Appendix A

NEPA Public Notices, Initial Agency Responses, Coordination & Consultation Summary Tables

THIS PAGE PURPOSEFULLY BLANK

Appendix A

Public Notice Announcing EA Preparation



Public Notice

APR 1 0 2018

Atlantic Coast of Maryland Shoreline Protection Project

Preparation of Supplementary Environmental Assessment Offshore Shoals in Federal Waters as Sand Sources

All Interested Parties: The U.S. Army Corps of Engineers, Baltimore District (USACE), in partnership with the Maryland Department of Natural Resources (MD DNR), is proposing to dredge offshore shoals in federal waters to obtain sand for the Atlantic Coast of Maryland Shoreline Protection Project (project) by the year 2022. The project is located in the Town of Ocean City, Worcester County, Maryland. The project places sand on the beach of Ocean City, generally every four years, to reduce risk of coastal storm damage. The most recent beach replenishment contract, completed in December 2017, exhausted the sand from nearby offshore shoals in state waters. USACE and MD DNR have sometimes placed sand on Ocean City beach more frequently than every four years following severe storms, and sand from federal waters may be needed sooner than 2022.

Offshore shoals contain large quantities of suitable sand that can be cost-effectively obtained. USACE prepared an Environmental Impact Statement (EIS) in 2008 evaluating four shoals in federal waters beyond the 3-mile limit as sources of sand for the project: Weaver Shoal, Isle of Wight Shoal, Shoal "A," and Bass Grounds (also known as First Lump and Shoal "B") (Enclosure). Shoal "B" was determined to be unsuitable at that time because of its high value as a fishing ground. The project has not utilized any of these offshore shoals in federal waters as borrow sources yet, because sufficient sand has been available from sources in nearby state waters. USACE is re-evaluating the four offshore shoals in federal waters as sand sources. Bass Grounds would not be utilized unless re-evaluation finds that its relative value as a fishing ground has declined substantially. Future dredging in federal waters would be conducted following guidelines to minimize long-term impacts to the offshore shoals. Because 10 years have elapsed since the 2008 EIS, USACE is preparing a supplemental environmental assessment (EA) documenting findings of the re-evaluation to ensure compliance with the National Environmental Policy Act. The draft EA is expected to be publicly released in Fall 2018.

USACE and MD DNR are seeking input on offshore shoal concerns which may assist in the reevaluation. Study efforts are being coordinated with other federal and state agencies, local governments and the public. For federal and state agencies receiving a copy of this notice, we request that you provide information concerning interests within your organization's area of responsibility or expertise. All comments are requested within 30 days of the date of this notice to the address below.

If you have any questions regarding this assessment, please contact Christopher Spaur by email at <u>Christopher.c.spaur@usace.army.mil</u>, telephone at 410-962-6134, or mail at USACE, Planning Division, 2 Hopkins Plaza, Baltimore, MD 21201. Information about the assessment will be posted on the Worldwide Web at http://www.nab.usace.army.mil/.

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

DEPARTMENT OF THE ARMY

U.S. Army Engineer District, Baltimore Planning Division 2 Hopkins Plaza Baltimore, Maryland 21201

Official Business

Enclosure

Continental Shelf off MD: Offshore Shoals in Ocean City Vicinity



Weaver Shoal, Isle of Wight Shoal, and or Shoal A proposed for future borrow. Future use of Shoal B also possible. Borrow Areas 2, 3, and 9, Ebb Shoal, and Great Gull Bank currently or previously used for borrow for Ocean City or Assateague Island.

USACE/MD DNR Atlantic Coast of MD Project Honorable Andy Harris United States Congress Salisbury Office 212 West Maint Street, Suite 204B Salisbury, MD 21801

Honorable Benjamin Cardin United States Senate, Baltimore Office 100 South Charles Street Tower 1, Suite 1710 Baltimore, MD 21201 Honorable Chris Van Hollen United States Senate 111 Rockville Pike Rockville, MD 20850

Governor Larry Hogan State of Maryland Office of the Governor 100 State Circle Annapolis, MD 21401 Senator James Mathias Jr. Maryland State Senate, 38th District James Senate Office Building, Room 216 11 Bladen St. Annapolis, MD 21401

Delegate Mary Carozza Maryland House of Delegates, 38C House Office Building, Room 203 6 Bladen Street Annapolis, MD 21401

> Worcester County Commissioners Worcester County Government Center 1 W. Market Street, Room 1103 Snow Hill, MD 21863

Mayor Rick Meehan Town of Ocean City 301 N. Baltimore Avenue Ocean City, MD 21842 Ocean City Council Town of Ocean City 301 N. Baltimore Avenue Ocean City, MD 21842 American Sportfishing Association 1001 North Fairfax Street, Suite 501 Alexandria, VA 22314 Assateague Mobile Sportsfishermen Association 8801 Bald Eagle Rd Berlin, Maryland 21811

Atlantic Coast Sport Fishing Association [email only]

Chincoteague Island Charter Boat Association [email only]

Garden State Seafood Association 212 West State Street Trenton, New Jersey 08608

Martin Fish Company 12929 Harbor Road Ocean City, Maryland 21842

Maryland Watermen's Association [email only]

National Association of Charterboat Operators PO Box 1070 Hurley, MS 39555

Ocean Pines Angler's Club [email only]

Ocean City Reef Foundation [email only]

The Recreational Fishing Alliance P.O. Box 3080 New Gretna, NJ 08224 Bonnie Brady Long Island Commercial Fishing Association P.O. Box 191 Montauk, N.Y 11954

Maryland Charter Boat Association 4874 Patience Place Huntingtown, MD 20639

Robert Brown Sr Maryland Watermen's Association 1805A Virginia Street Annapolis, MD 21401

Ocean City Marlin Club [email only]

Southern Connection Ocean City [email only] Coastal Conservation Association Maryland PO Box 309 Annapolis, MD 21401

Cristina Carollo TNC [email only]

Kelly Leo TNC [email only] Joe Fehrer TNC [email only]

Kate Wilke TNC [email only] U.S. Coast Guard Fifth District Commander (de) 431 Crawford St., Suite 603 Portsmouth, VA 23704

Postmaster Ocean City Post Office 7101 Coastal Highway Ocean City, MD 21842-9998

Ms. Kimberly Damon-Randall National Marine Fisheries Service US Department of Commerce 55 Great Republic Drive Gloucester, MA 01930

Keith Hanson National Marine Fisheries Service Annapolis, MD) Field Office: 177 Admiral Cochrane Drive, Annapolis, MD 21401 U.S. Coast Guard 610 South Philadelphia Avenue Ocean City, MD 21842

Karen Greene National Marine Fisheries Service James J. Howard Marine Sciences Laboratory 74 Magruder Rd. Highlands, NJ 07732

Mike Luisi Mid-Atlantic Fisheries Management Council 800 North State Street, Suite 201 Dover, DE 19901

Ms. Deborah Darden Assateague Island National Seashore 7206 National Seashore Lane Berlin, MD 21811

Ms. Genevieve LaRouche Chesapeake Bay Field Office US Fish and Wildlife Service 177 Admiral Cochrane Drive Annapolis, MD 21401

Doug Piatkowski Bureau of Ocean Energy Management Division of Environmental Assessment 45600 Woodland Road, VAM-OEP Sterling, VA 20166 Mary Foley U.S. Geological Survey 5522 Research Park Drive Baltimore, Maryland 21228

Michaela Noble Office of Environmental Policy and Compliance Department of the Interior 1849 C Street, NW (Mail Stop 5538) Washington, DC 20240

Gary Vietzke National Park Service Northeast Regional Office 200 Chestnut Street, 5th Floor Philadelphia, PA 19106

Odessa Armstrong Natural Resource Conservation Service, USDA 339 Busch's Frontage Road, Suite 301 Baltimore, MD 21401-5534 John Forren U.S. Environmental Protection Agency, Region III 1650 Arch Street Philadelphia, Pennsylvania 19103-2029

Barbara Rudnick U.S. Environmental Protection Agency 1650 Arch Street Philadelpia, PA 19103-2029 Shawn Garvin U.S. Environmental Protection Agency, Region III 1650 Arch Street Philadelphia, Pennsylvania 19106

Alana Duerr Ph. D U.S. Department of Energy [email only]

Jeffrey Gebert US Army Corps of Engineers, Philadelphia District [email only]

Robert Baldwin Department of Natural Resources & Environmental Control 89 Kings Highway Dover, DE 19901 Laura Herr Department of Natural Resources & Environmental Control 89 Kings Highway Dover, DE 19901

Indian River Marina, DE Seashore State Park Indian River Marina Delaware Seashore State Park 39415 Inlet Road, Rehoboth Beach, DE 19971

Frank Piorko Maryland Coastal Bays Program 8219 Stephen Decatur Highway Barlin, MD 21811

Mr. Elder Ghigiarelli Wetlands and Waterway Construction Program Maryland Department of the Environment 1800 Washington Blvd Baltimore, MD 21230 Kate Charbonneau Chesapeake Bay Critical Area Commission Maryland Department of Natural Resources 1804 West Street Annapolis, MD 21401

Andrew May Maryland Department of the Environment 1800 Washington BLVD Baltimore, MD 21230-1708 Elizabeh Hughes Division of Historical and Cultural Programs MD Historic Trust 100 Community Place Crownsville, MD 21303-2023

Ms. Lori Byrne Maryland Department of Natural Resources Tawes State Office Building, E-1 580 Taylor Ave Annapolis, MD 21401

Mark O'Malley Maryland Department of Natural Resources Tawes Office Building 580 Taylor Ave Annapolis, MD 21401

Tony Redman Maryland Department of Natural Resources Tawes State Office Bldg., B-3 580 Taylor Ave. Annapolis, MD 21401

David Craig Maryland Department of Planning 301 West Preston Street Baltimore, MD 21201-2365 David Blazer Maryland Department of Natural Resources 580 Taylor Avenue Annapolis, MD 21401

Thomas O'Connell Maryland Department of Natural Resources 580 Taylor Avenue Annapolis, MD 21401

Richard Ortt Maryland Geological Survey Maryland Department of Natural Resources 2300 St. Paul Street Baltimore, MD 21218-5210

Ms. Linda Janey Maryland Department of Planning 301 West Preston Street, Suite 1101 Baltimore, MD 21201-2305 Development Review and Permitting Worcester County Government Center Environmental Programs 1 W. Market Street, Room 1306 Snow Hill, MD 21863

Worcester County Emergency Services Worcester County Government Center 1 W. Market Street, Room 1002 Snow Hill, MD 21863

Ocean City Branch Worcester County Library 10003 Coastal Highway Ocean City, Maryland 21842 Worcester County Environmental Programs Worcester County Government Center 1 W. Market Street, Room 1306 Snow Hill, MD 21863

Berlin Branch Worcester County Library 220 North Main Street Berlin, Maryland 21811

Ocean Pines Branch Worcester County Library 11107 Cathell Road Ocean Pines, Maryland 21811

Engineering Department Town of Ocean City 301 Baltimore Avenue Ocean City, MD 21842 Planning and Community Development Town of Ocean City 301 Baltimore Avenue Ocean City, MD 21842 MARYLAND DEPARTMENT OF



Larry Hogan, Governor Boyd Rutherford, Lt. Governor Robert S. McCord, Acting Secretary

April 23, 2018

Mr. Christopher Spaur U.S. Army Corps of Engineers, Baltimore District P.O. Box 1715 Baltimore, MD 21203-1715

STATE CLEARINGHOUSE REVIEW PROCESS

State Application Identifier: MD20180413-0244

Reply Due Date: 05/17/2018
Project Description: U.S. Army Corps of Engineers, Baltimore District (USACE), in Partnership with Maryland Dept. of Natural Resources (MD DNR), is Proposing to Dredge Offshore Shoals in Federal Waters to obtain Sand for the Atlantic Coast of MD Shoreline Protection Project by 2022
Project Location: Municipality(ies) of Worcester-Town of Ocean City
Clearinghouse Contact: Rita Pritchett

Dear Mr. Spaur:

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

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

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

Maryland Department of Planning • 301 West Preston Street, Suite 1101 • Baltimore • Maryland • 21201

Mr. Christopher Spaur Page 2 State Application Identifier #: MD20180413-0244

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

Sincerely,

Myra Barnes, Lead Clearinghouse Coordinator

MB:RP Enclosure(s) cc: Town of Ocean City 18-0244_NRR.NEW.docx

United States Department of the Interior



BUREAU OF OCEAN ENERGY MANAGEMENT WASHINGTON, DC 20240-0001

APR 2 3 2018

Mr. Daniel M. Bierly, P.E. Chief, Civil Project Development Branch Planning Division Baltimore District U.S. Army Corps of Engineers P.O. Box 1715 Baltimore, Maryland 21203-1715

Dear Mr. Bierly:

Thank you for your April 11, 2018, letter requesting that the Bureau of Ocean Energy Management (BOEM) become a cooperating agency during the National Environmental Policy Act (NEPA) process for the proposed Atlantic Coast of Maryland Shoreline Protection Project. The proposed action may include the implementation of a beach nourishment project along the beach of Ocean City, Maryland by 2022. Sand resources may be obtained from offshore shoals located in the Outer Continental Shelf (OCS).

The U.S. Army Corps of Engineers, Baltimore District (USACE) prepared an Environmental Impact Statement (EIS) in 2008 evaluating four shoals in federal waters including Weaver shoal, Isle of Wight Shoal, Shoal "A," and Shoal "B" (Bass Grounds). BOEM (previously Minerals Management Service (MMS)) served as a cooperating agency in the development of this EIS. To date, the project has not utilized any of these offshore shoals because sufficient sand has been available from sources in nearby state waters. These state resources have since been exhausted and USACE is now re-evaluating the four offshore shoals in federal waters since 10 years have elapsed since the 2008 EIS. USACE will assume the role of Lead Federal Agency in preparing a supplemental environmental Assessment (EA) to ensure compliance with NEPA.

The BOEM welcomes the opportunity to participate in the proposed NEPA effort and agrees to serve as a cooperating agency since the BOEM has jurisdiction over mineral leasing on the OCS. As a cooperating agency, the BOEM expects to: participate and provide input in the NEPA process at the earliest possible time; assume, on the request of USACE responsibility for developing information and preparing environmental analyses for which BOEM has special expertise; make available staff support, at the lead agency's request, to enhance the interdisciplinary capability of USACE; provide comment on the EA; and use our own funds to accomplish these responsibilities.

BOEM also recognizes the importance of initiating and participating in the required Endangered Species Act (ESA) Section 7 consultations; the Magnuson-Stevens Fishery and Conservation Management Act Essential Fish Habitat (EFH) consultation (Section 305); the National Historic Preservation Act Section (NHPA) 106 process; and the Coastal Zone Management Act (CZMA) Section 307 consistency process. As the lead federal agency for ESA Section 7 and the EFH consultations, USACE must notify the U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) of its lead role and BOEM's cooperating role. BOEM would expect USACE, as lead agency, to work with BOEM to ensure existing or new biological opinions from FWS and NMFS are applicable to BOEM's part of the Federal action and/or expect to jointly submit the ESA Section 7 and EFH assessments to FWS and NMFS. BOEM expects USACE be the lead federal agency for NHPA Section 106 and CZMA Section 307 compliance with the BOEM acting in a consulting role. BOEM requests that USACE notify the State Historic Preservation and the Maryland Department of the Environment of BOEM's involvement in the undertaking / proposed action. BOEM would welcome the opportunity to review and provide comments on any draft correspondence in regards to these consultations.

BOEM looks forward to working with USACE during this process. We would greatly appreciate to be included on all correspondence to other federal and state agencies concerning this project. If you would like to discuss any of these items further, please contact Doug Piatkowski at (703) 787-1833 or by e-mail at Douglas.Piatkowski@boem.gov.

Sincerely,

GeoffreyWikel Chief, Branch of Environmental Coordination, Division of Environmental Assessment

cc:

Mr. Christopher Spaur, USACE Mr. Jeffrey Reidenauer, BOEM, Marine Minerals Branch Ms. Leighann Brandt, BOEM, Marine Minerals Branch



Larry Hogan, Governor Boyd Rutherford, Lt. Governor Mark Belton, Secretary Joanne Throwe, Deputy Secretary

18-MIS-180

2 May 2018

Mr. Daniel M. Bierly, Chief Civil Project Development Branch Planning Division U.S. Army Corps of Engineers, Baltimore District P.O. Box 1715 Baltimore, MD 21203-1715

Attn: Christopher Spaur

Subject: Supplementary Environmental Assessment Offshore Shoals in Federal Waters as Sand Sources; Atlantic Ocean; Worcester County

Dear Mr. Bierly:

The US Army Corps of Engineers' request for information to aid in scoping for the preparation of the above referenced Environmental Assessment has been reviewed by the Department of Natural Resources. The propose study will re-evaluate the findings of a 2008 Environmental Impact Statement that evaluated four shoals in federal waters beyond the 3-mile limit as sources of sand for the Atlantic Coast of Maryland Shoreline Protection Project (project) at Ocean City, Worcester County. The four shoals studied in the 2008 EIS were: Weaver Shoal, Isle of Wight Shoal, Shoal "A" and Bass Grounds (aka First Lump and Shoal "B"). The project has not utilized any of these offshore shoals in federal waters as a sand source since sufficient sand was available from borrow sites in state waters. However, the completion of the most recent beach replenishment dredging exhausted the sand from the shoals in state waters. It is anticipated that sand from the shoals in federal waters will be need for the project by 2022. However, storm events before that date may require sand from those shoals before that date.

The Department of Natural Resources can provide the following information, concerns and recommendations for incorporation into the development and planning of the proposed re-evaluation study:

- 1. The Department is concerned that since the preparation of the 2008 EIS the commercial and recreational fishing activity at the four offshore shoals in federal waters has increased. The 2008 EIS concluded that the Bass Grounds/Shoal "B" was unsuitable as a borrow site because of its high value as a fishing ground. The Isle of Wight Shoal was included in an article in the October 2010 issue of Game and Fish Magazine (http://www.gameandfishmag.com/fishing/fishing_saltwater-fishing_at_0808_01/) on summer flounder fishing entitled "Mid-Atlantic Summer Flounder Hotspots". The shoal was characterized in the article as "A small but productive spot...". These shoals may also include or be near places where people go to shark fish. Typically sharks are in this area from May into the fall. The re-evaluation study should reexamine fishing activity at all four shoals to determine if fishing activity has changed since the 2008 EIS.
- 2. The Department has received concerns that the beach replenishment happens in the fall when striped bass are moving through the area. Commercial and recreational fishermen can only harvest striped bass from

state waters and their opportunity to catch their quota is negatively impacted because fish avoid the area of the sand dredging. Spiny dogfish are also in the area from November to April/May and are of commercial interest in both state and federal waters. The Supplemental EA should also evaluate the dredging of the four offshore shoals and associated beach replenishment activities on the nearshore fishing activity.

- 3. The Department has received comments in the past from the fishing public that the removal of sand from the shoals for beach replenishment has diminished the shoals ability to break waves. The Corps should include an evaluation of the removal of the shoals currently used for beach replenish on wave action and energy and determine potential changes in wave action and energy that could result from sand removal from the four offshore shoals in federal waters.
- 4. In 2017, there was an open scalloping area nearby the area of the four offshore shoals in federal waters. In the past there were surf clam and scallop boats coming into the Ocean City harbor but now we have few if any of those large vessels partly because of the inlet shoaling problem. Scallops can be a valuable contribution to the economy. Is it possible for the beach replenishment project process to work cooperatively with a solution for inlet dredging?

Should you require additional information regarding these comments, please feel free to contact Roland Limpert of my staff at 410-260-8333.

Sincerely,

Tony Redman, Director Environmental Review Program

enclosure

cc: Andy Hanas, DNR-E&C Jim Thompson, DNR-F&BS Tay Harris, DNR-CAC Bruce Michael, DNR-RAS Elder Ghigiarelli, MDE-Wetland and Waterways



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 3 2017

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

RE: Atlantic Coast of Maryland Shoreline Protection Project (Ocean City) – Preparation of Supplementary Environmental Assessment – Offshore Shoals in Federal Waters as Sand Sources

Dear Mr. Bierly:

We have reviewed the information provided in the April 10, 2018, public notice, and in your April 5, 2018, letter on the proposed Atlantic Coast of Maryland Shoreline Protection Project in the Town of Ocean City, Worcester County, Maryland. The U.S. Army Corps of Engineers, Baltimore District (District), in partnership with the Maryland Department of Natural Resources (MD DNR), is proposing to dredge offshore shoals in federal waters to obtain sand for the shoreline project by the year 2022. The project would consist of mining sand from offshore shoals and placing it on the beach of Ocean City, generally every four years, to reduce risk of coastal storm damage. The most recent beach replenishment contract, completed in December 2017, exhausted sand from nearby offshore shoals in state waters. The District and MD DNR have placed sand on Ocean City beach more frequently than every four years following severe storms, and sand from federal waters may be needed sooner than 2022.

The District prepared an Environmental Impact Statement (EIS) in 2008 evaluating four shoals in federal waters (beyond the 3-mile limit) as sources of sand for the project: Weaver Shoal, Isle of Wight Shoal, Shoal "A," and Bass Grounds (also known as Shoal "B"). In 2008, Shoal "B" was determined to be unsuitable as a sand source because of its high value as a fishing ground. These offshore shoals have not yet been used for the project because sufficient sand has been available in state waters. Since ten years have elapsed since the 2008 EIS, the District is preparing a supplemental Environmental Assessment (EA) to document findings of its reevaluation of the four offshore shoals in federal waters as sand sources.

You have requested our input on the re-evaluation of the project. To assist you in the development of a draft supplemental EA to assess the impacts of the proposed project, we offer the following comments pursuant to our authorities under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Fish and Wildlife Coordination Act, and Endangered Species Act.

Magnuson Stevens Fishery Conservation and Management Act (MSA)

The Atlantic Ocean and sandy shoals offshore of the Delmarva Peninsula have been designated essential fish habitat (EFH) for a variety of life stages of fish managed by the New England Fishery Management Council (NEFMC), Mid-Atlantic Fishery Management Council (MAFMC), South Atlantic Fishery Management Council (SAFMC), and NMFS because these areas provide.



feeding, resting, nursery, and staging habitat for a variety of commercially, recreationally, and ecologically important species. Species for which EFH has been designated in the area of the proposed project include, but are not limited to, Atlantic butterfish (*Peprilus triacanthus*), bluefish (*Pomatomus saltatrix*), black sea bass (*Centropristis striata*), red hake (*Urophycis chuss*), scup (*Stenotomus chrysops*), summer flounder (*Paralichthys dentatus*), windowpane flounder (*Scophthalmus aquosus*), clearnose skate (*Raja eglanteria*), little skate (*Leucoraja erinacea*), winter skate (*Leucoraja ocellata*), and surf clam (*Spisula solidissima*).

The area is also designated EFH for several Atlantic highly migratory species (tuna, swordfish, billfish, small and large coastal sharks, and pelagic sharks) including, but not limited to, sandbar shark (*Carcharhinus plumbeus*), spiny dogfish (*Squalus acanthias*), smoothhound shark complex (Atlantic stock), albacore tuna (*Thunnus alalunga*) and sand tiger shark (*Carcharias taurus*). The sand tiger shark has been listed as a Species of Concern by NOAA. The goal of listing a species as a Species of Concern is to promote proactive conservation efforts for these species in order to preclude the need to list them in the future. Furthermore, sandy shoals are designated as an EFH-Habitat Area of Particular Concern (HAPC) for Spanish mackerel (*Scomberomorus maculatus*), king mackerel (*Scomberomorus cavalla*), and cobia (*Rachycentron canadum*).

Shoal habitat is defined by such factors as exposure, sediment texture, depth, and rugosity, which constantly shift under normal current regimes and storm events. Shoals are also generally characterized by high fish production, high benthic faunal density, and species diversity; dense aggregations of fish are supported by local primary production. The shoals are also critically important for fisheries as they demarcate the boundary where the Labrador Current flowing south collides with the Gulf Stream Current flowing north, providing nutrient rich waters and generating localized areas of high productivity. Benthic invertebrate communities are diverse and productive despite the high-energy disturbance regimes affecting shoal complexes. Infaunal species provide important trophic linkages coupling benthic-pelagic ecosystems. Many of the organisms utilizing these habitats also provide trophic linkages between inshore and offshore systems. Additionally, a number of species migrate across the shoals at various temporal scales.

Understanding how shoals and the associated tidal inlets function to provide habitat is the product of a complex mix of connections between biological processes and physical factors. There is potential for significant short-term and long-term physical and biological impacts from dredging shoal habitat. Potential impacts caused by dredging include physical removal of benthic faunal communities and disturbance of foraging habitat for fish and invertebrates. Dredging can also affect benthic communities by altering sediment transport characteristics, sediment texture, depth and vertical relief, and overall community structure. Systematic dredging may result in cumulative, synergistic, and unanticipated changes in habitat quality. Furthermore, it is unknown how barrier islands and longshore coastal currents will respond to dredging and removal of large volumes of sand from the proposed shoals.

The MSA requires federal agencies, such as the Army Corps of Engineers to consult with us on any action or proposed action authorized, funded, or undertaken, by such agency that may adversely affect EFH identified under the MSA. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in the consultation process. Our EFH regulations also allow federal agencies to incorporate an EFH assessment into documents prepared for other purposes including National Environmental Policy Act (NEPA) documents such as your supplemental EA provided certain conditions are met. If an EFH assessment is contained in another document, it must be clearly identified as an EFH assessment and include all of the following mandatory elements including: (i) a description of the action, (ii) and analysis of the potential adverse effects of the action on EFH and the managed species, (iii) the federal agency's conclusions regarding the effects of the action on EFH, and (iv) proposed mitigation, if applicable.

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

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

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

As part of the supplemental EA, you should prepare an EFH assessment to address the direct, individual, and cumulative effects of mining sandy shoals on EFH, federally managed species and their prey. To fully evaluate the proposed project, information regarding the depths, locations, frequencies, and orientations of cuts for all borrow areas and rates at which borrow areas are expected to fill will be necessary. Biological information characterizing the distribution, abundance, biomass, production and diversity of fish and invertebrates on the shoal complex is also necessary to undertake this evaluation. Fishery-independent surveys that include a combination of active sampling (e.g., trawling) and passive sampling (e.g., acoustic technologies) should be used and sampling should occur throughout the year to evaluate temporal differences in shoal communities. Fishery-dependent surveys may also be useful for evaluating project effects.

For a listing of EFH and further information, please see our website at:

http://www.greateratlantic.fisheries.noaa.gov/habitat. The website also contains information on descriptions of EFH for each species, guidance on the EFH consultation process including EFH assessments, and information relevant to our other mandates. Furthermore, a number of Fisheries Management Plans and amendments to those plans (e.g., June 2009 Amendment 1 to the Consolidated Highly Migratory Species (HMS) Fisheries Management Plan) address non-fishing activities such as sand mining, and provide a number of general EFH conservation recommendations, which can be included into the supplemental EA as avoidance and minimization measures.

Fish and Wildlife Coordination Act (FWCA)

The Atlantic Ocean and sandy shoals offshore of the Delmarva Peninsula serve as valuable habitat for many aquatic species including both state and federally managed species and their forage including Atlantic butterfish, Atlantic sea herring (*Clupea harengus*), bluefish, black sea bass, red hake, scup, summer flounder, windowpane flounder, clearnose skate, little skate, winter

skate, striped bass (*Morone saxatilis*), blue crab (*Callinectes sapidus*), Atlantic menhaden (*Brevoortia tyrannus*), bay anchovies and other assorted baitfishes and shrimps (e.g., *Neomysis Americana, Mysidopsis bigelow*). The area of the proposed project also supports strong recreational and commercial fisheries.

The shoal complex offshore of the Delmarva Peninsula is also important habitat for horseshoe crabs (*Limulus polyphemus*). Horseshoe crabs play valuable ecological roles in the food web within the nearshore and offshore communities. Horseshoe crab eggs and larvae are also a food source for a number of other species including striped bass, white perch (*Morone americana*), weakfish (*Cynoscion regalis*), American eel (*Anguilla rostrata*), silver perch (*Bairdiella chrysoura*), and federally managed summer flounder. Horseshoe crab eggs and larvae provide critical linkages between nearshore and offshore environments.

These areas are also important habitat for anadromous species such as alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), American shad (*Alosa sapidissima*), and striped bass, species that move along and across shoal habitat multiple times throughout their life cycle. Sexually mature adults move across shoals to aggregate and stage near river mouths and inlets prior to spawning migrations in rivers. Similarly, young-of-year emerge from estuaries and migrate across the shoals to the waters of the north Atlantic for growing. Alterations to shoal habitat could affect spatiotemporal longshore movements by disrupting feeding behavior and modifying and disrupting a significant orientation cue for migration. Anadromous species are the most common and well known fish to exhibit longshore migratory behavior. These species have complex lifecycles where individuals migrate great distances along the continental shelf and then return to their natal rivers to spawn.

Because landing statistics and the number of fish observed on annual spawning runs indicate a drastic decline in alewife and blueback herring populations throughout much of their range since the mid-1960s, river herring have been designated as Species of Concern by NOAA. We wish to draw proactive attention and conservation action to these species. The 2012 river herring benchmark stock assessment found that of the 52 stocks of alewife and blueback herring assessed, 23 were depleted relative to historic levels, one was increasing, and the status of 28 stocks could not be determined because the time-series of available data was too short. The "depleted" determination was used instead of "overfished" and "overfishing" to indicate factors besides fishing have contributed to the decline, including habitat loss, habitat degradation and modification, and climate change. Increases in turbidity due to the resuspension of sediments into the water column during dredging and construction activities can degrade water quality, lower dissolved oxygen levels, and potentially release chemical contaminants bound to the fine-grained estuarine/marine sediments.

Endangered Species Act (ESA)

The following endangered or threatened species under our jurisdiction may be present in the project area:

Atlantic Sturgeon

Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) are present in coastal waters along the coast of Maryland as well as in Chesapeake Bay and its tributaries. The New York Bight, Chesapeake Bay, South Atlantic, and Carolina distinct population segments (DPS) of Atlantic sturgeon are endangered; the Gulf of Maine DPS is threatened. Adult and subadult Atlantic sturgeon from any of these DPSs could occur in the proposed project area. As young remain in their natal river/estuary until approximately age 2, and early life stages are not tolerant of saline waters; therefore, no egg, larvae, or juvenile Atlantic sturgeon will occur in the area.

Sea Turtles

Four species of federally threatened or endangered sea turtles under our jurisdiction can be found seasonally in the coastal waters of Maryland from late April – mid November of each year. The threatened Northwest Atlantic Ocean DPS of loggerhead (*Caretta caretta*), the endangered Kemp's ridley (*Lepidochelys kempii*), and the endangered leatherback (*Dermochelys coriacea*) sea turtles may be present along the Maryland coast. NMFS published the final listing of eleven Green sea turtle (*Chelonia mydas*) DPS on April 6, 2016. Eight DPSs were listed as threatened and three as endangered. The DPS found in U.S. Atlantic waters, the North Atlantic DPS, is listed as threatened. Due to the inability to distinguish between these populations away from the nesting beach, green sea turtles are considered endangered wherever they occur in U.S. waters.

Juvenile and adult turtles of all species of sea turtles may occur seasonally along Maryland shores though leatherback turtles would normally be found offshore in deeper waters. There are no established nesting beaches in Maryland and eggs and hatchlings will not be present within the proposed project area.

Cetaceans (Whales)

Five species of endangered large whales occur seasonally off the Mid-Atlantic coast of the U.S.: North Atlantic right whale (*Eubalaena glacialis*), fin whale (*Balaenoptera physalus*), sei whale (*Balaenoptera borealis*), sperm whale (*Physeter macrocephalus*), and blue whale (*Balaenoptera musculus*).

However, of these five species, only two, the right and fin whales, are likely to occur closer to the Maryland shore in shallower waters. Sperm, blue, and sei whales are typically found in waters further offshore. Right whales are most likely to occur along the Maryland coast during seasonal migrations between November and April and fin whales are most likely to occur during seasonal migrations between October and January.

As project plans develop, we recommend you consider the following project best management practices and avoidance/minimization measures for all of the proposed project's activities that might affect sea turtles, sturgeon, and whales

• For activities that increase levels of suspended sediment, consider the use of silt management and/or soil erosion best practices (i.e., silt curtains and / or cofferdams).

• For work that will increase vessel traffic within the project area, consider restricting the number of trips taken by each vessel and selecting shallow draft vessels.

• For any impacts to habitat or conditions that temporarily render affected water bodies unsuitable for the above-mentioned species, consider the use of timing restrictions for in-water work.

For additional guidance on the section 7 consultation process, technical resources and species information, please visit our website at: https://www.greateratlantic.fisheries.noaa.gov/protected/section7/index.html

You will be responsible for determining whether the proposed action may affect listed species. If you determine that the proposed action may affect a listed species, you should submit your determination of effects, along with justification and a request for concurrence to the attention of the Section 7 Coordinator, NMFS, Greater Atlantic Regional Fisheries Office, Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930. We also have a specialized e-mail account to expedite the process of submitting a request for consultation to us at <u>nmfs.gar.esa.section7@noaa.gov</u>. We encourage you to electronically submit any consultation requests directly to this e-mail account. After reviewing this information, we would then be able to conduct a consultation under section 7 of the ESA. Should project plans change or new information become available that changes the basis for this determination, further coordination should be pursued. If you have any questions regarding these comments, please contact Brian D. Hopper (410-573-4592; <u>brian.d.hopper@noaa.gov</u>)

We look forward to continued coordination with your office on this project as it moves forward. If you have any questions or need additional information, please do not hesitate to contact Keith Hanson in our Annapolis, MD field office at <u>keith.hanson@noaa.gov</u> or (410) 573-4559 regarding EFH/MSA issues and Brian Hopper at <u>brian.d.hopper@noaa.gov</u> regarding ESA issues.

Sincerely,

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

cc:

ACOE – C. Spaur PRD – M. Murray-Brown, B. Hopper, C. Vaccaro FWS- C. Guy EPA Region III – Mike Mansolino MAFMC – C. Moore NEFMC – T. Nies ASMFC –L. Havel

From:	David Blazer -DNR-
To:	Spaur, Christopher C CIV USARMY (US)
Cc:	Piatkowski, Douglas; Callahan, Justin B CIV USARMY CENAB (US); Michael Luisi -DNR-; Angel Willey; Lynn Waller
	Fegley; George ODonnell -DNR-
Subject:	[Non-DoD Source] Re: Handouts for Fishermen"s Meeting on 4/27/2018
Date:	Monday, May 07, 2018 6:35:15 PM
Attachments:	AC_DNRfishermenMtngText04202018.docx

Chris,

We had our meetings with the commercial (about 10 waterman) and recreational fisherman's groups (about 35 fishermen) on April 27 and introduced the idea of the Beach replenishment project that we discussed. Obviously all of the folks in attendance are very concerned about the potential impacts of the project while also appreciative of being asked their thoughts early in the process.

Both groups wanted to take some time to think about the proposal and organize their thoughts as a group. They are interested in learning more about the project and they asked many questions that I didn't have the background information to answer. These are a few of the questions they had:

1. What data exists on each of the sites?

2. Is there any data on the impact from the previous borrow areas?

3. Both groups said the southern most site (I believe Bass Grounds) was a good area where they fish and shouldn't be considered.

4. Are there artificial reefs near these sites?

5. Are there other sources other than these and why did these get picked as the four to consider?

I will be sending the public notice and your contact information to the representatives of the groups (I will cc you) so they can follow up with you regarding more details of the project. Can I email and share these attachments you sent me previously with them (i used them for notes but did not handout at the meeting)?

If there is anything else I can help with, please let me know.

Dave

On Fri, Apr 20, 2018 at 1:28 PM, Spaur, Christopher C CIV USARMY (US) <Christopher.C.Spaur@usace.army.mil <<u>mailto:Christopher.C.Spaur@usace.army.mil</u>> > wrote:

Dave

Above attached.

Big picture. We need input from fishermen on relative value of the 4 shoals as fishing grounds. Basically, is Bass Grounds (Shoal B) still too valuable to borrow from? Are Weaver, Isle of Wight, and A still acceptable? (Dredging would be conducted with guidelines and constraints to maintain shoals). Could they help us identify commercial/recreational vessels that fish these waters and how we can coordinate with them to get input?

Handouts contain background information on project and offshore shoals just in case it's needed. You could skip or minimize coverage of that as best suits.

Let me know if you have any suggestions or questions about these. If it'd be useful, I could attend meeting or participate by phone.

Thanks for your help,

Chris

<Blockedhttp://www.maryland.gov/>

<Blockedhttps://www.facebook.com/MarylandDNR/> <Blockedhttps://twitter.com/MarylandDNR>

dnr.maryland.gov <Blockedhttp://dnr.maryland.gov/>

Dave Blazer

--

Director, Fishing and Boating Service

Department of Natural Resources

580 Taylor Ave., B-2

Annapolis, Maryland 21401

410-260-8281 (office)

443-676-7208 (cell)

david.blazer@maryland.gov <<u>mailto:david.blazer@maryland.gov</u>>

Click here <Blockedhttp://www.doit.state.md.us/selectsurvey/TakeSurvey.aspx? agencycode=DNR&SurveyID=86M2956#> to complete a three question customer experience survey. Dear Mr. Spaur,

The U.S. Environmental Protection Agency (EPA) received the public notice from the U.S. Army Corps of Engineers, Baltimore District (USACE) regarding the proposal to dredge offshore shoals in federal waters to obtain sand for the Atlantic Coast of Maryland Shoreline Protection Project (project). USACE prepared an Environmental Impact Statement (EIS) in 2008 evaluating four shoals in federal waters and is preparing a supplemental Environmental Assessment (EA) documenting findings of the re-evaluation to ensure compliance with the National Environmental Policy Act. EPA greatly appreciates USACE alerting us to the re-evaluation and considering scoping recommendations.

* The EA should provide context for the study area, other efforts being performed in the area, communication planning, etc.

* Alternatives analysis should include the suite of activities or solutions that were considered and the rationale for not carrying these alternatives forward for detailed study. Please feel free to reach out EPA to discuss Alternatives moved forward to detailed study.

* Please indicate in the EA what permits will be sought and required from the State and Federal governments.

* We recommend the EA include discussion of preferred and alternative dredging equipment for the project and the benefits and limitations of each. Rationale for selection should be provided. Hydraulic methods may reduce vessel support, reduce emissions, and minimize wildlife strikes, however may be associated with increased sedimentation and therefore impacts to benthic communities. EPA suggests consideration to methods and best practices to limit sediment/sand dispersion during the activities.

* Please consider including an analysis of shoal movement, growth, reduction with current shoreline processes, whether shoals can sustain additional dredging as a source of material for beach nourishment.

* It is recommended that an updated evaluation of current habitat for birds, fish and invertebrates (such as annelids, mollusks, and crustaceans) be included along with anticipated impacts and avoidance, minimization, mitigation and monitoring measures. Please include any impacts the proposed actions may have on herpetofauna including any avoidance and minimization measures.

* As stated in our August 27, 2007 letter on the Draft EIS, maintaining shoal profile is important to allow current functions of the features in the offshore system and effectively maintain long term functions for marine life.

* Please indicate if it is anticipated that the project will lead to creation of habitat for species such as the Piping Plover or Diamondback Terrapin and if monitoring of these or other species will be conducted.

* Please summarize previous shoreline efforts and any lessons learned. In nearby areas, the presence of additional sand within the nearshore system was anticipated to lead to the formation of offshore sand bars which would dissipate wave energy. Have offshore sandbars formed since the additional sand was incorporated into the nearshore system? Please describe how any offshore sandbars formed may influence the construction of the shoreline features of this project.

* The study should evaluate and discuss secondary and cumulative impacts, as defined by CEQ (40 CFR 1508.7 and 1508.8), of the proposed actions. Impacts may be positive or adverse (see CEQ 1997- "Considering Cumulative Effects Under the National Environmental Policy Act").

* As you may be aware, the Mid-Atlantic Ocean Data Portal (MARCO) is an Interactive ocean mapping tool. It includes data layers of fishing grounds, recreational areas, shipping lanes, critical habitat areas, and energy sites, among others. The portal is a collaboration among federal agencies including NOAA, BOEM, the Coast Guard, the U.S. Fish and Wildlife Service, the Department of Defense, EPA, as well partners from nonprofit organizations and the private sector. We recommend this tool be used as part of the EA analysis. The MARCO website is: Blockedhttp://portal.midatlanticocean.org/ocean-stories/every-map-tells-a-story/

<Blockedhttp://portal.midatlanticocean.org/ocean-stories/every-map-tells-a-story/>

Thank you for coordinating with EPA on this project. We look forward to working with you as more information becomes available. Please let me know if you have any questions on the recommended topics above. Please provide a copy of the EA to EPA when it is available for review.

Thank you,

Aaron

Aaron Blair Physical Scientist

U.S. EPA Mid-Atlantic Region 3 Environmental Assessment and Innovation Division 1650 Arch Street

Philadelphia, PA 19103

215-814-2748

Memorandum for the Record

<u>Minutes</u>: Meeting between USACE and DNR Staff and Ocean City Area Fishermen, July 10, 2018, 630-8 PM. Ocean City Marlins Club, West Ocean City, MD.

<u>Subject</u>: Atlantic Coast of MD Project – Offshore Shoal Dredging and Fishing Ground Value, Ocean City Inlet Navigation Concerns

<u>Agency (Participant)</u>: USACE (Chris Spaur, Justin Callahan, Tony Clark); DNR (Dave Blazer, Steve Doctor); BOEM (Doug Piatkowski [listening capability only])

0 USACE staff, DNR staff, and fishermen introduced themselves. CS requested that all present sign sign-in sheets. 16 people signed sign-in sheets in addition to MD DNR participants. One reporter from the "Maryland Coast Dispatch" newspaper attended. Two fishermen introduced themselves as commercial fishermen, and the remaining fishermen were split between charter boat and recreational. CS stated that meeting would be organized in three parts: overview of proposed borrow plan, discussion of fishery value of the offshore shoals being considered as borrow sources, and then open discussion on navigation concerns in Ocean City Inlet vicinity.¹

1 CS provided overview of project status and 2008 borrow plan with updates (attached slide handout). During the presentation on the 2008 borrow plan and project status, multiple fishermen asked questions regarding the plan and other alternatives. Several notable questions and responses are provided below.

Question: Why not dredge the flat plain (desert) areas of the seafloor rather than the offshore shoals? Answer: Sea floor plains sands are thin (several feet or less) and then typically interbedded with other sediments not suitable for the beach (gravel and mud). Conversely, shoals are almost entirely gradually moving undersea dunes. Additionally, shoal sand is of grain size highly compatible with Ocean City beach.

Question: Where does the sand placed on the Ocean City beach go? Answer: The Ocean City beach is an engineered beach and the character of the ocean and coastal bays shorelines are a consequence of combined impacts of natural processes and engineering. Sand is dredged from offshore shoals and deposited by USACE on Ocean City beach. Then natural processes transport sand southward along the beach and into the Coastal Bays in the inlet vicinity and also then on the growing ebb shoal off northern Assateague Island. USACE dredges sand from the inlet vicinity and the ebb shoal and places sand on Assateague Island south of the ebb shoal. From there, natural processes carry sand southward along Assateague Island. (This topic was covered more thoroughly in subsequent discussion of USACE navigation projects in vicinity.)

¹ Meeting minutes are organized into three sections accordingly, although in reality questions and discussion overlapped back and forth on these topics at different times during the meeting.

Question: Is data available to show what happened to sea life in state waters where dredging has been conducted? Answer: USACE hasn't conducted biological monitoring of the seafloor following dredging off MD. However, USACE has taken multiple bathymetric surveys over time so changes in seafloor bathymetry are known. Biological monitoring of comparable dynamic sandy substrates has been conducted elsewhere on the Atlantic and Gulf Coasts. These studies find that bottom life generally recovers to pre-dredging conditions within several years - provided the post-borrow substrate remains sandy with good water quality and minimal change in depth. Under the borrow plan, dredging guidelines and constraints would serve to maintain sandy substrates with depth changes not enough to affect bottom life. No long-term impacts to water quality would occur. So, bottom life would be expected to recolonize the dredged shoals within several years following dredging. Because of these findings elsewhere, no biological monitoring following dredging was proposed in the 2008 borrow plan. However, bathymetric monitoring to ensure that shoal integrity was maintained over time is proposed.

Question: Could coarser sand or finer sand be put on the Ocean City beach? What would the consequences be? Answer: Coarser sand or gravel is more resistant to erosion, but would cause the beach to get steeper over time, increasing wave energy that bathers would be exposed to, making it perhaps more dangerous. Gravel is less desirable from a recreational perspective in that it's harder to walk on, and sand is part of beach character that draws tourists and keeps Ocean City an economic success. Finer sand would get washed away more quickly. So to meet the needs of Ocean City, USACE strives to place sand that's the same as the engineered beach that's there now. However, USACE does place coarser sand at several locations along the beach where erosion is most severe – "hotspots."

Question: Is USACE considering impacts of projects on Delaware beaches? Answer: USACE Baltimore District maintains Atlantic Coast of MD (Ocean City) and Assateague Island Projects while USACE Philadelphia District is undertaking projects on Delaware beaches. The two districts are in contact with each other, but dredging and beach work is arranged by each district separately.

Question: Could dredging be undertaken with a time of year restriction that would better protect fish, as fishing "turns off" during dredging? In particular, could dredging be done when rockfish aren't present? Answer: USACE can't put sand on the beach from Memorial to Labor Day because that would interfere with summer beach season. Sea conditions are roughest in winter, limiting work, although some beachwork is done then. So, much of the work ends up being done in fall and spring.

2 JC stated that the Ocean City beach is part of an authorized USACE project and will be maintained. USACE has to obtain sand from somewhere for the project. CS said that borrow plan from 2008 identified multiple shoals because of uncertainty over how their future value as fishing grounds might change, uncertainty over total sand needs which would be affected by storms, and to allow dredging to be done in accordance with 2008 guidelines and constraints which would limit dredging from any one shoal to less than 5% of its total volume. Borrow plan developed in 2008 determined that Shoal B (Bass Grounds) was not suitable from a fishery

impact perspective, and wouldn't be used unless its value as fishing grounds decreases. Instead, it identified several offshore shoals as the best sources: Isle of Wight Shoal, Weaver Shoal, and Shoal A. Based on economic considerations and situation where future storms aren't more severe than past, then USACE could get all needed sand from just Isle of Wight and Weaver Shoal and dredge in accordance with 2008 borrow plan dredging guidelines and constraints.

CS asked whether USACE should avoid dredging Shoal B (Bass Grounds)? Or, has its value as a fishing ground changed such that it could be dredged instead of or in addition to the other shoals? Multiple participants stated that Bass Grounds is an important fishing area, particularly because of the artificial reefs there, and that it shouldn't be dredged. CS noted that presumably fishing value is in part dependent upon artificial reef. Because that's permanent, then presumably fishing value will remain high in future.

Cs asked whether Isle of Wight Shoal, Weaver Shoal, or Shoal A are of particular importance from a fishery perspective? SD and one fishermen noted that Isle of Wight Shoal has concentrations of striped bass seasonally, is a good fishing area, and is the tallest of the shoals. They'd prefer that USACE instead dredge Weaver Shoal and or Shoal A.

4 CS presented a quick overview of USACE projects and studies in the inlet vicinity. Then, an open discussion was then held to address navigation concerns. In this, USACE staff responded to various questions regarding conditions in the inlet vicinity. Numerous questions focused on whether USACE could make increased use of accumulating sand near harbor, inlet, and ebb shoal for Ocean City or Assateague and therefore improve navigation while reducing need for dredging offshore shoals. USACE staff stated that volume of sand that can be moved from these sources is not enough to meet needs of Ocean City, and that cost of getting sand from these sources to Ocean City is higher than getting sand from offshore shoals because of smaller dredge that is used in inlet vicinity. Additionally, sand from accumulating sources inside the inlet is often finer than the sand on the Ocean City beach. Sand from the ebb shoal has a wider variety of grain sizes.

5 In summary, general opinion expressed by fishermen was that they'd rather USACE doesn't dredge offshore shoals, but the proposed borrow plan seemed to be carefully thought out. They would agree with dredging Weaver Shoal and Shoal A as the least-harm options.

CS emailed out copies of draft MFR for review on July 18, 2018 to USACE, BOEM, and MDDNR participants. CS received no comments.

Appendix A

Public Notice Announcing Availability of Draft EA for Public and Agency Review



August 19, 2019



PUBLIC NOTICE

Atlantic Coast of Maryland Shoreline Protection Project Draft Finding of No Significant Impacts and Environmental Assessment: Offshore Shoals in Federal Waters as Sand Sources

ALL INTERESTED PARTIES: The U.S. Army Corps of Engineers, Baltimore District (USACE) and the Bureau of Ocean Energy Management (BOEM), in partnership with the Maryland Department of Natural Resources (MD DNR), have prepared a draft Environmental Assessment (EA) and a Finding of No Significant Impact (FONSI) for proposed dredging of offshore shoals in federal waters to obtain sand for the Atlantic Coast of Maryland Shoreline Protection Project. USACE and MD DNR place sand on the beach of Ocean City, generally every four years, to reduce risk of coastal storm damage. The next sand placement event is anticipated by the year 2022. USACE anticipates dredging an average of approximately 1,070,000 cubic yards of sand from offshore shoals each future sand placement event.

USACE and BOEM prepared an Environmental Impact Statement (EIS) in 2008 evaluating four shoals in federal waters on the Outer Continental Shelf as sand sources for the project: Weaver Shoal, Isle of Wight Shoal, Shoal A, and Shoal B (also known as Bass Grounds) (Enclosure). The project has not utilized any of these four offshore shoals as borrow sources yet because sufficient sand was previously available from sources in nearby state waters.

The draft EA updates findings of the 2008 EIS. Weaver Shoal is recommended as the sand source for the next nourishment cycle and up to two additional cycles. Dredging would be conducted following constraints to minimize long-term impacts to offshore shoal habitats. Bathymetric surveys would be conducted to assess shoal conditions and plan dredging each cycle. In the future, sand needs would be reassessed, and sand would be dredged through 2044 in accordance with the 2008 EIS.

In compliance with the National Environmental Policy Act (NEPA), USACE and BOEM have prepared this draft EA and evaluated potential effects on the human environment. Resource agency and public input was incorporated into the recommended alternative. All applicable environmental laws have been considered. Changes in impacts from what was described in the 2008 EIS would be minor and not result in significant effects.

USACE and BOEM request comments regarding the draft EA and FONSI within thirty days of the date of this notice. For federal and state agencies receiving a copy of this notice, we request that you provide comments concerning your responsibilities. The draft EA and FONSI are available at the USACE website: http://www.nab.usace.army.mil/oceancity The draft EA and FONSI are available at the USACE website: http://www.nab.usace.army.mil/oceancity The documents are also available in the following Worcester County, MD, public libraries for review: Berlin Branch, Ocean City Branch, and Ocean Pines Branch. Comments can be submitted electronically to: christopher.c.spaur@usace.army.mil. Written comments can be sent to: U.S. Army Corps of Engineers, Attn: Christopher Spaur, Planning Division, 10th Floor, 2 Hopkins Plaza, Baltimore, MD 21201. If you have any questions, please contact Christopher Spaur by telephone at (410) 962-6134 or by email at the address above.

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



Enclosure

Distributing Draft FONSI & EA for Public and Agency Review

Printed copies of the NOA were mailed out to those individuals/agencies/organizations with ground mailing addresses on the mailing list that had been used for the initial notice of intent to prepare an EA, except for updates as provided below.

Government Agency Representative – Updated Names & Addresses

MDE had personnel changes since the earlier intent to prepare EA notice, and so NOAs were instead mailed to other contacts with had assumed their responsibilities.

Ms. Denise Keehner, Program Manager Compliance Program Maryland Department of the Environment 1800 Washington Blvd Baltimore, MD 21230

Ms. Heather Nelson, Deputy Director Compliance Program Maryland Department of the Environment 1800 Washington BLVD Baltimore, MD 21230-1708

Tribal Coordination

Of the 23 public notices sent to Tribes announcing intent to prepare an EA, two had responded. NOAs announcing availability of the draft FONSI & EA for review were mailed to these two respondees.

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

Chief Lee Lockamy Nansemond Indian Tribe 1001 Pembroke Lane Suffolk, VA 23434

eMail Distribution

The NOA was emailed on 19 August 2019 to numerous entities for which mailing addresses were not available, including surfing clubs and shops, The Nature Conservancy, and commercial and recreational fishermen. The NOA was also emailed on 19 August 2019 to some agency personnel who had requested to be informed by email (DOE) as well as some of the agency personnel that participated in the study from BOEM, MD DNR, and USACE.
info@ocsurfclub.org	Ocean City Surf Club
chair@oceancity.surfrider.org	Surfrider Foundation
vicechair@oceancity.surfrider.org	Surfrider Foundation
ChaunceySurf@aol.com	Chauncey's Surf Shop South
selt@comcast.net	Endless Summer Surf Shop
kate.wilke@tnc.org	TNC
kleo@tnc.org	TNC
jfehrer@tnc.org	TNC
cristina.carollo@tnc.org	TNC
david.blazer@maryland.gov	MD DNR
steve.doctor@maryland.gov	MD DNR
douglas.piatkowski@boem.gov	BOEM
alana.duerr@ee.doe.gov	DOE
Jeffrey.A.Gebert@usace.army.mil	USACE
Jason.R.Peters@usace.army.mil	USACE
capt.montyhawkins@gmail.com	Ocean City Reef Foundation
lindajcharters@verizon.net	Chincoteague Island Charter Boat Association
info@nacocharters.org	National Association of Charterboat Operators
patiencesportfishing@comcast.net	Maryland Charter Boat Association
info@marylandwatermen.com	Maryland Watermen's Association
smitty3894@aol.com	Atlantic Coast Sport Fishing Association
info@ocmarlinclub.com	Ocean City Marlin Club
waltboge@gmail.com	Ocean Pines Angler's Club
Greenfluke@optonline.net	Long Island Commercial Fishing Association
Linda.Nasko@state.de.us	Indian River Marina, DE Seashore State Park
Jill.DeFelice@state.de.us	Indian River Marina, DE Seashore State Park
Blaise.Belfiore@state.de.us	Indian River Marina, DE Seashore State Park
info@asafishing.org	American Sportfishing Association
information@ccamd.org	Coastal Conservation Association Maryland
davidsikorski@ccamd.org	Coastal Conservation Association Maryland
frank.bonanno@gmail.com	Coastal Conservation Association Maryland
jDepersenaire@joinrfa.org	The Recreational Fishing Alliance
gcaputi@joinrfa.org	The Recreational Fishing Alliance
captadam@karenannii.com	The Recreational Fishing Alliance
rickmarks@gardenstateseafood.org	Garden State Seafood Association

Table: Public NOA – Draft FONSI & EA: Email Distribution List

U.S. Coast Guard Fifth District Commander (de) 431 Crawford St., Suite 603 Portsmouth, VA 23704

U.S. Coast Guard 610 South Philadelphia Avenue Ocean City, MD 21842

Assateague Mobile Sportsfishermen Association 8801 Bald Eagle Rd Berlin, Maryland 21811

David Blazer Maryland Department of Natural Resources 580 Taylor Avenue Annapolis, MD 21401

Bonnie Brady Long Island Commercial Fishing Association P.O. Box 191 Montauk, N.Y 11954

Ms. Lori Byrne Maryland Department of Natural Resources Tawes State Office Building, E-1 580 Taylor Ave Annapolis, MD 21401

Honorable Benjamin Cardin United States Senate, Baltimore Office 100 South Charles Street Tower 1, Suite 1710 Baltimore, MD 21201

Delegate Mary Carozza Maryland House of Delegates, 38C House Office Building, Room 203 6 Bladen Street Annapolis, MD 21401

Chincoteague Island Charter Boat Association

David Craig Maryland Department of Planning 301 West Preston Street Baltimore, MD 21201-2365 American Sportfishing Association 1001 North Fairfax Street, Suite 501 Alexandria, VA 22314

Odessa Armstrong Natural Resource Conservation Service, USDA 339 Busch's Frontage Road, Suite 301 Baltimore, MD 21401-5534

Robert Baldwin Department of Natural Resources & Environmental Control 89 Kings Highway Dover, DE 19901

Walt Boge Ocean Pines Angler's Club

Robert Brown Sr Maryland Watermen's Association 1805A Virginia Street Annapolis, MD 21401

Merrill Campbell Southern Connection Ocean City

Cristina Carollo TNC

Kate Charbonneau Chesapeake Bay Critical Area Commission Maryland Department of Natural Resources 1804 West Street Annapolis, MD 21401

Coastal Conservation Association Maryland PO Box 309 Annapolis, MD 21401

Ms. Kimberly Damon-Randall National Marine Fisheries Service US Department of Commerce 55 Great Republic Drive Gloucester, MA 01930 Ms. Deborah Darden Assateague Island National Seashore 7206 National Seashore Lane Berlin, MD 21811

Joe Fehrer TNC

John Forren U.S. Environmental Protection Agency, Region III 1650 Arch Street Philadelphia, Pennsylvania 19103-2029

Jeffrey Gebert USACE, Philadelphia District

Karen Greene National Marine Fisheries Service James J. Howard Marine Sciences Laboratory 74 Magruder Rd. Highlands, NJ 07732

Honorable Andy Harris United States Congress Salisbury Office 212 West Maint Street, Suite 204B Salisbury, MD 21801

Laura Herr Department of Natural Resources & Environmental Control 89 Kings Highway Dover, DE 19901

Elizabeh Hughes Division of Historical and Cultural Programs MD Historic Trust 100 Community Place Crownsville, MD 21303-2023

Ms. Linda Janey Maryland Department of Planning 301 West Preston Street, Suite 1101 Baltimore, MD 21201-2305

Kelly Leo TNC Alana Duerr Ph. D U.S. Department of Energy

Mary Foley U.S. Geological Survey 5522 Research Park Drive Baltimore, Maryland 21228

Shawn Garvin U.S. Environmental Protection Agency, Region III 1650 Arch Street Philadelphia, Pennsylvania 19106

Mr. Elder Ghigiarelli Wetlands and Waterway Construction Program Maryland Department of the Environment 1800 Washington Blvd Baltimore, MD 21230

Keith Hanson National Marine Fisheries Service Annapolis, MD) Field Office: 177 Admiral Cochrane Drive, Annapolis, MD 21401

Monty Hawkins Ocean City Reef Foundation

Governor Larry Hogan State of Maryland Office of the Governor 100 State Circle Annapolis, MD 21401

Indian River Marina, DE Seashore State Park Indian River Marina Delaware Seashore State Park 39415 Inlet Road, Rehoboth Beach, DE 19971

Ms. Genevieve LaRouche Chesapeake Bay Field Office US Fish and Wildlife Service 177 Admiral Cochrane Drive Annapolis, MD 21401

Mike Luisi Mid-Atlantic Fisheries Management Council 800 North State Street, Suite 201 Dover, DE 19901 Rick Marks Garden State Seafood Association 212 West State Street Trenton, New Jersey 08608

Maryland Charter Boat Association 4874 Patience Place Huntingtown, MD 20639

Senator James Mathias Jr. Maryland State Senate, 38th District James Senate Office Building, Room 216 11 Bladen St. Annapolis, MD 21401

Mayor Rick Meehan Town of Ocean City 301 N. Baltimore Avenue Ocean City, MD 21842

Michaela Noble Office of Environmental Policy and Compliance Department of the Interior 1849 C Street, NW (Mail Stop 5538) Washington, DC 20240

Mark O'Malley Maryland Department of Natural Resources Tawes Office Building 580 Taylor Ave Annapolis, MD 21401

Doug Piatkowski Bureau of Ocean Energy Management Division of Environmental Assessment 45600 Woodland Road, VAM-OEP Sterling, VA 20166

Postmaster Ocean City Post Office 7101 Coastal Highway Ocean City, MD 21842-9998

Barbara Rudnick U.S. Environmental Protection Agency 1650 Arch Street Philadelpia, PA 19103-2029

Ron Smith Atlantic Coast Sport Fishing Association Martin Fish Company 12929 Harbor Road Ocean City, Maryland 21842

Maryland Watermen's Association

Andrew May Maryland Department of the Environment 1800 Washington BLVD Baltimore, MD 21230-1708

National Association of Charterboat Operators PO Box 1070 Hurley, MS 39555

Thomas O'Connell Maryland Department of Natural Resources 580 Taylor Avenue Annapolis, MD 21401

Richard Ortt Maryland Geological Survey Maryland Department of Natural Resources 2300 St. Paul Street Baltimore, MD 21218-5210

Frank Piorko Maryland Coastal Bays Program 8219 Stephen Decatur Highway Barlin, MD 21811

Tony Redman Maryland Department of Natural Resources Tawes State Office Bldg., B-3 580 Taylor Ave. Annapolis, MD 21401

Amanda Shick Ocean City Marlin Club

The Recreational Fishing Alliance P.O. Box 3080 New Gretna, NJ 08224 Ocean City Council Town of Ocean City 301 N. Baltimore Avenue Ocean City, MD 21842

Planning and Community Development Town of Ocean City 301 Baltimore Avenue Ocean City, MD 21842

Gary Vietzke National Park Service Northeast Regional Office 200 Chestnut Street, 5th Floor Philadelphia, PA 19106

Worcester County Commissioners Worcester County Government Center 1 W. Market Street, Room 1103 Snow Hill, MD 21863

Development Review and Permitting Worcester County Government Center Environmental Programs 1 W. Market Street, Room 1306 Snow Hill, MD 21863

Ocean Pines Branch Worcester County Library 11107 Cathell Road Ocean Pines, Maryland 21811

Berlin Branch Worcester County Library 220 North Main Street Berlin, Maryland 21811 Engineering Department Town of Ocean City 301 Baltimore Avenue Ocean City, MD 21842

Honorable Chris Van Hollen United States Senate 111 Rockville Pike Rockville, MD 20850

Kate Wilke TNC

Worcester County Environmental Programs Worcester County Government Center 1 W. Market Street, Room 1306 Snow Hill, MD 21863

Worcester County Emergency Services Worcester County Government Center 1 W. Market Street, Room 1002 Snow Hill, MD 21863

Ocean City Branch Worcester County Library 10003 Coastal Highway Ocean City, Maryland 21842 Appendix A

Table Summarizing Initial Coordination and Consultation Up to EA Public Release

SUMMARY OF COORDINATION AND CONSULTATION EFFORTS FROM PUBLIC NOTICE ANNOUNCING EA PREPARATION TO JUST PRIOR TO PUBLIC RELEASE OF DRAFT EA

Coordination and consultation with government agencies and interested organizations for the proposed action was undertaken in 2018 by USACE during preparation of the draft EA. The table below presents a summary of these efforts. Because BOEM was a cooperating agency, substantial interagency coordination occurred following establishment of this relationship. The table includes only notable USACE/BOEM coordination efforts following cooperating agency establishment. The table also excludes emails between USACE and other agencies concerned with minor details of scheduling meetings and comparable non-policy activities.

Table A: Summary Record of Coordination Undertaken During Preparation of Draft EA.Asterisk indicates copy of document provided in this EA.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
Jan 30,	Chris Guy,	Email and	Discussed potential level of USFWS
2018	USFWS	phone	involvement in study with Michele Gomez and
		conversation	Chris Spaur. USFWS would not be best agency to undertake coordination with commercial and recreational fishermen. Seabird information has increased for the area via investigations conducted for potential offshore wind projects. That could be something USFWS could assist with.
Mar 16, 2018	Doug Piatkowski, BOEM	email	Doug answered email from CS regarding appropriate BOEM contact and NEPA procedures.
Mar 27, 2018	Alana Duerr, DOE Offshore Wind Lead	email	Requested notification when draft EA is posted.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
Apr 3 &	Dave Blazer,	Email and	CS inquired whether DNR Fisheries Service
6, 2018	DNR Fisheries	phone	could coordinate with commercial and
	Service	conversation	recreational fishermen regarding offshore
			shoal importance as fishing grounds. Dave
			informed CS that DNR has upcoming meeting
			on 4/30 with commercial and recreational
			fishing groups and could introduce project to
			those groups and then share feedback with
			USACE. Would figure out best path forward
			accordingly.
April 10,	Mailing list of	Printed mail,	USACE sends out EA preparation notice to
2018*	elected officials,	email,	
	government	District	
	agencies,	website	
	libraries,		
	organizations		
April 19,	Ocean City	Newspaper	Article on the supplemental EA associated with
2018	Dispatch		the Atlantic Coast (Ocean City) Project
Apr 23,	Geoffrey Wikel,	Letter	Letter to Dan Bierly, USACE. BOEM accepts
2018*	Chief, Branch of		invitation to be cooperating agency with
	Environmental		USACE in preparation of EA and other
	Coordination,		environmental compliance documents. BOEM
	Division of		would like to be included on all
	Environmental		correspondence to other rederal and state
	Assessment,		Bistkowski will be BOEM contact
Apr 22	BUEIVI	Lattar	Platkowski will be BOEIVI contact.
Apr 25,	MD Dopt of	Letter	letter MD DOB is forwarding potice to other
2010	Planning		agencies for review
Anril 27	Dave Blazer MD	Meetings	Introduced Atlantic Coast of MD beach
2018	DNR and		replenishment project at April MD DNR
2010	Commercial and	"Coastal	meetings with commercial (about 10
	Recreational	Commercial	waterman) and recreational fisherman's
	Fishermen's	Fisheries	groups (about 35 fishermen). All in attendance
	Groups	Forum")	concerned about the potential impacts of the
		, ,	project, but also appreciative of being asked
			their thoughts early in the process. Both
			groups said Bass Grounds was a good fishing
			area and shouldn't be considered. Members
			had many additional questions and will contact
			USACE.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
May 1, 2018	Richard Orrt, Director and State Geologist Maryland Geological Survey Department of Natural Resources	email	To Justin Callahan. MGS has been working with BOEM for the last 4 years reevaluating all of the offshore shoals in the Ocean City vicinity. Can work with USACE to determine if this data of use for project.
May 2, 2018*	Tony Redman, MD DNR	Letter	Response to USACE EA preparation initiation letter. Expressed concerns and recommendations regarding fishing use of offshore shoals. Fall dredging can impact striped bass fishing. Spiny dogfish are in area waters from November through May and are of commercial interest. Evaluate whether or not shoal removal could impact wave energy reaching shoreline. Inlet has a shoaling problem. Could beach nourishment work be done in manner that would also provide solution for inlet shoaling?
May 2, 2018	Karen Greene, NMFS, Habitat Conservation Division	email	Provided information to CS on EFH impacts assessment process. EFH designations have changed for a number of species since 2008 and there has been some additional research done on the value of offshore sand ridges. As a result, conservation recommendations provided in 2008 may not be the same ones NMFS might recommend now. Keith Hanson in Annapolis MD office will be NMFS representative for this project.
May 3, 2018*	Karen Greene, NMFS, Habitat Conservation Division	Letter	Response to USACE EA preparation notice covering Magnuson Stevens Act (EFH impacts), FWCA, and ESA. Provided information on which species are in area and for which species the area constitutes designated EFH. USACE should consult with NMFS regarding impacts to EFH and prepare an EFH impacts assessment. Provided list of ET spp which may be present, and information on Section 7 consultation process.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
May 7,	David Sikorski,	email	Would like more information on beach
2018	Director CCA MD		nourishment activities. Impacts on sport
			fishing access and existing fish habitat is a
			concern.
May 7,	Monty Hawkins,	email	To CS stating that Bass Grounds is still
2018	Ocean City Reef		important fishing area. Would like additional
	Foundation		materials to physically expand artificial reef
			work.
May 7,	Dave Blazer, MD	email	To CS. Provided summary of April 27 th
2018*	DNR		fishermen's meetings topics discussed and
			questions.
May 8,	Keith Hanson,	Conference	Preliminary discussion on how to proceed with
2018	NMFS / Doug	Call	EFH impacts assessment. USACE to provide
	Piatkowski,		NMFS with 2008 EIS and older coordination
	BOEM		records. NMFS will review previous
			documents. Will schedule additional
			conference calls to figure out details of effort
			required to meet Magnuson Stevens Act.
May 8,	Keith Hanson,	email	USACE should review MAFMC policies and
2018	NMFS		recommendations on non-fishing activities
			(essentially broad conservation
			recommendations).
May 10,	Aaron Blair,	email	Responded to USACE EA preparation notice.
2018*	USEPA		Provided list of topics EA should cover. USACE
			should utilize MARCO online tool.
May 19,	Jeff Browning,	email	Provided status information on MD and DE
2018	BOEM		WEAs.
May 19,	Rick Kubiak,	email	Requested CS for public meeting with
2018	Angler's Club		fishermen.
	and Ocean City		
	Reef		
	Foundations		
May 21,	Colin Candle,	Phone Call	Requested CS for public meeting with
2018	Ocean City		fishermen.
	Marlin Club		
	President		
May 23,	Keith Hanson,	email	CS sent copy of draft report providing
2018	NMFS		information on bathymetric change at Great
			Gull Bank from 1999-2008.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
May 30,	Keith Hanson,	email	Provided summary of recent discussions he's
2018	NMFS		had internal to NMFS. Still waiting to discuss
			project with Northeast Fisheries Science
			Center. Stated that new studies as outlined in
			the May 3, 2018 letter will be necessary. Will
			need to have further conversations on details.
June 1,	Angle Willey,	email	Sent out email following up on Coastal
2018	MD DNR to		Commercial Fisheries Forum with additional
	Coastal		information on proposed USACE borrow
	Commercial		action. Requested input from fishermen on
	Fishermen		relative value of candidate shoals and
			assistance contacting other fishermen who fish
			those waters.
June 12,	Brandi Carrier,	email	Provided BOEM guidelines to EB and CS
2018	BOEM		regarding cultural/historic resource surveys
June 12,	Keith Hanson,	Conference	CS, MG, Tarrie Ostrofsky discussed EFH impacts
2018	Karen Greene	Call	assessment and possible studies suggested by
	NMFS/ Doug		NMFS in May letter and email. Species list for
	Piatkowski,		EFH document ultimately determined by EFH
	BOEM		text description, but use online and document
			maps to aid identification of species to include.
			USACE will re-forward prospective list to NMFS
			for review. New document should reference
			2008 assessment, but needs to reflect changes
			and stressors project would cause. Regarding
			studies, discussed using BOEM MD WEA as
			representative. Need to compare and contrast
			WEA with candidate shoals to
			determine/demonstrate whether adequate.
			NY District does surf clam surveys pre-
			dredging. Need to consider surf clam
			population and fishery. NMFS will look into
			information they have.
June 15,	Keith Hanson,	Email.	To CS. Discussed how to approach NMFS
2018	NMFS		"Other Trust Resources" impacts evaluation.
June 26,	Catherine	email	From CS. Provided information on
2018	McCall, MD DNR		coordination efforts for EA.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
June 28,	Keith Hanson,	email	CS sent list of proposed species to be covered
2018	NMFS		in EFH impacts assessment and identified
			proposed changes (additions and deletions).
			New assessment would effectively be
			addendum to EFH impacts assessment
			previously provided in 2008 EIS. List included
			19 bony fish spp, 13 cartilaginous fish spp, and
			2 molluscs.
July 10,		Public	USACE and MDDNR had public meeting in west
2018*		Meeting	Ocean City at request of fishermen concerned over
		_	potential impacts of future dredging of offshore
			shoals in federal waters. Had 17 attendees.
			Reviewed proposed borrow plan, discussed
			whether shoals proposed for borrow (Isle of Wight,
			weaver, A) have notable value as fishing grounds
			future. Two fishermen expressed that they'd
			rather not have Isle of Wight Shoal dredged as
			seems to an area with rockfish concentrations
			Additionally, discussed turbidity produced by
			dredging that fishermen observed muddies the
			water, and how dredging turns borrow area into a
			biological desert. Fishermen requested use of sand
			in inlet area for Ocean City as that is navigation
			problem anyway. General opinion was that they'd
			rather we don't dredge offshore shoals, but that
			proposed plan seemed to be carefully thought out.
			Also discussed navigation concerns in harbor and
			inlet and ongoing USACE projects and studies in
			vicinity.
July 12,	Keith Hanson,	email	Reviewed USACE proposed list of species to be
2018	NMFS		covered in EFH impacts assessment as per June
			28 th email. KH suggested several modifications
			to cartilaginous spp list. Atlantic angel shark
			should include all life history stages. Don't add
			shortfin mako shark as new species. Add little
			skate as new species.
July 12,	Stephen	email	SVR provided MGS report of study area
2018	VanRyswick, MD		completed in 2015 and clarified data sources
	DNR		used in making bottom map. Additionally, SVR
			noted that areas proposed for dredging are
			outside of areas containing fine fractions.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
July 23,	Steve Doctor,	Email	To CS. Will look into relative value of offshore
2018	MD DNR		shoals from fishing perspective.
July 23,	Chris Vaccaro,	email	To TO. Provided example analysis from NAP to
2018	NMFS		use as potential guide in evaluating ET spp
			impacts.
August	Steve Doctor,	email	To CS. No official DNR position on which
7, 2018	MD DNR		offshore shoals to dredge/not dredge.
			However, feedback to him has been consistent
			that Isle of Wight and B are of high value and
			would be better not to dredge.
Aug 13,	Stephen	email to CS	Reviewed bathymetric change maps from
2018	VanRyswick, MD		USACE desktop analysis for Great Gull Bank for
	DNR		1999 to 2008 and considered implications for
			dredging guidelines. Minor erosional change in
			central area of crest. Apparent scour along SE
			side of the shoal field may reflect lack of severe
			storms over that time period that would have
			promoted southerly roll of shoal. Absent
			severe storms then growth could be to SW as
			indicated by figures. Short term migration
			patterns may not always be indicative of long-
			term trends. Dredging guidelines still likely
			suitable.
Aug 14,	Sara Calcinore,	email to MG	Provided guidance on how to address air
2018	USEPA		quality impacts of offshore dredging project. A
			general conformity determination required for
			OCS federal waters if adjacent land area is
			maintenance or non-attainment.
Aug 27,	Sara Calcinore,	email to CS	Because Sussex County DE is designated as
2018	USEPA		marginal nonattainment for the 2008 ozone
			NAAQS, both the onshore and offshore activity
			for sand placement in Sussex County should be
			evaluated to see if the emissions resulting from
			this activity exceed the general conformity
			thresholds in 40 CFR 93.153
Aug 29,	Doug Piatkowski,	emails w CS	Reviewed project construction information.
2018	BOEM		Because dredge transit and pump-out points
			are located off MD not DE, determined
			estimating emissions from in-water work not
			needed. Instead, focus emissions estimate
			only on on-beach work.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
Aug 30,	Brian Hooker,	Email to DP	Not aware of good data for federal waters
2018	BOEM		covering horseshoe crab harvest locations or
			abundance. Contact ASMFC plan coordinator
			for possible further scientific information.
Sept 5,	Valerie Gray,	Email from	Provided update on air pollutant emissions
2018	DNREC	AM	estimate from beach work in DE.
Sept 6,	Jennifer Holmes	Email to AM	Inquired about Atlantic Coast Project and
2018	/ DNREC		possible need for CZM consistency
			determination review.
Sept 7,	Jennifer Holmes	Email to JH	CS provided general information on Atlantic
2018	/ DNREC		Coast Project.
Sept 11,	Sara Calcinore,	Email to AM	USEPA recommends using MOVES for air
2018	USEPA		pollutant emissions, but CARB spreadsheet can
			be used as well. Include equipment list and
			CARB assessment in EA to support that project
			below NOx and VOC thresholds for general
			conformity.
Sept 14,	Valerie Gray,	Email to AM	Can't provide an official concurrence
2018	DNREC		statement regarding air quality without copy of
			EA. Based on calculations AM provided, DNREC
			agrees that emissions appear not to trigger
			conformity as the amounts are well below the
			thresholds.
Sept 14,	Jennifer Holmes,	Email to CS	Can't find DNREC CZM consistency
2018	DNREC		determination for the Atlantic Coast of MD
			Project. Baltimore District should conduct a
			federal consistency determination. Provided
			submission requirements for a determination
			review.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
Sept 20, 2018	Keith Hanson, NMFS	Conference Call	Keith provided information to CS and AM on status GIS data for offshore shoals with regard to highly migratory species, commercial fishing, and discussed demersal fish of potential concern. Data available show tunas, sandbar shark, dusky shark, sand tiger shark, Atlantic angel shark in area, but no strong association with offshore shoals. Commercial fishing activity has moved further offshore and north away from the shoals in recent years. 2009 is most recent year for which large surf clam fishing activity occurred in offshore shoal area. Since that time, activity has moved further north to NJ and Massachusetts, and offshore. Substantial adverse impacts to surf clam fishery unlikely. Areas between shoals seem to be more important for horseshoe crabs than shoals themselves. Check on time of year that MD WEA data for longfin squid egg masses is presented. Longfin squid do lay eggs on sand, KH will forward information. NMFS prefers that Fall dredging be avoided as discussed previously.
Sept 25, 2018*	Kimberly Damon-Randall, NMFS	Letter	From DB of USACE. Determination that formal consultation re-initiation not warranted.
Oct 1, 2018	Jennifer Holmes / DNREC	email	Jennifer emailed AM and confirmed receipt of CZM USACE consistency determination. Submission is complete and 60-day review period has begun.
Oct 2, 2018	Jennifer Holmes / DNREC	email	Jennifer emailed AM and said that DCMP is seeking to have CZM notice run in Sunday's Delaware State News, The News Journal, and DNREC Public Notice website.
Oct 22, 2018	Craig Koppie / USFWS	email to CS	Final PAR will be sent to USACE pending signature which may take a few days.
Oct 24, 2018*	Jennifer Anderson, NMFS	Letter to Dan Bierly	Concur with Sept 25, 2018 letter stating re- initiation not required regarding ET spp.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
Nov 2,	Jennifer Holmes	email	Jennifer emailed AM. Revised estimate of air
2018	/ DNREC		pollutant emissions based on 95,000 yd3 beach
			placement is now completed, and 60 day
			review period for CZMA consistency
			determination concurrence begins today.
Nov 14,	Troy Nowak /	Phone Call	Ethan Bean (USACE) spoke with Troy Nowak
2018	MHT		(MHT) regarding technical specifications of the
			pipe to be used for pumping sand onto the
			beach at Ocean City. Also discussed was
			possible survey methodology and
			specifications to be used to ensure that no
			cultural resources are affected due to pipe
			placement.
Nov 15,	Stephen	email	SVR provided information on mud substrates in
2018	VanRyswick, MD		state waters. MGS studies found that muds
	DNR		near shore were very soft/unconsolidated and
			likely highly mobile during high energy events
			and due to high wave energies nearshore.
			Nearshore mud bodies contain active benthic
			communities but do not contain the cold water
			corals often correlated with "live bottom" coral
			habitats.
Nov 21,	Genevieve Pullis,	Letter	Provided Planning aid Report. USFWS
2018*	USFWS		concludes that sand dredging at the proposed
			shoals would have a no impact to endangered
			species under USFWS jurisdiction, and
			negligible impacts to migratory bird foraging
			areas and anadromous fish that reside in
			waters of the project area.
Dec 4,	Iroy Nowak,	Letter to	Provided MHT recommendations to USACE to
2018*	МНІ	Ethan Bean	conduct work to identify historic properties in
			IND (multiple temporary pipeline routes)
			where adverse effects possible. Target pre-
			Installation side scan sonar surveys to identify
			objects and areas for avoidance.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
Jan 3,	Kimberly Cole,	Letter to	DE CMP conditionally concurs that USACE
2019*	Administrator /	Andrew May	Atlantic Coast Project is consistent to the
	DE Coastal		maximum extent practicable with the DE
	Management		program. Project reviewed by multiple
	Program		divisions of DNREC (including Division of Air
			Quality). Conditional concurrence subject to
			verification of whether piping plover are
			nesting in project site. In that event, further
			coordination with DNREC required.
June 21,	Matthew	Letter	SEARCH, Inc. completed cultural resources
2019*	Grunewald,		investigation of Isle of Wight and Weaver
	District		Shoals. Remote sensing data and
	Archeologist /		archaeological analyses do not reveal the
	USACE Mobile		presence of potential submerged cultural
	District		resources.
July 30,	RL Lockamy /	Email from	Informed Chief Lockamy that USACE would
2019	Nansemond	USACE (EB)	conduct an underwater survey of the sand
	Nation		borrow areas in coming months and USACE
			would forward results and recommendations.
Aug 6,	RL Lockamy /	Email from	Informed Chief Lockamy that USACE draft
2019	Nansemond	USACE (EB)	report covering recent Phase I underwater
	Nation		survey for archaeological resources available
			for review.

Appendix A

Table Summarizing Coordination and Consultation Following EA Public Release

Table: Summary Record of Coordination and Consultation Undertaken During and FollowingPublic Release of Draft EA.Asterisk indicates copy of document provided in this EA.

Date	Person/Agency	Mode of	Summary
Aug 19, 2019*	Mailing list of elected officials, government agencies, libraries, organizations	Printed mail, email, District website	USACE sends out draft EA notice of availability
Aug 21, 2019	MD Dept of Planning	Letter to USACE (sent by email)	Acknowledged receipt of EA NOA. NOA forwarded to multiple MD agencies.
Aug 29, 2019*	Lou Chiarella / NMFS	Letter from USACE (DB) (sent by email)	Informed NMFS that USACE and BOEM have prepared an EFH impacts assessment for the proposed action. Assessment contained within draft EA recently sent out for public/agency review. The proposed action will adversely impact EFH for benthic invertebrates and demersal fish. However, project incorporates appropriate mitigation measures and accordingly complies with provisions of Magnuson Stevens Act.
Aug 30, 2019	Ocean City Dispatch	Newspaper	USACE ran advertisement with public notice announcing availability of draft EA for public review.
Aug 30, 2019	Jennifer Holmes, Valerie Gray / DNREC	Email from USACE (CS)	Provided copy of public notice announcing availability of draft EA for public/agency review. They had been accidentally omitted from August 19 th distribution list.
Aug 30, 2019	Jennifer Holmes / DNREC	Email to USACE (CS)	Forwarded information to Kristi Lieske of DE Coastal Management Program.
Sept 3, 2019	Kristi Lieske / DNREC	Email to USACE (CS)	Acknowledged receipt of draft EA. Provided additional potential DNREC contacts.
Sept 3, 2019	Doug Piatkowski / BOEM	Email to USACE (CS)	Provided cooperating agency comments on draft EA. (Comments and USACE/BOEM responses contained in separate table).
Sept 5, 2019*	Diana Purnell, President / Worcest County Commissioners	Letter	Commissioners appreciate project, but oppose dredging of Shoal B (Bass Grounds) because of its importance to sportfishing industry in county.

Date	Person/Agency	Mode of Contact	Summary
Sept 6, 2019	Steve Doctor / MD DNR	Email from USACE (SC)	Provided clarification on differences between Atlantic Coast of MD versus Assateague LTSM Projects
Sept 9, 2019*	Brandi Carrier / BOEM	Email to USACE (EB)	Concurs with findings of Phase I investigation of Weaver and Isle of Wight Shoals.
Sept 17, 2019*	Barbara Rudnick / USEPA, NEPA Program Coordinator	Letter to USACE	Provided comments on draft EA. (See separate table for USACE/BOEM responses).
Sept 24, 2019*	Lou Chiarella / NMFS	Letter to USACE	Provided comments on draft EA. Requested incorporation of Mid Atlantic Fishery Management Council policies on beach nourishment into project plans as appropriate. Provided three EFH conservation recommendations. (See separate table for USACE/BOEM responses).
Oct 1, 2019*	Myra Barnes / MD Office of Planning, Clearinghouse	Letter to USACE	Provided three comments from multiple state agencies on draft EA. (See separate table for USACE/BOEM responses).
Oct 23, 2019*	Troy Nowak / MHT Underwater Archaeologist	Letter to USACE	MHT looks forward to future coordination to protect historic properties as appropriate and help facilitate project.
Oct 24, 2019	Keith Hanson / NMFS	Email from USACE (CS)	Provided status report. USACE/BOEM working on letter responding to NMFS Sept 24 comments.
Oct 25, 2019*	Carrie Traver / USEPA	Email from USACE (CS)	Provided USACE/BOEM responses to USEPA comments. Offered to further discuss if desired.
Oct 30, 2019	Brian Hopper / NMFS	Email exchange (CS)	Sea turtle protective measures are only required during the April-Nov time period.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
Nov 7,	Lou Chiarella /	Letter from	Provided USACE / BOEM response to Sept 24,
2019*	NMFS	USACE (DB)	2019 letter. MAFMC beach nourishment
		(sent by	policies were developed after the 2008 EIS.
		email)	These policies were considered in preparing
			the 2019 EA. The project incorporates
			appropriate mitigation measures. USACE will
			adhere to NMFS conservation
			recommendations regarding hydraulic
			dredging practices. USACE will conduct
			bathymetric monitoring. Extensive biological
			information is available regionally to
			characterize marine life. USACE, BOEM, and
			NMFS would consider the need for biological
			monitoring in the future when planning future
			dredging and coordinating with stakeholders.
Nov 8,	Keith Hanson /	Email to	Purpose of EFH conservation recommendation
2019	NMFS	USACE (CS)	#1 (term/condition for hydraulic draghead
			operation) is to protect fish in water column
			from entrainment. That would reduce value of
			water column habitat.
Nov 15,	Karen Greene /	Letter to	Letter responded to USACE Nov 7, 2019 letter.
2019*	NMFS	USACE (DB)	Reviewed and reiterated major discussion
			points, plus provided additional information
			regarding benthos that could be detected.
Nov 19,	Keith Hanson /	Email from	CS sent Keith email following up on earlier
2019*	NMFS	USACE (CS)	phone conversation regarding EFH impacts
			consultation to confirm discussion points.
			NMFS is requiring higher resolution seafloor
			mapping, and would like higher level of
			mapping of weaver Shoal. NIVIFS is concerned
			about Shoal B in future. USACE would need to
			consult with NIVIFS regarding EFH impacts in
			future prior to dredging other shoals. EFH
			Monuter Shoel dradging
Nev 10	Kaith Hanson /	[mail to	Weaver Shoal dreuging.
100V 19, 2010*			summarizing phone conversation USACE
2013.		USALE (LS)	sommarizing phone conversation. USACE
			Should up post-uneuging surveys of weaver
			Higher resolution mapping of other checks
			would facilitate future EEH impacts
			consultation
Nov 8, 2019 Nov 15, 2019* Nov 19, 2019*	Keith Hanson / NMFS Karen Greene / NMFS Keith Hanson / NMFS Keith Hanson / NMFS	Email to USACE (CS) Letter to USACE (DB) Email from USACE (CS) Email to USACE (CS)	recommendations regarding hydraulic dredging practices. USACE will conduct bathymetric monitoring. Extensive biological information is available regionally to characterize marine life. USACE, BOEM, and NMFS would consider the need for biological monitoring in the future when planning future dredging and coordinating with stakeholders. Purpose of EFH conservation recommendation #1 (term/condition for hydraulic draghead operation) is to protect fish in water column from entrainment. That would reduce value of water column habitat. Letter responded to USACE Nov 7, 2019 letter. Reviewed and reiterated major discussion points, plus provided additional information regarding benthos that could be detected. CS sent Keith email following up on earlier phone conversation regarding EFH impacts consultation to confirm discussion points. NMFS is requiring higher resolution seafloor mapping, and would like higher level of mapping of Weaver Shoal. NMFS is concerned about Shoal B in future. USACE would need to consult with NMFS regarding EFH impacts in future prior to dredging other shoals. EFH impacts consultation completed for proposed Weaver Shoal dredging. Keith acknowledged receipt of email summarizing phone conversation. USACE should do post-dredging surveys of Weaver Shoal to collect bathymetry and backscatter. Higher resolution mapping of other shoals would facilitate future EFH impacts consultation.

Date	Person/Agency	Mode of	Summary
	External to USACE	Contact	
Nov 20,	Keith Hanson /	Email from	CS forwarded Keith information on
2019*	NMFS	USACE (CS)	bathymetric data collection by USACE. USACE
			will increase resolution of future bottom
			surveys.

Appendix B

Agency Consultation

THIS PAGE PURPOSEFULLY BLANK



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

SEP 2 5 2018

Ms. Kimberly Damon-Randall Assistant Regional Administrator for Protected Resources Greater Atlantic Regional Fisheries Service National Marine Fisheries Service U.S. Department of Commerce 55 Great Republic Drive Gloucester, Massachusetts 01930

Dear Ms. Damon-Randall:

The U.S. Army Corps of Engineers, Baltimore District (USACE) is writing your office regarding the need for re-initiation of formal Section 7 consultation with the National Oceanographic and Atmospheric Administration, National Marine Fisheries Service (NMFS) pursuant to the Endangered Species Act for the Atlantic Coast of Maryland Shoreline Protection Project, located in the Town of Ocean City, Worcester County, Maryland (Enclosure map). In reviewing the biological opinions (BO) that assessed impacts to ESA species listed by NMFS, as well as reviewing all new and updated information about the species and the project, the USACE has determined that re-initiation is not required.

The triggers for re-initiation are as follows: 1. Incidental take statement has been exceeded; 2. If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; 3. If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this consultation or; 4. If a new species is listed or critical habitat designated that may be affected by the identified action.

1. Incidental take statement has been exceeded.

USACE has conducted dredging in accordance with NMFS mitigation requirements since 1998, and there have been no observed sea turtle takes in that time. However, NMFS assumed in preparing the BOs that one (1) sea turtle take would occur for every 500,000 cubic yards of material dredged annually. USACE conducted dredging in 2006, 2010, 2014, and 2017 that averaged 1,000,000 cubic yards dredged per cycle. Accordingly, based on volume serving as a proxy for observed takes, it can be assumed that eight (8) loggerhead takes occurred from 2006 through 2017.

2. If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation.

All populations of humpback whales will still be protected under the Marine Mammal Protection Act of 1972, as amended, from hunting and other activities. However, since the USACE completed formal consultation with NMFS in 2013, changes to species designations

have occurred. Specifically, in 2016, 9 of the 14 populations of humpback whales were delisted as protected species under the Endangered Species Act, including the population where the proposed project would occur. The 2006 BO included NMFS determination that the dredging and vessel movement activities associated with the Atlantic Coast of Maryland Shoreline Protection Project were not likely to adversely affect the endangered right whale, finback whale, and humpback whale.

Given the above factors, we believe that delisting of populations of the humpback whales does not warrant re-initiation of formal consultation, since the effects analysis will not change nor are any effects revealed that have not been previously considered.

3. If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this consultation.

Dredging operations will not affect listed species or critical habitats in a manner or to an extent not previously considered in the initial consultation. The new action is not subsequently modified in a manner to cause an effect to the listed species or critical habitat that was not considered in the initial consultation.

USACE reviewed the prior BOs in regard to NMFS evaluation specific to potential effects from required munitions and explosives of concern (MEC) screening techniques on ESA species. USACE evaluated the potential environmental consequences of encountering and dredging MEC within the shoals under the 2008 SEIS; however, there is no mention of NMFS evaluation in the BOs. The information within the 2008 SEIS includes that there is a moderate probability that MECs occur on or within the offshore shoals, and as such MEC screening techniques have been used by the USACE. To mitigate for the chances of encountering and dredging MEC from the borrow areas, as well as placement on the beach, USACE will continue to use MEC screening on both the hopper dredge intake and beach discharge pipes. However, the usage of this screening does not introduce any new effects, nor does it change the analysis of effects that was previously completed in past BOs. Additionally, the Incidental Take Statement (ITS) for the 2006 BO uses a proxy take for sea turtles, which is appropriate for projects using MEC screening, since the take of turtles is not distinguishable by observers when screens are used.

4. If a new species is listed or critical habitat designated that may be affected by the identified action.

No new species have been listed, or critical habitat designated that may be affected by the dredging operation.

Given that dredging operations will continue to use mitigation methods as required by NMFS to minimize adverse effects on listed aquatic species, and there is no new information or modification to the project that triggers re-initiation of formal consultation, the USACE has determined that re-initiation of formal consultation is not warranted. USACE has determined that with adherence to MEC screening, prior BO Reasonable and Prudent Measures, dredging constraints, and required sea turtle mitigation measures, the proposed dredging of the shoals in

federal waters may adversely affect, but is not likely to jeopardize the continued existence of, loggerhead, Kemp's ridley and green sea turtles. Additionally, the USACE has determined that the proposed dredging of the shoals in federal waters is not likely to adversely affect any distinctive population segments of Atlantic sturgeon, in accordance with the prior BOs and NMFS determination letter. If you, or your staff, have any additional questions regarding this matter, please contact Mr. Christopher Spaur by email at <u>Christopher.c.spaur@usace.army.mil</u> or by telephone at 410-962-6134.

Sincerely,

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

Enclosure: Offshore Shoals Map





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

OCT 2 4 2013

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

Re: No re-initiation of Formal Consultation for Atlantic Coast of Maryland Shoreline Protection Project

Dear Mr. Bierly:

Thank you for contacting us regarding re-initiation of the Atlantic Coast of Maryland Shoreline Protection Project. We previously completed formal consultation and provided a Biological Opinion in 1998 and an updated Opinion in 2006. Additionally, on August 1, 2013, we provided a letter of concurrence regarding effects to the newly listed Atlantic sturgeon and the Northwest Atlantic Distinct Population Segment (DPS) of loggerhead sea turtles, which were both listed in 2012, concluding that the project was not likely to adversely affect Atlantic sturgeon, and that the designation of the Northwest Atlantic DPS of loggerhead turtles did not change the previous analysis of effects to that species. Re-initiation of consultation is required where discretionary federal involvement or control over the action has been retained or is authorized by law and: (a) the amount or extent of taking specified in the incidental take statement is exceeded; (b) new information reveals effects of the action that may not have been previously considered; (c) the identified action is subsequently modified in a manner that causes an effect to listed species; or (d) a new species is listed or critical habitat designated that may be affected by the identified action.

Based on the information and analysis you provided in your September 25, 2018, letter received on October 2, 2018, we concur with your determination that re-initiation of formal consultation is not required at this time. As such, our 2006 Opinion, the analysis of effects on sea turtles, whales, and shortnose sturgeon, and all Reasonable and Prudent Measures contained therein, in addition to the findings in our August 1, 2013, letter of concurrence, remain active and valid.



Conclusions

No further consultation pursuant to section 7 of the ESA is required at this time. Re-initiation of consultation is required according to the triggers previously listed in this letter. No additional take is anticipated or exempted. If at any point your project meets any of the re-initiation triggers listed above, re-initiation of consultation may be necessary at that time. Should you have any questions about this correspondence, please contact Chris Vaccaro at 617-281-9167 or Christine.Vaccaro@noaa.gov.

Sincerely, Jennifer Anderson

Acting Assistant Regional Administrator for Protected Resources

PCTS: NER-2006-3915 File Code: H:\Section 7 Team\Section 7\Non-Fisheries\ACOE\Formal\2006\Atlantic Coast of Maryland Dredging 2006\2018\No re-initiation needed

Ec: Keller, Gomez, Spaur, ACOE Beard, NMFS/HCD Vaccaro, NMFS/PRD



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office 177 Admiral Cochrane Drive Annapolis, Maryland 21401 http://www.fws.gov/chesapeakebay

November 21, 2018

Mr. Daniel M. Bierly, P.E. U.S Army Corps of Engineers Chief, Planning Division Baltimore District 2 Hopkins Plaza Baltimore, Maryland 21201

Re: Atlantic Coast of Maryland Shoreline Protection Project

Dear Mr. Bierly:

Enclosed is the Planning Aid Report in support of the Service's Fish and Wildlife Coordination Act (16 U.S.C. Section 661 *et. seq.*) for the subject study. In accordance with the scope of work, dated June 2018, it contains information on the baseline environmental conditions, effects of the project, and suggestions to improve project outcomes. If you need further information regarding this project review, please contact Craig Koppie at 410/573-4534 or <u>craig_koppie@fws.gov</u>.

Sincerely,

Genevieve LaRouche Field Supervisor

cc: Christopher Spaur, USACE, Baltimore District Planning Division, Baltimore, MD



INTRODUCTION

The Baltimore District, U.S. Army Corps of Engineers (USACE) is conducting a re-evaluation of their 2008 Final Supplemental Environmental Impact Statement (FSEIS) for the Atlantic Coast of Maryland Shoreline Protection Project. Ten years has lapsed since the FSEIS was written making it necessary to assess any potential changes to baseline environmental conditions since that time; including National Environmental Policy Act (NEPA) review. USACE proposes to dredge sand from off-shore shoals located in Federal waters in accordance with the recommended plan identified in the 2008 FSEIS through the end of the authorized project life in 2044. Sand replenishment obtained from borrow sources is an ongoing need necessary for coastal flood and shoreline protection from storms for the town of Ocean City, Maryland. Presently, sand extraction has occurred solely from nearby shoals in state waters. These borrow areas can no longer provide the necessary volume of sand anticipated in the upcoming years. The 2008 FSEIS estimated between 6,800,000 and 15,000,000 cubic yards of sand will be needed to provide coverage for the years 2010 to 2044. It is anticipated that dredging sand from shoals in Federal waters would be undertaken in the next beach nourishment cycle scheduled to occur in 2022.

This Planning Aid Report provides information on the baseline environmental conditions, effects of the project alternatives, and potential measures to improve project outcomes. It is based primarily on re-examining published literature and more recent communications with Federal and state agencies regarding current information on fish and wildlife resources occurring at off-shore shoals. It is submitted in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*), Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) and Anadromous Fish Conservation Act (<u>16 USC 757a-757g</u>; 79 Stat. 1125), as amended.

BASELINE ENVIRONMENTAL CONDITIONS

The study area encompasses shoals located in Federal waters located 7 to 11 miles offshore of Ocean City in Worcester County, Maryland. Four shoals have been identified and are proposed for future sand acquisition. The shoals include Weaver Shoal, Isle of Wight Shoal, Shoal A, and Shoal B (Figure 1). These shoals were selected for their high volumes of available sand that could be economically dredged for long-term beach re-nourishment projects. Shoal B also has suitable sand but was identified to be of high value to recreational and commercial fisheries. Accordingly, the 2008 FSEIS recommended that Shoal B only be used if its fishery value declined.

Also described in the 2008 FSEIS, the shoals have a northeast/southwest orientation with up to tens of feet of relief off the seafloor, with gentle side slopes and a wide flat crest area. They are maintained by ocean waves and currents. In areas adjacent to the shoals, water depths reach approximately 60 feet. Water depths are lower over the shoal's crest (tallest relief) and range from 18 to 24 feet below the surface.

The most common bottom-dwelling species associated with the offshore shoals in terms of frequency of occurrence are species such as, haustorid amphipods, isopods, bivalves, and polychaete worms. Benthic megafaunal species occurring on the shoals and adjacent seafloor include lobed moon snails (*Polinices duplicatus*), whelks (*Busycon* spp.), starfish, and various crabs and shrimp (USACE, 2008).

Along with a variety of finfish species and sea turtles, marine birds and sea ducks are known to utilize near and off-shore shoals for foraging. Densities of sea birds that utilize outer shoals have not been adequately determined, due to difficulties in monitoring birds at far distances from the coast. Subsequently, sea ducks utilizing off-shore habitat are not detected by Mid-Winter Waterfowl Surveys which are conducted throughout the Chesapeake Bay during the winter months. Numerous species of marine birds feed on plankton and small fish at the surface and in the water. Sea ducks are bottom-feeding, and dive to obtain benthic prey.



Figure 1. Off-shore shoals of the Continental Shelf (orange boundary line denotes the 3-mile distance inclusive of State waters from Ocean City, MD). Proposed sand borrow sites are outside the boundary (FSEIS, 2008).

Sea ducks, such as surf scoters (*Melanitta perspicillata*) will dive beneath the surface (15 to 20 foot zone) to forage for benthic species (A. Berlin, USGS, pers. comm.). Both pelagic birds and sea ducks are mostly migratory occurring offshore in the fall and winter months. Overwintering species of marine birds include northern gannets, grebes, cormorants, gulls, loons, sea ducks (notably scoters), murres, and many others (Table 1). Spatial abundance and frequency of marine birds and sea ducks are variable depending on environmental factors which include water temperature, changes in atmospheric conditions, and shifts in prey abundance.

Since the preparation of the FSEIS (2008), additional studies have been conducted which is helping to increase our knowledge on marine bird occurrence on the Outer Continental Shelf. These include studies funded and conducted by BOEM (2009, 2017), TNC (2010), Goyert et al. (2015), and NOAA (2018). Goyert et al. (2015) investigated marine bird occurrence along the Delmarva Peninsula by shipboard survey and modeling from 2012 through 2014. BOEM (2017) funded studies on three species of marine diving birds, red-throated loon (*Gavia stellata*), surf scoter, and northern gannet (*Morus bassanus*), along the New Jersey to North Carolina coastline. These three bird species were found in relatively large numbers and generally associated with shallow inshore waters with only limited use of Federal off-shore waters during migratory periods (spring and fall). Using satellite telemetry, researchers detected seasonal high use areas by waterfowl at the mouths of the Chesapeake and Delaware Bays with the highest diversity and abundance in the winter months.

Detection of sea birds at the outer shoals were limited due to the small sample size of marked birds tracked in the study. However, a general conclusion coming from the BOEM studies (2017) is that distance from shore is the most common predictor of marine bird abundance with abundance decreasing further offshore. Based on foraging behaviors of diving ducks observed along shoals found closer to the shoreline, it is thought that outer shoal "crests" found on the Outer Continental Shelf may also provide some forage benefits to marine birds.

Aerial sea duck monitoring surveys were conducted by the U.S. Fish and Wildlife Service (Service) from 2001 to 2003. The study area included the coastline from Maine to Florida southward and eastward to shoals in state and Federal waters. Low-altitude flights followed transects to outward distances of 10 nautical miles (M. Koneff, USFWS, pers comm.). Water birds such as common loon, red-throated loon, and northern gannet were observed at shoals in Federal waters, however, the results of the survey(s) did not reflect any correlations to species population numbers, frequency, or spatial abundance since the monitoring surveys were extremely limited.

A geospatial tool was recently developed to aid in predicting relative densities of marine birds likely to occur on the Outer Continental Shelf when sufficient monitoring survey information is available (NOAA 2018). This computer application relies on input of available survey effort along with other layers that collectively predict relative densities. Through this mapping tool, numerous species of sea birds were identified as having the potential be found in Federal waters of the Continental Shelf.

Table 1. List of Migratory Birds Potentially in the Project Area.
Arctic Tern (Sterna paradisaea)
Common Scoter (<i>Melanitta nigra</i>)
Black-legged Kittiwake (<i>Rissa tridactyla</i>)
Bonaparte's Gull (Chroicocephalus philadelphia)
Bridled Tern (Onychoprion anathetus)
Brown Pelican (Pelecanus occidentalis)
Common Eider (Somateria mollissima)
Dovekie (Ale alle)
Great Black-backed Gull (Larus marinus)
Herring Gull (Larus argentatus)
Common Loon (<i>Gavia immer</i>)
Common Tern (<i>Sterna hirundoCory's</i>)
Cory's Shearwater (Calonectris diomedea)
Double-crested Cormorant (Phalacrocorax auritus)
Leach's Storm-petrel (Oceanodroma leucorhoa)
Manx Shearwater (Puffinus puffinus)
Northern Gannet (<i>Morus bassanus</i>)
Least Tern (<i>Sternula antillarum</i>)
Long-tailed Duck (Clangula hyemalis)
Parasitic Jaeger (Stercorarius parasiticus)
Pomarine Jaeger (Stercorarius pomarinus)
Razorbill (<i>Alca torda</i>)
Red Phalarope (Phalaropus fulicarius)
Red-breasted Merganser (Mergus serrator)
Red-necked Phalarope (Phalaropus lobatus)
Red-throated Loon (Gavia stellata)
Ring-billed Gull (Larus delawarensis)
Roseate Tern (Sterna dougallii)
Royal Tern (Thalasseus maximus)
Sooty Tern (Onychoprion fuscatus)
Surf Scoter (<i>Melanitta perspicillata</i>)
White-winged Scoter (Melanitta fusca)
Wilson's Storm-petrel (Oceanites oceanicus)
Reference: U.S. Fish and Wildlife Service's Information and Planning System; 8/01/2018(http:// www.fws.gov/chesapeakebay/endspweb/ProjectReview/Index.html)

FUTURE WITHOUT THE PROJECT

Without the offshore dredging project, shoals would remain similar to existing conditions found today. However, we anticipate that the demand will continue to be high for sand extraction needed for beach nourishment projects for years to come due to climate change and more frequent and severe seasonal coastal storms.

Under the no action alternative, the project would be conducted following findings of the 2008 FSEIS and sand would be dredged for the Atlantic Coast Project from any combination of the offshore shoals - Isle of Wight Shoal, Weaver Shoal, and Shoal A for the next beach nourishment cycle. Shoal B would not be dredged as its fishery value relative to the other shoals would be assumed not to decline. Updated information regarding environmental conditions and fisheries would not be sought or utilized to further select among these three offshore shoals or further plan the sequence of dredging from the candidate shoals. Dredging would be implemented in accordance with the dredging guidelines and constraints presented in the 2008 FSEIS without further review to determine whether modifications to the dredging constraints would be appropriate.

EFFECTS OF THE PROJECT ALTERNATIVES

ENDANGERED AND THREATENED SPECIES

Within the project impact area, no federally proposed or listed endangered or threatened species under the U.S. Fish and Wildlife Service's jurisdiction are known to exist. Transient species such as red knot (*Calidris canutus*) and piping plovers (*Charadrius melodus*) could migrate through the action area but would not be impacted since these species do not forage on open waters. However, listed species under National Marine Fisheries Service (NMFS) jurisdiction do occur in the project area, with sea turtles being of particular concern because they are vulnerable to impacts from dredging. NMFS prepared a Biological Opinion in 2006 that included mandatory measures to mitigate risks to sea turtles. USACE and NMFS are coordinating separately regarding concerns over listed and federally proposed species under NMFS jurisdiction.

ANADROMOUS FISH CONSERVATION ACT

Offshore shoals provide habitat for a variety of benthic species which are also food sources for macro fauna such as finfish and shellfish. Studies have indicated that many types of fish including striped bass (*Morone saxatilis*), concentrate near shoals during spring, summer, and fall months. Conversely, species diversity and abundance was less during the winter when they leave the area to migrate for warmer waters (Slacum *et al.*, 2010). Striped bass, an anadromous fish, are ecologically and economically important to the Chesapeake Bay region. Nursery and grow-out areas for juveniles include the Chesapeake Bay, Atlantic coastline, and use of near and far shoal areas located along the
Maryland's Eastern Shore. According to Maryland Department of Natural Resources, striped bass frequent Shoal B where artificial reef habitats have been created (FSEIS, 2008). Impacts to striped bass and other fish would be minimal since no dredging is proposed at this shoal.

FISH AND WILDLIFE COORDINATION ACT

Effects to benthic species from any alternative would have temporary impacts to benthos found directly at the dredge site. Even though benthic species would be removed during sand excavation, populations would likely recover from physical disturbances in one years' time (FSEIS 2008).

It is well known that marine birds and waterfowl utilize coastal bays and other shallow areas for nesting and foraging throughout the year. They also migrate to concentration areas in southern latitudes especially, the mid-Atlantic region during winter months. Marine birds and sea ducks have become a more recent topic of environmental concern over the past decade due to increased demand for off-shore wind development (FSEIS, 2008). Thus far, based on limited monitoring, data suggests that there have been no discernable concentrations of sea ducks or marine birds at the proposed dredge sites.

CONCLUSION

The project was authorized initially by Congress under Section 501(a) of the Water Resources Development Act of 1986 (Public Law 99-662) based on the Report of the Chief on Engineers, dated September 29, 1981. In 1989, Congress, under Public Law 101-101, Section 104, dated September 29, 1989, modified the previous authorization to authorize the Secretary (of the Army) to construct hurricane and storm protection measures based on the District Engineer's Post Authorization Change Notification Report dated May 1989.

Under this authorization, the USACE has been dredging sand from nearby borrow areas for many years to implement hurricane and storm protection measures at Ocean City, Maryland. The current borrow areas are exhausted so alternate sources must be located. Large quantities of sand are available from off-shore shoals in Federal waters which can be utilized for future shoreline protection. The 2008 FSEIS estimated dredging impacts at 7 square miles of the total seafloor spread out over the life of the project to the year 2044. The best available information on spatial distribution and abundance of water birds and sea ducks at shoals on the Continental Shelf is lacking, or significantly limited. However, numerous species of pelagic birds and sea ducks could potentially occupy off-shore shoals (USFWS IPAC, 2017). Currently, spatial distribution and abundance for most of these species cannot be determined because of limited survey data up to this point. Using the best available science, the Service believes that some level of temporal impacts would likely occur but would be minimal, based in part, on the following:

- Project impacts to benthic species at Weaver Shoal, Isle of Wight Shoal, and Shoal A would be directly impacted at the footprint, but temporal;
- Anadromous fish are migratory and are lower in numbers during fall/winter months;
- Turbidity of the water column during dredging would be short term since residual sand particles would fall out more quickly than organic substrates;
- The proposed dredging sites are located approximately 9.5 miles away from documented high-use coastal and bay areas favored by waterfowl concentrations and sea ducks during fall and winter months when dredging would occur;
- Marine birds and sea ducks are mobile; they can fly to and from areas where disturbances occur or prey species have shifted.

In conclusion, sand dredging at the proposed shoals would have a no impact to endangered species (where the Service has jurisdiction), and negligible impacts to migratory bird foraging areas and anadromous fish that reside in waters of the project area.

REFERENCES

BOEM. 2009. Compendium of Avian Occurrence Information for the Continental Shelf Waters along the Atlantic Coast of the United States, Final Report (Database Section -Seabirds). Prepared by the USGS Patuxent Wildlife Research Center, Beltsville, MD. U.S. Department of the Interior, Geological Survey, and Bureau of Ocean Energy Management Headquarters. O'Connell, A. F., B. Gardner, A. T. Gilbert, and K. Laurent. OCS Study. BOEM 2012-076.

BOEM. 2017. Determining Fine- scale Use and Movement Patterns of Diving Bird Species in Federal Waters of the Mid- Atlantic United States Using Satellite Telemetry. U.S. Department of the Interior, Sterling (VA). Spiegel, C.S., A.M. Berlin, A.T. Gilbert, C.O. Gray, W.A. Montevecchi, I.J. Stenhouse, S.L. Ford, G.H. Olsen, J.L. Fiely, L. Savoy, M.W. Goodale, and C.M. Burke. OCS Study BOEM 2017-069.

BOEM August, 2018. https://marinecadastre.gov/espis/#/

Goyert HF, Gardner B, Sollmann R, Veit RR, Gilbert AT, Connelly EE, Williams KA. 2015. Predicting the offshore distribution and abundance of marine birds from shipboard surveys, using a hierarchical community distance sampling model. In: Wildlife Densities and Habitat Use Across Temporal and Spatial Scales on the Mid-Atlantic Outer Continental Shelf: Final Report to the Department of Energy EERE Wind & Water Power Technologies Office. Williams KA, Connelly EE, Johnson SM,

Stenhouse IJ (eds.) Award Number: DE-EE0005362. Report BRI 2015-11, Biodiversity Research Institute, Portland, Maine. 42 pp.

NOAA. 2018. Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf: Maine -Florida. National Centers for Coastal Ocean Science. <u>https://coastalscience.noaa.gov/project/statistical-modeling-marine-birddistributions/</u>

Slacum, HW, Jr., Burton, WH and Methratta ET, 2010. Assemblage Structure in Shoal and Flat-Bottom Habitats on the Inner Continental Shelf of the Middle Atlantic Bight, USA 2010. In: Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science 2:277–298, 2010 Copyright by the American Fisheries Society 2010 DOI: 10.1577/C09-012.

USGS, 2018, Alicia Berlin; personal communication, Beltsville, MD

USFWS, 2018, Caleb Spiegal, Personal communication, Region 5

USFWS, 2018, Mark Koneff, Personal Communication, Region 5

USFWS, http://www.fws.gov/chesapeakebay/endspweb/ProjectReview/index.html)

Waterbirds: The International Journal of Waterbird Biology Vol. 30, Special Publication Waterbirds of the Chesapeake Bay and Vicinity (2007), pp.4-16

file: P/Div Strategic Resource Conservation/CPA/Army COE/Coordination Act Report/Atlantic Coast of Maryland Shoreline Protection



August 29, 2019

Mr. Lou Chiarella Assistant Regional Administrator for Habitat Conservation National Marine Fisheries Service U.S. Department of Commerce 55 Great Republic Drive Gloucester, Massachusetts 01930

Dear Mr. Chiarella:

In accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the U.S. Army Corps of Engineers, Baltimore District (USACE), and Bureau of Ocean Energy Management (BOEM) have prepared an Essential Fish Habitat (EFH) Impacts Assessment for proposed dredging of offshore shoals in federal waters to obtain sand for the Atlantic Coast of Maryland Shoreline Protection Project by the year 2022. The project places sand on the beach of Ocean City, generally every four years, to reduce risk of coastal storm damage.

The EFH impacts assessment is contained in a draft Environmental Assessment (EA), and is an addendum to an earlier EFH impacts assessment prepared in 2008. The USACE and BOEM assessment reaches the same finding as the 2008 assessment. The proposed action will adversely impact EFH for benthic invertebrates and demersal fish species. However, the project incorporates appropriate mitigation measures focused on maintaining the offshore shoals as habitat over the long-term. Accordingly, in light of this balance between meeting sand needs of Ocean City and conducting dredging utilizing long-term habitat maintenance constraints, the project complies with the provisions of the MSA. The proposed action is essentially the same as was described in the 2008 EFH impacts assessment. Mitigation measures were formulated in coordination with John Nichols (now deceased) of the National Marine Fisheries Service (NMFS).

USACE distributed a public notice dated 19 August 2019 announcing availability of the draft EA for agency and public review. Christopher Spaur of my staff has been in email contact with Karen Greene and Keith Hanson of NMFS regarding initiation of EFH consultation, and coordinated with Ms. Greene and Mr. Hanson at inception of preparation of the current (addendum) draft EFH impacts assessment. The draft EA and EFH impacts assessment are available electronically at http://www.nab.usace.army.mil/oceancity.

If you have any questions, please contact Christopher Spaur by email at Christopher.c.spaur@usace.army.mil or by telephone at 410-962-6134.

Sincerely,

Daniel M. Bierly, P.E.

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

CF:

Karen Greene, New England/Mid-Atlantic Regional EFH Coordinator, NOAA Fisheries Keith Hanson, Marine Habitat Resource Specialist, NOAA Fisheries



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

SEP 2 4 2019

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

RE: Baltimore District, U.S. Army Corps of Engineers and Bureau of Ocean Energy Management Atlantic Coast of Maryland Shoreline Protect Project

Dear Mr. Bierly:

We have reviewed the information provided to us, including the Initiation of Consultation letter dated August 29, 2019, the Environmental Assessment (EA)/draft Finding of No Significant Impact, essential fish habitat (EFH) assessment and other associated documents, the U.S. Army Corps of Engineers, Baltimore District (District) and Bureau of Ocean Energy Management (BOEM) prepared for activities proposed as part of the Atlantic Coast of Maryland Shoreline Protection Project (Atlantic Coast Project) within waters of the U.S. in the Atlantic Ocean off the east coast of Maryland. The District and BOEM propose to dredge offshore shoals in federal waters to obtain sand to place on the beach of Ocean City, MD generally every four years, to reduce risk of coastal storm damage. The current EA supplements a 2008 supplemental Environmental Impact Statement (EIS) for the Atlantic Coast Project, which authorized dredging and sand placement though 2044. The current EA evaluates various alternatives that would meet the immediate sand needs of the Atlantic Coast Project. As more than 10 years have elapsed since the 2008 EIS, the District and BOEM prepared the EA to update findings and determine whether modifications were warranted to the previous recommend plan, which identified four shoals – Weaver, Island of Wight, A, and B – as sand sources. The updated recommended plan for the project consists of:

- Placing sand on the beach of Ocean City every four years, with the next sand nourishment anticipated by or before the year 2022.
- Dredging approximately 1,070,000 cubic yards of sand from offshore shoals each future beach nourishment cycle.
- Conducting dredging under environmental constraints to minimize long-term impacts to offshore shoal habitats.
- Dredging Weaver Shoal for the next nourishment cycle and up to two additional nourishment cycles to obtain sand.
- After the next two or three nourishment cycles, dredging sand from the four offshore shoals would be based on reassessment of shoal conditions in accordance with considerations of this EA and the 2008 EIS.



The District and BOEM have determined that the proposed action would adversely impact EFH and federally managed species. As the nation's federal trustee for the conservation and management of marine, estuarine, and anadromous fishery resources, we provide the following comments and recommendations pursuant to authorities of the Fish and Wildlife Coordination Act and the Magnuson-Stevens Act for the activities described in the EA and EFH assessment.

In 2008, the District and BOEM prepared and submitted documents, including a complete EFH assessment, and engaged in consultation with us to develop various avoidance and minimization measures. The proposed project is essentially the same as was described in the 2008 EFH assessment and various avoidance and minimization measures incorporated at the time are still incorporated into the project, referred to as "environmental constraints" or "mitigative measures." For the current assessment, we received a Public Notice on April 10, 2018, soliciting comments from resource agencies and the public for the District's preparation of the supplementary EA for the use of offshore shoals in federal waters as sand sources. By letter dated May 3, 2018, we responded to the public notice by providing comments on preparation of the supplemental EA including recommendations to conduct biological surveys, including fisheries surveys, as part of the supplemental EA. In May, June, July, and September of 2018 we exchanged various emails with the District and had conference calls with the District and BOEM to discuss EFH issues and potential avoidance and minimization measures. In these calls, we provided guidance on preparing the EFH assessment and the District and BOEM detailed their project plans, plans for analysis, and their lack of sufficient funding to conduct biological surveys, including fisheries surveys, for the development of the supplemental EA. During these calls, we determined a time-of-year restriction would not be appropriate or result in substantive avoidance and minimization of NOAA-trust resources.

The EFH assessment (referred to as the "Essential Fish Habitat (EFH) Impacts Assessment – 2018 Addendum to the 2008 Analysis") is provided as an annex (Annex C) to the main EA. The EFH assessment regularly refers back to the main EA for various sections, including for the description of the proposed action. Section 2 (2.0 Proposed Action) of the EA describes the activities comprising the District and BOEM's proposed project. In addition to the project description above, the proposed project is expected to use trailing suction hopper dredges with dragheads about 15 feet in width, to remove sand from shoals in the Outer Continental Shelf, offshore of eastern Maryland. Hopper dredges will then travel to offshore pump-out points (landings) located several thousand feet offshore of Ocean City where sand will be pumped to the beach through temporary pipelines on the seafloor. Because the District completed EFH consultation with us in 2008 for the project, the current EFH assessment focuses on changes since the initial consultation. Because the proposed project activities are similar, many of the changes discussed in the EFH assessment are related to changes in EFH designations as a result of various amendments or addendums to fisheries management plans from various federal Fishery Management Councils and our Highly Migratory Species (HMS) group.

Section III (Evaluation of Effects of the Proposed Action) of the EFH assessment describes applicable EFH designations by the federal Fishery Management Councils and the NMFS's HMS group. To facilitate more efficient review, the District and BOEM grouped the EFH designations by resource type, including Bony Finfish, Cartilaginous Finfish, and Molluscs, and discussed each species potentially impacted by the project. For each species, potential impacts are discussed in relation to the stressors generated by the activities. We appreciate this strategy used by the District and BOEM and believe it expedited our EFH evaluations of the proposed actions. The District and BOEM's approach allows for more efficient identification of mitigative measures and conclusions regarding the likelihood of adverse impacts to EFH occurring from the proposed activities. As you are aware, the Mid-Atlantic Fisheries Management Council, a number of the federally managed species for which EFH has been designated in the project area are managed by the Mid-Atlantic Fisheries Management Council (MAFMC). MAFMC has developed a policy statement on beach nourishment activities that may affect federally managed species under their purview including Atlantic butterfish (*Peprilus triacanthus*), bluefish (*Pomatomus saltatrix*), black sea bass (*Centropristis striata*), scup (*Stenotomus chrysops*), and summer flounder (*Paralichthys dentatus*). These policies are intended to articulate the MAFMC's position on various development activities and facilitate the protection and restoration of fisheries habitat and ecosystem function. The MAFMC's policies on beach nourishment are:

- 1. Avoid sand mining in areas containing sensitive fish habitats (e.g., spawning and feeding sites, hard bottom, cobble/gravel substrate, shellfish beds).
- 2. Avoid mining sand from sandy ridges, lumps, shoals, and rises that are named on maps. The naming of these is often the result of the area being an important fishing ground.
- 3. Existing sand borrow sites should be used to the extent possible. Mining sand from new areas introduces additional impacts.
- 4. Conduct beach nourishment during the winter and early spring, when productivity for benthic infauna is at a minimum.
- 5. Seasonal restrictions and spatial buffers on sand mining should be used to limit negative impacts during fish spawning, egg development, young-of-year development, and migration periods, and to avoid secondary impacts to sensitive habitat areas such as SAV.
- 6. Preserve, enhance, or create beach dune and native dune vegetation in order to provide natural beach habitat and reduce the need for nourishment.
- 7. Each beach nourishment activity should be treated as a new activity (i.e., subject to review and comment), including those identified under a programmatic environmental assessment or environmental impact statement.
- 8. Bathymetric and biological monitoring should be conducted before and after beach nourishment to assess recovery in beach borrow and nourishment areas.
- 9. The effect of noise from mining operations on the feeding, reproduction, and migratory behavior of marine mammals and finfish should be assessed.
- 10. The cost effectiveness and efficacy of investments in traditional beach nourishment projects should be evaluated and consider alternative investments such as non-structural responses and relocation of vulnerable infrastructure given projections of sea level rise and extreme weather events.

In addition to the EFH conservation recommendations provided below, the MAMFC's policies should be incorporated, as appropriate, into the District and BOEM's project plans.

Section 2.2 (Table 2-1; and other sections) of the 2019 EA and Section IV of the EFH Assessment describes various mitigation measures, and rationale underlying each measure, the District and BOEM will follow during the proposed project. These mitigation measures were

developed with us in 2008 and are focused specifically on avoiding or minimizing impacts to EFH, federally managed species, their prey, and other aquatic resources under our purview, but will likely have coincident benefits to other resources. Mitigation measures that are part of the proposed action include:

- Dredge no more than about 5% of the total volume of any shoal.
- Avoid the crest [of the shoals] (within 500 feet of peak line).
- Dredge evenly and thinly (generally no more than several feet) over a wide area (maximum removal thickness in one nourishment cycle would be 10 feet).
- Dredge no deeper than ambient depths of the adjacent seafloor.

Because these measures are proactively included as part of the proposed action, we do not feel it necessary to include or adopt them as EFH conservation recommendations, and believe the District and BOEM is committed to adhering to each measure.

There is potential for short-term and long-term physical and biological impacts from the proposed project. Potential impacts include physical removal of benthic faunal communities, degradation of habitats, and disturbance of foraging habitat for fish and invertebrates. Additional impacts may include disturbance to benthic communities by altering sediment transport characteristics and overall community structure. Given the District and BOEM's Mitigative Measures (as amended; often referred to as "environmental constraints"), and commitment to implementing best practices to avoid and minimize impacts, we have provided limited EFH conservation recommendations for the proposed project. To the extent time allows, we also offer to help the District and BOEM implement any avoidance and minimization measures. In consideration of the complex interactions of various vertebrates, invertebrates, and their habitats, our EFH conservation recommendations also avoid and minimize impacts to various other NOAA-trust resources under our purview.

Essential Fish Habitat Conservation Recommendations

Pursuant to Section 305 (b)(4)(A) of the MSA, we recommend the following EFH conservation recommendations be incorporated as special conditions for this project:

- Hydraulic dredging dragheads should not be turned on/activated until the head is at or near the bottom and should be turned off/deactivated prior to being lifted through the water column.
- A physical and biological monitoring plan for all offshore shoals/borrow areas should be developed to more accurately determine impacts to shoal habitat. The objectives of the monitoring should include documenting bathymetry, grain-size distribution and potential infill rates, as well as biological responses of the system including fish and invertebrates (infauna and epifauna), to quantify recovery and document whether the actual impacts to EFH are within expected limits. Monitoring should occur before and after each dredging event (e.g., every four years).
- Prior to any [future] dredging of Isle of Wight Shoal, Shoal A or B, detailed biological information characterizing the distribution, abundance, biomass, production and diversity of fish and invertebrates around and on the shoals should be collected. Fishery-

independent surveys should be conducted and sampling should occur throughout the year to evaluate temporal differences in shoal communities. Fishery-dependent surveys may also be useful for evaluating project effects. The information should be shared with us and should be used to analyze potential adverse impacts from future dredging.

Please note that Section 305 (b)(4)(B) of the MSA requires you to provide us with a detailed written response to these EFH conservation recommendations, including the measures adopted by you for avoiding, mitigating, or offsetting the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, Section 305 (b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate or offset such effect pursuant to 50 CFR 600.920 (k).

Please also note that a distinct and further EFH consultation must be reinitiated pursuant to 50 CRF 600.920 G) if new information becomes available, or if the project is revised in such a manner that affects the basis for the above EFH conservation recommendations.

We appreciate the opportunity to work with your staff and provide these comments. If you have any questions or need additional information, please do not hesitate to contact Keith Hanson in our Annapolis, MD field office at keith.hanson@noaa.gov.

Sincerely,

and Chut

Louis A. Chiarella Assistant Regional Administrator for Habitat Conservation

cc: USACE – D. Bierly, C. Spaur BOEM – D. Piatkowski USFWS – G. LaRouche, C. Guy, J. Thompson PRD – B. Hopper EPA Regional II – A. Blair MAFMC – C. Moore NEFMC – T. Nies ASMFC – L. Havel



November 7, 2019

Mr. Louis A. Chiarella Assistant Regional Administrator for Habitat Conservation Greater Atlantic Regional Fisheries Office National Oceanic and Atmospheric Administration National Marine Fisheries Service 55 Great Republic Drive Gloucester, MA 01930-2276

RE: U.S. Army Corps of Engineers, Baltimore District, and Bureau of Ocean Energy Management - Atlantic Coast of Maryland Shoreline Protection Project

Dear Mr. Chiarella,

The U.S. Army Corps of Engineers, Baltimore District (USACE), and Bureau of Ocean Energy Management (BOEM) have reviewed the Essential Fish Habitat (EFH) conservation recommendations provided by your office on September 24, 2019, regarding activities proposed as part of the Atlantic Coast of Maryland Shoreline Protection Project (project) off the east coast of Maryland. The proposed USACE borrow sites are offshore shoals on the outer Continental Shelf (OCS) with dynamic sand substrates, and lack sessile slow-to recover benthic plant or animal communities. Post-borrow, shoal geomorphic integrity would be maintained, and the exposed shoal substrate would still be sand.

As described in the 2008 Supplemental Environmental Impact Statement (EIS) and subsequent 2019 Environmental Assessment (EA), the mitigation suite developed for the project was based on recommendations from resource agencies (BOEM, National Marine Fisheries Service (NMFS), US Fish and Wildlife Service, Maryland Geological Survey), academic experts, and relevant published research findings to reduce overall change in shoal morphology and avoid/minimize related impacts to biological resources. (References of particular relevance include: https://www.boem.gov/S5/5575.pdf; https://www.boem.gov/ESPIS/5/5199.pdf). This mitigation suite includes the following measures:

- Dredge no more than 5% of the total volume of any shoal.
- Avoid the shoal crest (within 500 feet of the peak line).
- Dredge evenly and thinly (generally no more than several feet) over a wide area (maximum removal thickness in one nourishment cycle would be 10 feet).
- Dredge no deeper than ambient depths of the adjacent sea floor.

Implementation of this mitigation suite represents a conservative approach to minimize EFH impact concerns, one that is feasible only given the relative size and density of sand ridges offshore of the Delmarva Peninsula. During project planning and engagement efforts with the commercial and recreational fishing community, USACE and BOEM evaluated four different OCS borrow area alternatives and screened out specific locations given fisheries concerns voiced by stakeholders. Weaver Shoal was selected as the priority borrow area because using that sand source posed less potential impact to fisheries, while also being cost effective. Impacts to EFH in the vicinity of Weaver Shoal will be minimized by adopting the above mitigation suite.

USACE and BOEM find that the proposed action as described in the 2019 EA already incorporates appropriate mitigation measures to minimize impacts to habitat and marine life. NMFS' September 24th, 2019 letter recommends additional mitigation measures based upon the 2015 Mid-Atlantic Fishery Management Council's (MAFMC) policies on beach nourishment, and provides Essential Fish Habitat (EFH) Conservation Recommendations. The MAFMC's policies and additional EFH Conservation Recommendations described in the NMFS letter are not applicable to all offshore dredging projects, and should be evaluated on a case-by-case basis. USACE and BOEM find that many (but not all) of the MAFMC policies on beach nourishment referenced in the September 24th, 2019, letter are already effectively incorporated into the proposed action as described below:

#1. Avoid sand mining in areas containing sensitive fish habitats (e.g., spawning and feeding sites, hard bottom, cobble/gravel substrate, shellfish beds).

The most sensitive natural fish habitats in the vicinity are live bottoms, which occur in intershoal areas (sometimes called swales) where compact muds outcrop or subcrop. Intershoal areas were considered and rejected as sand sources in the 2008 EIS. Artificial reefs in the vicinity are valued by recreational fishermen and were also avoided. There are no known Habitat Areas of Particular Concern (HAPC) within the proposed borrow area. As previously stated, extensive outreach with NMFS and stakeholders of the commercial and recreational fishing community occurred during project planning (both in 2008 EIS and 2019 EA) to develop the appropriate avoidance/minimization/mitigation measures relative to habitat structure and productivity of each shoal alternative. This collaborative effort to engage local fisherman as well as incorporate findings and recommendations from relevant research publications and benthic surveys resulted in a borrow area design that avoids sensitive fish habitat, avoids risk of geomorphologic change, and maximizes short term recovery potential.

#2. Avoid mining sand from sandy ridges, lumps, shoals, and rises that are named on maps. The naming of these is often the result of the area being an important fishing ground.

See above response. Though Weaver Shoal is a named sand shoal complex, the proposed dredging plan avoided higher valued fishing grounds on other OCS shoals based on stakeholder feedback. The dredging mitigation suite will mitigate risk of long-term impacts by maintaining overall shoal morphology and integrity.

#3. Existing sand borrow sites should be used to the extent possible. Mining sand from new areas introduces additional impacts.

All sand borrow sites previously dredged for the project in MD state waters proximal to the placement location for this project are depleted. The project intends to utilize Weaver Shoal for both initial construction and up to two nourishment intervals over the next 10+ years (when the 5% volume constraint of the current mitigation suite is anticipated to be reached). After that, USACE will select one of the other candidate OCS sand shoal sources.

The Ocean City Inlet ebb shoal is regularly dredged to provide sand for Assateague Island under the separate USACE Long-Term Sand Management Project. The 2008 EIS investigated making substantial increased use of the ebb shoal, but that alternative was rejected by the National Park Service based on concerns over potential impacts to Assateague Island. The 2019 EA considered making some increased use of the ebb shoal for Ocean City as authorized under the Assateague Island Long-Term Sand Management Project. However, Ocean City did not support this, and cost and engineering factors render the ebb shoal less suitable for beach nourishment than OCS offshore shoal sands.

#4. Conduct beach nourishment during the winter and early spring, when productivity for benthic infauna is at a minimum.

Section 3.4 of the 2019 EA presented a summary of some pros/cons of implementing additional time-of-year restrictions. (summer is economically unacceptable to the Town of Ocean City; winter/early spring is more difficult and dangerous for dredging and placement work). Coordination with NMFS was undertaken regarding this issue in spring and summer 2018. As stated by NMFS in their September 24th 2019 letter, seasonal restrictions for NOAA - Trust fishery resources are not necessary for this project and would not result in substantive avoidance and minimization of impacts.

#5. Seasonal restrictions and spatial buffers on sand mining should be used to limit negative impacts during fish spawning, egg development, young-of-year development, and migration periods, and to avoid secondary impacts to sensitive habitat areas such as SAV.

See response to comment #4 above. Additionally, all of the borrow area has been mapped and determined to lack SAV, live bottom, or artificial reef habitat.

#6. Preserve, enhance, or create beach dune and native dune vegetation in order to provide natural beach habitat and reduce the need for nourishment.

The project includes a recreational beach backed by a vegetated dune approximately 7 miles long. Implementation of this selected alternative will reduce risk of coastal storm damage to Ocean City, while also maintaining the vegetated dune and recreational beach. The frequency of nourishment is based on the sustainability of these features and capability of providing risk reduction benefits over time.

#7. Each beach nourishment activity should be treated as a new activity (i.e., subject to review and comment), including those identified under a programmatic environmental assessment or environmental impact statement.

Each nourishment event associated with a federally-authorized and funded Coastal Storm Risk Management project is considered operation and maintenance of the design template. Though the current NEPA document and associated consultations consider future nourishment events in the analysis, USACE and BOEM agree that new information may need to be considered prior to future nourishment events. USACE and BOEM will evaluate each individual event prior to construction and consider whether new information may result in changes to the impact conclusions. If supplemental documentation is warranted, the appropriate document will be prepared, and made available for review and comment.

#8. Bathymetric and biological monitoring should be conducted before and after beach nourishment to assess recovery in beach borrow and nourishment areas.

Pre- and post- bathymetric and biological monitoring studies of the beach and borrow area areas to assess recovery following borrow actions have been conducted extensively throughout the Atlantic coast over the past 40+ years. Based on the results of short-term studies, benthic species diversity and abundance generally recover within 1-4 years depending on project location, borrow area design, depth of dredging, and suite of mitigations in place. Additionally, BOEM-funded research has established that physically dominated systems, such as Weaver Shoals, are dynamic and subject to frequent storm perturbations that result in biological changes. Though short-term preand post- monitoring efforts capture immediate changes to the system from dredging, they do not provide the full context of change given naturally-occurring and storm-driven change in physically dominated systems. USACE and BOEM do not agree with the recommendation for pre- and post-borrow short-term biological monitoring. USACE and BOEM agree to conduct pre-construction and post-construction bathymetric surveys.

#9. The effect of noise from mining operations on the feeding, reproduction, and migratory behavior of marine mammals and finfish should be assessed.

Noise effects were considered in the 2019 EA in Section 5.1.6 and found to not be a substantial concern. BOEM is a leading federal agency in evaluating the implications of sound on marine resources. A summary of current research related to this topic can be found in BOEMs recent "Ocean Science" publication at: <u>https://www.boem.gov/Ocean-Science-2019/</u>. A relevant research publication is located at: <u>https://www.boem.gov/ESPIS/5/5361.pdf</u>.

#10. The cost effectiveness and efficacy of investments in traditional beach nourishment projects should be evaluated and consider alternative investments such as non-structural responses and relocation of vulnerable infrastructure given projections of sea level rise and extreme weather events.

The EA documents continuing efforts to meet the sand needs of the project in a costeffective, engineeringly sound, and environmentally sensitive manner. USACE and BOEM in the 2008 EIS considered multiple sand sources in the Ocean City vicinity, including the mainland, the coastal bay bottom, and the ocean seafloor, the latter including both shoals and non-shoal seafloor (2008 EIS, Sections 4 and 5). (USACE and BOEM selected the four candidate OCS offshore shoals that were then reevaluated in the 2019 EA.) Structural alternatives, such as groins and offshore breakwaters, were considered in initial project NEPA efforts in the late 20th century, but rejected in favor of the current project, which relies on beach nourishment.

Project sand needs with respect to accelerating sea-level rise were given consideration in a separate USACE document, "Atlantic Coast of Maryland Shoreline Protection Project, Cost and Schedule Risk Analysis Report," completed in February 2019. Observed trends in sea-level indicate that the project will continue to require higher beach berm elevations. It should be noted that Ocean City will become increasingly vulnerable to bayside flooding, which this project was not designed to prevent. Renourishment intervals could be affected by storm activity, but adequate sand is available from the candidate OCS shoals.

The following responses are provided to specific EFH conservation recommendations outlined in NMFS' September 24th 2019 letter:

#1. Hydraulic dredging dragheads should not be turned on/activated until the head is at or near the bottom and should be turned off/deactivated prior to being lifted through the water column.

This term/condition is a standard procedure for hopper dredging operations for this project to minimize risk of entraining sea turtles, Atlantic sturgeon, and other fish species of interest. The NMFS 2006 Biological Opinion prepared for this project, in accordance with Endangered Species Act Section 7 consultation requirements, explicitly requires this between April 1 and November 30 of any calendar year in its non-discretionary "Terms and Conditions" (with additional detail provided in "Monitoring Specifications for Hopper Dredges").

#2. A physical and biological monitoring plan for all offshore shoals/borrow areas should be developed to more accurately determine impacts to shoal habitat. The objectives of the monitoring should include documenting bathymetry, grain-size distribution and potential infill rates, as well as biological responses of the system including fish and invertebrates (infauna and epifauna), to quantify recovery and document whether the actual impacts to EFH are within expected limits. Monitoring should occur before and after each dredging event (e.g., every four years).

See prior response to MAFMC recommendation #8.

Extensive research evaluating short-term implications of offshore dredging activities is summarized in the following BOEM publications: https://www.boem.gov/OCS-Study-BOEM-2015-012/; https://www.boem.gov/ESPIS/5/5268.pdf. There is only minor uncertainty pertaining to the nature of potential EFH impacts to Weaver Shoal. Shortterm impacts are well described in the analysis of potential impacts to EFH in the 2008 and 2019 NEPA documents. Past research by BOEM and others clearly documents short-term reduction in species abundance and diversity following dredging, but recovery typically occurs within 1-4 years following completion, assuming general avoidance and minimization measures are conducted. Short-term biological monitoring of offshore borrow areas in physically dominated systems (such as Weaver Shoal) fails to properly contextualize the natural change common to longer time scales, as well as even more frequent seasonal and storm-driven change. BOEM has recently completed a multi-year study at Canaveral Shoals, FL that addresses this topic (https://opendata.boem.gov/BOEM-ESP-Ongoing-Study-Profiles-2017-FYQ3/BOEM-ESP-NT-14-x14.PDF (Final Report is anticipated in spring 2020). Additional monitoring off the New Jersey coast is also proposed by BOEM (see http://www.boem.gov/MM-19-02/). If funded, results would be directly applicable to management of OCS sand ridges offshore of MD.

Pre- and post- surveys of the borrow area will be conducted by USACE and required by BOEM to assess the volume of material dredged. The same is true for any proposed

future use. These surveys will help document the physical response of the shoal based on implementation of the mitigation suite. Based on existing literature, it is assumed that if the shoal morphology is maintained, dredging depths are not excessive, post dredge sediments are similar to pre-dredge environment, etc., then biological recovery will occur. If future surveys invalidate any existing assumptions regarding shoal geomorphic response, then USACE and BOEM will coordinate with NMFS and other agencies and experts to develop a long-term monitoring strategy.

#3. Prior to any [future] dredging of Isle of Wight Shoal, Shoal A or B, detailed biological information characterizing the distribution, abundance, biomass, production and diversity of fish and invertebrates around and on the shoals should be collected. Fishery-independent surveys should be conducted and sampling should occur throughout the year to evaluate temporal differences in shoal communities. Fishery-dependent surveys may also be useful for evaluating project effects. The information should be shared with us and should be used to analyze potential adverse impacts for future dredging.

As described in the 2019 EA, the Isle of Wight, Shoal A, and Shoal B will not be considered for dredging for at least 10 years. At the point in time Weaver Shoal is dredged to its 5% maximum, and the other shoal complexes are being considered for dredging, USACE, BOEM and NMFS will collaborate with stakeholders of the commercial and recreational fishing community to develop an appropriate survey methodology that characterizes the distribution, abundance, biomass, production, and diversity of fish and invertebrates around and on the shoals. Previous applicable research conducted in the general area will be considered to avoid duplication of effort and refine investments around remaining data gaps.

If you have questions or would like to discuss our responses, please contact Mr. Christopher Spaur by email at christopher.c.spaur@usace.army.mil or by phone at (410) 962-6134.

Sincerely,

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

CC:

Keith Hanson, NMFS Annapolis, MD, field office Doug Piatkowski, BOEM, Sterling, VA



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

November 15, 2019

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

RE: Baltimore District, U.S. Army Corps of Engineers and Bureau of Ocean Energy Management Atlantic Coast of Maryland Shoreline Protection Project

Dear Mr. Bierly:

We have reviewed your letter dated November 7, 2019, responding to our essential fish habitat (EFH) conservation recommendations for the proposed Atlantic Coast of Maryland Shoreline Protect Project (Atlantic Coast Project). By letter dated September 24, 2019, we provided three conservation recommendations to avoid and minimize impacts to EFH, federally managed species, their prey, and other resources under our purview. While the first recommendation is often, but not always, incorporated as a best management practice during dredging activities, the second and third recommendations focused on habitat mapping, surveying, and monitoring to identify opportunities for avoidance and minimization and to evaluate the potential impacts of the current project and future project actions. We recommended:

- 1. Hydraulic dredging dragheads should not be turned on/activated until the head is at or near the bottom and should be turned off/deactivated prior to being lifted through the water column.
- 2. A physical and biological monitoring plan for all offshore shoals/borrow areas should be developed to more accurately determine impacts to shoal habitat. The objectives of the monitoring should include documenting bathymetry, grain-size distribution and potential infill rates, as well as biological responses of the system including fish and invertebrates (infauna and epifauna), to quantify recovery and document whether the actual impacts to EFH are within expected limits. Monitoring should occur before and after each dredging event (e.g., every four years).
- 3. Prior to any [future] dredging of Isle of Wight Shoal, Shoal A or B, detailed biological information characterizing the distribution, abundance, biomass, production and diversity of fish and invertebrates around and on the shoals should be collected. Fishery-independent surveys should be conducted and sampling should occur throughout the year to evaluate temporal differences in shoal communities. Fishery-dependent surveys may also be useful for evaluating project effects. The information should be shared with us and should be used to analyze potential adverse impacts from future dredging.



We are encouraged by the collaborative working relationships are staffs have developed throughout the project and believe we work together to resolve any outstanding issues.

Baltimore District and BOEM Responses to EFH Conservation Recommendations

EFH Conservation Recommendation #1

Regarding EFH conservation recommendation #1, your response described that this condition is a standard procedure for hopper dredging operations for this project to minimize risk of entraining sea turtles, Atlantic sturgeon, and other fish species of interest. You further detailed that the 2006 Biological Opinion issued pursuant to Section 7 of the Endangered Species Act (ESA) from our Protected Resources Division explicitly requires this from April 1 and November 30 of any calendar year.

EFH Conservation Recommendation #2

Regarding EFH conservation recommendation #2, your response described extensive research evaluating short-term implications of offshore dredging activities summarized in Bureau of Ocean and Energy Management (BOEM) publications. Additionally, you explained that short-term impacts described in the analysis of potential impacts to EFH in the 2008 and 2019 NEPA documents, and past research by BOEM and others, clearly documents short-term reduction in species abundance and diversity following dredging, but recovery typically occurs within 1-4 years following completion - assuming general avoidance and minimization measures are conducted. You also described your position that short-term biological monitoring of offshore borrow areas in physically dominated systems (such as Weaver Shoal) fails to properly contextualize the natural change common to longer time scales, as well as even more frequent seasonal and storm-driven change. You also outlined one study BOEM has recently completed, a multi-year study at Canaveral Shoals, FL (final Report is anticipated in spring 2020), and an additional monitoring effort off the New Jersey coast proposed by BOEM, that, if funded, would be directly applicable to management of Outer Continental Shelf sand ridges offshore of MD.

Your letter further detailed that pre- and post- surveys of the borrow area will be conducted by the Baltimore District and required by BOEM to assess the volume of material dredged, which is also true for any proposed future use. These surveys will help document the physical response of the shoal based on implementation of the mitigative measures. Based on existing literature, it is assumed that if the shoal morphology is maintained, dredging depths are not excessive, post dredge sediments are similar to pre-dredge environment, then biological recovery will occur. You also described that, if future surveys invalidate any existing assumptions regarding shoal geomorphic response, then the Baltimore District and BOEM will coordinate with NMFS and other agencies and experts to develop a long-term monitoring strategy.

EFH Conservation Recommendation #3

Regarding EFH conservation recommendation #3, you outlined the fact that Isle of Wight, Shoal A, and Shoal B will not be considered for dredging for at least 10 years. You also described that when Weaver Shoal is dredged to its 5% maximum, and the other shoal complexes are being

considered for dredging, the Baltimore District, BOEM and NMFS will collaborate with stakeholders of the commercial and recreational fishing community to develop an appropriate survey methodology that characterizes potential impacts to the shoals. Previous applicable research conducted in the general area will be considered to avoid duplication of effort and refine investments around remaining data gaps.

NMFS Responses to November 7, 2019 Letter

While we appreciate the explanation of the hopper dredge condition in EFH conservation recommendation #1 as it relates to ESA-listed species from April 1 to November 30 of any given year, we continue to recommend the condition apply during all dredging operations (e.g., year round). Additionally, we appreciate your thoughtful and detailed responses to EFH conservation recommendations #2 and #3, however, we believe these conservation recommendations are reasonable and practicable, and continue to recommend the Baltimore District and BOEM adopt or include them into the project. Regarding conservation recommendation #2, although the Baltimore District and BOEM have used various sources (e.g., survey efforts, academic studies) to establish a "baseline" or pre-dredge condition of Weaver Shoal, we continue to recommend post-dredging monitoring of Weaver Shoal. This post-dredging monitoring should include the habitat mapping and delineation techniques discussed below under "EFH Conservation Recommendation #3," which includes acoustic data collection, sediment grain size analysis, and visual imagery. Our specific response to EFH conservation recommendation #3 is below.

EFH Conservation Recommendation #3

As you are aware, the MSA requires federal agencies, such as the Army Corps of Engineers and BOEM, to consult with us on any action or proposed action authorized, funded, or undertaken, by such agency that may adversely affect EFH identified under the MSA. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905. The EFH final rule published in the Federal Register on January 17, 2002 defines an adverse effect as: "any impact which reduces the quality and/or quantity of EFH." Therefore, for any future proposed dredging related to Isle of Wight, Shoal A, and Shoal B, we would expect the Baltimore District and BOEM to consult with us to avoid and minimize any potential impacts on EFH, federally managed species, their prey, and other resources under our purview. The Fish and Wildlife Coordination Act. as amended in 1964, also requires that all federal agencies consult with us when proposed actions might result in modifications to a body of water. Under this authority, we work to protect, conserve and enhance species and habitats for a wide range of aquatic resources such as shellfish, diadromous species, and other commercially and recreationally important species that are not managed by the federal fishery management councils and do not have designated EFH. An important component of the EFH consultation for Isle of Wight, Shoal A, and Shoal B, would be a comprehensive and complete EFH assessment. For the purposes of this EFH assessment, all benthic habitat types throughout the project area should be accurately delineated and mapped. Benthic substrates should be mapped using acoustic data, typically collected with sidescan sonar and multibeam echosounders, sediment grain size analysis, and visual imagery. It is particularly important to identify and delineate complex, sensitive habitats that are more vulnerable to project impacts, including patches of complex bottom amid large swaths of featureless sandy bottom (such as the sandy shoals of interest). For the purposes of mapping fish habitat, complex habitats are defined as hard bottom substrates, biogenic substrates, including shell substrates, hard bottom habitats with epifauna or macroalgae cover, and vegetated habitats. Complex biogenic habitats may also include epifauna-dominated soft bottom (analogous to vegetated bottom) structured by soft-bottom epifauna like relatively dense stands of sea pens, cerianthids (tube-dwelling anemones), soft-bottom anemones, and other epifauna. These kinds of soft-bottom epifauna habitats do not create a high acoustic backscatter signature, so are typically not detectable by an acoustic survey, underlying the importance of visual imagery.

Based on previous survey efforts by BOEM, the Northeast Fisheries Science Center (NEFSC), and others, we are aware that various habitats, habitat forming organisms, fish and shellfish, and their prey, that could be adversely impacted by dredging offshore shoals occur in the general area. These include mussel reefs and communities dominated by star coral (hard corals) and sea whips (soft corals). Additionally, it appears that polychaetes, blue mussels, sand shrimp, New England dog whelk snails, longclaw hermit crabs, and sand dollars are the dominant benthic fauna in the general area. Based on previous trawl data from BOEM, the NEFSC, and others, Atlantic croaker, northern sea robin, weakfish, scup, Atlantic herring, spotted hake, little skate, and spiny dogfish are some of the common fish species in the general shoal area, while other species, such as black sea bass and striped bass, also occur in the area. Additionally, because of the direct and indirect impacts from dredging operations, proposed future dredging may disproportionately adversely affect sea scallop and surf clam. These species, in addition to other federally managed species, their EFH, and their prey, as well as other species under our purview, should be considered during the data collection, pre-dredging survey, and early coordination process.

Conducting comprehensive pre- dredging, site-specific surveys, mapping, and habitat delineations of the proposed project area will allow for the identification, and subsequent avoidance and minimization of potentially sensitive, important, and complex habitats. Additionally, conducting post-dredging, site-specific monitoring will allow us to determine actual (observed) project impacts, assess potential indirect effects to sensitive, complex habitats, and evaluate recovery of the dredged areas.

Please also note that a distinct and further EFH consultation must be reinitiated pursuant to 50 CRF 600.920 G) if new information becomes available, or if the project is revised in such a manner that affects the basis for the above EFH conservation recommendations.

We appreciate the opportunity to work with your staff and provide these comments. If you have any questions or need additional information, please do not hesitate to contact Keith Hanson in our Annapolis, MD field office at keith.hanson@noaa.gov.

Sincerely,

Kan Mune

Karen M. Greene Mid-Atlantic Field Offices Supervisor

cc: USACE – D. Bierly, C. Spaur BOEM – D. Piatkowski USFWS – G. LaRouche, C. Guy, J. Thompson PRD – B. Hopper EPA Regional II – A. Blair MAFMC – C. Moore NEFMC – T. Nies ASMFC – L. Havel

Spaur, Christopher C CIV USARMY CENAB (USA)

From:	Keith Hanson - NOAA Federal <keith.hanson@noaa.gov></keith.hanson@noaa.gov>
Sent:	Wednesday, November 20, 2019 10:59 AM
То:	Spaur, Christopher C CIV USARMY CENAB (USA)
Cc:	Piatkowski, Douglas; Callahan, Justin B CIV USARMY CENAB (USA)
Subject:	[Non-DoD Source] Re: Atlantic Coast Project - Borrow Areas Bottom Mapping

Single beam?! Well that's surprising! I'm quite surprised it's not multibeam, which is much more common these days. Both collect bathymetry and backscatter, but multibeam is typically more accurate (when compared or ground-truthed to video transects/photographs).

Basically, habitat happing and delineation is the key.

Whether that is done with: (a) single beam OR multibeam backscatter and bathymetry; in addition to

(b) sidescan sonar;

- (c) grab samples/sediment grain size; and
- (d) video transects and photographs

We are just looking for a complete "picture" of what is there.

Keith

On Wed, Nov 20, 2019 at 10:50 AM Spaur, Christopher C CIV USARMY CENAB (USA) <Christopher.C.Spaur@usace.army.mil <mailto:Christopher.C.Spaur@usace.army.mil> > wrote:

Keith

Re-sending FYI, below has information on cultural/historic resources bottom mapping that we've done to date of Weaver and Isle of Wight Shoals, typical past beachfill contract requirements, plus intentions for future.

Chris

-----Original Message-----From: Bean, Ethan A CIV USARMY CENAB (USA) Sent: Wednesday, November 20, 2019 9:23 AM To: Spaur, Christopher C CIV USARMY CENAB (USA) <Christopher.C.Spaur@usace.army.mil <mailto:Christopher.C.Spaur@usace.army.mil> > Subject: RE: Atlantic Coast Project - Borrow Areas Bottom Mapping

The cultural survey used a duel frequency side-scan sonar at 100 foot intervals. They collected data at 600kHz and 1600Khz, and processed/mosaicked the 1600 kHz data. The survey report notes that this had a resolution of 0.15 m/pixel (0.5 ft./pixel).

Ethan

-----Original Message-----

From: Callahan, Justin B CIV USARMY CENAB (USA)

Sent: Tuesday, November 19, 2019 1:30 PM

To: Spaur, Christopher C CIV USARMY CENAB (USA) <Christopher.C.Spaur@usace.army.mil

<mailto:Christopher.C.Spaur@usace.army.mil>>

Cc: Piatkowski, Douglas <douglas.piatkowski@boem.gov <mailto:douglas.piatkowski@boem.gov> >; Bean, Ethan A CIV USARMY CENAB (USA) <ETHAN.A.BEAN@usace.army.mil <mailto:ETHAN.A.BEAN@usace.army.mil> >

Subject: RE: Atlantic Coast Project - Borrow Areas Bottom Mapping

Chris,

Please see the attached PDF for a typical post-borrow survey performed by the beachfill contractor. These have historically been single beam hydro surveys with transects at 200' intervals, which is pretty low resolution by today's standards.

Here's the post-borrow survey requirement from the specifications for the last contract:

"1.5.4.2 Post Borrow Surveys: At the conclusion of the project the Contractor shall provide to the Contracting Officer detailed hydrographic surveys of the complete borrow areas, plus the area enclosed within a distance of 200 feet beyond the boundaries of the borrow areas, to the scale and accuracy of the Contract Drawings. The survey drawing shall be produced in AutoCAD 2015 format, set to true scale in the MD State Plane Coordinate System (NAD83), and shall be provided in digital form. Soundings shall be included in a layer called "XSOUNDINGS." Depth contours shall be delineated and included in a layer called "XCONTOUR." The limits of the borrow area and a MD State Plane Coordinate grid shall be shown as on Sheet B-101 of the Contract Drawings. The post-borrow survey shall be furnished to the Contracting Officer no later than 14 days after completing dredging operations. Payment for the post-borrow survey shall be made as indicated in Paragraph MEASUREMENT AND PAYMENT, herein."

We can rework this spec to get the resolution NMFS is looking for if necessary.

See Ethan for the particulars on the cultural survey.

Justin Callahan, PMP Project Manager Civil Project Management Branch Programs & Project Management Division Baltimore District, USACE

CENAB-PPC, Room 10-F-04 2 Hopkins Plaza Baltimore, MD 21201 410-962-6693 (office) 443-509-4636 (mobile)

-----Original Message-----

From: Keith Hanson - NOAA Federal [mailto:keith.hanson@noaa.gov <mailto:keith.hanson@noaa.gov>] Sent: Tuesday, November 19, 2019 12:32 PM

To: Spaur, Christopher C CIV USARMY CENAB (USA) <Christopher.C.Spaur@usace.army.mil <mailto:Christopher.C.Spaur@usace.army.mil> >

Cc: Piatkowski, Douglas <douglas.piatkowski@boem.gov <mailto:douglas.piatkowski@boem.gov>; Leasure, Charles W CIV (USA) <Charles.W.Leasure@usace.army.mil <mailto:Charles.W.Leasure@usace.army.mil> >; Callahan, Justin B CIV USARMY CENAB (USA) <Justin.Callahan@usace.army.mil <mailto:Justin.Callahan@usace.army.mil> > Subject: [Non-DoD Source] Re: Atlantic Coast of MD Project - EFH Impacts Consultation

Hi Chris,

Thanks for the email.

I will add that we still believe post-dredging survey(s) of Weaver Shoal are worthwhile, and could be fairly straightforward since the technology to collect bathymetry and backscatter is likely onboard any survey vessel.

Furthermore, and in addition to high resolution mapping of the future/candidate shoals, such as Shoal B (Bass Grounds), delineating the habitat (and different bottom types) would also facilitate an efficient consultation. Benthic habitat types throughout the project area should be accurately delineated and mapped through the use of acoustic data (multibeam bathymetry and backscatter, and side-scan sonar), sediment grain size analysis, and visual imagery. It is particularly important to identify and delineate complex, sensitive habitats that are more vulnerable to project impacts.

Thanks, Keith

-----Original Message-----

From: Spaur, Christopher C CIV USARMY CENAB (USA)

Sent: Tuesday, November 19, 2019 12:00 PM

To: Keith Hanson - NOAA Federal <keith.hanson@noaa.gov <mailto:keith.hanson@noaa.gov > Cc: Piatkowski, Douglas <douglas.piatkowski@boem.gov <mailto:douglas.piatkowski@boem.gov> ; Leasure, Charles W CIV (USA) <Charles.W.Leasure@usace.army.mil <mailto:Charles.W.Leasure@usace.army.mil> >; Callahan, Justin B CIV USARMY CENAB (USA) <Justin.Callahan@usace.army.mil <mailto:Justin.Callahan@usace.army.mil> > Subject: Atlantic Coast of MD Project - EFH Impacts Consultation

Keith

I'm sending this email as a follow-up to make sure I've got proper record of what we discussed on the phone today, plus summarize what we covered in brief related emails. NMFS and USACE/BOEM recently exchanged letters regarding impacts to EFH of proposed dredging of Weaver Shoal.

NMFS is requiring higher resolution seafloor mapping moving forward on projects because scale of upcoming cumulative impacts to Continental Shelf is increasing (wind energy, sand borrow, etc.). NMFS has concern over impacts to biogenic substrates in particular which require higher resolution data for identification. USACE should reference recent investigations on biogenic substrates in the mid-Atlantic in the current EA. However, other than for some shell material, Weaver and the candidate offshore shoals are generally unlikely to have biogenic substrates because of their sandy dynamic character. Artificial reefs would have fouling organisms comparable to live bottoms.

It would be appropriate to double-check how USACE has mapped bathymetry of Weaver Shoal to determine resolution of bottom features revealed. If detailed substrate information exists, it could be added to EA.

Of the four candidate shoals, NMFS concerns are greatest for future borrow on Shoal B (Bass Grounds). Its apparent habitat value is presumably combination of its size/relief plus presence of artificial reef.

In the future, when USACE is proposing to dredge Isle of Wight Shoal, Shoal A, or Shoal B, USACE will need to engage in formal consultation with NMFS regarding potential EFH impacts. Advance mapping of seafloor at high resolution would facilitate completion of that consultation in a timely manner.

The exchange of letters, emails, and this phone conversation serve to complete EFH impacts consultation for proposed dredging of Weaver Shoal.

Thanks for your efforts. Please email me back to let me know if it's an accurate record. If not, please identify anything I typed up inaccurately.

Chris

Keith M. Hanson Marine Habitat Resource Specialist NOAA Fisheries Greater Atlantic Region Habitat Conservation Division

410-267-5650 <-- NEW OFFICE NUMBER

200 Harry S Truman Parkway Suite 460 Annapolis, MD 21401

<Blockedhttps://lh5.googleusercontent.com/gc6HF9ogNRn502qkyTYO8yBZPpBB3m0LeuqI63driwVbcYCMB4jcqVY8YIUC Ojkbux_M1t1zMv4Lk3_GF-mCdiHRP0esGtALpbzfEnujDHIYyvrnwTk> Web Blockedwww.nmfs.noaa.gov <Blockedhttp://www.nmfs.noaa.gov/> Facebook Blockedwww.facebook.com/usnoaafisheriesgov <Blockedhttp://www.facebook.com/usnoaafisheriesgov> Twitter Blockedwww.twitter.com/noaafisheries <Blockedhttp://www.twitter.com/noaafisheriessov YouTube Blockedwww.youtube.com/usnoaafisheriesgov <Blockedhttp://www.youtube.com/usnoaafisheriesgov>

Appendix C

Essential Fish Habitat Impact Assessment

THIS PAGE PURPOSEFULLY BLANK

Essential Fish Habitat (EFH) Impacts Assessment – 2018 Addendum to the 2008 Analysis

TABLE OF CONTENTS

Section Title

Page

0 Preface1	l
I Identification of Species of Concern1	Į
II Description of the Proposed Action	<u>)</u>
III Evaluation of Effects of the Proposed Action	<u>)</u>
A Bony Finfish	3
B Cartilaginous Finfish	5
C Molluscs1	3
IV Proposed Mitigation Measures1	4
V Federal Agency's Views Regarding the Proposed Action	
VI References	6

Tables

Table C-1: NMFS list of bony finfish species by life history stage to analyze, 2018 Table C-2: NMFS list of cartilaginous finfish species by life history stage to analyze, 2018

2018

Table C-3: NMFS list of mollusc species by life history stage to analyze, 2018

Table C-4: Bony finfish habitat preferences

Table C-5: Occurrence of skate juveniles and adults in the Mid-Atlantic

0 Preface

This essential fish habitat (EFH) impacts assessment is an annex of the document entitled "Atlantic Coast of Maryland, Shoreline Protection Project, Offshore Shoals in Federal Waters as Sand Sources for Ocean City, Supplementary Environmental Assessment (EA)." The EA is being prepared in 2018 to update and evaluate the potential effects of dredging offshore shoals located in the Outer Continental Shelf (OCS) for the Atlantic Coast of MD Project. US Army Corps of Engineers (USACE) and Bureau of Ocean Energy Management (BOEM) prepared an environmental impact statement (EIS) in 2008 recommending four offshore shoals on the OCS as future sand sources for the Atlantic Coast of MD Project. The 2008 EIS contained a thorough EFH impacts assessment. This 2018 EFH impacts assessment updates the 2008 EFH impacts assessment was contained in Annex D of the 2008 EIS. The 2008 EFH impacts assessment is incorporated by reference into this 2018 document. This 2018 addendum utilizes the structure of the 2008 assessment to allow for ready comparison to the 2008 document.

I Identification of Species of Concern

The 2008 EFH impacts assessment and various National Marine Fisheries Service (NMFS) online information documents and maps were reviewed in 2018 to generate a preliminary list of species and life history stages for which the OCS area of interest may constitute EFH in 2018. This preliminary list was provided to NMFS staff for review. NMFS staff made some changes to the list and determined that the EFH impacts assessment for the supplementary 2018 EA should consider a total of 34 species (19 bony fish species, 13 cartilaginous fish species, and 2 mollusc species). Life history stages varied from one to multiple depending on species. Project impacts to EFH for many of these species had been previously considered in the 2008 EFH impacts assessment (Tables C1 - C3).

In coordination with NMFS in 2018, it was determined that the EFH impacts assessment addendum for the supplementary EA should initially re-consider all the species that had been previously assessed in the 2008 EFH impacts assessment. However, if conditions and effects had not changed for any previously assessed species, then the 2018 addendum need not provide a new detailed impacts assessment for those individual previously assessed species. The 2018 EFH document would need to assess impacts for all species and or life history stages not evaluated in 2008.

NMFS in their list of species to be assessed in 2018 deleted several species that had been included in the 2008 assessment: Atlantic cod, winter flounder, and scalloped hammerhead. Deletion of those species from the 2008 assessment would not change overall findings or management implications. Additionally, NMFS staff noted that surf clam populations offshore of Delmarva have declined as regional ocean temperatures have warmed. However, NMFS recommended retaining surf clam on the list of species for 2018. Atlantic Coast Project physical activities¹ as described in the 2018 EA that would impact EFH are consistent with the 2008 assessment, although the 2008 assessment did not specify that Weaver Shoal would be the first OCS shoal to be dredged by 2022. Since 2008, there has been a substantial increase in knowledge of the OCS. Species ranges and density distributions have changed in some cases, and EFH designations have changed. The 2018 supplementary EA is structured to provide a brief summary of the state of knowledge from 2008 followed by a summary of new information with changes identified by topic. The general picture that emerges is that while minor change in physical and biological conditions have occurred, implications of this information to the proposed action (which strives to meet the sand needs of Ocean City while maintaining offshore shoal habitats) is still consistent with the content and findings of the 2008 EFH impacts assessment. No changes were identified in 2018 which would invalidate the findings for any individual species of the 2008 EFH impacts assessment that are also on the 2018 species list recommended by NMFS.

Generally, fisheries management has become more sustainable and populations have become more stable (previously many species were overfished and fishing was unsustainable) (NOAA, 2017). While this improvement in fishery management means the implications of habitat impacts are more important, no management decisions were made in 2008 based on any populations being in an overfished condition at that time. Instead, dredging guidelines and constraints were made with a long-term perspective presuming that shoal habitats were important and would remain important.

Accordingly, it was determined that the previous 2008 impacts assessment adequately assessed project impacts for all species and their life history stages it considered that are also on the 2018 NMFS species list. Based on the rationale above, this 2018 impacts assessment provides detailed consideration only of new species and or life history stages for which impacts of the proposed action were not assessed in 2008. Other species and life history stages previously evaluated are not re-evaluated.

II Description of the Proposed Action

A description of the proposed action is provided in Section 2 of the EA.

III Evaluation of Effects of the Proposed Action

Analysis of project effects upon species of concern requires a consideration of species natural history, environmental conditions that impact population, and the broad range of potential human activities that impact the population. Tables C1-C3 provide each species scientific name and geographic management group. Because information needed to analyze impacts to these species is generally summarized in gray literature (which summarizes findings from primary literature), those gray literature summary documents are generally referenced in this assessment.

¹ Quantification of project volume to be dredged has been revised, however the impacts envisioned do not differ from those reported in 2008 EIS.

A Bony Finfish

Bluefin, Yellowfin, Albacore, and Skipjack Tuna

These tunas are highly-migratory pelagic species, which share similar habits and ecology, although they may differ in seasonal geographic distribution, migration and habitat preferences for given life stages. Large adult tunas are fast, powerful cruisers, able to make rapid, long-distance migrations. Befitting their high activity levels, they are opportunistic predators and generally prefer warm surface waters with abundant dissolved oxygen concentrations. Aggregations of tunas are composed of similarly sized individuals, which may include multiple tuna species, with groups comprised of the largest individuals making the longest journeys. Tuna frequently prey upon smaller baitfishes and squid, but generally exhibit opportunistic, size-dependent feeding behavior, with little reliance on specific prey items. Common predators of juvenile and adult tuna include toothed whales, swordfish, sharks and other tuna (NMFS, 2006; NMFS, 2009).

More specific information, including anticipated project impacts, on each of these species and the relevant life stages is provided below.

Albacore Tuna (juveniles)

Background Information

Albacore tuna is a circumglobal oceanic species. In the western Atlantic, albacore range from 45°N to 40°S. Albacore undergo extensive horizontal movements (NMFS, 2006). Table C4 presents habitat preference and fishery status information.

Proposed Action Effects

The proposed action is located within NMFS-designated, mapped EFH for juvenile Atlantic albacore (NMFS, 2009). However, because juvenile albacore prefer waters deeper than the proposed borrow areas, as well as the species' pelagic and opportunistic feeding habits, the proposed action is unlikely to have a significant impact on juvenile Atlantic albacore individuals. Juvenile albacore are not demersal or known to associate with any particular substrate, therefore temporary disturbance of the substrate and localized suspension of sandy sediments during dredging is unlikely to cause significant impacts to their EFH.

Atlantic Bluefin Tuna (juveniles)

Background Information

Atlantic bluefin tuna range from 0° to 55° N in the West Atlantic (Brazil to Labrador). Young-ofthe-year begin movements from the Gulf of Mexico and Florida Straits in schools to juvenile habitats thought to be located over the continental shelf between 34° N and 41° W, in the summer and further offshore in the winter (NMFS, 2006, 2009). Table C4 presents habitat preference and fishery status information.

Proposed Action Effects

The proposed action is located within EFH for juvenile Atlantic bluefin tuna, which includes waters off North Carolina, south of Cape Hatteras, to Cape Cod (NMFS, 2009). Due to the juveniles' pelagic and opportunistic feeding habits and the ability of the larger size classes of juveniles to easily avoid project activities, the project is unlikely to have a significant impact on juvenile Atlantic bluefin tuna individuals. Juvenile Atlantic bluefin are not demersal or known to

associate with any particular substrate, therefore temporary disturbance of the substrate and localized suspension of sandy sediments during dredging is unlikely to cause significant impacts to their EFH.

Skipjack Tuna (juveniles and adults)

Background Information

Skipjack tuna are circumglobal in tropical and warm-temperate waters. In the western Atlantic skipjack range as far north as Newfoundland and as far south as Brazil. Skipjack tuna are an epipelagic and oceanic species and may dive to a depth of 260 m during the day. Skipjack tuna is also a schooling species, forming aggregations associated with hydrographic fronts. Adult skipjack tuna EFH in the Atlantic includes pelagic waters of North Carolina from Cape Lookout to Cape Hatteras, and New England from Connecticut to the mid-coast of Maine. Juvenile skipjack tuna EFH in the Atlantic includes areas off of Georgia, South Carolina, and North Carolina to Maryland, and from Delaware to Cape Cod and the southern east coast of Florida through the Florida Keys (NMFS, 2006, 2009). Table C4 presents habitat preference and fishery status information.

Proposed Action Effects

The proposed dredging action is within designated EFH for adult skipjack tuna. The proposed action is outside, but within approximately 20 miles, of mapped juvenile EFH (NMFS 2009). Due to their pelagic and opportunistic habits and strong swimming ability, the project is unlikely to have any significant impact on adult or large juvenile skipjack tuna individuals. Adult skipjack tuna are not demersal or known to associate with any particular substrate, therefore temporary disturbance of the substrate and localized suspension of sandy sediments during dredging is unlikely to cause significant impacts to their EFH. The proposed action, including temporary secondary effects such as localized turbidity, will not occur within or affect juvenile skipjack EFH.

Yellowfin Tuna (juveniles)

Background Information

Atlantic yellowfin tuna are circumglobal in tropical and temperate waters. In the western Atlantic they range from 45°N to 40°S. Yellowfin tuna is an epipelagic, oceanic species, found in water temperatures between 18° and 31°C. It is a schooling species, with juveniles found in schools at the surface, mixing with skipjack and bigeye tuna. Larger fish are found in deeper water and also extend their ranges into higher latitudes. Juveniles are found nearer to shore than are adults. Juvenile yellowfin tuna EFH on the Atlantic coast extends from the mid-east coast of Florida and Georgia to Cape Cod (NMFS 2006, 2009).

Proposed Action Effects

The proposed dredging action is within designated EFH for juvenile yellowfin tuna (NMFS 2009). However, due to the juveniles' pelagic and opportunistic habits and the ability of older age classes of juveniles to easily avoid project activities, the project is unlikely to have a significant impact on juvenile yellowfin tuna. Juvenile yellowfin are not demersal or known to associate with any particular substrate, therefore temporary disturbance of the substrate and localized suspension of sandy sediments during dredging is unlikely to cause significant impacts to their EFH.

Atlantic Mackerel (eggs, juveniles)

Background Information

The 2008 EIS provided background information on Atlantic mackerel adults. That information is generally applicable to juveniles. Table C4 presents information on fishery status and egg and juvenile occurrence. Northeast Fisheries Science Center's MARMAP program collected ichthyoplanton tow survey data from April through August, 1977-1987. The greatest regional abundance of eggs, by far, occurs from May to June, north of the project area, from New Jersey to New England (Studholme, et al., 1999).

Proposed Action Effects

The proposed action is located within the spawning range of Atlantic mackerel and within geographic proximity to areas that may be defined as EFH for mackerel eggs, according to NOAA's online EFH Mapper (NOAA, 2018) and MAFMC and NFMS (2011). While some Atlantic mackerel eggs may become entrained if dredging is conducted in spring, eggs are unlikely to be concentrated in project area bottom waters because eggs generally occur at greater depths (Table C-4). Furthermore, the project area appears comprise only a minor proportion of the regional Atlantic mackerel egg population, and direct impacts to eggs are anticipated to be minor. Only minor, temporary turbidity is anticipated to be generated during dredging because the offshore shoals contain minimal silts or clays, and suspended sands will rapidly settle from the water column. Accordingly, indirect impacts that could result to eggs from turbidity are also anticipated to be minimal.

The proposed action is located within areas that may be defined as EFH for juvenile mackerel (MAFMC and NFMS 2011). While juvenile mackerel may be present year-round, juvenile abundance during the fall, winter and early spring is greatest further offshore, in depths greater than those of the proposed borrow areas. Due to the limited temporal and spatial overlap of the project with juvenile habitats, as well as juveniles' pelagic habits, the project is unlikely to have a significant impact on juvenile mackerel individuals. Because all life stages of mackerel are pelagic water column feeders, and the proposed dredging would impact primarily bottom organisms, the proposed dredging is unlikely to have a significant effect on Atlantic mackerel prey availability. Juvenile Atlantic mackerel are not demersal or known to associate with any particular substrate, therefore temporary disturbance of the substrate and localized suspension of sandy sediments during dredging is unlikely to cause significant impacts to their EFH.

Yellowtail Flounder (eggs)

Background Information

The 2008 EFH impacts assessment provided general background information on yellowtail flounder. USACE previously assessed impacts to larval yellowtail flounder in the 2008 EFH impacts assessment, and that assessment has not changed.

Data show that the southern New England fish make limited migrations eastward during the spring and summer and westward during the fall and winter because of seasonal changes in temperature. Spawning occurs from March through August at temperatures of 5-12 °C. By March and April, eggs appear on the continental shelf off New Jersey and Long Island, on Georges Bank, northwest of Cape Cod, and on Browns Bank off Nova Scotia. The distribution and abundance of eggs expanded in southern New England in May (Johnson, et al., 1999). Table 4 presents fishery status and habitat preference information.

Proposed Action Effects

Effects on eggs differ somewhat from those presented in the 2008 EFH impacts assessment for larvae because eggs appear less likely to be present than larvae. While some yellowtail flounder eggs may be entrained if dredging is conducted in spring, eggs are unlikely to be concentrated in project area bottom waters because eggs generally occur at greater depths (Table C4) and the project activities would occur near the southern limit of the yellowtail flounder's range. Thus, minimal numbers of eggs would be anticipated to be entrained. Only minor turbidity is anticipated to be generated during dredging because the offshore shoals contain clean sand with minimal silts or clays. Accordingly, indirect impacts that could result to eggs from turbidity are also anticipated to be minimal. Long-term water quality conditions would not be impacted. Impacts to prey are irrelevant to eggs. In summary, minimal direct or indirect impacts to yellowtail flounder eggs or habitat are anticipated.

B. Cartilaginous Finfish

The 2008 EFH impacts assessment noted that there are many aspects of shark life history and habitat associations that are unknown. That status of knowledge is generally still applicable today.

Common Thresher Shark (all life history stages)

Background Information

The common thresher shark is cosmopolitan in warm and temperate waters. It is found in both coastal and oceanic waters, but is more abundant near land. Thresher sharks are livebearers, giving birth to litters of four to six pups, which measure 137 to 155 cm total length at birth. The thresher shark is capable of regional endothermy thus providing a physiological advantage over ectothermic prey species. Thresher sharks, regardless of life stage, are pelagic predators that hunt swimming prey in the water column. It feeds on invertebrates such as squid and pelagic crabs as well as small fishes such as anchovy, sardines, hakes, and small mackerels. Common thresher shark EFH designation for all life stages are combined and are considered the same. In the Atlantic, this includes localized areas off the mid-east coast of Florida, Georgia, South Carolina, and the Gulf of Maine, and from North Carolina through Cape Cod (NMFS, 2009).

Proposed Action Effects

The proposed dredging activity is within designated EFH for all life stages of the species (NMFS, 2009). However, due to the pelagic habits and relatively large size and strong swimming ability of thresher sharks at all life stages, they can easily avoid the project area and the project is unlikely to have any significant impact on the species. They are not demersal or known to associate with any particular substrate, therefore temporary disturbance of the substrate and localized suspension of sandy sediments during dredging is unlikely to cause significant impacts to their EFH.

Dusky Shark (juveniles/adults)

Background Information

The 2008 EFH impacts assessment assessed impacts to neonates/early juveniles. The 2008 EFH impacts assessment provided background information that is also applicable to juveniles/adults.

Only limited life history information applicable to the stage of juvenile/adult is available. Young dusky sharks and juveniles use Continental Shelf waters off Virginia and Massachusetts (NMFS, 2009).

Two separate EFH areas are designated for neonates (young-of-year) and juveniles/adults, and the proposed dredging would occur within both designated EFH areas. In 2009 NMFS revised the designated EFH areas, and also revised the life stage designations (increasing the cutoff between neonates and juveniles to 121cm total length).

Proposed Action Effects

The findings presented in the 2008 EFH impacts assessment for neonates/early juveniles are applicable to juveniles/adults. Dusky shark may be present during dredging on the offshore shoals that takes place during warmer months and into the fall, however juveniles because of their ready mobility should easily be able to avoid any direct negative impacts. Because the species moves out of the Maryland coastal ocean during colder months, it is unlikely that any dusky shark would be present during dredging taking place during colder months. No detrimental indirect impacts to the dusky shark population are expected because of the relatively small area to be impacted compared to the range of the species and the ready availability of comparable habitat on the mid-Atlantic bight continental shelf, and because any impacts to the foodweb are expected to be insignificant and temporary. The proposed action would essentially have no effect on project area waters, and thus no impact on dusky shark habitat.

Smooth Dogfish (all life history stages)

Background Information

Smooth dogfish are one of a complex of three smooth dogfish species that are difficult to differentiate. They are demersal, occurring in at or near the bottom of bays and nearshore coastal waters. They frequently occur at depths less than 60 ft, but are encountered down to 660 ft or deeper (NOAA, 2018). Smooth dogfish are migratory in response to changes in water temperature. They primarily congregate between southern North Carolina and the Chesapeake Bay in the winter. In the spring, they move along the coast when bottom water warms up to at least 6 to 7 °C, and returning to their offshore wintering areas as temperatures drop. Smooth dogfish can tolerate a range of temperatures from 6 to 27 °C.

Smooth dogfish are viviparous, bearing litters of 4 to 20 pups, which are roughly 34 to 39 cm when born. In Great Bay and Little Egg Inlet, New Jersey, newborn young-of-year smooth dogfish predominantly occur from May through June, but may continue to occur throughout the summer. Subadults and adults were rare in inshore waters. Estuaries and tidal tributaries are believed to be critically important summer nursery habitats for young-of-year smooth dogfish within the Mid-Atlantic Bight (Rountree and Able 1996).

In New Jersey, young-of-year smooth dogfish fed primarily on shrimp, polychaetes and small crabs (Rountree and Able 1996). Adult and subadult smooth dogfish primarily feed on large crustaceans, consisting mostly of crabs, but also rely heavily on American lobsters. In the New England waters during the spring, smooth dogfish feed on small bony fish, including menhaden, stickleback, wrasses, porgies, sculpins, and puffers. In Delaware Bay, young smooth dogfish fed on invertebrates with larger sharks shifting to large crabs and teleosts (NOAA, 2017, 2018).
Specific EFH areas have not been designated for any individual life stage of smooth dogfish.

Proposed Action Effects

Based on the species life history, the project will not affect neonate smooth dogfish, which prefer inshore, estuarine nursery waters. Later life stage may occur within the project area. Because smooth dogfish is demersal, direct and indirect impacts could be of concern. Juveniles and adults should be sufficiently mobile to avoid direct impacts. Individuals could be more vulnerable to direct impacts of dredging during cold water conditions when they are sluggish. However, because smooth dogfish tend to move offshore during these conditions, it is unlikely that substantial numbers of individuals would be present. The project will result in the temporary elimination of benthic and infaunal organisms within the immediate dredge footprint, some of which would likely be prey items for adult and larger juvenile smooth dogfish. However, because comparable habitats and prey are abundant on the Outer Continental Shelf (OCS), smooth dogfish individuals would be expected to shift to other suitable foraging habitats and should not be adversely impacted by the project. Bottom habitat in the dredged area, although remaining sandy, would otherwise differ from pre-dredge conditions in having greater local bathymetric relief of up to several feet in dredge furrows versus the pre-project flat surface. The surface would become flat again in character over time as waves and currents rework the substrate and fill in furrows. This local bathymetric relief change would not be anticipated to impact smooth dogfish.

Spiny Dogfish (juvenile, adult)

Background Information

Spiny Dogfish is a coastal shark with a circumboreal distribution. There are populations of spiny dogfish on the continental shelves of northern and southern temperate zones throughout the world. They move northward in the spring and summer and southward in the fall and winter, with a preferred temperature range from 7.2°C to 12.8°C. In the winter and spring, Atlantic spiny dogfish are located primarily in mid-Atlantic waters, but also extend onto southern Georges Bank on the shelf break. In the summer, they are located further north in Canadian waters and move inshore into bays and estuaries. By autumn, dogfish have migrated with high concentrations in Southern New England, on Georges Bank and in the Gulf of Maine. With the exception of large mature females, spiny dogfish school by size, and are rarely seen alone, nearly always occurring in groups. Although they are a relatively large fish, spiny dogfish are considered relatively weak swimmers (NMFS, 2007).

In surveys, juveniles have been captured between depths of 11-500 m, with the majority found below 50 m, while adults have been found from 1-500 m. During fall surveys, the depth range for juveniles was from 11-400 m, with most found below 40 m, and the range for adults was from 11-400 m (NOAA, 2018). Seasonal inshore-offshore movements and coastal migrations are thermally induced. Spiny dogfish prefer full salinity seawater and do not ascend estuaries. They are typically demersal, but can occur throughout the water column, from nearshore shallows to offshore shelf waters. Spiny dogfish are ovoviviparous. Most young are born on offshore wintering grounds from November to January, but newborn pups are sometimes taken in the Gulf of Maine or southern New England in early summer.

Spiny dogfish in the western Atlantic are voracious feeders, with a diet composed (by weight) of fish (54%) of their diet and mollusks (27%), albeit with a high degree of variability. Schooling

pelagic fishes such as herring, sand lance, mackerel, and menhaden are heavily consumed, but benthic species are also eaten as are squid, jellyfish and ctenophores (Burgess 2002). Spiny dogfish migrate vertically in the water column, feeding on forage fish that move toward the surface at night and on prey organisms near or on the bottom during the day. Juveniles (<36 cm) feed more heavily on squids and euphausiids than sub-adult (36-79 cm) dogfish, which consume more fish. The largest (>80 cm) animals are primarily piscivorous. Their diet appears broadly related to abundance trends in some of their major prey items (e.g., herrings, Atlantic mackerel, codfishes, hakes, and squid). They show preference for soft substrates suitable for epifaunal and infaunal prey (MAFMC and NFMS 2014).

Northeast Fisheries Science Center (NEFSC) spring trawl survey data indicate relatively low abundance of both juveniles and adults within the project area, with far greater numbers occurring near the outer shelf. The winter trawl survey data only indicates presence/absence, although the concentration of positive trawls appears sparse within the proposed dredge area, and greater further offshore, implying greater abundance out on the shelf (NMFS, 2007). BOEM (2017) reports that NEFSC bottom trawl surveys in the MD Wind Energy Area (WEA) caught spiny dogfish in the spring when it was the seventh most common species captured.

Specific EFH areas have not been designated for spiny dogfish life history stages.

Proposed Action Effects

Because spiny dogfish is demersal, potential impacts warrant scrutiny. Based on NEFSC trawl data, juvenile and adult spiny dogfish are unlikely to occur within the proposed dredge areas except during the winter and spring. Because they are weak swimmers, it is possible that dredging could result in direct impact (mortality) of some juvenile and/or adult spiny dogfish, particularly during the winter and early spring when spiny dogfish would most likely be present and water temperatures cold and the fish sluggish. The project will result in the elimination for several years of benthic and infaunal organisms within the immediate dredge footprint, some of which may be potential prey items for spiny dogfish. However, given the very broad range of potential prey and availability of other suitable foraging habitats, it is anticipated that spiny dogfish would forage in adjacent non-impacted areas. While the project has the potential to directly impact spiny dogfish individuals and indirectly impact their prey base, the project is not expected to significantly impact spiny dogfish population, habitat, or prey availability. Available data suggest that the project area supports only a relatively small proportion of the population, seasonally. Bottom habitat in the dredged area, although remaining sandy, would otherwise differ from pre-dredge conditions in having greater local bathymetric relief of up to several feet in dredge furrows versus the pre-project flat surface. The surface would become flat again in character over time as waves and currents rework the substrate and fill in furrows. This local bathymetric relief change would not be anticipated to impact spiny dogfish.

Clearnose, Winter and Little Skates

Background Information

These three species are relatively small (less than 1m total length) with benthic habits. They do not school and are generally solitary. Some species are more migratory than others. All three species occurs on soft bottoms along the continental shelf, but also on rocky or gravelly bottoms. They feed on infaunal, epibenthic and demersal prey. The New England Fishery Management Council (2018) determined that none of the skate species of interest to this EFH impacts assessment are overfished nor is overfishing occurring.

BOEM (2017) reports that while skates occurred in photographic survey imagery, these three species of skate could not be reliably distinguished from other skates or each other on photographic surveys in the MD WEA.

NMFS has provided EFH source documents for all three, in NOAA Technical Memoranda NMFS-NE-174, -175 and -179, all prepared by Packer, et al. (2003), and referenced herein. These memoranda were used to provide more specific information, including anticipated project impacts, on each of these species and the relevant life stages, as detailed below.

Clearnose Skate (juvenile, adult)

Background Information

The clearnose skate is 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 when water temperatures cool to 13-16°C. During winter, the densest concentrations of juveniles and adults occurred on the continental shelf out to the 200 m depth contour, with juveniles concentrated from Cape Hatteras to the Delmarva Peninsula, and adults overlapping, but extending north up to the Hudson Canyon, with the heaviest concentrated inshore from Delaware Bay to Cape Hatteras. In spring juveniles were concentrated inshore from the Delmarva Peninsula to south of Cape Hatteras, with scattered numbers on the continental shelf, out to the 200 m contour. In summer, small concentrations were found mostly inshore from Cape May to Cape Hatteras. Small numbers of adult clearnose skate were concentrated inshore from Long Island to Cape Hatteras in the fall (Packer et al., 2003).

The clearnose skate feeds on prey including polychaetes, amphipods, shrimp, crabs, bivalves, squids, and small fish such as soles, weakfish, butterfish, and scup. It is regularly preyed upon by sharks, such as the sand tiger (Packer et al., 2003).

NEFSC seasonal trawl survey data show juvenile clearnose skate only present within the proposed dredge areas in large numbers during the summer and fall. Adults may be within the project area year-round, but tend to concentrate further offshore during the winter (Packer et al., 2003).

Proposed Action Effects

Juvenile clearnose skate do not appear to be present within the OCS in the project vicinity in significant numbers during winter or spring. Juvenile and adult skates are good swimmers and can easily avoid disturbance from dredging activities when water temperatures are warm. Juveniles are prevalent during the fall, although water temperatures are likely to remain high enough during this time to allow effective avoidance. When bottom water temperatures are cold, individuals may

be sluggish and more vulnerable to direct impact (injury or mortality). Consequently, if dredging occurs during the late winter or early spring, direct impacts to adult clearnose skate may occur, as they may be present and have somewhat reduced ability to evade the dredge. That said, the project area does not appear to be of critical importance to the species, or support large concentrations of individuals. The project is therefore not expected to significantly directly impact the species.

The project will result in the temporary destruction of benthic and infaunal organisms within the immediate dredge footprint, including various potential prey items for skate species. However, the sandy shoals of the proposed dredge area are not believed to be particularly valuable foraging areas for skates, and skates are expected to shift to other suitable foraging habitats during dredging activities and until the time that benthos recolonize, and should not be adversely impacted by the project.

Being adapted for benthic life, they are tolerant of sedimentation and often partially bury themselves as a means of concealment from predators. As such, they are not expected to be vulnerable to indirect effects from incidental turbidity or sedimentation within the project vicinity, either at the dredge or beach nourishment sites.

Bottom habitat in the dredged area, although remaining sandy, would otherwise differ from predredge conditions in having greater local bathymetric relief of up to several feet in dredge furrows versus the pre-project flat surface. The surface would become flat again in character over time as waves and currents rework the substrate and fill in furrows. This local bathymetric relief change would not be anticipated to impact skates.

Winter Skate (juvenile)

Background Information

Winter skate is common inshore south of Cape Cod along the US Atlantic coast during the winter (Robins et al., 1986). Winter skate appear to undertake seasonal movements, especially in the southern part of its range, moving shoreward in autumn and offshore in summer. In winter, juveniles were found from Georges Bank to Cape Hatteras, out to the 200 m depth contour. In spring they were also found from Georges Bank to Cape Hatteras, and were concentrated nearshore throughout the Mid-Atlantic Bight and southern New England. Comparatively few were present in summer, with concentrations on Georges Bank and around Cape Cod. Winter skate abundances in the fall were not as high as in the spring. In the fall they were collected from Georges Bank to the Delmarva Peninsula and were again concentrated along Long Island, southern New England, around Cape Cod, and on Georges Bank. Winter skate generally ranges from the shoreline to 371 m, although it is most abundant at depths less than 111 m. NEFSC seasonal trawl surveys captured juvenile winter skate within the proposed dredge areas in large numbers only during the winter and spring (Packer et al., 2003).

Winter skate prey includes polychaetes, amphipods, decapods (crabs, shrimp), isopods, bivalves, and fishes. Fish are especially important in larger winter skate, and other items include razor clams, smaller skates, eels, alewives, blueback herring, menhaden, smelt, sand lance, chub mackerel, butterfish, cunners, sculpins, silver hake, and tomcod. Winter skate is preyed upon by sharks, other skates, gray seals, and gulls (Packer et al., 2003).

Proposed Action Effects

If dredging occurs during the late winter or early spring, direct impacts to juvenile winter skate may occur, as they are more likely to be present and may have somewhat reduced ability to evade the dredge. Juvenile and adult skates are good swimmers and can easily avoid disturbance from dredging activities when water temperatures are warm. However, when bottom water temperatures are cold, individuals may be sluggish and more vulnerable to direct impact (mortality).

Being adapted for benthic life, they are tolerant of sedimentation and often partially bury themselves as a means of concealment from predators. As such, they are not expected to be vulnerable to indirect effects from incidental turbidity or sedimentation within the project vicinity, either at the dredge or beach nourishment sites.

The project will result in the temporary destruction of benthic and infaunal organisms within the immediate dredge footprint, including various potential prey items for skate species. However, the sandy shoals of the proposed dredge area are not believed to be particularly valuable foraging areas for skates, and skates are expected to shift to other suitable foraging habitats during dredging activities and until benthos recolonize the area, and should not be adversely impacted by the project.

Bottom habitat in the dredged area, although remaining sandy, would otherwise differ from predredge conditions in having greater local bathymetric relief of up to several feet in dredge furrows versus the pre-project flat surface. The surface would become flat again in character over time as waves and currents rework the substrate and fill in furrows. This local bathymetric relief change would not be anticipated to impact skates.

Little Skate (juvenile)

Background Information

Little skate occurs from Nova Scotia to Cape Hatteras and is one of the dominant members of the demersal fish community of the northwest Atlantic. It occurs year-round over almost the entire range of temperatures recorded for this area. Little skate make no extensive migrations, although it moves onshore and offshore seasonally with temperature changes. It also moves north and south with seasonal temperature changes along the southern fringe of its range (Packer et al., 2003).

Generally the most important prey for little skate are invertebrates such as decapod crustaceans (including crabs, shrimp), amphipods, and polychaetes. Isopods, bivalves, hydroids, and fishes are also eaten. Fishes that are eaten include sand lance, alewives, herring, cunners, silversides, tomcod, and silver hake. Juveniles and adults are preyed upon by sharks, other skates (including winter skates), bony fishes (including cod, goosefish, sea raven, longhorn sculpin, bluefish, summer flounder), gray seals, and rock crabs (Packer et al., 2003).

NMFS-NE-175, (Packer et al., 2003) includes detailed information regarding NEFSC seasonal trawl survey data for little skate. Based on those trawl data, juvenile little skate are present within the proposed dredge areas year-round. However, they appear to occur in greatest numbers, by far, during the spring. Trawl data indicate that they tend to migrate north of the project area during the summer and fall, and further offshore during the winter.

BOEM (2017) reports that Little Skate was one of the seven most abundant species captured in the MD WEA in NEFSC bottom trawl surveys in Spring. These captures presumably included juveniles.

Proposed Action Effects

Juvenile and adult skates are good swimmers and can easily avoid disturbance from dredging activities when water temperatures are warm. However, when bottom water temperatures are cold, individuals may be sluggish and more vulnerable to direct impact (mortality). If dredging occurs during the late winter or early spring, direct impacts to juvenile little skate may occur, as they are more likely to be present and may have somewhat reduced ability to evade the dredge.

The project will result in the temporary destruction of benthic and infaunal organisms within the immediate dredge footprint, including various potential prey items for skate species. However, the sandy shoals of the proposed dredge area are not believed to be particularly valuable foraging areas for skates, and skates are expected to shift to other suitable foraging habitats during dredging and until benthos recolonize the area, and should not be adversely impacted by the project.

Being adapted for benthic life, they are tolerant of sedimentation and often partially bury themselves as a means of concealment from predators. As such, they are not expected to be vulnerable to indirect effects from incidental turbidity or sedimentation within the project vicinity, either at the dredge or beach nourishment sites.

Bottom habitat in the dredged area, although remaining sandy, would otherwise differ from predredge conditions in having greater local bathymetric relief of up to several feet in dredge furrows versus the pre-project flat surface. The surface would become flat again in character over time as waves and currents rework the substrate and fill in furrows. This local bathymetric relief change would not be anticipated to impact skates.

C. Molluscs

Longfin Inshore Squid (eggs).

Background Information

Longfin inshore squid (longfin squid) is a schooling species, and is distributed in continental shelf and slope waters from Newfoundland to the Gulf of Venezuela, and occurs in commercial abundance from southern Georges Bank to Cape Hatteras. The 2008 EFH impacts assessment assessed impacts to juvenile and adult longfin squid, and the finding of that assessment has not changed. The scope of this assessment is limited only to longfin squid eggs – a life stage that was not previously assessed.

Longfin squid spawn from late spring to early summer in the Middle Atlantic. Longfin squid eggs are laid on hard bottom substrates in 50-60 cm wide clusters composed of hundreds of capsules. Egg masses are commonly attached to rocks and small boulders on sandy/muddy bottom and on macroalga and seaweeds. The eggs are demersal, are generally laid in waters less 50 m deep, and are found at temperatures of 10-23°C. Females may lay multiple clutches over a period of a few weeks. Development time varies from 10.7 to 26.7 days, depending on water temperature. Most

eggs are spawned in May, and hatching occurs in July. Larvae that hatch from the eggs are then planktonic and pelagic near the surface(Jacobson, 2005).

Interestingly, although the proposed action area is now designated EFH for that species life history stage (MAFMC and NMFS, 2011), BOEM (2017) did not find these egg masses to be in OCS waters of the MD WEA, but did find them offshore in OCS waters of NY and VA

NMFS has provided an EFH source documents in NOAA Technical Memorandum NMFS-NE-193, prepared by Jacobson (2005), and referenced herein as such. Based on information in that document, the project is unlikely to overlap with longfin squid spawning and egg-laying activity, spatially or temporally. Literature indicates that longfin squid eggs require firm substrate, which should not be significantly present in the relatively homogenous, sandy shoal areas. Likewise, dredging is not likely to significantly overlap with squid spawning season. However, Jacobson (2005) points out that egg and larval stages need additional study, stating "*Human impacts may be significant on sandy bottom habitats used by inshore longfin squid for their eggs. However, little information is available on egg habitat locations, seasonal occurrence, sediment characteristics, and depth or water chemistry.*"

Proposed Action Effects

In the event that dredging were to extend into late May, so as to coincide with the initiation of squid spawning, and that suitable substrate was actually present within the project vicinity, it is possible that impacts to longfin squid eggs could occur. It was not determined in preparing this assessment whether the absence of longfin squid eggs for the MD WEA documented by BOEM (2017) characterizes the area in most years or was result of sampling during an unusual time. If substantial numbers of squid eggs did occur in the shoal vicinity on adjacent live bottom materials off the shoal, then smothering of egg masses via incidental sedimentation could occur locally.

Bottom habitat in the dredged area, although remaining sandy, would otherwise differ from predredge conditions in having greater local bathymetric relief of up to several feet in dredge furrows versus the pre-project flat surface. The surface would become flat again in character over time as waves and currents rework the substrate and fill in furrows. This local bathymetric relief change would not be anticipated to impact longfin squid.

IV Proposed Mitigation Measures

Dredging will be conducted utilizing constraints that would mitigate impacts to offshore shoal geomorphic integrity, and thus maintain shoal long-term habitat value (EA, Table 2-1). Shoal bathymetry will be monitored over time and shoal geomorphic response to dredging evaluated. Fishery and ecological values of shoals will be periodically reassessed, and the dredging plan reformulated (shoal selection, dredging constraints) if there is substantial change.

NMFS, in coordination with USACE conducted during preparation of the EA, suggested considering a time-of-year (TOY) restriction on dredging during Summer and Fall. (Instead, preferentially dredging in in Winter and early Spring). NMFS made this suggestion because the Mid-Atlantic Fishery Management Council (MAFMC) recommends winter/early spring as an optimal time for dredging from an environmental and fisheries perspective as productivity of

benthic infauna is at a yearly minimum, and spring migrants have not yet arrived from southerly and offshore waters. (Winter diversity is somewhat lower, comprised of limited year-round resident species plus some northerly species that have migrated south into the area). However, because the area to be dredged in this project and elsewhere in the region constitutes a small portion of comparable OCS habitats, it is not clear that this would meaningfully reduce cumulative threats to aquatic life. BOEM (2013), in a review of dredging impacts, found that benthos largely recover within several years to pre-project conditions on sandy substrates. Dredging in Winter is limited by rough seas and hazardous conditions. Dredging in Winter and early Spring could potentially pose greater risk of physically destroying demersal fish that are sluggish due to cold water temperatures.

V Federal Agency's Views Regarding the Proposed Action

The updated EFH impacts reaches the same finding as the assessment conducted in 2008. The proposed action will adversely impact EFH for benthic invertebrates and demersal fish species for which the impact area constitutes EFH. However, the project incorporates appropriate mitigation measures focused on maintaining the offshore shoals as habitat over the long-term. Accordingly, in light of this balance between meeting sand needs of Ocean City and conducting dredging utilizing long-term habitat maintenance constraints, the project complies with the provisions of the Magnuson-Stevens Act, as amended.

Impacts upon EFH for those species and their life history stages previously assessed in 2008 remain the same in 2018. The additional new species and life history stages assessed in this addendum lead to the same management implications already included as dredging constraints that would serve to mitigate impacts to offshore shoal habitat.

Because stress of fishing on populations is currently better managed than in 2008, importance of habitat as factor controlling species population health has increased compared to 2008. However, the dredging constraints presented in 2008 were not founded on fishery status of any of the species considered, but were instead focused on long-term maintenance of shoal habitat. Accordingly, the vision of the 2008 EFH impacts assessment which strove to maintain offshore shoal habitats while also providing sand for Ocean City is maintained.

BOEM (2018) identifies species of concern for bottom impacts that have require relatively rare types of habitats for one or more life stages and those with limited mobility during one or more life stages. Biggest potential concern of this updated assessment is that there are benthic and demersal species and life history stages identified in 2018 for which the project area was not identified to be of particular concern in 2008. A possible major concern would also be if any new species or life history stage strongly dependent upon shoals (such as for forage or congregation/migration). While investigations completed since the 2008 EFH impacts assessment continue to support considering the shoals to be important Continental Shelf habitats, no new information has been identified that indicates any of the EFH analyzed species are strongly dependent upon offshore shoals. Conversely, species that are pelagic, highly migratory, and derive their food over a broad region were anticipated to be of little concern in 2008, and that conclusion remains in 2018. The offshore shoals lack highly structured habitats, other than for the

artificial reef at Shoal B. Concerns of impacts to such habitats which could be stock limiting for structure-oriented species thus do not apply to the proposed action.

Impacts of greatest concern would be upon the additional benthic and demersal species life history stages assessed in this document. Neither of the new bony fish species for which new life stages were considered (Atlantic mackerel eggs and yellowtail flounder eggs) are demersal. The four species of tuna assessed in this document that were not assessed in 2008 are pelagic and impacts are likely to be negligible. Of the six species of cartilaginous fish newly assessed, five are demersal (smooth dogfish, spiny dogfish, clearnose skate, little skate, winter skate). While direct impacts to individuals of these species may occur, it is not anticipated that there would be concentrated numbers of individuals present. While dredging would eliminate benthic foraging opportunities following dredging for several years, there is abundant comparable foraging opportunity available elsewhere on the OCS.

Perhaps the biggest concern would be if longfin squid egg masses were present in substantial numbers because they are of limited mobility. While the area is designated EFH, sampling has not recorded these being present (BOEM, 2017). And time of year of dredging (between Labor and Memorial Days) would tend to minimize impacts.

Impacts to Atlantic albacore juveniles were assessed in accordance with direction from NMFS to consider this species. However, it is unlikely that the project area should be considered EFH for this species juvenile life history stage based on its general occurrence at greater depth.

VI References

BOEM (Bureau of Ocean Energy Management). 2013. Review of Biological and Biophysical Impacts from Dredging and Handling of Offshore Sand. J. Michel, A.C. Bejarano, C.H. Peterson, and C. Voss. BOEM 2013-0119. <u>https://www.boem.gov/ESPIS/5/5268.pdf</u>

GMFMC (Gulf of Mexico Fishery Management Council)/SAFMC (South Atlantic Fishery Management Council). 2011. Amendment 18 to the fishery management plan for coastal migratory pelagic resources in the Gulf of Mexico and Atlantic regions including environmental assessment, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council, Tampa, Florida, and South Atlantic Fishery Management Council, North Charleston, South Carolina. Available at:

http://safmc.net/Library/pdf/Final_CMP_Amend18.pdf.

GMFMC/SAFMC. 2014. Amendment 20B to the fishery management plan for coastal migratory pelagic resources in the Gulf of Mexico and Atlantic regions including environmental assessment, regulatory impact review, and regulatory flexibility act analysis. Gulf of Mexico Fishery Management Council, Tampa, Florida, and South Atlantic Fishery Management Council, North Charleston, South Carolina. Available at:

http://sero.nmfs.noaa.gov/sustainable_fisheries/gulf_sa/cmp/2014/am20b/documents/pdfs/cmp_a2_0b_ea.pdf.

Jacobson, L.D. 2005. Essential Fish Habitat Source Document: Longfin Inshore Squid, *Loligo pealeii*, Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-193. 42 pages plus publication submission instructions. Online edition: http://www.nefsc.noaa.gov/nefsc/publications/tm/tm193/

Johnson, D.L., W.M. Wallace, P.L. Berrien, and J.J. Vitaliano. 1999. *Essential Fish Habitat Source Document:* Yellowtail Flounder, *Limanda ferruginea*, Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-140. 29 numbered pages.

Mid-Atlantic Fishery Management Council. 2000. 2000 Atlantic mackerel, Loligo, Illex, and butterfish specifications. Final Environmental Assessment Regulatory Impact Review Final Regulatory Flexibility Analysis. Dover, Del. Online edition: http://www.nero.nmfs.gov/ro/doc/y2ksmbspfr.pdf.

Mid-Atlantic Fishery Management Council. 2006. Atlantic mackerel, squid and butterfish FMP. <u>http://www.mafmc.org/mid-atlantic/fmp/fmp.htm</u>

Mid-Atlantic Fishery Management Council (MAFMC) and NMFS. 2011. Amendment 11 to the Atlantic mackerel, squid, and butterfish (MSB) fishery management plan (FMP). MAFMC [Dover, DE]. 559 p + appendices. Accessed July 2018: http://www.mafmc.org/fisheries/fmp/msb

MAFMC and NMFS. 2014. Amendment 3 to the Spiny Dogfish Fishery Management Plan. Includes Environmental Assessment (EA). May 27, 2014. 112 pages.

NMFS. No Date. Climate change vulnerability assessment, Longfin Inshore Squid. <u>https://www.st.nmfs.noaa.gov/Assets/ecosystems/climate/images/species-results/pdfs/Longfin Inshore Squid.pdff</u>

National Oceanic and Atmospheric Administration (NOAA). 2009. Amendment 1 to the Consolidated Highly Migratory Species Fishery Management Plan. June 2009. http://www.nmfs.noaa.gov/sfa/hms/documents/fmp/am1/feis/feis_amendment_1_chapter5.pdf#page=31

NMFS. 2006. Final Consolidated Atlantic Highly Migratory Species Fishery Management Plan. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document. pp. 1600.

 $\underline{https://www.fisheries.noaa.gov/management-plan/consolidated-atlantic-highly-migratory-species-management-plan}$

NMFS. 2009. Final Amendment 1 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan, Essential Fish Habitat. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document. pp. 395. https://www.fisheries.noaa.gov/action/amendment-1-2006-consolidated-hms-fishery-management-plan-essential-fish-habitat National Oceanic and Atmospheric Administration. 2010. Amendment 3 to the 2006 Consolidated HMS Fishery Management Plan: Atlantic Shark Management Measures. Chapter 11.0 Life History Accounts and Essential Fish Habitat Descriptions. http://www.nmfs.noaa.gov/sfa/hms/documents/fmp/am3/index.html

NMFS. 2010. Final Amendment 3 to the Consolidated Atlantic Highly Migratory Species Fishery Management Plan. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document. pp. 632.

NMFS. 2007. Essential Fish Habitat Source Document: Spiny Dogfish, Squalus acanthias, Life History and Habitat Characteristics, 2nd ed. NMFS Technical Memorandum 203. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northeast Fisheries Science Center, Woods Hole, MA. December 2007.

NOAA. 2017. Final Amendment 10 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan: Essential Fish Habitat. September 1, 2017.

NOAA. 2018. Essential Fish Habitat Mapper. NOAA Fisheries. Last updated by Office of Habitat Conservation 04122018. <u>https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper</u>

NOAA. 2018. Habitat Conservation in the Greater Atlantic Region. https://www.greateratlantic.fisheries.noaa.gov/habitat/index.html

NOAA. 2018. Find a Species. NOAA Fisheries. Accessed July 2018. https://www.fisheries.noaa.gov/find-species

NOAA. 2018. Smooth Dogfish. Fisheries Service. Accessed July 2018. https://www.nefsc.noaa.gov/nefsc/Narragansett/sharks/smooth-dogfish.html

NOAA. 2018. Spiny Dogfish. Fisheries. Accessed July 2018. https://www.greateratlantic.fisheries.noaa.gov/sustainable/species/sdogfish/index.html

NOAA. 2018. Managed Species. NOAA Fisheries. Greater Atlantic Regional Fisheries Office. Accessed July 2018. <u>https://www.greateratlantic.fisheries.noaa.gov/sustainable/index.html</u>

New England Fishery Management Council. 2018. Skates. <u>https://www.nefmc.org/management-plans/skates</u>

New England Fishery Management Council and NMFS. 2017. Final Omnibus Essential Fish Habitat Amendment 2. Volume 2: EFH and HAPC Designation Alternatives and Environmental Impacts. Updated October 25, 2017.

NOAA. 2017. Status of Stocks 2017. Fisheries. <u>https://www.fisheries.noaa.gov/feature-story/status-stocks-2017</u>

Offshore & Coastal Technologies, Inc. 2011. Geomorphic and sediment budget analysis of Fenwick and Assateague Islands, MD. Final Report. April 30, 2011.

Packer, D.B., C.A. Zetlin, and J.J. Vitaliano. 2003. Essential Fish Habitat Source Document: Clearnose Skate, *Raja eglanteria*. Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-174. 50 pages. <u>http://www.nefsc.noaa.gov/nefsc/habitat/efh/</u>

Packer, D.B., C.A. Zetlin, and J.J. Vitaliano. 2003. Essential Fish Habitat Source Document: Winter Skate, *Leucoraja ocellata*. Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-174. 57 pages. <u>http://www.nefsc.noaa.gov/nefsc/habitat/efh/</u>

Packer, D.B., C.A. Zetlin, and J.J. Vitaliano. 2003. Essential Fish Habitat Source Document: Little Skate, *Raja erinacea*. Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-174. 66 pages. <u>http://www.nefsc.noaa.gov/nefsc/habitat/efh/</u>

Robins, C.R., G.C. Ray, J. Douglas, and R. Freud. 1986. Atlantic coast fishes. Peterson Field Guides 32. Houghton Mifflin Company, N.Y. 354 p.

Rountree, R.A., and , K.W. Able. 1996. Seasonal abundance, growth, and foraging habits of juvenile smooth dogfish, *Mustelus canis*, in a New Jersey estuary. Fishery Bulletin (94(3)): 522–534. <u>http://www.fishbiology.org/cv/Rountree%20and%20Able%201996.pdf</u>

Smith, E. R., J. C. Reed, and I. L. Delwiche. 2016. The Atlantic Coast of Maryland, sediment budget update: Tier 2, Assateague Island and Ocean City Inlet. ERDC/CHL CHETN-XIV-48. Vicksburg, MS: U.S. Army Engineer Research and Development Center. 11 pages.

South Atlantic Marine Fishery Council. 2018. Fishery Ecosystem Plan II (Online Living Document). <u>http://safmc.net/fishery-ecosystem-plan-ii-introduction/</u>

South Atlantic Marine Fishery Council. 2018. SAFMC Habitat and Ecosystem ATLAS. <u>http://ocean.floridamarine.org/safmc_atlas/</u>

Studholme, A.L., D.B. Packer, P.L. Berrien, D.L. Johnson, C.A. Zetlin, and W.W. Morse. 1999. Essential Fish Habitat Source Document: Atlantic Mackerel, *Scomber scombrus*, Life History and Habitat Characteristics. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Woods Hole, Massachusetts. September 1999. NOAA Technical Memorandum NMFS-NE-141. 35 pages plus publishing instructions. Online edition: <u>http://www.nefsc.noaa.gov/nefsc/publications/tm/tm141/</u>

The Nature Conservancy. 2010. The Northwest Atlantic Marine Ecoregional Assessment: Species, Habitats and Ecosystems. Phase One. The Nature Conservancy, Eastern U.S. Division, Boston, MA. Accessed May 2018.

https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/ed c/reportsdata/marine/namera/namera/Pages/default.aspx

Table C-1: NMFS list of bony finfish species by life history stage to analyze, 2018									
Tally	Species common name	Scientific name	Geographic Management Group	Eggs	Larvae	Juve- niles	Adults		
1	Albacore Tuna	acore Tuna Thunnus alalunga Atlantic Highly Migratory, Mid-Atlantic				Х			
2	Atlantic butterfish	Peprilus triacanthus	Greater Atlantic Region, Mid-Atlantic Species	Х		Х	Х		
3	Atlantic mackerel	Scomber scombrus	Greater Atlantic Region, Mid-Atlantic Species	Х		Х	Х		
4	Atlantic sea herring	Clupea harengus	New England			Х	Х		
5	black sea bass	Centropristus striata	Greater Atlantic Region, Mid-Atlantic Species		Х	Х	Х		
6	bluefin tuna	Thunnus thynnus	Atlantic Highly Migratory, Mid-Atlantic			Х			
7	bluefish	Pomatomus saltatrix	Greater Atlantic Region, Mid-Atlantic Species		Х	Х	Х		
8	cobia	Rachycentron canadum	State	Х	Х	Х	Х		
9	king mackerel	Scomberomorus cavalla	South-Atlantic 2		Х	Х	Х		
10	monkfish	Lophius americanus	New England & Mid-Atlantic		Х				
11	red hake	Urophycis chuss	New England	Х	Х	Х			
12	scup	Stenotomus chrysops	Greater Atlantic Region, Mid-Atlantic Species			Х	Х		
13	skipjack tuna	Katsuwonus pelamis	Atlantic Highly Migratory, Mid-Atlantic			Х	Х		
14	Spanish mackerel	Scomberomorus maculatus	South-Atlantic	Х	Х	Х	Х		
15	summer flounder	Paralicthys dentatus	Greater Atlantic Region, Mid-Atlantic Species	Х	Х	Х	Х		
16	windowpane flounder	Scopthalmus aquosus	New England	Х	Х	Х	Х		
17	witch flounder	Glyptocephalus cynoglossus	New England	Х	Х				
18	yellowfin tuna	Thunnus albacares	Atlantic Highly Migratory, Mid-Atlantic			Х			
19	yellowtail flounder	ellowtail flounder Pleuronectes ferruginea New England		X	X				
Orange	Orange = new spp for area since 2008 assessment								
Yellow	= new life history stag								
Pink = 1	new designation since	2008							

Table C-2: NMFS list of cartilaginous finfish species by life h			history stage to analyze, 2018							
Tally	Species common name	Scientific name	Geographic Management Group	Eggs	Neonate	Neonate / Juvenile	Juvenile	Juvenile / Adults	Adults	All
	Atlantic angel shark	Squatina dumerili	Atlantic Highly Migratory Species, Shark							Х
	2 Atlantic sharpnose shark	Rhizopriondon terraenovae	Atlantic Highly Migratory Species, Shark						Х	
1	3 common thresher shark	Alopias vulpinus	Atlantic Highly Migratory Species, Shark							Х
4	4 <mark>dusky shark</mark>	Charcharinus obscurus	Atlantic Highly Migratory Species, Shark		Х			Х		
4	5 sand tiger shark	Odontaspis taurus	Atlantic Highly Migratory Species, Shark			Х			Х	
(5 sandbar shark	Charcharinus plumbeus	Atlantic Highly Migratory Species, Shark		Х		Х		Х	
	7 tiger shark	Galeocerdo cuvieri	Atlantic Highly Migratory Species, Shark					Х		
8	3 smooth dogfish*	Mustelus canis	Atlantic Highly Migratory Species, Shark							Х
9	9 spiny dogfish	Squalus acanthias	Mid-Atlantic Fishery Management Council				X**		X**	
1() clearnose skate	Raja eglanteria	New England				Х		Х	
1	winter skate	Leucoraja ocellata	New England				Х			
12	2 little skate	Leucoraja erinacea	New England				Х			
Orange = new spp for area since 2008 assessment		2008 assessment								
Yellow = new life history stage for area since 2008 assessment		or area since 2008 assessment								
*Smoothhound shark complex, Atlantic stock										
**Further divided into male and female subcategories										

Table (C-3: NMFS list of mol						
Tally	y Common name Scientific name Geographic Management Group		Eggs	Larvae	Juveniles	Adults	
1	1 Longfin inshore squid Loligo pealei* Greater Atlantic Region, Mid-Atlantic Species		X		Х	Х	
2 Atlantic surf clam Spisula solidissima Grea		Spisula solidissima	Greater Atlantic Region, Mid-Atlantic Species			Х	Х
Yellow = new spp or life history stage for area since 2008 assessment							
*(Forme	er name <i>Loligo pealeii</i> ; rev						

Table C-4: Bony	fish habitat preference	s								
Species Common	Fishersester	Regulated EFH Life History	lishing	Substants	Doubth an	Darath (f	Weber Terroreture C	Water	Reported Months/ Seasonality of	Defenses
Name	Fishery status	Stage	Habitat	Substrate		Deptn rt	Water Temperature C	hetween CO	Occurrence	NOAA 2000
Albacore tuna	subject to overfishing (2016)	Juveniles	Pelagic	N/A (pelagic cruisers)	50 and 2000m isobaths	between 160 and 6,600ft isobaths	19.4C	and 67F		NUAA, 2009
Bluefin tuna	Overfishing status unknown; not subject to overfishing (2017)	Juveniles	Pelagic	N/A (pelagic cruisers)	Surface waters between the 25 and 200 m isobaths	Surface waters between the 80 and 660ft isobaths	Warmer than 12C	warmer than 54F	YOY recruit late June to August	NOAA, 2009
Skipjack tuna	Not overfished, not subject to overfishing (2014)	Juveniles	Pelagic	N/A (pelagic cruisers)	no info	no info	no info (same as adults?)	no info (same as adults?)	YOY recruit in mid-Atlantic in late summer (approx?)	NOAA, 2009
		Adults	Pelagic; associate w/ convergences, hydrographic discontinuities	N/A (pelagic cruisers); associate w/birds, sargassum and drifting objects, whales, sharks and other tunas	no info	no info	Range from 20 to 31C; optimum 27C	Range from 60 to 88F; optimum 81F	temperature- dependent (>15C)	NOAA, 2009
Yellowfin tuna		Juveniles	Pelagic	N/A (pelagic cruisers)	Surface waters	Surface waters				NOAA, 2009
Yellowtail flounder	Overfished; subject to overfishing (2017)	Eggs	Pelagic, near surface, along continental shelf waters	N/A (planktonic)	Range 10-750 m (most 30-90 m)	Range 30-2,500 ft (most 100 -300 ft)	Range 2.0-15C	Range 36-59F	Mid-March to July, peaks in April to June in southern New England	Johnson, et al. 1999; NMFS-NE- 140
Atlantic mackerel	Overfished; subject to overfishing (2018)	Eggs	Pelagic	N/A (planktonic)	Range: 10-325 m, most from 30-70 m; depth varies w/season, egg diameter, thermocline	Range 30-1,100 ft (Most from 100-230 ft)	Collected at 5-23C, highest abundance from ~ 7-16C with range related to season	Collected at 41- 73F, highest abundance 45 - 61F	Highest abundances in May, June in - Mid-Atlantic region.	Studholme, et al. 1999; NMFS-NE- 141
		Juveniles	Pelagic; shift from planktonic to swimming and schooling @ ~ 30- 50mm; reach 50- 80 mm in ~ 2 months in mid- Atlantic; 20 cm after 1 yr	N/A (pelagic cruisers)	Varies seasonally. Fall: offshore, most abundant ~ 20-40 m (range: 0-320 m); Winter: 50-70 m; Spring: dispersed in water column, but concentrated 30-90 m;. Summer: most 20-50 m, (range from 0-210 m).	Most abundant by season -Fall: 65-130 ft; Winter: 165-230 ft; Spring: concentrated 100-300 ft; Summer: 65 165	Found from 4-22C, most at 10C. Offshore distribution changes seasonally as average temperature ranges increase	Found 41-73F, most at 50F	Year-round; Larvae transition to juveniles in Jun- Aug (c. 2 mos. of age)	Studholme, et al. 1999; NMFS-NE- 141

Table C-5:	Occurrence of skate juv	veniles and adults in I	Mid-Atlantic.				
Information	presented pertinent to es	tuarine and coastal oc	ean waters.				
Common			Water	Water			
Name	Depth (m)	Depth (ft) ature C		ature F	Salinity	References	
		3-110 ft, most 20-50			Range > 12 ppt,	Packer et al.,	
Clearnose	1-33 m, most 7-15 m	ft	8-20C	46-68F	most at >22 ppt.	2003	
	Greatest abundance in						
	Spring<9 m depth,	Greatest abundance					
Little	Summer and Fall	in Spring<30 ft depth,					
	greatest abundance >9	greatest abundance			Range >15 ppt,	Packer et al.,	
	m	Spring-Fall> 30 ft	2-15C	36-59F	mean 32 ppt	2003	
Winter	Most abundant 0-110	Most abundant 0-360				Packer et al.,	
	m, Winter 33-113 m	ft, Winter 110-370 ft	-1 to 19 C	30 to 66F	Range 15-35 ppt	2003	

Other NMFS Trust Resources: Arthropods and Fish

Consultation with NOAA Fisheries may also be required if the proposed action results in adverse impacts to other NOAA-trust resources, such as anadromous fish, shellfish, crustaceans, or their habitats as part of the Fish and Wildlife Coordination Act. Assessments of selected NOAA-trust resources that are known to occur or may occur within the Area of Interest (AOI) are listed below. Occurrence information for these species was based in part on records of NEAMAP, NEFSC and VIMS Chesapeake Bay Multispecies Monitoring and Assessment Program trawl surveys. Spatial data for those survey programs was viewed on UNESCO's Ocean Biogeographic Information System (OBIS) website: OBIS (2018) Ocean Biogeographic Information System. Intergovernmental Oceanographic Commission of UNESCO. www.iobis.org

FISH

Herring, Shad and Menhaden

Herring, shad and menhaden (Clupeidae) are anadromous species, meaning that they spend the majority of their adult lives at sea and return to lower-salinity waters in the spring to spawn. Most of the juveniles migrate downstream during their first year of life. Two species of herring, two species of shad, and one species of menhaden occur within the project area. Alewives (*Alosa pseudoharengus*) are most abundant in the mid-Atlantic and northeastern states. Blueback herring (*Alosa aestivalis*) are found from Nova Scotia to northern Florida and are most abundant in Chesapeake Bay and further south. American shad (*Alosa sapidissima*) range from the St. Lawrence River in Canada to northern Florida. Hickory shad (*Alosa mediocris*) range from Cape Cod to Florida, with highest abundances occurring from New York southward. Atlantic menhaden (*Brevoortia tyrannus*) is found in coastal and estuarine waters from Nova Scotia to northern Florida. All five species are pelagic (free-swimming in the water column, not benthic), aggregate in schools, and are highly migratory, making seasonal migrations up and down the coast as well as spawning migrations into freshwater and back to the sea after spawning (NOAA 2018). For the purposes of this assessment, all five species are reviewed together, due to their similar life histories, habits and potential for project-related impacts.

Alewife and blueback herring, collectively referred to as "river herring", and American shad are managed by the Atlantic States Marine Fisheries Commission (ASMFC) under the Interstate Fishery Management Plan (FMP) for Shad and River Herring (NOAA, 2018). Large catches of these species have occurred historically in the ocean off the mouth of Chesapeake Bay by the mackerel fishery (Shepherd, 1986). Management measures to better address bycatch of river herring in other fisheries are under consideration (NOAA, 2018). River herring (alewife and blueback) serve as prey for important recreational and commercial species, such as cod, haddock, and striped bass (NOAA, 2018). The Atlantic menhaden fishery is managed by the Atlantic States Marine Fisheries Commission's (ASMFC) Atlantic Menhaden Management Board, which tracks and regulates harvest under Amendment 2 to the Interstate Fishery Management Plan for Atlantic menhaden.

The project is not expected to adversely affect herring, shad or menhaden populations. Due to the life history of these species, only larger juveniles and adults would be expected to occur within the proposed offshore dredging areas. Given their pelagic habits, it is unlikely that dredging would entrain or otherwise significantly impact individuals of these species. NEAMAP-Mid Atlantic fall otter trawl survey data from 2007 to 2014 found minimal biomass values for all five species within the general project area (MARCO 2018). Considering the groundfishing gear used in the NEAMAP surveys, it indicates that dredging of the offshore borrow areas is unlikely to significantly affect these species.

American eel

American eel (Anguilla rostrata) has an unusual life history among regional finfish. A facultative catadromous spawner, some eels may spend most of their lives in marine waters, but it is thought that they generally most of their lives within estuaries and fresh water tributaries, but adults migrate to open ocean waters to spawn. Spawning migration can occur over a wide timeframe, dependent upon the waterbody of origin, temperature and other factors, which are not well-understood (Verreault, et al.). Adults undego physiological changes in preparation for migration, including storing of fat reserves, changes to their eyes and swim bladders, degeneration of their digestive system and a characteristic color change to a "silver phase". It is believed they spawn en masse in the vicinity of the Sargasso sea, a subtropical gyre within the northern Atlantic, and they are believed to die after spawning. Eels have distinctive larval (leptocephalus) and postlarval ("glass eel") phases, which are both planktonic, laterally compressed, and almost completely transparent. These planktonic forms migrate vertically in the water column, using currents to migrate into inshore waters. As they transition from a planktonic stages and migrate into estuaries, they transition further into juveniles ("elvers") that more closely resemble their adult forms. Further development and inshore migration may take years, before sexual maturation is complete.

The oceanic life stages of eels remain poorly-understood. However, recent evidence from eastern Canadian eel populations indicates that adults undergoing spawning migration remain near the bottom, least during the day, while crossing the continental shelf enroute to their spawning areas (Béguer-Pon, M. et al., 2015). They do not feed during migration. If dredging for the project occurs during the fall or early winter, some adults may be transiting through the project area. Given the paucity of detailed information about this phase of their lifecycle, there is insufficient information to document the likelihood or severity of any impacts that may occur. Nevertheless, it seems that migrating adults would be able to simply areas of active dredging activities and unlikely that adverse impacts would occur. A review of occurrence information in OBIS found very few records of American eels in NEAMAP and NEFSC trawl surveys.

Striped Bass

Striped bass (*Morone saxatilis*) coastal migratory stocks are managed under a fishery management plan developed by the Atlantic States Marine Fisheries Commission. The Atlantic coast stocks are anadromous, spawning in spring in fresh and brackish estuarine waters, with peak activity in the mid-Atlantic occurring from mid-April through mid-May. Females that originate in the Chesapeake Bay, Delaware River and Hudson River, undergo seasonal, post-spawning migrations ranging from North Carolina to Nova Scotia. Males often remain in estuaries much of the year. Striped bass are omnivorous, feeding on a variety of invertebrates and fish species, particularly menhaden and river herring. Recreational fishing on the coastal migratory stocks occurs year round, with peak activity occurring during the spring and fall migrations. Commercial fisheries are conducted seasonally (NOAA, 2013).

The project is not expected to adversely affect striped bass populations. Due to the life history of this species, only sexually mature adults would be expected to occur within the proposed offshore dredging areas. Given the species' relatively large adult size and pelagic habit, it is unlikely that dredging would entrain or otherwise significantly impact individuals of these species. NEAMAP-Mid Atlantic fall otter trawl survey data from 2007 to 2014 found low striped bass biomass values within the general project area (MARCO 2018). Considering the groundfishing

gear used in the NEAMAP surveys, it indicates that dredging of the offshore borrow areas is unlikely to significantly affect this species.

Red Drum

Red drum (*Sciaenops ocelatus*) are divided into two management areas or stocks along the Atlantic coast, a northern stock (from New Jersey to North Carolina) and a southern stock (from South Carolina to Florida). The stock units are based on differences in life history traits and information from genetic and tagging studies indicating red drum rarely move between the two regions. The historic distribution of red drum on the Atlantic coast is from Massachusetts through Florida, though few fish have been reported north of the Chesapeake Bay in recent years. Juveniles are most abundant in estuarine waters and inlets, while fish older than age four inhabit deeper waters. The adult fish migrate seasonally, moving offshore or south in the winter and inshore or north in the spring. Spawning occurs at night in inlets and nearshore waters during the summer and fall. (NOAA, 2013).

Due to the life history of these species, only sexually mature adults would be expected to occur within the proposed project areas. Given the species' relatively large adult size and pelagic habit, it is unlikely that dredging would entrain or otherwise directly impact adult individuals of the species. In "Atlantic Sciaenid Habitats: A Review of Utilization, Threats, and Recommendations for Conservation, Management, and Research" Odell, et al. state, in part: "A more immediate threat to red drum adult habitat is the mining of sand for beach nourishment projects. Associated risks include burial of hard bottoms near mining or disposal sites, contamination, and an increase in turbidity and hydrological alterations that could result in a diminished habitat..." These risks, while applicable to some nourishment activities along the Atlantic coast, do not appear to be a significant concern for the proposed project. The material to be dredged is coarse and sandy, with no known contamination issues. There are no notable hardbottom habitats identified within the vicinity of either the borrow areas or beach nourishment reaches. Disturbances to nearshore forage species for red drum resulting from beach nourishment activities are expected to be temporary and minor. The project area lies near the northern limit of the species' functional range and appears to be of minor significance to the overall northern stock population. For these reasons the project is not expected to adversely affect red drum.

ARTHROPODS

Blue crabs

Blue crab (Callinectes sapidus) throughout its range is an important component of estuarine ecosystems. Blue crabs are opportunistic benthic predators and scavengers, and their diet may include a wide range of taxa including bivalves, crustaceans and fish. Blue crabs occupy diverse habitats throughout their life history, including an estuarine adult phase and a pelagic, planktotrophic larval phase that develops in coastal waters. The estuarine adults and juveniles range from Brazil to New England and are extremely adaptable to a broad range of environmental conditions. The blue crab supports important commercial and recreational fisheries throughout much of its range, and has been harvested since pre-colonial times. In the 1950's, the Chesapeake Bay region represented almost 80% of the national landings. This figure has fallen since then, and during the period of 2000-2009, the Chesapeake Bay represented only 34% of the national landings. However, there is some evidence of an increase in importance of the Chesapeake region, averaging roughly 42% of national landings in 2008 & 2009, according to the most recent interagency regional stock assessment. Maryland, Virginia and the Potomac River Fisheries Commission are the management jurisdictions for blue crab in

Chesapeake Bay. The three jurisdictions all are signatories to the 1997 Chesapeake Bay Blue Crab Fishery Management Plan. (UMCES 2011).

In Chesapeake Bay, the full life cycle of blue crab makes use of the coastal ocean, submerged aquatic vegetation, oyster reefs, salt marshes, and unstructured shallows and benthos. The larval stages are restricted to a narrow range of temperature and salinity that is characteristic of tropical to sub-tropical oceanic waters. Female C. sapidus mature and mate throughout the Bay before migrating to the higher salinities of the estuarine mouth. Mating and migration starts in the late summer and fall after the molt to maturity, and a large percentage of mature females congregate in the lower Bay or over-winter along the main stem of the Bay. Females constrained in their migration by low winter temperatures arrive on the spawning grounds during the following spring and throughout the summer. Spawning generally starts in mid-May and continues through early September, from the mouth of the York River to the Virginia Capes. As eggs develop, females migrate from the spawning ground to the Virginia Capes and out onto the inner continental shelf. Crab larvae are released from mature egg masses in high salinity water, where they persist in the coastal zone. Following settlement as megalopae, small juvenile crabs disperse northward and into subestuaries to forage, utilizing structured environments that provide refuge from predators and cannibalism. (MD Sea Grant 2010)

Males generally remain within the estuaries and rivers for their entire lives. Female blue crabs do not typically venture far offshore, although a few have been documented travelling significant distances along the coast. Generally speaking however, offshore coastal shelf waters are not significantly used by postlarval blue crabs. A review of occurrence information in OBIS found very few records of blue crabs in NEAMAP and NEFSC trawl surveys in the project vicinity, and the project is likely to have negligible impact to adult blue crabs. After being released near the mouth of estuaries, early larval stages of blue crabs are planktonic, and may spend time in entrained in offshore waters. However, because blue crab spawning within our region occurs primarily during the summer, the project is likely to have negligible impact of a project is likely to have a stages of the blue crab.

Horseshoe Crab

Horseshoe crabs (*Limulus polyphemus*) are a migratory marine arthropod found along the Atlantic coast from northern Maine to the Yucatan Peninsula and the Gulf of Mexico. The Delaware Bay supports the largest spawning horseshoe crab population in the world. Little is known about the status of the horseshoe crab population. Limited time-series of horseshoe crab population data make it difficult to assess its status. However, the 2013 stock assessment update indicates horseshoe crab abundance remains stable in the Delaware Bay region (New Jersey through coastal Virginia). Horseshoe crabs are managed under the Interstate Fishery Management Plan (FMP) for Horseshoe Crab (1998) and its subsequent addenda (Addenda I-VII) (ASFMC 2018).

Adults either remain in estuaries or migrate to the continental shelf during the winter months. Spawning generally occurs from March through July, with the peak spawning activity occurring on the evening new and full moon high tides in May and June (Shuster and Botton, 1985). Juveniles hatch from the beach environment and spend the first two years in nearshore areas (ASFMC 2018). Per the FMP, 74 percent of the total number of horseshoe crabs caught in bottom trawl surveys compiled by the Northeast Fisheries Center were taken in water shallower than 20 meters and 92 percent were caught at depths less than 30 meters. Migration from beaches where horseshoe crabs have been tagged vary from a few kilometers in Florida to almost 34 kilometers in Massachusetts (Shuster, 1982).

the continental shelf and on bay bottoms (e.g., Delaware Bay and Chesapeake Bay) for most of the year (Botton, 1995).

Since the 2008 EIS was completed, BOEM has supported substantial efforts to compile previously collected data and undertake new investigations in the MD Wind Energy Area (WEA) (BOEM, 2017), located a few miles further offshore from the proposed borrow areas. Trawl sampling of the outer continental shelf, including the mid-Atlantic Bight, is conducted annually by NOAA-NEFSC in the spring and fall. Horseshoe crab wasn't among the most abundant organisms captured in NEFSC bottom trawls over the period 2003-2012 or in a trawl survey of the MD WEA conducted in June/July 2008. However, visual sampling of epifauna conducted in July 2013 did record horseshoe crab as being among the most common organisms (BOEM, 2017).

NEAMAP-Mid Atlantic fall otter trawl survey data from 2007 to 2014 shows that horseshoe crab biomass is greater within the proposed sand borrow areas, relative to the MD WEA further offshore (MARCO 2018). These trawl catch records, and the proximity of the proposed sand borrow areas to the mouth of Delaware Bay, indicate that the proposed project may have at least a temporary impact on horseshoe crab populations within the region. However, the limited population information currently available makes it difficult to quantify any such impact.

If the offshore shoals occur along a concentrated migration route of this species into or out of Delaware Bay, then this could potentially be an important consideration regarding time of year for dredging. Potential presence of this species in commercial numbers on Great Gull Bank was previously identified as a concern when dredging for Assateague in 2002 was being planned. Coordination with NMFS was undertaken to further investigate this topic. Information on horseshoe crab concentration areas and migration corridors on the OCS is limited. However, because the candidate shoals are more than 25 miles from the mouth of Delaware Bay and the entrance into the bay from the OCS is more than 10 miles wide, it was determined to be unlikely that a substantial portion of the horseshoe crab population could occur on Isle of Wight, Weaver, A, or B Shoals when dredging is being conducted. While horseshoe crabs could be destroyed in substantial numbers during dredging, given the stable status of the fishery in the mid-Atlantic region, and the temporary nature of the potential project impacts, it is unlikely that this would have an adverse impact to the horseshoe crab population. If additional information becomes available regarding horseshoe crab population dynamics, it may inform future management decisions, and suggest management practices, such as time-of-year restrictions, to minimize potentially-adverse effects.

<u>References</u>

Atlantic States Marine Fisheries Commission (ASFMC). 2009. Atlantic Coast Diadromous Fish Habitat: A Review of Utilization, Threats, Recommendations for Conservation, and Research Needs. Habitat Management Series #9. January 2009. Greene, K. E., J. L. Zimmerman, R. W. Laney, and J. C. Thomas-Blate.

www.asmfc.org/files/Habitat/HMS9 Diadromous Habitat 2009.pdf

ASFMC. 2018. Species profile for horseshoe crab. Accessed August 2018. http://www.asmfc.org/species/horseshoe-crab

ASFMC. 2018. Species profile for red drum. Accessed August 2018. http://www.asmfc.org/species/red-drum Béguer-Pon, M. et al. Direct observations of American eels migrating across the continental shelf to the Sargasso Sea. Nat. Commun. 6:8705 doi: 10.1038/ncomms9705 (2015). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4918406/

BOEM. 2017. Habitat Mapping and Assessment of Northeast Wind Energy Areas. Sterling, VA: US Department of the Interior, Bureau of Ocean Energy Management. Guida, V., A. Drohan, H. Welch, J. McHenry, D. Johnson, V. Kentner, J. Brink, D. Timmons, E. Estela-Gomez OCS Study BOEM 2017-088. 312 p. https://www.boem.gov/espis/5/5647.pdf

Botton, M.L. 1995. Horseshoe crab. Pages 51-57 In L.E. Dove and R.M. Nyman (eds.). Living Resources of the Delaware Estuary. The Delaware Estuary Program. U.S. Environmental Protection Agency. Philadelphia, Pennsylvania.

NOAA. 2006. Status of Fishery Resources off the Northeastern US. Anadromous Fish. River Herring. NEFSC – Resource Evaluation and Assessment Division. <u>https://www.nefsc.noaa.gov/sos/spsyn/af/herring/</u>

NOAA. 2013. Status of Fishery Resources off the Northeastern US. Anadromous Fish. Striped bass. (Revised 2006, Modified 2013). NEFSC – Resource Evaluation and Assessment Division. <u>https://www.nefsc.noaa.gov/sos/spsyn/af/sbass/</u>

NOAA. 2018. River herring news. Fisheries Service, NE Regional Office. Accessed June 2018. <u>https://www.greateratlantic.fisheries.noaa.gov/nero/hotnews/RiverHerringNews/faq.html</u>

NOAA. 2018. River Herring. GARFO Protected Resources. Managed Species. <u>https://www.greateratlantic.fisheries.noaa.gov/protected/riverherring/</u>

MARCO. 2018. Mid-Atlantic Regional Council on the Ocean (MARCO). Atlantic States Marine Fisheries Commission, North East Area Monitoring and Assessment Program (NEAMAP) data taken from MARCO Mid Atlantic Ocean Data Portal. Accessed August 2018. http://portal.midatlanticocean.org/

Maryland Sea Grant Ecosystem Based Fisheries Management Blue Crab Species Team (MD Sea Grant). 2010. Ecosystem Based Fisheries Management for Chesapeake Bay: Blue Crab Background and Issues Briefs. Maryland Sea Grant Publication Number UM-SG-TS-2010-04. https://www.mdsg.umd.edu/sites/default/files/files/EBFM-Blue-Crab-Briefs.pdf

Odell, J., D. H. Adams, B. Boutin, W. Collier II, A. Deary, L. N. Havel, J. A. Johnson Jr., S. R. Midway, J. Murray, K. Smith, K. M. Wilke, and M. W. Yuen. 2017. Atlantic Sciaenid Habitats: A Review of Utilization, Threats, and Recommendations for Conservation, Management, and Research. Atlantic States Marine Fisheries Commission Habitat Management Series No. 14, Arlington, VA.

Shepherd, G. 1986. Evaluation of the River Herring By-Catch in the Mackerel Fishery. Woods Hole Laboratory Reference Document No. 86-10. NMFS. Northeast Fisheries Center. May 1986. 15 pages plus tables and appendices. www.nefsc.noaa.gov/publications/series/whlrd/whlrd8610.pdf

Shuster, C.N., Jr. 1982. A pictorial review of the natural history and ecology of the horseshoe crab, Limulus polyphemus, with reference to other Limulidae. Pages 1-52 In J. Bonaventura et

al. (eds.). Physiology and biology of horseshoe crabs: Studies on normal and environmentally stressed animals. Alan R. Liss, Inc. New York, New York.

Shuster, C.N., Jr. and and M.L. Botton. 1985. A contribution to the population biology of horseshoe crabs, Limulus polyphemus (L.), in Delaware Bay. Estuaries 8(4):363-372.

University of Maryland Center for Environmental Science, et al. (UMCES). 2011. Stock Assessment of Blue Crab in Chesapeake Bay. Final Assessment Report. Technical Report Series No. TS-614-11. https://hjort.cbl.umces.edu/crabs/Assessment.html

Verreault, Guy & Mingelbier, Marc & Dumont, Pierre. (2012). Spawning migration of American eel Anguilla rostrata from pristine (1843-1872) to contemporary (1963-1990) periods the St Lawrence Estuary, Canada. Journal of Fish Biology. 81. 387-407. 10.1111/j.1095-8649.2012.03366.x.

Other Trust Resources – Miscellaneous Bivalve Shellfish

There are several species of bivalves that are listed as "other trust resources" and/or have managed fisheries. Note that the NMFS checklist of "other trust resources" includes the ambiguously-named "quahog". It is unclear whether this is meant to refer to the ocean quahog (Arctica islandica) or the hard clam (aka "northern quahog"; Mercenaria mercenaria), but we assume the latter given that ocean quahog and the Atlantic surfclam (Spisula solidissima) are managed as a joint fishery. Because ocean quahog may potentially occur within the project vicinity, it is included below.

<u>Ocean Quahog</u> (Arctica islandica) - Generally prefers shelf waters deeper than 80 feet, which is deeper than the borrow sites. The 2017 stock assessment suggests that there is currently a northward trend in overall stock distribution, or at least a declining commercial fishery, in the quahog's range south of New Jersey. The inshore limit of their distribution appears to be limited by the 60° F bottom isotherm in the summer months. Most are found at depths of 80-200 feet. The ocean quahog's habitat distribution in the southern portion of its range, including the project area, is such that the project is expected to have negligible impact on the species' stock. Interesting side note - quahogs are slow-growing, slow-recruiting and there is evidence that these are among the longest-lived bivalves known. Stock assessments suggest that 16% of the individuals in the Delmarva region are over 100 years old, and commonly reach twice that age. One is suspected of having lived to 225 years.

<u>Blue Mussel (Mytilus edulis)</u> - On the east coast of North America, the blue mussel extends from Labrador to Cape Hatteras, and it is common throughout the North Atlantic and Mid-Atlantic Regions. It is most common in the littoral to sublittoral zones of oceanic and polyhaline to mesohaline estuarine environments. Blue mussels are semi-sessile epibenthic bivalves that are anchored to a secure substrate, or attached to other mussels. (Newell, 1989). It therefore seems unlikely that the sandy shoal areas would be significant habitats for the species. A review of occurrence information in OBIS found that while Mytilus spp. in more northern areas extended offshore, their distribution within the Delmarva region was confined to nearshore waters, and none were documented in the offshore waters around the sand shoal areas.

Eastern oyster (Crassostrea virginica), hard clam/Northern quahog (Mercenaria mercenaria), and softshell clam (Mya arenaria) - These three bivalve species are characterized by an inshore, euryhaline estuarine distribution, within the Delmarva/Chesapeake region. As such, they are unlikely to occur in offshore waters and the project is expected to have negligible impact on these species. Oysters are essentially confined entirely within the estuaries and tidal rivers. Hard and soft clams are not expected be present in significant numbers as far offshore as the proposed dredge areas (although a congeneric species, Mercenaria campechiensis, may occur further offshore than M. mercenaria). While some hard clams and softshell clams may occur in the sublittoral and littoral waters near the beach, these species are adapted to withstand episodic turbidity and sedimentation, and the project is therefore not expected to significantly impact individuals that may be present in proximity to the beach nourishment activities.

References:

Eversole, A.G. 1987. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Atlantic) – hard clam. U.S. Fish Wildl. Serv. Biol. Rep. 82(11.75). U.S.

Army Corps of Engineers, TR EL-82-4. 33 pp. https://www.nwrc.usgs.gov/wdb/pub/species_profiles/82_11-075.pdf

Mid-Atlantic Fishery Management Council. 2003. Supplement to the Initial Regulatory Flexibility Analysis for Amendment 13 to the Fishery Management Plan for Atlantic Surf Clams and Ocean Quahogs. http://www.mafmc.org/s/SCOQ_AMENDMENT-13.pdf

Newell, R.I.E. 1989. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (North and Mid-Atlantic)--blue mussel. U.S. Fish. Wildl. Serv. Biol. Rep. 82(11.102). U.S. Army Corps of Engineers, TR EI-82-4. 25 pp. https://www.nwrc.usgs.gov/wdb/pub/species_profiles/82_11-102.pdf

Newell CR, Hidu H. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (North Atlantic) – softshell clam. U.W. Fish Wildl. Serv. Biol. Rep. 82(11.53). U. S. Army Corps of Engineers, 1986. TR EL-82-4. 17pp. https://www.nwrc.usgs.gov/wdb/pub/species_profiles/82_11-053.pdf

Northeast Fisheries Science Center. 2017. 61st Northeast Regional Stock Assessment Workshop (61st SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 17-05; 466 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at http://www.nefsc.noaa.gov/publications/

Sellers MA, Stanley JG. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (North Atlantic) – American oyster. 1984. U.S. Fish Wildl. Serv. FWS/OBS-82/11.23. U.S. Army Corps of Engineers, TR EL-82-4. 15 pp. https://www.nwrc.usgs.gov/wdb/pub/species_profiles/82_11-023.pdf

Appendix D

Coastal Zone Management Act Consistency Determination

THIS PAGE PURPOSEFULLY BLANK



STATE OF DELAWARE DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL DIVISION OF CLIMATE, COASTAL, & ENERGY

DELAWARE COASTAL MANAGEMENT PROGRAM

100 W. WATER STREET, SUITE 7B DOVER, DELAWARE 19904 Phone: (302) 739- 9283 http://de.gov/coastal

January 3, 2019

Andrew May USACE, Baltimore District 2 Hopkins Plaza Baltimore, MD 21201

RE: Delaware Coastal Management Program — Federal Consistency Determination Conditional Concurrence for USACE Baltimore District Atlantic Coast of Maryland (FC 2019.0003)

Dear Mr. May,

The Delaware Coastal Management Program (DCMP) of the Delaware Department of Natural Resources and Environment Control (DNREC) has completed its review of the above referenced project. This letter is in response to the federal consistency determination dated and received November 2, 2018, submitted by you on behalf of the U.S. Army Corps of Engineers (USACE) Baltimore District.

PROPOSED ACTION

The USACE Baltimore District is proposing to continue periodic placement of up to 95,000 cubic yards of beach-compatible sand on the Atlantic coast beach, from the Maryland/Delaware state line to a point not more than 0.3 miles north at Fenwick Island, Delaware. Placement is anticipated to occur approximately every four years as part of the continuing Atlantic Coast of Maryland Project. The purpose of this project is to provide coastal flood and erosion risk management in the vicinity of Ocean City, Maryland, against a one percent annual chance storm event on the Atlantic Ocean.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities located inside or outside of Delaware's federally approved coastal management area that can have reasonably foreseeable effects on coastal uses must be implemented in a manner consistent with the enforceable policies of the DCMP including: wetlands management, beach management, coastal waters management, subaqueous lands and coastal strip management, public lands management, flood hazard areas management, historic and cultural areas management, state owned coastal recreation and conservation, recreation and tourism, air quality management, living resources, pollution prevention, and coastal management coordination.

FEDERAL CONSISTENCY ANALYSIS

The Delaware CZM Program consists of a network of programs administered by several agencies. The DNREC DCMP coordinates the review of consistency determinations with agencies administering the enforceable and advisory policies of the program. The following agencies participated in this review:

DNREC, Division of Parks and Recreation DNREC, Division of Watershed Stewardship, Shoreline and Waterway Management DNREC, Division of Fish and Wildlife DNREC, Division of Air Quality DNREC, Division of Water, Wetlands and Subaqueous Lands

To protect living resources of the State, the DNREC, Division of Fish and Wildlife recommended further coordination with the appropriate agencies if specific nesting birds are documented in the area (see Conditional Concurrence section).

PUBLIC PARTICIPATION

In accordance with 15 CFR §930.42, the public was invited to participate in the review of the Atlantic Coast of Maryland project. Public notice of this proposed action was published in the Delaware State News, The News Journal, and DNREC public notices list service on November 11, 2018. The public was given 20 days to submit comments on the published notice. No public comments were received in response to this notice.

CONDITIONAL CONCURRENCE

Based on its review and pursuant to National Oceanic and Atmospheric Administration regulations (15 CFR 930), the DCMP conditionally concurs that the USACE Atlantic Coast of Maryland Project, as proposed above, is consistent to the maximum extent practicable with the program.

The project area may be utilized by piping plovers (Charadrius melodus). As such, to be consistent with the DCMP's enforceable and advisory policies, the following condition must be satisfied as it relates to the Living Resources policies 5.11.2.1, 5.11.3.1, 5.11.3.2, and 5.11.4.1:

1. If piping plovers nest within the project site, the USACE will need to coordinate and cooperate with DNREC, Division of Fish and Wildlife on the protection and management of this new nesting habitat.

Failure to comply with 15 CFR §930.4 as it relates to the condition above will result in this conditional concurrence being considered an objection. Under this scenario, the applicant is advised that pursuant to 15 CFR 930, subpart H, and within 30 days from receipt of this letter, a request may be submitted to the Secretary of Commerce to override the objection. In order to grant an override request, the Secretary must find that the activity is consistent with the objectives or purposes of the Coastal Management Act, or is necessary in the interest of national security. A copy of the request and supporting information must be sent to the Delaware Coastal Management Program and the federal permitting or licensing agency. The Secretary may collect fees for administering and processing the request.

Thank you for the opportunity to review and respond to the Atlantic Coast of Maryland federal consistency determination. If you have any questions, please contact me or Jennifer Holmes of my staff at (302) 739-9283.

Sincerely

Kimberly B. Cole, Administrator Delaware Coastal Management Program

KBC/jlh

cc: FC File 2019.0003 Robert Ehemann, DNREC DPR Mike Powell, DNREC DWS Audrey DeRose-Wilson, DNREC DFW Katie Esposito, DNREC WSLS Deanna Morozowich Cuccinello, DNREC DAQ

Appendix E

MDE Water Quality Certification

THIS PAGE PURPOSEFULLY BLANK



STATE OF MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION WATER QUALITY CERTIFICATION



for

WETLAND LICENSE 15-WL-0988

WATER QUALITY CERTIFICATION NUMBER: 15-WQC-0988 EFFECTIVE DATE: March 23, 2016 EXPIRATION DATE: Marcy 23, 2026 CERTIFICATION HOLDER: MD Dept of Natural Resources ADDRESS: Attn: Jordan Loran Tawes State Office Building 580 Taylor Avenue, D-3 Annapolis, Maryland 21401 PROJECT LOCATION: Route 50 to Delaware State Line Ocean City, MD 21842 Atlantic Ocean in Worcester

UNDER AUTHORITY OF SECTION 401 OF THE FEDERAL WATER POLLUTION CONTROL ACT AND IT ADMENDMENTS AND IN ACCORDANCE WITH §9-313 THROUGH §9-323, INCLUSIVE, ANNOTATED CODE OF MARYLAND, THE WATER MANAGEMENT ADIMINSTRATION ("ADMINISTRATION") HAS DETERMINED THAT THE FOLLOWING REGULATED ACTIVITY, IN ACCORDANCE WITH THE CONDITIONS OF THIS CERTIFICATION AND THE ATTACHED PLANS APPROVED BY THE ADMINISTRATION'S TIDAL WETLANDS DIVISION DATED November 4, 2015, AND PREPARED BY Jordan Loran AND INCORPORATED HEREIN, WILL NOT VIOLATE MARYLAND'S WATER QUALITY STANDARDS:

To maintenance dredge by hydraulic method, approximately 200,000 cubic yards of sand annually from off source borrow sites in the Atlantic Ocean; and pump sand for placement along the entire 10 mile length and 260 foot wide strand of the Ocean City beach within a maximum of 260 feet channelward of the mean high water with the inclusion of a maintenance dredging provision for the period of ten (10) years as depicted on the plans dated November 14, 2015.

THIS CERTIFICATION DOES NOT RELIEVE THE APPLICANT OF RESPONSIBILITY FOR OBTAINING ANY OTHER APPROVAL, LICENSES OR PERMITS IN ACCORDANCE WITH FEDERAL, STATE, OR LOCAL REQUIREMENTS AND DOES NOT AUTHORIZE COMMENCEMENT OF THE PROPOSED PROJECT. A COPY OF THIS REQUIRED CERTIFICATION HAS BEEN SENT TO THE CORPS OF ENGINEERS.

THE CERTIFICATION HOLDER SHALL COMPLY WITH THE CONDITIONS LISTED BELOW.

SPECIAL CONDITIONS

A. None.

15-WQC-0988 Page 1 of 3

GENERAL CONDITIONS

- A. The proposed project shall be constructed in a manner which will not violate Maryland's Water Quality Standards as set forth in COMAR 26.08.02. The applicant is to notify this department ten (10) days prior to commencing work. Verbal notification is to be followed by written notice within ten (10) days.
- B. The Maryland Department of the Environment has determined that the proposed activities comply with, and will be conducted in a manner consistent with the State's Coastal Zone Management Program, as required by Section 307 of the Federal Coastal Zone Management Act of 1972, as amended.
- C. If the authorized work is not performed by the property owner, all work performed under this Water Quality Certification shall be conducted by a marine contractor registered with the Maryland Department of the Environment in accordance with Chapter 286 of the 2010 Laws of Maryland. A list of registered marine contractors can be obtained by contacting the Department at 410-537-3249 or by e-mail at <u>MDE.MCLB@maryland.gov</u>.
- D. The Certification Holder shall ensure the proposed project shall be constructed in accordance with the authorized plan and any authorized revisions.
- E. The Certification Holder shall ensure that all fill and construction materials not used in the project shall be removed and disposed of in a manner which will prevent their entry into waters of this State.
- F. The Certification Holder shall notify the Water Management Administration, Tidal Wetlands Division, in writing, upon transferring property ownership or responsibility for compliance with these conditions to another person. The new owner/operator shall request, in writing, transfer of this Water Quality Certification to his/her name.
- G. The Certification Holder shall allow representatives of the Maryland Department of the Environment to inspect the authorized activities.
- H. The Certification Holder shall ensure that a copy of this Permit, including the approved plans, is available at the site until the authorized work is complete.
- I. The Certification does not relieve the Certification holder from the responsibility of obtaining all necessary federal, State and local government authorizations.
- J. The Certification Holder shall comply with all Critical Area requirements and obtain all necessary authorizations from local jurisdiction. This Certification does not constitute authorization for disturbance in the 100-foot Critical Area Buffer. "Disturbance" in the Buffer means clearing, grading, construction activities, or removal of any size of tree or vegetation. Any anticipated Buffer disturbance requires prior written approval, before commencement of land disturbing activity, from local jurisdiction in the form of a Buffer Management Plan.

Failure to comply with these conditions shall constitute reason for suspension or revocation of the Water Quality Certification and legal proceedings may be instituted against the Certification Holder in accordance with the Annotated Code of Maryland. In granting this certification, the Department reserves the right to inspect the operations and records regarding this project at anytime.

CERTIFICATION APPROVED

Andrew J. May, Chief Tidal Wetlands Division

May 9, 2016

Tracking Number: 201561754 Agency Interest Number: 150799

Enclosure: Plans dated November 4, 2015 cc: WMA Inspection & Compliance Program
Appendix F

Maryland Board of Public Works Wetlands License

THIS PAGE PURPOSEFULLY BLANK



William Morgante, PWS Wetlands Administrator

· State of Maryland **Board of Public Works**

Wetlands Administration Post Office Box 1510 Annapolis, Maryland 21404 410-260-7791 Fax: 410-974-5240 Toll Free: 1-877-591-7320

Lawrence J. Hogan, Jr. Governor

> Nancy K. Kopp Treasurer

Peter Franchot Comptroller

Sheila C. McDonald Executive Secretary

April 18, 2016

MD Dept. of Natural Resources Attn: Jordan Loran Tawes Building - 580 Taylor Avenue - D-3 Annapolis, MD 21401

Dear Applicant(s):

RE: Wetlands License No. 15-0988, Atlantic Ocean, Worcester Co., MD Enclosed please find the original and one copy of the above-mentioned wetlands license issued to you on March 23, 2016.

After you have read all the conditions of the license, please ensure that the license is signed by the named licensee and the entire original (including plans) is returned to this office within 15 business days in the enclosed envelope. Please retain the copy of the license for your records. This license is valid for a period of three years, as indicated on page three.

Please note that you must notify the MD Department of the Environment, Inspections and Compliance Program, by calling (410) 537-3510 in Baltimore, or (410) 901-4020 in Cambridge, five days prior to commencing work.

This does not constitute your federal authorization. Please contact the U.S. Army Corps of Engineers, Baltimore District, at (410) 962-4500 (Maryland Section Southern) or (410) 962-4252 (MD Section Northern) regarding the status of the federal permit.

If you have any questions concerning any of the terms and conditions of the attached license, please contact me at the address or telephone number shown above.

Sincerely,

William Murger

William Morgante Wetlands Administrator

Enclosure

MDE, Tidal Wetlands Division cc:



William Morgante, PWS Wetlands Administrator

State of Maryland Board of Public Works

Wetlands Administration Post Office Box 1510 Annapolis, Maryland 21404 410-260-7791 Fax: 410-974-5240 Toll Free: 1-877-591-7320 Lawrence J. Hogan, Jr. Governor

> Nancy K. Kopp Treasurer

Peter Franchot Comptroller

Sheila C. McDonald Executive Secretary

WETLANDS LICENSE NO. 15-0988

MARYLAND DEPARTMENT OF NATURAL RESOURCES

The Maryland Board of Public Works authorizes you to:

Maintenance dredge by hydraulic method, approximately 200,000 cubic yards of sand annually from off shore borrow sites in the Atlantic Ocean and pump sand for placement along the entire 10 mile length and 260-foot wide strand of the Ocean City beach within a maximum of 260 feet channelwrd of the mean high water with the inclusion of a maintenance dredging provision for the period of ten years, as depicted on the plans dated November 14, 2015.

Atlantic Ocean along a 10-mile strand of the Ocean City beach in Ocean City, Worcester County, Maryland

Issuance of this Tidal Wetlands License constitutes the State's determination that the authorized activities are consistent with the Maryland Coastal Zone Management Program, as required by Section 307 of the Federal Coastal Zone Management Act of 1972, as amended [16 U.S.C. §1456]. Accordingly, the State concurs with the Licensee's certification in the Joint Permit Application that the project complies with, and will be conducted in a manner consistent with the Maryland CZMP.

THIS LICENSE AUTHORIZES YOU TO PERFORM THE WORK ONLY IF YOU COMPLY WITH THE FOLLOWING SPECIAL CONDITIONS:

The dredger shall have a person at the discharge point in constant radio communication. If a problem is incurred the dredging operation shall be immediately shut down until the reason for the problem can be ascertained and rectified. MDE Compliance shall be notified.

THIS LICENSE AUTHORIZES YOU TO PERFORM THE WORK ONLY IF YOU COMPLY WITH THE FOLLOWING STANDARD CONDITIONS:

1. Licensee shall conduct the authorized work in accordance with the plans and drawings dated November 14, 2015, which are hereby incorporated into this License.

- 2. Until the authorized work is complete, Licensee shall have available at the site a copy of this License including the plans and drawings.
- 3. This License constitutes Maryland's authorization to conduct the authorized work under the State Tidal Wetlands Law. This License does not bestow any other federal, State, or local government authorization.
- 4. Licensee shall notify MDE's Inspection and Compliance Program, in writing, of the project:

- start date at least five business days before beginning work; and - completion date no more than five business days after project completion. *MDE/Inspection and Compliance Program:* **410-537-3510**

- 5. If MDE has issued a Water Quality Certification with respect to the authorized work, Licensee shall comply with all conditions of that certification.
- 6. Licensee shall conduct the authorized work in accordance with Critical Area Commission requirements. This License does not authorize disturbance in the Buffer. If authorized work will disturb the Buffer, Licensee shall have a Commission-approved or locally-approved Buffer Management Plan before beginning the authorized work.

"Buffer" means the 100-foot Critical Area Buffer and any expanded area that is immediately landward of the mean high water line of the tidal waters or is immediately landward of tidal wetlands. The Buffer includes expanded contiguous area if the contiguous area includes steep slopes, hydric soil, or highly erodible soil, or otherwise meets the criteria of COMAR 27.01.09.01.E(7). "Disturbance" means any alteration or change to the land including any amount of clearing. Clearing includes vegetation removal, grading, and construction activity.

- 7. Licensee may not fill, dredge, or otherwise alter or destroy tidal marsh or its vegetation unless this License specifically authorizes the activity.
- 8. Licensee may not stockpile material in State tidal wetlands or State tidal waters of the U.S.
- 9. Licensee shall allow unfettered public use of State wetlands and State tidal waters of the U.S.
- 10. This License does not transfer a property interest of the State.
- 11. Licensee shall file a Miss Utility ticket for the proposed work at least 10 days before beginning work. *Miss Utility*: 800-257-7777
- 12. Licensee shall ensure that structures (for example, piers and piles) removed from the site are taken to an upland disposal facility approved by MDE's Inspection and Compliance Program.

- 13. If the authorized work impacts more than 5,000 square feet or includes 100 or more cubic yards of fill, Licensee shall conduct the authorized work in accordance with a locally-approved Soil Erosion and Sediment Control Plan.
- 14. Unless the property owner performs his or her own authorized work, only a marine contractor registered with the Marine Contractors' Licensing Board may perform the authorized work. The Registered Marine Contractors list may be obtained from MDE. 410-537-3249; MDE.MCLB @maryland.gov
- 15. Licensee shall allow State officials and employees to make inspections at reasonable times and cooperate with those inspections.
- 16. This License is granted only to the Licensee. Licensee may transfer the license only with written approval from the Board of Public Works. If the Board of Public Works approves the transfer, the transferee is subject to all License terms and conditions.
- 17. Licensee shall indemnify, defend, and save harmless the State of Maryland, its officials, officers, and employees from and against any and all liability, suits, claims, and actions of whatever kind, caused by or arising from, the work this License authorizes.
- 18. The Board of Public Works or its Wetlands Administrator may modify, suspend, or revoke this License in its reasonable discretion.
- 19. This License expires March 23, 2026. If the authorized work is not completed by the expiration date, all activity must stop.

By the authority of the Board of Public Works:

Sheila C. McDonald Executive Secretary

Effective Date: March 23, 2016 Approved as: Secretary's Agenda Item 2 Board of Public Works Meeting Date: March 23, 2016

I accept this License and all its conditions.

Date

Licensee (Signature)

Name (Printed)

3

- 13. If the authorized work impacts more than 5,000 square feet or includes 100 or more cubic yards of fill, Licensee shall conduct the authorized work in accordance with a locally-approved Soil Erosion and Sediment Control Plan.
- 14. Unless the property owner performs his or her own authorized work, only a marine contractor registered with the Marine Contractors' Licensing Board may perform the authorized work. The Registered Marine Contractors list may be obtained from MDE. *410-537-3249; MDE.MCLB @maryland.gov*
- 15. Licensee shall allow State officials and employees to make inspections at reasonable times and cooperate with those inspections.
- 16. This License is granted only to the Licensee. Licensee may transfer the license only with written approval from the Board of Public Works. If the Board of Public Works approves the transfer, the transferee is subject to all License terms and conditions.
- 17. Licensee shall indemnify, defend, and save harmless the State of Maryland, its officials, officers, and employees from and against any and all liability, suits, claims, and actions of whatever kind, caused by or arising from, the work this License authorizes.
- 18. The Board of Public Works or its Wetlands Administrator may modify, suspend, or revoke this License in its reasonable discretion.
- 19. This License expires March 23, 2026. If the authorized work is not completed by the expiration date, all activity must stop.

By the authority of the Board of Public Works:

Sheila C. McDonald Executive Secretary

Effective Date: March 23, 2016 Approved as: Secretary's Agenda Item 2 Board of Public Works Meeting Date: March 23, 2016

I accept this License and all its conditions.

4/20/2016

Date

Name (Printed)

Attachment A

Adjacent property owner:

State of Delaware

Department of Natural Resources and Environmental Control

89 Kings Highway

Dove, Delaware 19901



REVISED. 11/86, 6/87, 5/88, 9/95, 5/96, 11/15



REVISED. 11/86, 6/87, 5/88, 9/95, 5/96, 11/15



REVISED: 11/86, 6/87, 5/88, 9/95, 5/96, 11/15



REVISED: 11/86, 6/87, 5/88, 9/95, 5/96, 11/15



Appendix G

DNREC Permits

THIS PAGE PURPOSEFULLY BLANK



STATE OF DELAWARE DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL DIVISION OF WATER 89 KINGS HIGHWAY DOVER, DELAWARE 19901

TELEPHONE (302) 739-9943 FAX (302) 739-6304

The State of Maryland Department of Natural Resources Tawes State Office Building, D-3 580 Taylor Avenue, Annapolis, MD 21401 C/o: Andy Hanas Tax Parcel: N/A – Linear project

WETLANDS & SUBAQUEOUS

LANDS SECTION

Subaqueous Lands Permit: SP-432/18 Water Quality Certification: WQ-432/18 Date of Issuance: 2 / 5 / 2019 Construction Exp. Date: 2/5/2029 Amended Date: N/A

SUBAQUEOUS LANDS PERMIT & WATER QUALITY CERTIFICATION GRANTED TO:

The State of Maryland

FOR THE FOLLOWING ACTIVITIES:

To place approximately 95,000 cubic yards of sand dredged from an offshore borrow source for beach replenishment

LOCATED ON PUBLIC SUBAQUEOUS LANDS:

Along the Atlantic coast shoreline, Between Virginia Avenue and the Delaware/Maryland state line, Fenwick Island, Sussex County, Delaware

Pursuant to the provisions of <u>7 Del. C.</u>, §7205, and the Department's <u>Regulations Governing the</u> <u>Use of Subaqueous Lands</u>, 7 <u>Del. C.</u>, Section 6003, the Department's <u>Regulations Governing the</u> <u>Control of Water Pollution</u> and Section 401 of the <u>Clean Water Act</u>, permission is hereby granted on this <u>5</u>^m day of <u>Fehrmany</u> A.D. 2019, to construct the above-referenced project in accordance with the approved plans (3 sheets), as approved on February 4, 2019; and the application dated October 12, 2018, and received by this Division on October 15, 2018.

WHEREAS, pursuant to the provisions of 7 <u>Del. C.</u>, §7203, the Secretary of the Department of Natural Resources and Environmental Control through his duly authorized representative finds that it is not contrary to the public interest if this project is approved subject to the terms and conditions herein set forth.

WHEREAS, in accordance with Section 401 of the <u>Clean Water Act</u>, 33 U.S.C Section 1341 and 7 <u>Del. C.</u>, §6003, the State of Delaware, by and through the Department of Natural Resources and Environmental Control, certifies that the permitted activity will be conducted in a manner which will not violate the applicable water quality standards of the State of Delaware subject to the terms and conditions of this approval.

Delaware's good nature depends on you!

FORE this Permit/Certification is issued subject to the attached Subaqueous

NOW THEREFORE, this Permit/Certification is issued subject to the attached Subaqueous Lands Permit General Conditions, Water Quality Certification General Conditions, and the following Special Conditions:

SPECIAL CONDITIONS:

- 1. This approval is in accordance with the plans and application submitted to the Department of Natural Resources and Environmental Control, a copy of which is attached hereto and made a part hereof.
- 2. This Permit/Certification is valid for 10 years and shall expire **on February 5, 2029**. The previous Permit/Certification issued to the State of Maryland, SP-234/09 and WQ-233/09 shall be considered null and void.
- 3. This Permit/Certification authorizes the placement of up to 95,000 cubic yards of clean, compatible sand for periodic beach replenishment, as part of the continuing US Army Corps of Engineers Atlantic Coast of Maryland project.
- 4. The purpose of this project is to replenish beach and dune systems, anticipated to occur every four (4) years unless severe storms require emergency replenishments, as needed for shoreline protection from major storm events. Any other use without prior approval shall constitute reason for this Permit/Certification being revoked.
- 5. Piping Plover migration occurs between March 1 through June 15 and August 1 through September 15. If nesting piping plovers occur within the project area, the permittee shall notify the DNREC Division of Fish and Wildlife, Species Conservation and Research Program.
- 6. The permittee shall notify the DNREC Division of Fish and Wildlife, Species Conservation and Research Program within 24 hours of the observation or interaction (including captures, injuries or mortalities) of any State and/or federally listed species.
- 7. No work shall occur within 300 meters of American Oystercatcher nests or broods. The applicant shall coordinate with DNREC, Division of Fish and Wildlife staff.
- 8. Harbor, Gray, Harp and Hooded seals migration typically occurs between November through April. If seals are present on the beach nourishment segment, work shall stop immediately and the DNREC Division of Fish and Wildlife, Species Conservation and Research Program shall be notified immediately for guidance.
- 9. Borrow areas include the Weaver, Isle of Wright and Borrow Area #9, all located in Federallyjurisdictional waters off the coast of Ocean City, Maryland. Sand will be hydraulically-pumped from the borrow area to the shoreline and graded to profile with dozers.
- 10. All pipelines shall be placed in a manner that avoids resulting in navigation hazards.
- 11. There shall be no activities, including staging and stockpiling of equipment, in State-regulated wetlands or subaqueous lands unless authorized by this Permit/Certification and approved plans.
- 12. The work authorized by this permit is subject to the terms and conditions of the appropriate Department of the Army Individual Permit.

IN WITNESS WHEREOF, I, Tyler Brown, the duly authorized representative of Shawn M. Garvin, Secretary of the Department of Natural Resources and Environmental Control, have hereunto set my hand this ______5th _____ day of ______, 2019.

By Tyler Brown, Section Manager the duly authorized representative of the Secretary of the Department of Natural Resources and Environmental Control

Katie Esposito, Environmental Scientist Wetlands and Subaqueous Lands Section



STATE OF DELAWARE DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL DIVISION OF WATER 89 KINGS HIGHWAY DOVER, DELAWARE 19901

TELEPHONE (302) 739-9943 FAX (302) 739-6304

SUBAQUEOUS LANDS PERMIT & WATER QUALITY CERTIFICATION CONTRACTOR'S COMPLETION REPORT POST-CONSTRUCTION

Subaqueous Lands Permit & Water Quality Certification Number: SP-432/18; WQ-432/18

Name: State of Maryland

WETLANDS & SUBAQUEOUS

LANDS SECTION

Project Location: Atlantic coast shoreline, Fenwick Island, Sussex County, Delaware **Parcel #:** N/A – Linear project

I hereby certify that I have constructed the project authorized by the above-referenced Subaqueous Lands Permit in accordance with the approved plans for the project.

Printed Name of Contractor

Name of Company

Contractor's Signature

Date

Telephone Number

Upon completion of construction, this form shall be completed, signed by the contractor, and mailed to the Wetlands and Subaqueous Lands Section at:

DNREC Wetlands and Subaqueous Lands Section 89 Kings Highway Dover, Delaware 19901

Or faxed to the Wetlands and Subaqueous Lands Section at: 302-739-6304

This form must be received by the Department within ten days of the date that construction is completed.

For official use only

Compliance inspection date_____ Built in accordance with plans \Box Yes \Box No

Scientist: _____

Mail to:

DNREC – Wetlands and Subaqueous Lands Section 89 Kings Highway Dover, DE 19901



WETLANDS AND SUBAQUEOUS LANDS SECTION

PERMIT NO.: SP-432/18; WQ-432/18

CONSTRUCTION EXPIRATION DATE: 2/5/2029

TO CONDUCT THE FOLLOWING ACTIVITIES:

To place approximately 95,000 cubic yards of sand dredged from an offshore borrow source for beach replenishment LOCATED ON PUBLIC SUBAQUEOUS LANDS:

Along the Atlantic coast shoreline, Between Virginia Avenue and the Delaware/Maryland state line, Fenwick Island, Sussex County, Delaware

ISSUED TO: State of Maryland

LOCATION OF WORK: Same as above

DISPLAY THIS CERTIFICATE IN A HIGHLY VISIBLE LOCATION ON THE JOB SITE.

Authorized by:

Subaqueous Lands Permit General Conditions Page 1 of 2



STATE OF DELAWARE DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL DIVISION OF WATER 89 KINGS HIGHWAY DOVER, DELAWARE 19901

GENERAL CONDITIONS

- 1. The permittee and contractor shall at all times comply with all applicable laws and regulations of the Department of Natural Resources and Environmental Control.
- 2. The activities authorized herein shall be undertaken in accordance with the Permit conditions, the final stamped and approved plans, and with the information provided in the Permit application.
- 3. A copy of this Permit and the stamped approved plans shall be available on-site during all phases of construction activity.
- 4. The conditions contained herein shall be incorporated into any and all construction contracts associated with the construction authorized herein. The permittee and contractor are responsible to ensure that the workers executing the activities authorized by this Permit have full knowledge of, and abide by, the terms and conditions of this Permit.
- 5. No portion of the structure shall be constructed using creosote treated lumber.
- 6. No portion of the structure(s) authorized by this Permit shall exceed the dimensions for that structure identified on Page One of this Permit.
- 7. The activities authorized herein shall be conducted so as not to violate the State of Delaware's <u>Surface Water Quality Standards</u> in effect at the date of Permit authorization.
- 8. The issuance of this Permit does not constitute approval for any activities that may be required by any other local, state or federal government agency.
- 9. The issuance of this Permit does not imply approval of any other part, phase, or portion of any overall project the permittee may be contemplating.
- 10. This Permit authorizes only the activities described herein. Modifications to the project may require a supplemental approval from this office prior to the initiation of construction. A determination of the need for a supplemental approval will be made by this office pursuant to the permittee submitting written notification and revised plans indicating project changes. Failure to contact the Department prior to executing changes to the project shall constitute reason for this Permit being revoked.
- 11. The Contractors Completion Report shall be filled out and returned within 10 days of completion of the authorized work.
- 12. The permittee shall protect and hold the State of Delaware harmless from any loss, cost or damage resulting from the activities authorized herein.
- 13. Representatives of the Department of Natural Resources and Environmental Control shall be allowed to access the property to inspect all work during any phase of the construction and may conduct pre and post-construction inspections, collect any samples or conduct any tests that are deemed necessary.
- 14. The permittee shall maintain all authorized structures and activities in a good and safe condition.

Delaware's good nature depends on you!

- 15. All construction materials, waste or debris associated with this activity shall be properly disposed of and contained at all times to prevent its entry into waters or wetlands. Construction materials shall not be stockpiled in subaqueous lands or wetlands.
- 16. The permittee and contractor shall employ measures during construction to prevent spills of fuels, lubricants or other hazardous substances. In the event of a spill, the permittee and contractor shall make every effort to stop the leak and contain the spill, and shall immediately contact the Hazardous Spill Response Team (HAZMAT) at 1-800-662-8802 and this office at (302) 739-9943. The permittee and contractor are responsible to comply with all directives to contain and clean up the spilled material(s) as stipulated by the HAZMAT team, and to restore the site as may be required by this office.
- 17. No construction shall occur after the construction expiration date identified on Page One of this Permit. The permittee may file a construction expiration date extension request of up to one (1) year if necessary to complete the authorized work. Such requests must be received by the Department at least thirty (30) days prior to the construction expiration date.
- 18. Any actions, operations or installations which are found by the Department to be contrary to the public interest may constitute reason for the discontinuance and/or removal of said action, operation or installation. Removal and restoration shall be at the expense of the permittee and/or upland property owner within thirty (30) days of receipt of written notice of revocation and demand for removal.
- 19. Disturbance of subaqueous lands or wetlands adjacent to the authorized structures or activities is prohibited unless specifically addressed in the special conditions of this Permit. Disturbance of subaqueous lands or wetlands in the path of construction activities shall be minimized. Any temporarily impacted subaqueous lands or wetlands or wetlands shall be returned to pre-disturbance elevations and conditions.
- 20. This Permit is personal and may not be transferred without the prior written consent of the Department. Prior to the transfer of the adjacent upland property, the permittee shall obtain the written consent of the Department to transfer the Permit to the new upland property owner. Failure to obtain such written consent may result in the revocation of this Permit and the removal of all structures authorized by this Permit at the expense of the permittee.
- 21. The permittee shall notify the Wetlands and Subaqueous Lands Section prior to the commencement of the work authorized by this Permit.
- 22. No portion of the structure shall be installed within ten (10) feet of the adjacent property lines.
- 23. No portion of the structure shall exceed 20% of the width of the water body as measured at mean low water.
- 24. The structures authorized by this Permit shall be constructed and maintained in a manner so as to assure water access to adjacent properties.
- 25. This Permit does not authorize any future repairs below the water line, or any additions or modifications to the structures authorized herein. Such activities require separate written authorization from the Department of Natural Resources and Environmental Control.
- 26. Failure to comply with any of the terms or conditions of this Permit may result in enforcement action which could include the revocation of this Permit and subsequent restoration of the site to preconstruction conditions.







Appendix H

National Historic Preservation Act and Cultural Resources

THIS PAGE PURPOSEFULLY BLANK



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

July 3, 2018

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 Atlantic Coast Shoreline Protection Project. The goal of the project is to evaluate the impacts of dredging two offshore shoals on the Outer Continental Shelf (OCS) to provide sand for beach nourishment through the year 2044. The project was initially authorized by Congress under Section 501(a) of the Water Resources Development Act of 1986, and subsequently modified in 1989 under Public Law 101-101, Section 104. Thus far, two offshore shoals located in Federal waters have been recommended: Weaver Shoal and Isle of Wight Shoal, each delineated into sub-areas based on sand suitability (Enclosure 1). The shoals proposed for dredging are approximately 0.6 and 0.4 square miles in size, respectively. Both shoals are located approximately 7.2 miles from the shore and are situated at a base water depth of 60 feet.

The project's area of potential effect is defined as the areas of each shoal being dredged for suitable sand material. It is important to note that dredging would be conducted uniformly over a wide area and go no deeper than ambient depths of the adjacent sea floor. According to an *Inventory and Analysis of Archaeological Site Occurrence on the Atlantic Outer Continental Shelf* (MMS 2014), the sea floor contains a high sensitivity for prehistoric resources. However, dredging activities will be confined to the more recently developed shoals, in a high-dynamic environment that has no likelihood of containing intact prehistoric resources or paleolandforms.

A desktop examination of the project areas was completed using the National Oceanic and Atmospheric Administration's Automated Wreck and Obstruction Information System (AWOIS) and their Historical Map and Chart Collection. The AWOIS indicated that no submerged resources have been recorded within or on the shoals. The nearest obstructions occur 6,000 feet west of Weaver Shoal and 12,000 feet west of Isle of Wight Shoal. No shipwrecks were documented on the shoals during a precursory review of maps and charts dated between 1852 and 2017. Neither of the shoals have been surveyed for submerged archaeological resources.

Given the information described in this letter, we have determined that a Phase I archaeological investigation for submerged resources is warranted to identify historic properties within the Weaver and Isle of Wight Shoals. This investigation will be conducted in accordance with the Bureau of Ocean Energy Management's *Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR 585*.

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 consultation and fact-finding meetings, and we will fully consider any information you wish to provide.

Thank you for your assistance with the Atlantic Coast Shoreline Protection 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

Absentee Shawnee Tribe of Oklahoma

Ms. Edwina Butler-Wolfe Governor, Absentee Shawnee Tribe of Oklahoma 2025 South Gordon Cooper Drive Shawnee, OK 74801

Cayuga Nation of New York

Chief Clint Halftown Cayuga Nation of New York P.O. Box 803 Seneca Falls, NY 13148

Chickahominy Indian Tribe

Chief Stephen Adkins Chickahominy Indian Tribe 7240 Adkins Road Charles City, VA 23030

Chickahominy Tribe Eastern Division

Gerald A. Stewart Chickahominy Tribe Eastern Division 1191 Indian Hill Lane Providence Forge, VA 23140

Delaware Nation

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

Delaware Tribe of Indians

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

Chief Chet Brooks Delaware Tribe of Oklahoma 5100 Tuxedo Boulevard Bartlesville, OK 74006-2838

Eastern Shawnee Tribe of Oklahoma

Chief Glenna Wallace Eastern Shawnee Tribe of Oklahoma P.O. Box 350 Seneca, MO 64865

Monacan Indian Nation

Chief Dean Branham Monacan Indian Nation 104 Walnut Place Lynchburg, VA 24502

Nansemond Indian Tribe

Chief Lee Lockamy Nansemond Indian Tribe 1001 Pembroke Lane Suffolk, VA 23434

Oneida Indian Nation

Chief Arthur Halbritter Oneida Indian Nation 5218 Patrick Road Verona, NY 13478

Oneida Tribe of Indians of Wisconsin

Corina Williams Tribal Historic Preservation Officer Oneida Tribe of Indians of Wisconsin P.O. Box 365 Oneida, WI 54155-0365

Onondaga Nation

Tony Gonyea Faithkeeper, Onondaga Nation Hemlock Road, 11a Box 319-B Via Nedrow, NY 13120

Pamunkey Indian Tribe

Chief Robert Gray Pamunkey Indian Tribe 1054 Pocahontas Trail King William, VA 23086

Rappahannock Indian Tribe

Chief G. Anne Richardson Rappahannock Indian Tribe 5036 Indian Neck Road Indian Neck, VA 23148

Seneca Cayuga Nation Tribe of Oklahoma

Chief William L. Fisher Seneca Cayuga Nation Tribe of Oklahoma P.O. Box 1283 Miami, OK 74355

Seneca Nation of Indians

Todd Gates President, Seneca Nation of Indians 90 O:hi'yoh Way Salamanca, NY 14779

Shawnee Tribe

Ron Sparkman Chairman, Shawnee Tribe 29 South 69a Highway Miami, OK 74354 St. Regis Mohawk Tribe

Chief Eric Thompson St. Regis Mohawk Tribe 412 State Route 37 Akwesasne, NY 13655

Stockbridge-Munsee Community of Mohican Indians

Shannon Holsey President, Stockbridge-Munsee Community of Mohican Indians P.O. Box 70 Bowler, WI 54416

Tonawanda Band of Seneca Indians

Chief Darwin Hill Tonawanda Band of Seneca Indians 7027 Meadville Road Basom, NY 14013

Tuscarora Nation

Chief Leo Henry Tuscarora Nation 2006 Mount Hope Road Lewiston, NY 14092

Upper Mattaponi Indian Tribe

Chief W. Frank Adams Upper Mattaponi Indian Tribe 5932 East River Road King William, VA 23086 MARYLAND DEPARTMENT OF



Larry Hogan, Governor Boyd Rutherford, Lt. Governor Robert S. McCord, Acting Secretary

December 4, 2018

Ethan Bean U.S. Army Corps of Engineers Archeologist Planning Division 2 Hopkins Plaza Baltimore, MD 21201

Re: Atlantic Coast Shoreline Protection Project - Maryland

Dear Mr. Bean:

Thank you for your recent communication regarding the Atlantic Coast Shoreline Protection Project (the Project). The Maryland Historical Trust (MHT) understands the U.S. Army Corps of Engineers (the Corps) is considering various approaches to meet the reasonable and good faith identification standard related to Project elements including transport of sediments via placement of temporary 36-in. pipelines throughout a broad area on Maryland's Atlantic bottomlands.

MHT staff have reviewed information in our library and program records which shows archeological surveys have not been conducted in the Maryland portion of the project area which meet acceptable standards for the identification of historic properties. MHT recommends the Corps conduct work to identify historic properties in Maryland where activities with potential to cause adverse effects to historic properties are expected to occur. These activities include pipeline installation, operation, removal, and ancillary activities such as anchor drops, drags, pulls, and spud placement related to use of construction vessels and barges.

MHT understands the Corps does not plan to designate specific pipeline corridors which will be reused throughout the life of the project – until 2044, but will site these temporary pipelines on an as needed basis over a broad area of hard bottom. Four-to-five temporary pipeline placements are expected per renourishment episode with each lasting less than two weeks and potentially impacting an area measuring up to 2000 ft. x 100 ft. Therefore, MHT recommends that targeted pre-installation side scan sonar surveys are integrated into the overall project workflow to identify objects and areas for avoidance which represent or contain potential submerged archeological historic properties.

Data collection and processing could be undertaken by a qualified survey contractor with data transferred to a Corps staff archeologist for review. MHT is willing to provide training and technical assistance to the assigned Corps staff archeologist through ongoing coordination as needed.

If the Corps does not have a staff archeologist available and/or the hardware and programs to review the data, MHT recommends an archeologist with appropriate training and experience is contracted to review the data and provide recommendations to the Corps for consideration prior to each pipeline placement.

In addition, MHT recommends the project workflow also include recording of pipeline locations after installation and immediately before retrieval to track movement under various weather conditions to help inform the Corps regarding adjustments to the size of the Area of Potential Effects for this portion of the Project.

Recommendations for defining the survey area and the Area Potential Effects, and details related to side scan sonar survey for temporary pipeline placement for the Project are attached.

Thank you for providing this opportunity to comment. We look forward to further coordination related to the Atlantic Coast Shoreline Protection Project to complete Section 106 Consultation.

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

Sincerely, Troy J. Nowak Asst. Underwater Archeologist Atts.: (2 pages)

cc: Daniel Bierly, P.E., Chief, Civil Project Development Branch, U.S. Army Corps of Engineers

The following recommendations are provided assuming the Corps will assign a staff archeologist to review the side scan sonar data and identify objects and areas for avoidance which represent or contain potential submerged archeological historic properties prior to placement of temporary sediment transport pipelines.

Should the Corps decide to hire an archeological contractor to undertake this work, MHT would be happy to provide comments on draft scopes of work or similar documents.

Temporary Pipeline Placement and the Area of Potential Effects (APE)

Survey areas associated with temporary pipeline placement should encompass the associated APE which includes all areas where bottom impacts are expected, including:

- Dredging
- Anchor drops, drags, and pulls
- Spud placement
- Pipeline placement
- Pipeline movement and scouring resulting from use and typical weather/sea conditions including storm activity for the period it will remain in place

Side Scan Sonar Survey

A high-resolution side scan sonar should be employed which can detect small and partially buried objects.

Instrument Specifications

- Frequency no less than 600 kHz
- Sensors Integrated heading, pitch, roll and depth

Settings and parameters

- Range 15 to 30 m (50 to 100 ft.) per channel
- Altitude 1.5 to 3 m (5 to 10 ft.) / 10% range

Navigation

A hydrographic survey program should be used to plan, direct, and record navigation and data should be collected along pre-planned transects parallel to the pipeline centerline and spaced to ensure 100% coverage. The number of transects should be determined on a case-by-case basis considering the sonar's practical detection range which is largely determined by frequency, settings, and altitude.

GPS Accuracy - +/- 1 m or better Vessel Speed – Should not exceed 5 kn (5.5 mph)

December 4, 2018 Atlantic Coast Shoreline Protection Project – Maryland Maryland Historical Trust Recommendations Attachment

Data Presentation and Transfer

The contractor should provide a cover letter which describes survey methods, procedures, and general observations including:

- Specifications for navigation, GPS and side scan sonar systems
- Frequency
- Range
- Altitude
- Vessel speed
- Transect spacing
- Weather and sea conditions
- Assessment of data quality

Raw data should be provided digitally in its native format (*.jsf, *.mstl, etc.) and as *.xtf files.

Data should be post-processed including bottom-tracking, position-correction, and signal processing to produce high resolution individual Geo Images for each transect. These should be provided as GeoTIFF files with a spatial resolution of 5 cm per pixel.


June 21, 2019

Matthew M. Grunewald, RPA District Archeologist USACE, Planning Division Mobile District CESAM-PD-EI 109 St. Joseph Street PO Box 2288 Mobile, Alabama 36608

Re: Management Summary

Cultural Resources Investigation for the Atlantic Coast Shoreline Protection Project, Outer Continental Shelf, Isle of Wight and Weaver Shoals, Offshore Ocean City, Worcester County, Maryland

Contract W91278-15-D-0046, Task Order W912PP19F0011

Dear Mr. Grunewald,

SEARCH recently completed the Phase I maritime remote-sensing survey for the referenced project. This work was conducted for the US Army Corps of Engineers (USACE), Baltimore District which is proposing to provide beach nourishment to Ocean City, Maryland through the year 2044 to reduce the risk of coastal storm damage. USACE is now evaluating the potential effects that may result from borrowing sand from two shoals, Isle of Wight and Weaver Shoals, in federal waters. The USACE Mobile District is providing technical expertise and contract oversight to the Baltimore District for this endeavor. The USACE contracted SEARCH of Pensacola, Florida, to conduct the remote-sensing investigation to identify the location of any shipwrecks or other potentially significant submerged cultural resources which may be adversely affected by dredging activities (**Figure 1**).

SEARCH completed remote-sensing operations on June 1, 2019. The survey was conducted on favorable weather days between May 30 and June 1, 2019, and followed methodology guidelines established by BOEM and the USACE Performance Work Statement. Equipment for the work included a differentially corrected global positioning system, a cesium marine magnetometer, a side-scan sonar, and subbottom profiler. Survey line spacing was maintained at 30-meter (m) (100-foot [ft]) intervals. At remote-sensing target locations possibly indicative of potential submerged cultural resources, additional perpendicular lines were run at 7.6-m (25-ft) intervals to delineate the boundaries of the possible resource.

SEARCH has completed initial data processing and analysis, consisting of magnetic data contouring and review of raw side-scan sonar and sub-bottom profiler imagery. SEARCH identified no remote-sensing targets within the Area of Potential Effects (APE) that are indicative of potential submerged cultural resources. SEARCH recommends cultural resources clearance for the APE, as the remote-sensing data and archaeological analyses do not reveal the presence of potential submerged cultural resources. SEARCH will continue analysis of remote-sensing data to add and finalize recommendations and prepare a more in-depth draft report for your review. Should you have any questions or comments at this time, please do not hesitate to contact me or Jeff Enright (Project Manager).

Sincerely,

Joseph Grinnan, MA, RPA Maritime Principal Investigator





Figure 1. Project Location Map.

Pipeline Engineering Background Information for Cultural Resources Impacts Assessment

Typical practices involved in deployment and retrieval of the pipeline (subline) through which sand is pumped between the dredge and the beach are useful for more detailed consideration of potential impacts to any cultural/historic resources that could be present. For the Ocean City project, the contractor chooses where the sublines are placed. Before pumping operations are commenced, the contractor must first place a subline. The subline runs perpendicular to the shore out to a depth where the dredge can safely navigate. Typical dredges on past projects have required a depth anywhere between 25 and 30 feet. This corresponds to 2,000 to 3,000 feet offshore. The subline is composed of welded steel pipe, typically with a diameter between 30 and 36 inches. Lengths of pipes vary, but are typically between 350 and 750 feet long. The contractor employs a special barge to place the pipe. The contractor caps the first pipe on either end and fills it with air so it floats. The barge maneuvers the pipe so that the landward end is close enough to the shore so that onshore equipment can grab it and pull it onto the berm and secure it. Once the first pipe is placed, the workers on the barge successively weld additional sections of pipe until the desired length is reached. Throughout the operation, the subline is still filled with air and floats on the surface of the water. At the end, the contractor attaches a floating flexible pipe with a buoy. The flexible pipe will be connected to the dredge during pumpout operations. Once the contractor has welded all the pipe lengths and attached the flexible pipe, the subline is filled with water so that it gently sinks to the seafloor. Once placed, the subline filled with water does not move around on the seafloor. At the end of the project, the contractor blows the water out of the subline so that it floats again, and disassembles the pipe.

Appendix I

Comments on the Draft EA

THIS PAGE PURPOSEFULLY BLANK

TEL: 410-632-1194 FAX: 410-632-3131 E-MAIL: admin@co.worcester.md.us WEB: www.co.worcester.md.us

> COMMISSIONERS DIANA PURNELL, PRESIDENT JOSEPH M. MITRECIC, VICE PRESIDENT ANTHONY W. BERTINO, JR. MADISON J. BUNTING, JR. JAMES C, CHURCH THEODORE J. ELDER JOSHUA C. NORDSTROM

OFFICE OF THE COUNTY COMMISSIONERS

Morcester County

GOVERNMENT CENTER ONE WEST MARKET STREET + ROOM 1103 SNOW HILL, MARYLAND 21863-1195

September 5, 2019

U.S. Army Corps of Engineers Attn: Christopher Spaur Planning Division, 10th Floor 2 Hopkins Plaza Baltimore, Maryland 21201

RE: Opposition to Dredging of Shoal B (Bass Grounds) in Conjunction with the Atlantic Coast of Maryland Shoreline Protection Project

Dear Mr. Spaur:

Please be advised that at our meeting of September 3, 2019, the Worcester County Commissioners reviewed the public notice entitled "Atlantic Coast of Maryland Shoreline Protection Project Draft Findings of No Significant Impacts and Environmental Assessment: Offshore Shoals in Federal Waters as Sand Sources" for proposed dredging of offshore shoals in federal waters to obtain sand for the Atlantic Coast of Maryland Shoreline Protection Project. While we sincerely appreciate and support your efforts to move forward with the Atlantic Coast of Maryland Shoreline Protection Project, we strongly request that you avoid dredging in the vicinity of Shoal B (also known as Bass Grounds). We are concerned that such dredging may have a negative effect on the sportfishing industry in Worcester County upon which our local economy is heavily dependent.

Thank you for your consideration of our request. If you should have any questions or concerns regarding this matter, please feel free to contact either me or Harold L. Higgins, Chief Administrative Officer, at this office.

Sincerely,

President

DP/KS:dd

cf: Daniel M. Bierly, P.E., Chief, Civil Project Development Branch, USACE Mayor and Council of Ocean City Maryland Department of Natural Resources Bob Mitchell, Environmental Programs Director John Tustin, Public Works Director CC101/ - Dredging Offshore Shoals-2019.wpd HAROLD L. HIGGINS, CPA CHIEF ADMINISTRATIVE OFFICER MAUREEN F.L. HOWARTH COUNTY ATTORNEY

Citizens and Government Working Together



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION III 1650 Arch Street Philadelphia, Pennsylvania 19103-2029

September 17, 2019

Mr. Christopher Spaur U.S. Army Corps of Engineers Planning Division, 10th Floor 2 Hopkins Plaza Baltimore, MD 21201

RE: Atlantic Coast of Maryland, Shoreline Protection Project; Ocean City, Maryland

Dear Mr. Spaur:

Thank you for the opportunity to review the Atlantic Coast of Maryland, Shoreline Protection Project Offshore Shoals in Federal Waters as Sand Sources for Ocean City Draft Supplemental Environmental Assessment (SEA or Study), dated August 2019.

The Atlantic Coast of Maryland Shoreline Protection Project (Atlantic Coast Project) places sand on the beach of Ocean City to reduce risk of coastal storm damage. The U.S. Army Corps of Engineers, Baltimore District (USACE), in partnership with the Maryland Department of Natural Resources (MD DNR), is proposing to dredge offshore shoals in federal waters to obtain sand for the Atlantic Coast Project through the year 2044. The U.S. Department of Interior, Bureau of Ocean Energy Management (BOEM), is a cooperating agency with USACE in preparation of this SEA for the proposed action. The SEA updates the findings of the 2008 Environmental Impact Statement (EIS) that evaluated four offshore shoals in federal waters as sources of sand for the Atlantic Coast Project. The Atlantic Coast Project has not yet utilized any of these offshore shoals as borrow sources because sufficient sand was previously available in state waters; however, sand sources in state waters are no longer available.

USEPA has reviewed the SEA in accordance with the National Environmental Policy Act (NEPA) of 1969, Section 309 of the Clean Air Act and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508). Based our review, we have the following comments for your consideration in the development of the Final SEA:

The SEA indicates that the next sand placement is anticipated by the year 2022 and the project will be conducted approximately every 4 years. Weaver Shoal is recommended as the sand source for the next nourishment cycle and up to two additional cycles; thereafter, dredging sand from the four offshore shoals would be based on reassessment of shoal conditions. As indicated in the SEA, additional data regarding environmental conditions and impacts have become available since the 2008 EIS, along with revised information such updated anticipated dredging volumes. As the life of the project is anticipated through 2044, it is appropriate to continue to review and re-evaluate impacts periodically based on the best-available information.

We recommend that prior to selection of the next sand source, updated data and impacts be carefully evaluated, outreach be conducted to commercial and recreational fisherman, updated coordination with tribes and appropriate agencies such as National Marine Fisheries Service (NMFS) be conducted, and the findings documented in a future EA or EIS.

As this SEA is an update to the 2008 EIS and references the document, it would be helpful to include the EIS document on the project website or otherwise readily available for public review.

Alternatives

The SEA focuses on dredging the four candidate shoals identified in the 2008 EIS. The no action alternative identified would be dredging some combination of Isle of Wight Shoal, Weaver Shoal, and Shoal A for the next beach nourishment cycle consistent with the EIS. Given technological advances and evolving science, it is appropriate to periodically re-evaluate alternatives and assess updated environmental impacts, costs, and logistical constraints. Therefore, we recommend that the USACE and BOEM revisit potential alternatives that would avoid impacts to shoals, including additional non-shoal sand sources that may not have been previously considered or were dismissed (including dredge disposal sites such as Norfolk Ocean Disposal and Dam Neck Ocean Disposal Site), heavily impacted or created shoals (e.g. Assateague Long-Term Sand Management Project ebb shoal), modification of dredging methods, enhanced stabilization methods, modifications to the beach, or other alternatives. While the USACE has determined that it is not appropriate to revisit alternative sand sources at this time, we recommend that alternatives be revisited in the near future and certainly following the next dredging cycle.

Environmental impacts and minimization

As noted in Annex B, Supplemental Information, the Mid Atlantic Fishery Management Council (MAFMC) recommended avoiding dredging offshore shoals as sources of sand for beach nourishment in 2015. Four of the MAFMC policies on Beach Nourishment are listed in Annex B and the time of year restriction was discussed in the EA. The SEA would benefit from a discussion of how the 10 current policies were considered or incorporated into the plan to reduce impacts.

The EA identifies some specific information that would further inform and refine the environmental impacts and appropriate minimization measures. As noted, horseshoe crabs could potentially occur in high densities on offshore shoals, but current information regarding their distribution in the Outer Continental Shelf is limited. We agree that data regarding horseshoe crab congregation areas and migration corridors would be helpful for this project and similar projects to inform avoidance measures.

The EA indicates that bathymetric surveys of the offshore shoals would be conducted before and after each dredging cycle and results used to re-assess the dredging constraints and plan future dredging. This monitoring data can be used to inform the questions of whether or not dredging should be focused in specific areas, such as the leading edge of the shoal (and avoiding the trailing edge) and whether impacts dredging should be repeated in a single area in back-to-back cycles or if additional time should be allowed for the shoal to recover. It is critical to continue to track and evaluate the geomorphic integrity and evolution of the shoal over time. However, to determine the biological impacts, including recovery time and extent, biological monitoring should also be conducted, and additional studies of dredging impacts should be reviewed as they become available.

Approximately 500 acres of bottom habitat could be impacted during each dredging cycle. The EA states "Within several years following dredging, benthos in the borrow areas and fishing opportunities would be expected to largely recover to pre-dredge conditions." The SEA would benefit from a more detailed discussion of how this was determined, including the expected trajectory of recovery of benthos and other fauna and a discussion of relevant biological studies that have been conducted in the North Atlantic and Mid-Atlantic shoal complexes since the 2008 assessment (such as Slacum et al 2010). Much is yet unknown regarding both the macro- and microscale factors that contribute to habitat value for a variety of species; as other studies of biota associated with shoals in the region become available, it is recommended they be assessed and incorporated into future NEPA documents.

As stated in the SEA, acceleration in the rate of sea-level rise would be expected to gradually increase shoreline erosion rate and increase sand needs. The SEA indicates that the effect is unlikely over the authorized project life to cause the actual need to exceed the maximum estimated need. While the SEA would benefit from information on how this was determined (e.g. models used), an analysis of sand needs with the potential occurrence of more frequent severe storms may be appropriate.

Generally, it appears that fall dredging will have the most significant commercial and recreation fishing impacts. However, a time of year restriction to reduce impact was not incorporated as it was considered to be of unclear environmental benefit at this time. As additional information about faunal use becomes clearer, time of year restrictions, measures to incentivize species to leave the area, prevention of entrainment, or other measures to limit impacts to fish, sea turtles, or other fauna should be evaluated.

Coordination/Public Involvement

Section 7.0 indicates that information on the project was provided to Native American Tribes and Nations. Annex B includes a letter from Chief Lee Lockamy of the Nansemond Nation stating that he would like to consult. The SEA should include documentation of the status of the consultation.

Cumulative impacts

While cumulative effects were discussed, we recommend that the cumulative impacts analysis (CI) be further updated and expanded to analyze the impacts from continued and planned use of shoals as borrow areas for existing and proposed projects along the Atlantic Ocean and Gulf of Mexico. We suggest the CI consider the impacts that have occurred since the 2008 assessment and the potential to impact a variety of habitat and ecological services that may also vary widely from shoal to shoal.

EPA appreciates being given the opportunity to review the EA. We would be pleased to discuss our comments at your convenience. Please feel free to contact Carrie Traver at 215-814-2772 or traver.carrie@epa.gov.

Sincerely,

Bulle Olen for

Barbara Rudnick NEPA Program Coordinator



Maryland DEPARTMENT OF PLANNING

October 1, 2019

Mr. Christopher Spaur, Planning Division U.S. Army Corps of Engineers, Baltimore District 2 Hopkins Plaza 10th Floor Baltimore, MD 21201

STATE CLEARINGHOUSE RECOMMENDATION

State Application Identifier:MD20190821-0708Applicant:U.S. Army Corps of Engineers, Baltimore District

Project Description: Draft Environmental Assessment and Finding of No Significant Impact: Proposed Dredging of Offshore Shoals, Approximately 1,070,000 Cubic Yards of Sand in Federal Waters for the Atlantic Coast of Maryland Shoreline Protection Project, Including Various Alternatives and a No-Action Alternative (MD20070629-0714)

Project Location:Worcester County--Town of Ocean CityRecommendation:Consistent with Qualifying Comments

Dear Mr. Spaur:

In accordance with Presidential Executive Order 12372 and Code of Maryland Regulation 34.02.02.04-.07, the State Clearinghouse has coordinated the intergovernmental review of the referenced project. This letter constitutes the State process review and recommendation.

Review comments were requested from the <u>Maryland Departments of General Services</u>, <u>Natural Resources</u>, <u>Transportation</u>, and the Environment; Worcester County; the Town of Ocean City; and the Maryland Department of <u>Planning</u>, including the Maryland Historical Trust. The Maryland Department of Transportation and the Town of Ocean City did not provide comments.

The Maryland Department of General Services; Worcester County; and the Maryland Department of Planning, including the Maryland Historical Trust found this project to be consistent with their plans, programs, and objectives.

The Maryland Historical Trust has determined that the project will have "no effect" on historic properties and that the federal and/or State historic preservation requirements have been met.

The Maryland Department of Natural Resources found this project to be generally consistent with their plans, programs, and objectives, but included the following qualifying comments, "Time-of-year restrictions on dredging offer additional protection for offshore habitat and endangered species. [Applicant] may want to reconsider this moving forward."

Mr. Christopher Spaur October 1, 2019 Page 2 State Application Identifier: **MD20190821-0708**

The Maryland Department of the Environment (MDE) found this project to be generally consistent with their plans, programs, and objectives, but included certain qualifying comments summarized below.

- 1. "If the applicant suspects that asbestos is present in any portion of the structure that will be renovated/demolished, then the applicant should contact the Community Environmental Services Program at (410) 537-3215 to learn about the State's requirements.
- 2. Construction, renovation and/or demolition of buildings and roadways must be performed in conformance with State regulations pertaining to 'Particulate Matter from Materials Handling and Construction' requiring that during any construction and/or demolition work, reasonable precaution must be taken to prevent particulate matter, such as fugitive dust, from becoming airborne.
- 3. During the duration of the project, soil excavation/grading/site work will be performed; there is a potential for encountering soil contamination. If soil contamination is present, a permit for soil remediation is required from MDE. Please contact the New Source Permits Division at (410) 537-3230 to learn about the State's requirements.
- 4. Any above ground or underground petroleum storage tanks, which may be utilized, must be installed and maintained in accordance with applicable State and federal laws and regulations. Underground storage tanks must be registered and the installation must be conducted and performed by a contractor certified to install underground storage tanks by the Land Management Administration in accordance with COMAR 26.10. Contact the Oil Control Program at (410) 537-3442 for additional information.
- 5. If the proposed project involves demolition Any above ground or underground petroleum storage tanks that may be on site must have contents and tanks along with any contamination removed. Please contact the Oil Control Program at (410) 537-3442 for additional information.
- 6. Any solid waste including construction, demolition and land clearing debris, generated from the subject project, must be properly disposed of at a permitted solid waste acceptance facility, or recycled if possible. Contact the Solid Waste Program at (410) 537-3315 for additional information regarding solid waste activities and contact the Waste Diversion and Utilization Program at (410) 537-3314 for additional information regarding recycling activities.
- 7. The Waste Diversion and Utilization Program should be contacted directly at (410) 537-3314 by those facilities which generate or propose to generate or handle hazardous wastes to ensure these activities are being conducted in compliance with applicable State and federal laws and regulations. The Program should also be contacted prior to construction activities to ensure that the treatment, storage or disposal of hazardous wastes and low-level radioactive wastes at the facility will be conducted in compliance with applicable State and federal laws and regulations.
- 8. Any contract specifying 'lead paint abatement' must comply with Code of Maryland Regulations. If a property was built before 1950 and will be used as rental housing, then compliance with COMAR 26.16.02 is required. Additional guidance regarding projects where lead paint may be encountered can be obtained by contacting the Environmental Lead Division at (410) 537-3825.

Mr. Christopher Spaur October 1, 2019 Page 3 State Application Identifier: **MD20190821-0708**

- 9. The proposed project may involve rehabilitation, redevelopment, revitalization, or property acquisition of commercial, industrial property. For specific information about these programs and eligibility, please contact the Land Restoration Program at (410) 537-3437.
- 10. Borrow areas used to provide clean earth back fill material may require a surface mine permit. Disposal of excess cut material at a surface mine may require site approval. Contact the Mining Program at (410) 537-3557 for further details."

The State Application Identifier Number <u>must</u> be placed on any correspondence pertaining to this project.

Please remember, you must comply with all applicable state and local laws and regulations. If you need assistance or have questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at sylvia.mosser@maryland.gov.

Thank you for your cooperation with the MIRC process.

Sincerely,

non

Myra Barnes, Lead Clearinghouse Coordinator

MB:SM

cc:

Wendy Scott-Napier - DGS Tina Quinichette - MDOT

19-0708 CRR.CLS.docx

Amanda Redmiles - MDE Tony Redman - DNR Edward Tudor - WRCS Mayor - OCEANC Tracey Gordy - MDPLL Beth Cole - MHT



Robert S. McCord, Secretary Sandy Schrader, Deputy Secretary

Maryland DEPARTMENT OF PLANNING MARYLAND HISTORICAL TRUST

October 23, 2019

Christopher Spaur Planning Division U.S. Army Corps of Engineers, Baltimore District 10th Floor, 2 Hopkins Plaza Baltimore, Maryland 21201

Re: Atlantic Coast of Maryland Shoreline Protection Project – Offshore Shoals in Federal Waters as Sand Sources

Dear Mr. Spaur:

The Maryland State Historic Preservation Office, the Maryland Historical Trust (MHT) understands the U.S. Army Corps of Engineers (USACE) and the Bureau of Ocean Energy Management (BOEM) have prepared a Draft Environmental Assessment and a Finding of No Significant Impact for proposed dredging of offshore shoals in federal waters as part of the Atlantic Coast of Maryland Shoreline Protection Project. The project will involve dredging every four years beginning by 2022 and continuing until 2044. Each dredging episode will involve extraction of approximately 1,070,000 cubic yards of sand from federal waters for placement on Ocean City beaches to reduce risk of coastal storm damage.

MHT would be pleased to offer guidance at the request of USACE and BOEM in support of this project related to protection of historic properties off Maryland's Atlantic Coast for activities in federal waters, and continue to provide comments and recommendations in accordance with Section 106 of the National Historic Preservation Act and the Maryland Historical Trust Act, §§ 5A-325 and 5A-326 of the State Finance and Procurement Article for future ancillary activities on state lands and in state waters.

We look forward to future coordination related to protection of historic properties as appropriate and/or desired to help facilitate this important project.

Thank you for providing this opportunity to comment.

Sincerely, CC: Ethan Bean (USACE) Daniel Bierly (USACE)

Maryland Historical Trust • 100 Community Place • Crownsville • Maryland • 21032 Tel: 410.697.9591 • toll free 877.767.6272 • TTY users: Maryland Relay • MHT.Maryland.gov

Comments Received from BOEM (Prepared Aug 2019) and USACE Responses		g 2019) and USACE Responses		
#	Page	Section	BOEM Specific Comments	USACE Response
1	Annex A; Page 93 of PDF	Fed Consistency Determination	Conditional Concurrence Statement: Recommend incorporating commitment related to coordinating new piping nesting sites with DNREC, Division of Fish and Wildlife.	Concur. Added new sentences to FONSI, EA endangered and threatened species text (Sections 4.4.5 and 5.3.5), and Conclusion (Section 8) regarding historic Piping Plover nesting on Fenwick Island, unlikely possibility that Piping Plover would nest within the project beach placement areas within MD or DE, but need for USACE to coordinate with USFWS, DNREC, and MD DNR in case of nesting.
2	Annex A; page 103 of PDF	Tribal Historic Preservation Letter	Recommend discussing tribal correspondence in more detail in the main report.	Concur. Added new paragraph near end of Section 7 summarizing coordination efforts from initial tribal response (to EA preparation notice) through public release of draft EA.
3	Annex A; page 117 and 119 of PDF	Maryland Historic Trust Letter	This letter describes pre-installation survey responsibilities for pipeline corridors that is not entirely consistent with main report. It emphasizes requirements for Side Scan Sonar as well as review and interpretation of data by qualified marine archaeologist. Recommend confirming that compliance with these requirements.	Reviewed with EB. Didn't identify any main report text needing revision from this comment. USACE will adhere to recommendations in MHT letter (side scan sonar surveys of pipeline corridors and review of data). Also the letter states that the data can be reviewed by a USACE staff archaeologist, with MHT support utilized on an as-needed basis.
4	Draft FONSI, Page 1	First Paragraph	It is important to note that this FONSI will be specific to the Corps. Though it is appropriate to reference our role as a cooperating agency, we will prepare our own FONSI closer to the date of the lease request.	Concur. Made revisions accordingly.
5	Draft FONSI; page 5	Paragraph 5	The text only references coordination with NMFS. Recommend adding USFWS as it relates to USFWS Coordination Act.	Concur. Made revisions accordingly.
6	Executive Summary; Page ES-1	Paragraph 3	Reference BOEM's cooperating role in the 2008 EIS.	Concur. Made revisions accordingly.
7	Executive Summary; Page ES-1	Paragraph 5	Spelling. Replace "Forecast" with "Forecasted"	Concur. Made revisions accordingly.
8	Executive Summary; Page ES-2	Paragraph 1	Spelling. Replace "coordinate" with "coordinated"	Concur. Made revisions accordingly.
9	Executive Summary; Page ES-2	Paragraph 4	Rewrite the sentence beginning with "The EA determined that" Suggest the following: "The EA determined that the installation of screening on the hopper dredge dragheads to mitigate the risk of encountering Munitions of Explosive Concern (MEC) may reduce the ability to observe take of federally listed sea turtles. This potential for unobserved take was not analyzed in the 2008 EIS and it is assumed that further unobserved take may occur."	Would rather retain definition of "take" in executive summary for the many readers likely to read only FONSI and executive summary (it's not defined in FONSI), although definition omits harrassment as that is not applicable. "Take" otherwise somewhat nebulous in meaning and confusing. Seeking to meet responsibility to make sure we fairly inform public/agencies of changed information and concerns. Having an informed public/agencies will help keep all parties aware/alert to required mitigation practices to minimize risk to sea turtles.
10	Page 2-2	Last Sentence	Spelling. Replace "mitigational" with "mitigation."	Concur. Made revisions accordingly.

-				
11 Pa	age 5-7 5.3.2; D	virect Impacts;	Consider a different word choice for the following "destroyed in large	Concur that clarification needed regarding "significant" impacts. Added
	second t	to last	numbers." This statement implies 'significant impacts' however, these	additional sentence at end of paragraph clarifying that those impacts were
	sentence	e	impacts are short term and recoverable.	a principal reason for 2008 EIS preparation.
12 Pa	age 5-9 First line	e	Recommend replacing "injured or killed" with "non-lethal or lethal"	Concur partially. Modified text in first sentence, but instead moved terms
				"injure or kill" to later in the paragraph in interest of keeping readership
				clearly informed of concerns being weighed/balanced.
13 Pa	age 5-9 Third lin	ne	Replace "typically" with "may"	Concur. Made revisions accordingly.
14 Pa	age 6-1 Second	to last Line	Replace "permit" with "lease"	Concur. Made revisions accordingly.
15 P.	. 8-1 2 nd para		Modify last sentence to "Dredging would permanently remove xx	Concur, made revisions accordingly, utilized 6,105,000 cubic yard
			cubic yards of sand from the offshore shoals, but offshore shoal	estimate from Section 2.
			geomorphology and associated habitats would be maintained." (added	
			by CS from EA pdf file which has comments recorded)	
16 P.	. 8-1 3 rd para		Modify middle sentence to "One potential concern could be if surf	Concur. Made revisions accordingly.
	•		clam populations adequate to support substantial commercial fishing	
			activity become established on one or more of the candidate shoals."	
			(added by CS from EA pdf file which has comments recorded)	
17 P.	. 8-1 3 rd para		Update sentence: "USACE is committed to surveying temporary	Concur. Updated sentences with EB to "USACE is committed to
	•		pipeline routes" (added by CS from EA pdf file which has	surveying temporary pipeline routes in MD waters prior to deploying
			comments recorded)	pipeline and dredging. A Phase I archaeological investigation of Weaver
				and Isle of Wight Shoals conducted May 30th to June 1st, 2019, did not
				document any potential submerged cultural resources. Dredging the
				Weaver and Island of Wight Shoals will have no effect on historic
				properties. USACE would conduct Phase I archaeological investigations
				of Shoals A and B on the OCS prior to any dredging."

MD Dept of Planning (State Clearinghouse) Comments and USACE/BOEM Responses			e) Comments and USACE/BOEM Responses	Letter dated 10/1/2019, sent electronically	
Tally Number	Comment Date	MD Source	Comment	USACE/BOEM Response and EA Revisions	
1	10/1/2019	Dept of Planning (State Clearinghouse)	MHT determined that project will have "no effect" on historic properties. Federal and or state historic preservation requirements have been met.	Sections 5.4.1 and 6.0 updated to include "no effect" determination referencing MD letter.	
2	10/1/2019	Dept of Planning (State Clearinghouse)	MD DNR stated that time-of-year restrictions on dredging offer additional protection for offshore habitats and endangered species. USACE may want to reconsider this moving forward.	Section 3.4 of 2019 EA presented summary of some pros/cons of implementing additional time-of-year restrictions. Coordination with NMFS was undertaken regarding this issue in Spring and Summer 2018 and determined that time-of- year restrictions would not result in substantive avoidance and minimization of NOAA trust fishery resources. (Summer is economically unacceptable to the Town of Ocean City; Winter/early Spring is more difficult and dangerous for dredging and placement work). While December - March dredging would pose least risk to sea turtles, it is believed that utilization of the required reasonable and prudent measures have substantially reduced risk.	
3	10/1/2019	Dept of Planning (State Clearinghouse)	MDE provided a list of practices applicable to on-land construction (including sand placement on the beach) that would minimize risk of contaminants and air pollutants into the environment, as well as managing solid waste produced.	One MDE comment regarding above-ground petroleum storage tanks is applicable to sand placement on the beach. (The remainder of the MDE comments have limited if any applicability to dredging or beach nourishment). Placement of sand on the beach in MD (Ocean City) and DE was outside the scope of this EA, other than that the EA did include consideration of air pollution produced from beachwork in DE. USACE construction specifications require contractors doing beach work to provide a fuel and hazardous liquid storage facility which includes a berm an impermeable liner to prevent leakage. Construction specifications are prepared for each beach nourishment action. No below-ground fuel storage tanks would be utilized. As this topic is outside of the EA purview, no revisions were made to the EA.	

Letter from:		Letter date:	
NMFS 2		24-Sep-19	
Tally	Commont	Response and EA Revisions	
Number	Comment		
	See separate USACE/BOEM letter to NMFS dated 7 Nov 2019		

(Note: l	JSEPA comments originally contained in text of letter. US	SACE excerpted and numbered comments)
Tally #	USEPA Comment	USACE/BOEM Response
1	Prior to selection of next sand source, recommend public and agency outreach and documentation in an EA or EIS.	Concur to preparing new NEPA document if substantial change in conditions occurs. Otherw coordinate and plan future dredging in an environmentally sensitive manner without need to For the Assateague LTSM Project, USACE has held occasional meetings with NPS and other reinitial years, then less frequently in subsequent years) to plan dredging and placement at mu informal coordination approach has proved adequate to ensure the LTSM Project is conducte additional formal NEPA efforts. USACE envisions an equivalent informal approach for the Atl coordinate informally with BOEM, NMFS, and MGS regarding findings of ongoing bathymetric dredging (as per EA Sections 3.6 [Recommended Alternative] and 8.0 [Conclusion]).
2	Put 2008 EIS on NAB website	Concur. The 2008 EIS was incorporated by reference in the 2019 EA, although unfortunately period. USACE posted 2008 EIS on 24 Sept 2019; document will remain posted for up to seve
3	Recommend that following next dredging cycle, USACE revisit potential alternatives that would avoid impacts to shoals, including additional non-shoal sand sources (including dredge disposal sites such as Norfolk Ocean Disposal and Dam Neck Ocean Disposal), heavily impacted or created shoals (such as the ebb shoal), modification of dredging methods, enhanced stabilization methods, modifications to the beach, or other alternatives.	Concur in the event conditions change substantially and a supplemental NEPA document is p considered multiple alternative sand sources in the Ocean City vicinity, from the mainland to shoal bottom (Sections 4 and 5). This ultimately resulted in selection of the four candidate O The 2008 EIS investigated making substantial use of the ebb shoal (independent of the LTSM at that time based on concerns over potential impacts to Assateague Island. The 2008 EIS did placed at the Norfolk and Dam Neck Ocean Disposal Sites. USACE considers economic, engin volumes of sand generated from dredging in the mouth of Chesapeake Bay vicinity are used Material dredged from the Cape Henry Approach Channel, which consists predominantly of s beneficially, however, and is disposed of at the Dam Neck Ocean Disposal Site which lies abo channel is a component of the Baltimore Harbor & Approach Channels Project). Ocean City i Channel, about 10 times the distance of the Dam Neck Site. Transporting Cape Henry Channes substantially increase costs, probably rendering Ocean City economically infeasible as a place Project. The non-federal sponsor (Maryland Port Administration) would bear any additional placement site under the Baltimore project. Under the Atlantic Coast of MD Project, MD DN transport cost to bring the Cape Henry Channel material to Ocean City, making Cape Henry Coast of MD Project.
4	Discuss how the beach nourishment policies of MAFMC were considered or incorporated	Concur. (Note: USACE and BOEM considered the 2015 MAFMC policies in preparing the 2012 policies with NMFS in Summer 2018.) MAFMC policies date from 2015. The candidate OCS of dredging constraints re-evaluated in the 2019 EA were derived (with minor exceptions) from in collaboration with NMFS, other resource agencies, and academic experts. Several of the potthese, it should be noted that USACE did avoid sensitive fish habitats in developing the recombottom habitats, which occur in inter-shoal areas, were avoided. The offshore shoals are correcover benthos. USACE and BOEM did not re-investigate other non-shoal seafloor sand sour MAFMC policies were not applied in the 2019 EA because the Atlantic Coast of MD is an auth shoal sand sources, the 2008 EIS adequately considered use of other sources, and the recombine other sources dredging constraints to mitigate habitat impacts. Additional discussion of this to NMFS (separate chart in this annex).
5	Data regarding horseshoe crab congregation areas and migratory corridors would be helpful for this project	Concur. EA Sections 3.4 and 3.6 identified the information need for horseshoe crab distribut the mouth of Delaware Bay than on OCS offshore shoals of this project, as stated in Section 3 dredge (for sea turtles and whales) could record horsehoe crab and any notable bycatch to ir the beach could record if substantial numbers of entrained organisms are being pumped up o
6	Biological monitoring should also be conducted to evaluate dredging impacts	Do not concur. There are no unique circumstances associated with the Project that warrant a concerns that the dredging operation may result in significant post dredge environmental im (described in the 2008 EIS) selected the offshore shoals because they have abundant sand, but benthos. Conversely, USACE avoided areas between shoals because these have thinner sand can support live bottom communities that are slow to develop and recover.
7	Provide detailed discussion on how benthic recovery was forecasted.	Concur. Pre- and post- bathymetric and biological monitoring studies of beach and borrow a extensively throughout the Atlantic coast over the last 40+ years, including substantial BOEM short-term studies, it is generally concluded that species diversity and abundance on sandy b project location, borrow area design, and suite of mitigations in place. The 2008 EIS docume that can support live bottoms on the OCS in the vicinity. Mobile sands of the OCS offshore shore shore shore the sands of the OCS offshore shore

	USEPA Letter dated 17 Sept 2019.
	Final FA Revisions
vise, USACE believes that it can effectively o routinely prepare additional NEPA documents. esource agencies since 2004 (frequent meetings in altiple sites in the Ocean City Inlet vicinity. This ed in an environmentally sensitive manner without lantic Coast Project, and USACE intends to ic monitoring and implications for future OCS	Adding statement to Executive Summary (ES-2, Paragraph 2) regarding this additional new informal coordination as not mentioned there: "USACE will coordinate monitoring with BOEM, NMFS, and MGS. In the future, the value of Weaver Shoal, Isle of Wight Shoal, Shoal A, and Shoal B as fishing grounds will be re-assessed in making decisions over which offshore shoal to dredge." Also adding statement "USACE would prepare additional NEPA documents and conduct public and agency coordination in the event conditions change substantially" to same paragraph, as well as Sections 3.6 and 8.0.
y not posted online during public/agency review eral months.	None (other than this response)
brepared. USACE and BOEM in the 2008 EIS of the ocean seafloor, including both shoals and non- OCS offshore shoals re-evaluated in the 2019 EA. project), but that alternative was rejected by NPS d not consider utilizing dredged material now neering, and environmental factors. Substantial beneficially on shorelines, including Virginia Beach. sand (75% to 88% sand in 2017 testing) is not used but 10-12 miles one way from that channel. (This is approximately 100 miles away from Cape Henry el material this increased distance would ement site under the Baltimore Harbor & Channels costs beyond that of the federal standard IR could conceivably choose to pay this additional ry Channel material has substantially greater silts y Channel material less suitable for the Atlantic	None (other than this response)
19 EA [see Annex B], and discussed the MAFMC offshore shoal sand sources and geomorphic in the 2008 EIS, and had been previously developed olicies are applicable to dredging in the OCS. Of immended plan of the 2008 EIS. Slow to recover live imparatively dynamic and lack sensitive, slow to incress for this EA. Other potentially applicable horized project founded on use of OCS offshore mended plan of the 2019 EA (and 2008 EIS) copic is provided in the USACE/BOEM response to	None (other than this response). Separate response to NMFS addresses this topic in greater detail.
tion on OCS. (It is more likely a concern closer to 3.4 of EA). Also, protected species observers on the nform future dredging decisions. Project crew on onto the beach.	Revising Section 2.1 to include need for protected species observers to record notable bycatch. Revising EA Section 3.4 by adding additional information on proximity of candidate shoals to Ocean City Inlet and MD coastal bays, and clarify that impacts of dredging at different times of year (winter/spring versus fall) are unclear for horseshoe crab. Revising Section 3.6 to reference Section 3.4.
additional monitoring based on documented pacts. The sand source selection process ut also because they lack sensitive, slow to recover I deposits (even some exposed compact muds) and	None (other than this response). Separate response to NMFS addresses this topic in greater detail.
area areas to assess recovery have been conducted 1-funded research. Based on the results of these pottoms recovers within 1-4 years depending on ents consideration of avoiding areas between shoals hoals do not support long-lived immobile benthos.	None (other than this response). Separate response to NMFS addresses this topic in greater detail.

8 Explain how sand needs with sea-level rise were evaluated, and whether increased severe storm frequency impacts on sand needs considered	Concur. Project sand needs with respect to accelerating sea-level rise were given considerati of Maryland Shoreline Protection Project, Cost and Schedule Risk Analysis Report," completed indicate that the project will continue to require higher beach berm elevations. Cumulative in beachfill during each of the remaining contracts is estimated to be approximately 2%. It shou increasingly vulnerable to bayside flooding which this project was not designed to prevent. R storm activity and funding availability, increasing the cost of individual renourishment contra original project design estimated an erosion rate of approximately 175,000 CY/year and a ren into account erosion due to routine storm activity. In the 21st century, the project has been r ranging between 740,000 and 930,000 CY, and the erosion rate has not varied greatly. It is im damage due to significant storm events are funded separately and do not contribute to the to the number of significant storm events over the last decade, so we expect that it is likely that cost (if repairs are not funded by PL 84-99) could be significant at somewhere around 3% per
9 Reconsider time of year restrictions, measures to incentivize species to leave the area, prevent entrainment, or other measures to limit impacts as additional information about faunal use becomes available.	Concur. USACE/BOEM anticipate that through informal interagency meetings conducted to p information will be brought forward and considered fairly. Also see response to Comment 5.
10 Provide status of consultation with Chief Lee Lockamy of the Nansemond Nation.	Concur. USACE sent two emails to Nansemond Nation, but didn't receive response.
11 Cumulative impacts analysis should consider impacts from combined continued and planned use of shoals along Gulf of Mexico and Atlantic Ocean Coasts.	Do not concur. The 2008 SEIS and 2019 EA considered cumulative impacts to Delmarva Penir geomorphic compartment. Alongshore sand transport diverges north/south, respectively, fro at sinks at the mouths of Delaware and Chesapeake Bays. Ocean coastal storm risk managem between Wallops Island, VA, and Cape Henlopen, DE, could potentially be linked economicall preliminary consideration by USACE. USACE attempts to capture information on coastal proj Coastal Systems Portfolio Initiative (http://navigation.usace.army.mil/CSPI/Default.aspx). CSI assessment nationally. However, there are numerous CSPI data gaps related to timeliness of

ion in a separate USACE document, "Atlantic Coast	None (other than this response)
d in February 2019. Observed trends in sea-level	
ncrease to the total project cost of placing more	
Id be noted that Ocean City will become	
Renourishment intervals could be affected by	
cts (if not funded separately under PL 84-99). The	
ourishment interval of four years. This rate takes	
renourished almost every four years with beachfill	
portant to keep in mind that extraordinary	
otal project cost. The project has seen an uptick in	
t this trend will continue. Increases to total project	
occurrence.	
plan dredging each nourishment cycle, new	See comment #5 response.
	Will update coordination record in EA Annex A.
nsula as the region comprises a coastal	None (other than this response)
om about the DE/MD boundary, and naturally ends	
nent projects that utilize beach nourishment	
y or engineeringly; this has previously been given	
ect sand use at the national scale through the	
PI could be utilized for a rough cumulative impacts	
information updates.	

Annex A:	Comment Received from Worcester County	Letter dated 9/5/2019
Tally Number	Comment	Response
1	Avoid dredging in the vicinity of Shoal B (Bass Grounds) as this could have negative effect on sportfishing industry in the county.	2008 EIS and this 2019 EA acknowledge consistent concerns expressed by fishermen about Shoal B (Section 3.2 and Section 8.0 of 2019 EA, and Section 4.3 of the 2008 EIS). If Shoal B continues in the future to have higher relative fishing value than the other three shoals under consideration, then no dredging would occur on Shoal B. Dredging would be proposed on Shoal B in future only if it was determined to be of less value as fishing ground than other candidate shoals, and then dredging would avoid artificial reefs on Shoal B. Dilemma is that relative value of any shoal as fishing ground can change over time. Weaver Shoal is proposed for the next beach nourishment cycle, and up to two additional cycles. After that, to maintain geomorphic integrity of Weaver Shoal other sources would need to be selected instead.

Appendix J

USACE Offshore Shoal Dredging - Response Monitoring

Great Gull Bank

Great Gull Bank was dredged in 2002 to obtain sand for the Short-Term Restoration of Assateague Island Project using guidelines/constraints almost identical to those proposed to obtain future sand from OCS shoals for Ocean City under the Atlantic Coast of MD Project. This appendix contains a monitoring report prepared to preliminarily evaluate Great Gull Bank response to 2002 dredging. The report serves to meet commitments made in the 2008 EIS, and provide information requested by BOEM for this EA to assess and forecast impacts of future proposed dredging of OCS shoals.

Great Gull Bank – Bathymetric Changes from 1999-2008

Introduction

Bathymetric change at Great Gull Bank was characterized over the period of 1999 – 2008 using several data sources. Sand was dredged from a large borrow area on the southeast side of the shoal in 2002 to restore Assateague Island National Seashore. Bathymetric changes on the shoal were anticipated to reflect combined impacts of dredging and natural processes. This characterization was conducted to help inform dredging from offshore shoals in federal waters for the USACE/MD DNR Atlantic Coast of MD (Ocean City) Project.

Other dredging for borrow also occurred on Great Gull Bank in 1998 and 2002, however those were substantially smaller volumes. Those other borrow areas and effects were not explicitly considered in this examination¹.

Background

Great Gull Bank is an offshore shoal located 4 to 5 miles east of Assateague Island in the Atlantic Ocean. The shoal covers an area of approximately 1,980 acres. Maximum length and width are about 20,000 feet and 6,000 feet respectively. The shoal contains 56,000,000 yd3 of sand (USACE, 2001). USACE (2008) reviewed scientific studies of offshore shoals off MD. The shoals have a NE/SW orientation caused by high energy storm waves/currents generated by Nor'easter storms. The shoals show a general regional pattern of S/SE migration over the years. MMS (2010) classified the SE side of Isle of Wight, Weaver, and Shoal A as the leading edge of those shoals. Pendleton and others (2017) determined that offshore shoal migration patterns differ regionally off the MD coast with those being N of the Ocean City Inlet generally showing a net southerly migration, whereas offshore shoals S of the inlet generally show a net southeasterly migration.

Great Gull Bank was selected in 1998 as the source of sand to restore the geologic integrity of Assateague Island to compensate for sediment starvation caused by the Ocean City Inlet jetties. Consistent with the restorative purpose of the Assateague restoration project, dredging guidelines and constraints were developed in 2001 to mitigate dredging impacts such that the geomorphologic integrity of Great Gull Bank would also be maintained. A borrow area 321 acres in size was selected on the southeast side of the shoal (USACE, 2001).

USACE (2008) provided information on bathymetric changes at Great Gull Bank between 1998 and 2003 to determine whether borrow of 1,800,000 cubic yards of sand

¹ In 1998 for the Assateague Island National Seashore emergency project, approximately 134,000 cubic yards of sand were dredged from a borrow area located immediately northwest of the crest in the southern portion of Great Gull Bank. Impacts of that dredging in comparison to 1995 bathymetric data were characterized in the USACE (2008) (Appendix B2). 95,000 cubic yards of sand were also dredged in 2002 for Assateague State Park prior to the 2002 dredging conducted for the national seashore. The 1998 emergency dredging and 2002 state park dredging were not considered in this current analysis.

in 2002 had been done within the assigned borrow area and in accordance with the dredging plan's mitigation guidelines. Dredging was planned to be spread out widely within the borrow area and to not remove more than several feet of sand from any one spot. These mitigation guidelines had been developed to ensure that dredging did not degrade shoal long-term geomorphologic integrity. The USACE (2008) determined that dredging had been conducted as planned. USACE (2008) contained a comparison of bathymetric data sets for Great Gull Bank for the years 1999 and 2003 and found that Great Gull Bank appeared to be migrating SE over that period.

<u>Methods</u>

Bathymetric data sets suitable for the purpose of characterizing change on the shoal (within and outside of the 2002 borrow area) and in adjacent areas were identified and compiled in GIS (Table 1). Three of the data sets had been collected by USACE contractors, and were stored in USACE electronic files. One of the data sets was obtained from NOAA and was downloaded from the worldwide web.

Bathymetric Survey Date	Data Source	Notes on Resolution and Quality	Bathymetric Survey Purpose
1999	USACE Contractor	Bathymetric Multibeam Data	Pre-dredge
2002	USACE Contractor	Data set degraded. Only contours available	Immediate Post- dredge Conditions
2003	USACE Contractor	Bathymetric Multibeam Data	Post-dredge
2008	NOAA Contractor	Bathymetric Multibeam Data	Regional Mapping

	Table	1:	Bathy	/metric	Data	Sets
--	-------	----	-------	---------	------	------

The bathymetric data sets include multibeam ocean bottom surface elevations along long stretches of the seafloor. The 1999 and 2003 dataset include similar resolution point elevation data converted into a 10 foot square raster surface for geospatial analysis using ESRI's ArcGIS 10.5.1. NOAA's 2008 regional ocean bottom surface mapping effort has higher vertical and horizontal accuracy than preceding data and was readily available as a raster surface. A major constraint of this analysis was being able to examine immediate post-dredge conditions in great detail due to the low resolution of available contour data for the 2002 post-dredge survey. The study team could not immediately locate the higher resolution original survey carried out by USACE contractors.

In order to analyze processed survey data, ocean bottom raster surfaces were projected into the same projected coordinate system (Maryland State Plane NAD83) and vertical datum (MLLW) and all datasets were examined in feet for both vertical and horizontal units. Datasets were examined using the Raster Calculator tool to subtract the absolute value of newer raster surveys from preceding raster survey data (e.g. Abs |"1999 Survey"] - |"2003 Survey"|). This was conducted to examine changes observed in the

surveys for 2002 (immediate post-dredging), 2003 (1 year post-dredging), and 2008 (6 years after dredging) from baseline pre-dredging conditions established by the 1999 survey. Additionally, analysis was extended to examine continuing change in ocean bottom morphology driven by natural processes by comparing the 2003 survey (1 year post-dredging) to the 2008 survey (6 years post-dredging) using the same methodology previously discussed.

In preparing the comparison maps, masks were placed that reflect the extent of the 1999 survey to hide any data outside of the limits of the comparison. Areas of elevation loss are represented by reds, while elevation gains were represented by greens. A change of -1 to +1 feet was determined to be insignificant and was not assigned a color (was transparent in the comparison maps). Consequently, in the comparison maps, bathymetry from the baseline shoal survey from which the comparison is made (i.e., 1999 or 2003) is displayed, reflecting that there was no change from the baseline survey conditions for that comparison (i.e. there is data there that is being shown as clear).

Findings

This analysis illustrates changes in the ocean bottom over time before and after dredging activities had taken place on the shoal. Bathymetric maps produced for all years available (1999, 2002, 2003, and 2008) show the shoal as a readily identifiable bathymetric feature with a defined crest. The shoal in each year is oriented SW/NE.

Between 1999 and 2003, as well as 1999 to 2008, the shoal crest appears to have remained generally constant in depth below the surface, although with both local increases and decreases. The maximum change seems to have been a local loss of about 5 feet.

Change within the borrow area from 1999 to 2003 presumably was driven primarily by the dredging action. The SW portion of the 2002 borrow area on the SE side of the shoal showed a pattern of continued loss of elevation through 2008. While this would be the work of natural processes, the dredging of this area may have created local conditions favoring increased scour. Conversely, the SW corner of the borrow area shows a gain in elevation from 1999 to 2003 with this trend continuing to 2008. This presumably reflects net SW movement of the shoal consistent with the pattern for offshore shoals south of the inlet (Pendleton et al., 2017), with the movement rate and direction impacted by the borrow action in 2002. Future bathymetric monitoring of the shoal would contribute to verifying whether modeling of dredging impacts by MMS (2010) and BOEM (2015) match patterns of change at Great Gull Bank.

References

BOEM. 2015. Use of Morphological Models to Predict Physical Processes and Assess Impacts in Support of Dredging Operations on the U.S. Outer Continental Shelf

Ramsey, J.S., G. Simmons, R. Quan, F. Shi, G. Vittori, J. Zyserman, J. Kirby. OCS Study BOEM 2015-046. http://www.data.boem.gov/PI/PDFImages/ESPIS/5/5575.pdf

Minerals Management Service (MMS). 2010. Analysis of Potential Biological and Physical Impacts of Dredging on Offshore Ridge and Shoal Features. Final Report. OCS Study MMS 2010-010. 160 pp plus appendices.

Pendleton, E.A., L.L. Brothers, E.R. Thieler, and E.M. Sweeney. 2017. Sand ridge morphology and bedform migration patterns derived from bathymetry and backscatter on the inner-continental shelf offshore of Assateague Island, USA. Continental Shelf Research, 144: 80-97. http://dx.doi.org/10.1016/j.csr.2017.06.021

U.S. Army Corps of Engineers (USACE). 2001. Assateague Island Short-Term Restoration. Worcester County, MD. Essential Fish Habitat Impacts Analysis. Baltimore District. May 2001. 43 pp. + figures and annexes.

U.S. Army Corps of Engineers (USACE). 2008. Atlantic Coast of Maryland Shoreline Protection Project Final Supplemental Environmental Impact Statement General Reevaluation Study: Borrow Sites for 2010 – 2044. U.S. Army Corps of Engineers, Baltimore District, Baltimore, MD. 125 pp. + apps.







Appendix K

Sand Quantity Needs Estimate - Supplementary Information

BOEM requested that USACE revisit past sand volumes borrowed to update forecast future sand volume requirements. This information is needed to meet BOEM permitting requirements. This appendix provides supplementary information beyond the summary presented in the EA main body.

Volume of Sand Remaining on OCS From 2008 EIS Forecast

The 2008 EIS provided a minimum and maximum sand needs forecast from the offshore shoals based upon beach volume placement records. Minimum sand needs were estimated based on project performance in 2002 and 2006 as volumes placed in those years were distinctly less than placement volumes in the years 1998 and earlier, and better fit the general down-ward trend of beach sand needs observed to that time (Table 1-1). Utilizing 2002 and 2006 beach volume placement records which average 800,000 cubic yards placed every four years, the 2008 EIS estimated a minimum future total need through the end of the project authorized life in 2044 of 6,800,000 cubic yards of sand. Based on project performance over the longer period 1992-2006, the 2008 EIS estimated a maximum sand need of 15,000,000 cubic yards through 2044. The 2008 EIS allowed for about one percent sand loss while at sea and then at Ocean City subtidally below -20 feet (depth of closure). The 2008 EIS did not account for sand placed on the beach outside of the construction template that was not measured.

Since the 2008 EIS, combining the years 2010, 2014, and 2017, borrow actions placed 2,717,000 cubic yards of sand on Ocean City beach measured within the construction template (Table 1-1). Assuming that an additional 10 percent greater volume than the contract volume was placed on the beach but not measured in the construction template, then approximately 2,989,000 cubic yards was dredged from offshore sources in state waters in the combined years 2010, 2014, and 2017.

Subtracting the 2,989,000 cubic yards estimated to have actually been dredged from the 2008 EIS minimum and maximum needs forecasts results in the total volume remaining through 2044 of offshore sand being a minimum of 3,855,300 cubic yards and a maximum of 12,055,300 cubic yards. However, because no sand has yet been dredged from offshore shoals in federal waters, the entire balance of sand identified in the 2008 EIS remains available for dredging from OCS sources with respect to the need to maintain offshore shoal habitat values while still meeting Ocean City sand needs.

Isle of Wight Shoal – Sand Engineering Qualities

Borrow area I was further divided into sub-areas IA and IB, with IA containing sand of greater suitability than IB. Sand from sub-area IA could be dredged and placed on Ocean City beach without blending. Approximately 940,000 cubic yards would be available to -40 feet within IA alone. Approximately 8,900,000 cubic yards of beach-suitable sand could be obtained from IA alone without blending if dredging was conducted to -60 feet.

MEC/UXO Screening - Potential Borrow Implications

The 2008 EIS did not address impacts of MEC/UXO measures on geology. Dredging with screens to exclude MEC elsewhere along the US coastline where sand resources contained

substantial gravel or shell has caused the relative concentration of these coarse materials to increase at the surface with repeated dredging because the MEC screen prevents large particles from being dredged. The possibility that repeated dredging of a particular borrow area off MD could cause a coarsening of the substrate left behind was identified as a concern by BOEM. The substrates of Borrow Areas 2, 3, and 9 within state waters were repeatedly dredged, but this problem did not occur. This was apparently because the fraction of gravel and shells prevented from being dredged by the screen that accumulated on the surface was insignificant from an engineering perspective. Thus, assuming that the findings of dredging on Borrow Areas 2, 3, and 9 would apply to OCS offshore shoals, there would be no need to avoid dredging the same borrow area in repeated cycles. However, it was determined that future monitoring would verify whether this is occurring. If coarsening of the substrate remaining at the surface following dredging does occur, then guidelines/constraints to minimize this problem would need to be developed.

Forecasting Future Sand Ne	eeds Sand Diacomon	4 11:			
Table: Ocean City Beach	Sanu Placemen				
	Year	Contract Volume* (cubic yards)	Estimated Volume Dredged** (cubic yards)	Project Constructed by	Notes
	1988	2,260,000	2,486,000	MD	Initial beach re-establishment
	1990	2,199,000	2,418,900	USACE	Initial beach re-establishment
	1991	1,623,000	1,785,300	USACE	Initial beach re-establishment
	1992	1,592,000	1,751,200	USACE	Severe storms
	1994	1,245,000	1,369,500	USACE	
	1998	1,290,000	1,419,000	USACE	
	2002	745,000	819,500	USACE	
	2006	932,000	1,025,200	USACE	
	2010	909,000	999,900	USACE	
	2014	902,000	992,200	USACE	
	2017	906,000	996,600	USACE	
Total 1988-2017		14,603,000	16,063,300	MD & USACE	Includes initial beach re- establishment
Total 1990-2017		12,343,000	13,577,300	USACE	Entire USACE placement from offshore sources
Total 1992-2017		8,521,000	9,373,100	USACE	Post initial beach re- establishment
Total 2002-2017		4,394,000	4,833,400	USACE	
Total 2010-2017		2,717,000	2,988,700	USACE	
Createst 1088 2017	1009	2 260 000	2 486 000	MD	
Greatest 1988-2017	1998	2,200,000	2,480,000		
Greatest 2002 2017	2006	032,000	1,731,200	USACE	
Greatest 2002-2017	2000	932,000	1,025,200	USACE	
	2,010	505,000	1,025,200	USACE	
Least 1988-2017	2002	745,000	819,500	USACE	
Least 1992-2017	2002	745,000	819,500	USACE	
Least 2002-2017	2002	745,000	819,500	USACE	
Least 2010-2017	2017	902,000	992,200	USACE	
*On beach as per construction	on template field	measurements, 1	990-2017. 1988	volume	
assumed to also be measu	ured on beach.		1		
***Assuming 10% extra dred	iged placed on b	each but not meas	ured		

Forecasting Future Sand Needs							
Table: Ocean City Beach 2018-2044	Sand Need Forecast						
Metric	Contract Volume Measured* (cubic yards)	Estimated Volume Dredged** (cubic vards)	Notes				
Total 1992-2017	8,521,000	9,373,100	Assumes engineered beach establishment				
			completed in 1991.				
Average Yearly 1992-2017	327,731	360,504	Average yearly following initial beach re- establishment, thus counts each placement and non-placement year from 1992 forward. 1992 is Year 1.				
Forecast future average per 4 years based on annual yearly average 1992- 2017	1,310,923	1,442,015	Note that this differs from actual average per every 4 years because placement in 2017 occurred after 3 years.				
Forecast need 2022, 2026, 2030, 2034, 2038, 2042	7,865,538	8,652,092					
Total 1999-2017	4,394,000	4,833,400	Assume change in conditions starting 1999 between 1990s and earlier and 2000s and later. No sand placed in 2000 or 2001. So, total includes 2002 through 2017				
Average per placement event, 2002- 2017	878,800	966,680	Placements in years 2002-2017				
Average Yearly 1999-2017	231,263	254,389	Average yearly following 1998 beach renourishment, thus counts each placement and non-placement year from 1999 forward. Year 1999 is year 1.				
Average per 4 years, 1999-2017***	925,053	1,017,558					
Forecast need 2022, 2026, 2030, 2034, 2038, 2042	5,550,316	6,105,347					
*On beach as per construction templat	e field measurements 10	90-2017 1988 volume					
presumed to also be measured on be	each (however, did not co	onfirm with MD).					
**Assuming 10% extra dredged placed	l on beach but not measu	red					
***Separate 1990s from 2000s as sand ne	eds in 90s were generally g	reater.					
Consider beach nourishment volume each placement as having covered period of years since the previous placement.							
Then yolumos placed from 2002 2017	actually provided as 1 -	n the basely for the years 1000.2	017 inclusiva 10 years total				
It's 19 years instead of 20 years total b	ecause sand placement in	1 2017 occurred after 3 years rath	her than 4 years.				

Forecasting Future Sand Needs								
Table: Determination of Beach Placement vs Shoal Volume Available for Dredging								
	2008 SEIS Forecast Volume Need: 2010 -		Re- assessment: Dredge Volume Needed to Produce 2008					
	2044 (yd3)		Beach Volume					
Minimum	6,800,000		7,480,000					
Maximum	15,000,000		16,500,000					

Appendix L

Air Pollutant Emissions Estimate

DNREC required that select air pollutant emission quantities be estimated to verify that they would not violate de minimis thresholds. This appendix contains the estimate calculations as submitted to DNREC.

Air Quality Impacts – Emissions Estimate

Introduction

A portion of the Atlantic Coast Project involving beach renourishment lies within Sussex County, Delaware, which is designated as being in marginal non-attainment for 8-hour ozone. Vessels would not operate within one mile of the Delaware state boundary, and therefore were not included in the emissions assessment. (The majority of project beach renourishment activities would occur within Worcester County which is not in nonattainment of that ozone standard).

<u>Methods</u>

1 Compile equipment list and operating details in Sussex County.

Renourishment actions to maintain the Atlantic Coast of Maryland project will not exceed 95,000 cubic yards within Delaware, for any given event (typical renourishment actions in Delaware, for this project, are less than half this amount). To estimate emissions, production rates for past beach nourishment actions over the life of this project were used. That rate is 20,000 cubic yards per 12-hour workday, thus a maximum effort would be 5 workdays, or 60 work-hours (20,000 c.y. x 5 = c. 95,000 c.y.). The following detailed list of equipment and total hours of operation for this work was estimated based upon contracting information from prior beach nourishment efforts at the project site:

- 3 Caterpillar D7E Dozers, each dozer operating full-time for a total of 60 hours in Sussex County. Diesel.
- 3 Caterpillar 966K Wheel Loaders, each loader operating full-time for a total of 60 hours in Sussex County. Diesel.
- 1 Caterpillar 336E or 336F Excavator, operating full-time for a total of 60 hours in Sussex County. Diesel
- 1 Amphibious Survey Vehicle (a.k.a. the CRAB), operating part-time for a total of 30 hours in Sussex County. This vehicle is powered by a 3054 CAT diesel engine.
- 1 Generac MLT4200 Mobile Light Tower, operating part-time for a total of 30 hours in Sussex County. Diesel.
- 1 Ford F-250 XLT 6.7L V8 Diesel 4WD Crew Cab Long Box, operating part-time for a total of 30 hours in Sussex County.

2 Identify emissions estimate model. At the suggestion of DNREC, the California Air Resources Board's "CARB" spreadsheet calculator (v.7) was used to estimate emissions, based upon engine type, power, age and hours of operation. The calculator can be found at: https://www.arb.ca.gov/msei/ordiesel/ordas_ef_fcf_2017_v7.xlsx

The following conservative (worst-case) assumptions were used in this assessment:

- Model Year 2008 (10 years old)
- Accumulated hours on equipment 10,000; per constructionequipment.com, this is the median life expectancy for dozers, loaders and excavators in the >20,000 lb class, such as these
• Load Factor - 0.5; this value is comparable, if conservative, with the recommended values listed in the CARB worksheet for the applicable offroad construction equipment, such as "rubber tired loaders" (0.36), "crawler tractors" (0.43), and "excavators" (0.38))

If more reasonable assumptions are made about the equipment (i.e. Five years old with only 5,000 engine-hours, and using actual load factors of 0.36-0.43), the resultant emissions estimates drop by more than half.

<u>Results</u>

The following details the spreadsheet output values, based on engine brake horsepower and other factors, for all project equipment and resulting total values for NOx & THC:

```
7 x Cat(r) C9.3 ACERT diesels (3 dozers, 3 wheel loaders, 1 excavator), each @400 BHP, for 60 total hours
NOx = 7 x 33.1 kg = 231.7 kg
THC = 7 x 3.8 kg = 26.6 kg
1 x 3054 CAT diesel @ 130 BHP for 30 hours
NOx = 5.8 kg
THC = 0.6 kg
1 Isuzu 4LE2TAGV-03 diesel @40 BHP for 30 hours
NOx = 3.1 kg
THC = 0.3 kg
1 Ford 6.7L V8 diesel @450 BHP for 30 hours
NOx = 18.6 kg
THC = 2.1 kg
GRAND TOTALS FOR ALL POWERPLANTS FOR ENTIRE PROJECT:
NOx = 259.2 kg (570 lbs)
THC = 29.6 kg (65 lbs)
```

Discussion

Based upon the above assessment, the anticipated emissions of ozone precursors from construction equipment for the entire Sussex portion of the project will be **no more than 570 lbs of NOx and 65 lbs of THC (VOCs)**. So even with extreme "worst case" assumptions, the estimated emissions are orders of magnitude below the thresholds for requiring a General Conformity determination (i.e. roughly 0.29% of the 100-ton annual threshold for NOx, and 0.07% of the 50-ton annual threshold for VOC). Therefore, a General Conformity determination is not required.