.

For further perspective, Maryland's 2017 GHG emissions were approximately 80.14 million metric tons of gross CO_2 (MDE, 2021), reduced 25.8 % from 108.06 million metric tons of gross CO_2 in 2006. The State of Maryland has a goal to achieve a minimum of a 40% reduction in statewide GHG emissions from 2006 levels by 2030. Maryland's targeted reduction is higher than the United States' international commitment under the Paris accord to reduce emissions by 26 – 28% by 2025. The project's annual contributions are a very minor percentage of statewide emissions.

This estimate does not include emissions generated by transportation of the dredged material to the restoration site as transportation of the dredged material to a placement (disposal) site would occur with or without the proposed project. With respect to transportation-generated emissions, the No Action Alternative is expected to produce the highest emissions. If the dredged material were not beneficially placed at James Island, the material would likely be transported much further to the ocean and dumped offshore. In comparing transportation-generated emissions between James Island and Poplar Island, James Island does constitute a further trip (approximately 30 miles) for placement of material from the approach channel, but would be a shorter trip for any material dredged from federal channels south of James Island. James Island is substantially less distance for placement than the No action alternative where the material would be placed in the ocean, a distance of at least 150 miles. Choosing Alternative 1, the No Action Alternative would, therefore, lead to a production of GHG emission, without the benefit of restoring remote island habitats. There are no other placement sites within the Bay that have the capacity for the quantities of material generated on an annual basis from federal channels.

References

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