

## **FINDING OF NO SIGNIFICANT IMPACT**

### **Issuance of a Negotiated Agreement for Use of Outer Continental Shelf Sand from Sandbridge Shoal in the Sandbridge Beach Erosion Control and Hurricane Protection Project Virginia Beach, Virginia**

Pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508) and Department of the Interior (DOI) regulations implementing NEPA (43 CFR 46), the Bureau of Ocean Energy Management (BOEM) prepared an environmental assessment (EA) to determine whether the issuance of a negotiated agreement for the use of Outer Continental Shelf (OCS) sand from Sandbridge Shoal Borrow Areas A and B for the Sandbridge Beach Erosion Control and Hurricane Protection Project near Virginia Beach, VA would have a significant effect on the human environment and whether an environmental impact statement (EIS) should be prepared.

Several NEPA documents evaluating impacts of the project have been previously prepared by both the US Army Corps of Engineers (USACE) and BOEM. The USACE described the affected environment, evaluated potential environmental impacts (initial construction and nourishment events), and considered alternatives to the proposed action in a 2009 EA. This EA was subsequently updated and adopted by BOEM in 2012 in association with the most recent 2013 Sandbridge nourishment effort (BOEM 2012). Prior to this, BOEM (previously Minerals Management Service [MMS]) was a cooperating agency on several EAs for previous projects (MMS 1997; MMS 2001; MMS 2006). This current EA, prepared by BOEM, supplements and summarizes the aforementioned 2012 analysis.

BOEM has reviewed all prior analyses, supplemented additional information as needed, and determined that the potential impacts of the current proposed action have been adequately addressed. No major revisions to prior impact analyses are needed; thus, preparation of an EIS is not required.

#### **Proposed Action**

The USACE and City of Virginia Beach (project sponsor) have requested use of OCS sand resources from the Sandbridge borrow areas A and B (up to 2.2 million cubic yards [cy]) to undertake a beach nourishment project along Sandbridge Beach, approximately 5 miles long and 125 feet wide. BOEM's proposed action is the issuance of a negotiated agreement.

#### **Alternatives to the Proposed Action**

The 2012 EA considered a range of potential shore protection alternatives in detail, including structural and non-structural options, varying beach berm widths, and multiple sources of fill material. Based upon a combination of economic, engineering, and environmental factors, the USACE selected beach nourishment as the non-structural alternative that would best meet its needs for the Sandbridge Beach Erosion Control and Hurricane Protection Project. The project was initially constructed in 1998, and maintenance construction cycles were completed in 2003, 2007, and 2013. This EA considers the fourth maintenance cycle in order to return the

Sandbridge Beach shoreline to the condition most recently described in the 2012 EA preferred alternative.

In addition to considering the effect of authorizing use of the Sandbridge Shoal borrow areas on the OCS, BOEM considered a No Action alternative. If BOEM decided not to authorize use of Sandbridge Shoal, the project proponents could either:

- (A) use hard structures like seawalls or groins,
- (B) use non-structural alternatives like floodplain regulation or evacuation, or
- (C) not undertake the project at this time.

Neither one or any combination of Options A and B provided an acceptable solution in terms of feasibility and/or economics, environmental, and technical concerns to the existing beach erosion and hurricane protection needs of Sandbridge Beach. Under the no action alternative, storms would continue to inflict expensive damages from erosion and storm surge along the oceanfront, and large portions of the beach would continue to be vulnerable. If this erosion continues, beach habitat for resting, foraging, and nesting animals could decrease, which could be especially detrimental to protected species like rufa red knots and sea turtles.

## **Environmental Effects**

This 2018 EA evaluates potential environmental effects from using OCS sand in the project. The connected actions of conveyance and placement of the sand are considered. The EA and Finding of No Significant Impact (FONSI) identify all mitigation, monitoring, and reporting requirements necessary to avoid, minimize, and/or reduce and track any foreseeable adverse impacts that may result from all phases of construction. A subset of mitigation, monitoring, and reporting requirements, specific to activities under BOEM's jurisdiction, will be incorporated into the negotiated agreement to avoid, minimize, and/or reduce and track any foreseeable adverse impacts (Attachment 1).

The USACE and BOEM identified and reviewed new information to determine if any resources should be re-evaluated, or if the new information would result in significantly different effects determinations. New information was identified that further supports or elaborates on the analyses or information presented in existing NEPA documents. No new significant impacts were identified, nor was it necessary to change the conclusions of the types, levels, or locations of impacts described in those documents.

### *Significance Review*

Pursuant to 40 CFR 1508.27, BOEM evaluated the significance of potential environmental effects considering both CEQ context and intensity factors. The potential significance of environmental effects has been analyzed in both spatial and temporal context. Potential effects are generally considered reversible because they will be minor to moderate, localized, and short-lived. The only long-term effect is on the physical geomorphology due to the removal of sand from the borrow area. No significant or cumulatively significant adverse effects were identified. The ten intensity factors were considered in the EA and are specifically addressed below:

*1. Impacts that may be both beneficial and adverse.*

Potential adverse effects to the physical environment, biological resources, cultural resources, and socioeconomic resources have been considered. Hardbottom has not been identified near Sandbridge Shoals A and B, so impacts are not expected. Temporary reduction of water quality is expected due to turbidity during dredging and placement operations. Small, localized, temporary increases in concentrations of air pollutant emissions are expected, but the short-term impact by emissions from the dredge would not affect the overall air quality of the area. A temporary increase in noise level and a temporary reduction in the aesthetic value offshore during construction in the vicinity of the dredging would occur. For safety reasons, navigational and recreational resources located in the immediate vicinity of the dredging operation would temporarily be unavailable for public use. Archaeological resources will be avoided during dredging operations by a 200-ft radius buffer around target coordinates and 500-ft radius buffer around two side-scan targets. GPS-positioning equipment will be used to ensure the dredge is operating in the authorized location. An unexpected finds clause would be implemented in case an archaeological resource is discovered during operations. Short-term and local adverse effects to benthic and fishery resources are expected within the dredging and placement areas. Potential dredging entrainment risk of sea turtles has been reduced through the use of sea turtle deflecting dragheads and associated operating parameters. Potential effects to marine mammals have been reduced through vessel speed and avoidance protocols. Temporary displacement or behavior modification of birds near the borrow area and/or along the reach of beach placement could occur through direct construction impacts and/or indirect impacts to benthic prey base. There would be beneficial impacts from increased storm protection and an improved recreational beach. In addition, the nourishment effort would result in the restoration of habitat for nesting birds and sea turtles.

*2. The degree to which the proposed action affects public health or safety.*

The proposed activities are not expected to significantly affect public health. Construction noise will temporarily increase ambient noise levels and equipment emissions would decrease air quality in the immediate vicinity of placement activities. The public is typically prevented from entering the segment of beach under construction, so recreational activities will not be occurring in close proximity to operations. Dredging operations will be performed in accordance with an environmental protection plan, addressing marine pollution, waste disposal, and air pollution. The USACE will be conducting inspections to ensure compliance with the plan.

*3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.*

No prime or unique farmland, park lands, designated Wild and Scenic reaches, or wetlands would be impacted by implementation of this project. No critical habitat has been designated within and/or in the vicinity of the Sandbridge Shoal borrow areas. Impacts to Essential Fish Habitat (EFH) designated in the borrow areas would occur, but the limited spatial and temporal extent of dredging suggests these impacts will not adversely affect EFH on a broad scale. Dredging will locally modify the overall seafloor geomorphology within the Sandbridge Shoal Borrow Areas. Similar microhabitat will exist pre- and post-dredging and benthic re-colonization should occur within months to a few years given recruitment from adjacent undisturbed

communities. Demersal and pelagic fishes may temporarily avoid the dredged area because of locally reduced prey availability, but are expected to return following benthic re-colonization.

4. *The degree to which the effects on the quality of the human environment are likely to be highly controversial.*

No effects are expected that are scientifically controversial. Effects from beach nourishment projects, including dredging on the OCS, are well studied. The effects analyses in the EA has relied on the best available scientific information, including information collected from previous dredging and nourishment activities in and adjacent to the project area. Numerous studies and monitoring efforts have been undertaken along the coast of Virginia evaluating the effects of dredging and beach nourishment on shoreline change, benthic communities, marine animals, nesting and swimming sea turtles, and shorebirds.

5. *The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.*

Beach nourishment is a common solution to coastal erosion problems along the Atlantic coast. Federally-authorized beach nourishment at Sandbridge Beach has been ongoing since 1998. This borrow area has been dredged on seven prior occasions for renourishing regional coastlines. Of these, four times were for Sandbridge Beach nourishment from 1998 through 2013, and three times for the Dam Neck Naval Annex shoreline from 1996 through 2015. No significant adverse effects have been documented during or as a result of these past operations. During the most recent Sandbridge Beach dredge event in 2013, dredging entrained and killed one loggerhead sea turtle, but such take was considered in the applicable biological opinion and determined not to jeopardize the continued existence of the species. Concurrence on existing biological opinions from both the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) include protective measures for protected species. The effects of the proposed action are not expected to be highly uncertain, and the proposed activities do not involve any unique or unknown risks.

6. *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.*

No precedent for future action or decision in principle for future consideration is being made in BOEM's decision to authorize re-use of the Sandbridge Shoal borrow areas for this nourishment cycle. BOEM considers each use of a borrow area on the OCS as a new federal action. The Bureau's authorization of the use of the borrow area does not dictate the outcome of future leasing decisions. Future actions will also be subject to the requirements of NEPA and other applicable environmental laws.

7. *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.*

Significance may exist if it is reasonable to anticipate cumulatively significant impacts that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. The EA and previous NEPA documents conclude that the activities related to the proposed action are not reasonably anticipated to incrementally add to the effects of other activities to the extent of producing significant effects. Because the seafloor is expected to equilibrate and moving sand could slowly accumulate in Sandbridge Shoal, the proposed

project provides an incremental, but localized effect on the reduction of offshore sand resources. Although there will be a short-term and local decline in benthic habitat and populations, both are expected to recover within a few years. Therefore, no significant cumulative impacts to benthic habitat are expected from the use of the borrow site.

8. *The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.*

The proposed action is not expected to adversely affect historic or pre-contact resources. Seafloor-disturbing activities (e.g., dredging, anchoring, pipeline emplacement and relocation) may occur during proposed construction activities. The greatest risk to cultural resources exists in the borrow area where dredging will occur. Archaeological clearance surveys have been performed within both the Sandbridge Shoal borrow areas and beach nourishment locations. All sites of potential cultural significance identified within the borrow areas will be avoided by a 200-foot radius buffer zone around target coordinates and 500-ft radius buffer around two side-scan targets. BOEM will also work with Division of Historical Resources (DHR) and State Historic Preservation Officer (SHPO) should shipwreck remains or other cultural resources be unexpectedly discovered (30 CFR 250.194 and 30 CFR 250.1010). No significant impacts to cultural resources in the project area (borrow, placement, or pump-out areas), as result of the proposed action, are anticipated with implementation of the measures to protect existing identified resources, cease of work if an unexpected discovery occurs, and immediate notification to DHR/SHPO. If an unexpected site is discovered, the SHPO may then determine if the resource is significant or not and make the determination of the best means to protect the resource. All of these activities have been completed in accordance with the National Historic Preservation Act (NHPA), as amended; the Archeological and Historic Preservation Act (AHPA), as amended; and Executive Order 11593. The project is in full compliance with the NHPA as well as the AHPA and E.O. 11593.

9. *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.*

USACE and the City of Virginia Beach will comply with all requirements of biological opinions associated with this project provided under the Endangered Species Act (ESA) including the measures provided by USFWS in 2008 (with concurrence again in 2012) and by NMFS' 2012 Batched BO. Both of the Services have concurred that these previous measures apply to this project.

USACE and BOEM concluded that in water, the project was not likely to adversely affect shortnose sturgeon, hawksbill sea turtles, and sperm, blue, North Atlantic right, humpback or fin whales; the project may adversely affect Atlantic sturgeon, and loggerhead, Kemp's ridley, green, and leatherback sea turtles; however, the proposed project is not likely to jeopardize the continued existence of any ESA-listed species. NMFS was notified of this coverage via letter (dated October 30, 2017), and provided their agreement via email (dated December 22, 2017). There is no critical habitat for protected species in the project area. All Reasonable and Prudent Measures (RPM's) and Terms and Conditions (T&C's) outlined in the Batched BO will be implemented for the proposed action.

The USACE and BOEM concluded that the proposed action would not adversely affect any protected species in USFWS' jurisdiction (including five sea turtle species, shortnose sturgeon, roseate tern, piping plover, and seabeach amaranth), given provisions provided in their 2008 letter for a previous Sandbridge Beach nourishment event. The USFWS was notified by letter on October 19, 2017 about the proposed action, with updates to previous analyses conducted in 2008 and 2012. In addition to this communication, the project details were subject to the USFWS' Virginia Ecological Services online project review process. Upon completion, USACE and BOEM were notified that the consultation was complete on December 21, 2017.

This project was fully coordinated under the ESA and is in full compliance with the Act. BOEM and the USACE have consulted with the USFWS and NMFS. If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action, consultation will need to be reinitiated.

*10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.*

The USACE and Virginia Beach must comply with all applicable Federal, State, and local laws and requirements. The dredging contractor is required to provide an environmental protection plan that verifies compliance with environmental requirements. BOEM and the USACE have undertaken the necessary consultations with NMFS, USFWS, and relevant state agencies. The Virginia Marine Resources Commission (VMRC) permit is current (VMRC Permit # 09-1686) and the project has a current Clean Water Act (CWA) 401 certification from the Virginia Department of Environmental Quality (VWP Permit # 09-1686). Additionally, a consistency determination according to the Coastal Zone Management Act (CZMA) from the Virginia Department of Environmental Quality (VDEQ) has been issued for the proposed action. These state-issued documents include mitigation and monitoring requirements that are applicable to the connected state activities, but not to BOEM's proposed action.

The proposed action is in compliance with the Marine Mammal Protection Act. Marine mammals are not likely to be adversely affected by the project and incorporation of safeguards to protect threatened and endangered species during project construction would also protect marine mammals in the area. Migratory birds are not likely to be adversely affected by the proposed action. No recent nesting of migratory birds has been reported on Sandbridge Beach.

### **Consultations and Public Involvement**


The USACE, serving as the lead Federal agency, and BOEM, in a consulting role, has coordinated with the USFWS, NMFS, VDEQ, and Virginia SHPO in support of this leasing decision. Pertinent correspondence with Federal and state agencies are provided in Appendices A-F of the EA. After signature of this FONSI, the EA and FONSI will be posted to BOEM's website (<https://www.boem.gov/Virginia-Projects/>).

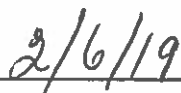
### **Conclusion**

BOEM has considered the consequences of issuing a negotiated agreement to authorize use of OCS sand from Sandbridge Shoals A and B in the Sandbridge Beach Erosion Control and Hurricane Protection Project. BOEM prepared the attached EA (Attachment 2) and finds that it

complies with the relevant provisions of the CEQ regulations implementing NEPA, DOI regulations implementing NEPA, and other Marine Mineral Program requirements. Based on the NEPA and consultation process, appropriate terms and conditions enforceable by BOEM will be incorporated into the negotiated agreement to avoid, minimize, and/or mitigate any foreseeable adverse impacts (Attachment 1).

Based on the evaluation of potential impacts and mitigating measures discussed in the EA, BOEM finds that entering into a negotiated agreement, with the implementation of the mitigating measures, does not constitute a major Federal action significantly affecting the quality of the human environment, in the sense of NEPA Section 102(2)(C), and will not require preparation of an EIS.

  
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Jill Lewandowski  
Chief, Division of Environmental  
Assessment

  
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Date

**Attachment 1**

**Negotiated Agreement**



## **PROPOSED MITIGATION MEASURES (where this differs from the lease, the lease governs)**

### **1. Plans and Performance Requirements**

The USACE will include this MOA as a reference document in the advertised “Construction Solicitation and Specifications Plan” (hereinafter referred to as the “Plan”). The USACE will ensure that all operations at SSBA are conducted in accordance with the final approved Plan and all terms and conditions in this MOA, as well as all applicable statutes, regulations, orders and any guidelines or directives specified or referenced herein. The USACE will send BOEM a copy of the plans and its modification when publically available.

The dredging method for removing sand from SSBA will be consistent with those evaluated in all applicable NEPA documents and approved in the authorizing documents, as well as project permits. The USACE will allow BOEM to review and comment on modifications to the Plan that may affect the borrow area or pipeline corridors on the OCS, including the use of submerged or floated pipelines to directly convey sediment from the borrow area to the placement site. Said comments will be delivered in a timely fashion so as to not unnecessarily delay the USACE’s construction contract or schedule.

If dredging and/or conveyance methods are not wholly consistent with those evaluated in relevant NEPA documents prepared by BOEM for this Project, and environmental and cultural resource consultations, and those authorized by relevant project permits, additional environmental review may be necessary. If the additional NEPA, consultations, or permit modifications would impact or otherwise supplement the provisions of the MOA, an amendment may be required.

Prior to the commencement of construction, the USACE must electronically provide BOEM with a summary of the construction schedule consistent with Paragraph 15. The USACE, at the reasonable request of BOEM or the Bureau of Safety and Environmental Enforcement (BSEE), must allow any authorized Federal inspector to access the site of any operation, when permitted by safety regulations, and must provide BOEM or BSEE any documents and records that are pertinent to occupational or public health, safety, environmental protection, conservation of natural resources, or other use of the OCS as may be requested.

### **2. Environmental Responsibilities and Environmental Compliance**

The USACE is the lead agency on behalf of the Federal Government to ensure the Project complies with applicable environmental laws, including but not limited to the ESA, MSA, NHPA, and CZMA, and any consultations or limitations imposed thereunder. The USACE or the City, as designated, is responsible for compliance with the specific conditions of state permits, such as those administered by the Virginia Marine Resources Commission (VMRC) and Virginia Department of Environmental Quality (VDEQ).

The USACE will serve as the lead Federal agency for ESA Section 7 consultation concerning protected species under the purview of the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). The USACE will instruct its contractor(s) to

implement the mitigation terms, conditions, and measures required by the USFWS, NMFS, VMRC, and BOEM pursuant to applicable Federal and State laws and regulations prior to commencement of activities authorized under this MOA, including extraction, transportation and placement of sand resources from SSBA. The required mitigation terms, conditions, and measures are reflected in the relevant Biological Opinions, Conservation Recommendations, Consistency Determinations, and state permits issued to the USACE and/or City. Stipulations and mitigations associated with consultations are provided in Attachment 2, with full details, context, and correspondence provided as appendices to BOEM's Environmental Assessment. Electronic copies of all relevant correspondence, monitoring data, and reports related to the activities covered by this MOA, will be provided electronically to BOEM within 14 days of issuance (including, but not limited to, observer and dredging reports, and reports required by relevant project permits). Construction may not commence until the pre-construction requirements have been completed.

### **3. Pre-Construction Notification of Activity in or near the Borrow Area**

The USACE will invite BOEM to attend a pre-construction meeting that describes the USACE's and/or its contractor's or agent's plan and schedule to construct the Project.

The USACE will notify BOEM electronically at least 72 hours prior to the commencement, and within 24 hours after termination, of operations at SSBA. BOEM will electronically notify the USACE in a timely manner of any OCS activity within the jurisdiction of the DOI that may adversely affect the USACE's ability to use OCS sand for the Project.

### **4. Dredge Positioning**

During all phases of the Project, the USACE will ensure that the dredge and any bottom-disturbing equipment is outfitted with an onboard global positioning system (GPS) capable of maintaining and recording location within an accuracy range of no more than plus or minus 3 meters. The GPS must be installed as close to the hydraulic dredge as is practicable or must use appropriate instrumentation to accurately represent the position of the hydraulic dredge. During dredging operations, the USACE will immediately notify BOEM electronically if dredging occurs outside of the approved borrow area. Such notification will be made as soon as possible after the time USACE becomes aware of dredging outside of the approved borrow area.

Anchoring, spudding, or other bottom disturbing activities are not authorized outside of the approved borrow area on the OCS, except for immediate concerns of safety, navigation risks or emergency situations.

The USACE will provide BOEM, electronically, with all appropriate Dredging Quality Management (DQM) data acquired during the Project using procedures jointly developed by the USACE's National Dredging Quality Management (DQM) Data Program Support Center and BOEM. The USACE will submit the DQM data, including draghead, cutterhead, or other hydraulic or mechanical dredging device depth every two weeks. A summary DQM dataset will be submitted within 90 days of completion of the Project. If available, the USACE will also submit Automatic Identification System (AIS) data for vessels qualifying under the International Maritime Organization's (IMO) International Convention for the Safety of Life at Sea.

## **5. Dredge Operation**

Dredging will occur preferentially in naturally accreting areas of the shoal complex, avoiding erosional areas of the shoal to the extent possible, and will avoid creating deep depressions or pits.

## **6. Submittal of Production and Volume Information**

The USACE, in cooperation with the dredge operator, must submit to BOEM a summary of the dredge track lines, outlining any deviations from the original Plan every two weeks. A color-coded plot of the draghead, cutterhead, or other hydraulic or mechanical dredging device will be submitted, showing any horizontal or vertical dredge violations. The dredge track lines must show dredge status: hoteling, dredging, transiting, or unloading. This map will be provided in PDF format.

At least every two weeks, the USACE will electronically provide a report of the construction progress including estimated volumetric production rates to BOEM. The project completion report, as described below, will also include production and volume information, including Daily Operational Reports.

## **7. Local Notice to Mariners**

The USACE will require its contractor(s) for the Project to place a notice in the U.S. Coast Guard Local Notice to Mariners regarding the timeframe and location of dredging and construction operations in advance of commencement of dredging.

## **8. Marine Pollution Control and Contingency Plan**

The USACE will require its contractor(s) and subcontractor(s) to prepare for and take all necessary precautions to prevent discharges of oil and releases of waste or hazardous materials that may impair water quality. In the event of such an occurrence, notification and response will be in accordance with applicable requirements of 40 C.F.R. Part 300. All dredging and support operations must be compliant with U.S. Coast Guard regulations and the U.S. Environmental Protection Agency's Vessel General Permit, as applicable. The USACE will notify BOEM of any noncompliant discharges and remedial actions taken, and will provide copies of reports of the incident and resultant actions electronically.

## **9. Encounter of Ordnance**

If any ordnance is encountered while conducting dredging activities at SSBA, the USACE will report the discovery within 24 hours to Dr. Jeff Reidenauer, Chief, BOEM Marine Minerals Division, at (703) 787-1851 and [dredgeinfo@boem.gov](mailto:dredgeinfo@boem.gov).

## **10. Bathymetric Surveys**

The Corps will provide BOEM with pre- and post-dredging bathymetric surveys of the Borrow Area. The pre-dredging survey of the Borrow Area will be conducted within 60 days prior to the commencement of dredging and the data will be provided to BOEM for review via

[dredgeinfo@boem.gov](mailto:dredgeinfo@boem.gov), allowing for a minimum of 7 working days for BOEM to provide concurrence prior to the commencement of dredging. A qualified hydrographic surveyor, independent from the dredging/construction contractor, must conduct and oversee the survey, and must approve the survey results before transmitting them to BOEM. The post-dredging survey of the Borrow Area will be conducted within 60 days after the completion of dredging. Given available funding, BOEM recommends that the Corps conduct additional bathymetric surveys of the Borrow Area one (1) and three (3) years after the completion of dredging to document borrow area evolution and provide information to inform future decisions and consultations regarding use of OCS sand resources. Surveys, error analysis, and reporting will be performed in accordance with the most recent edition of the National Oceanic and Atmospheric Administration's (NOAA's) Office of Coast Survey Hydrographic Survey Field Procedure Manual. Survey standards and requirements are specified and can be found on the Coast Survey Document Library (<https://www.nauticalcharts.noaa.gov/publications/docs/standards-and-requirements/specs/hssd-2017.pdf>).

For bathymetric surveys, one hundred percent coverage using multi-beam bathymetric survey methods is required. All bathymetric data will be roll, pitch, heave, and tide corrected using best practices. Sound velocity corrections will be applied based on measurements made during and throughout the duration of the survey using a profiling sound velocity meter to obtain water column sound velocities with casts that log the entire water column to the seafloor. Survey lines of the specific dredge area will be established at intervals necessary to provide 100 percent coverage. All survey lines will extend at least 100 meters (328 feet) beyond the edge of the Borrow Area limits as defined in this MOA.

All data will be collected in such a manner that post-dredging bathymetric surveys are compatible with the pre-dredging bathymetric survey data to enable the latter to be subtracted from the former to calculate the volume of sand removed, the shape of the excavation, and the nature of post-dredging bathymetric change. Pre-dredge bathymetric survey transects will be reoccupied during the post-dredging surveys. Surveys will be conducted using kinematic GPS referenced to a GPS base station occupying an established (NAVD 88 vertical control) monument within 15 kilometers (9 miles) of the survey area, a National Geodetic Survey real-time network, or a water-level gauge deployed within the vicinity of the Borrow Area and referenced to an established monument (NAVD 88 vertical control), unless alternative methods are approved by BOEM. Pre- and post-dredging surveys will be referenced to the same water-level gauge, tide gauge, real-time network, benchmark, or BOEM-approved method. An uncertainty or error analysis will be conducted on the bathymetric dataset based on calculated differences of measured elevations (depths) at all transect crossings (also note that other best practices typically employed to identify potential error or quantify uncertainty, such as daily bar-checks, will be conducted and documented). A methods section and results of the uncertainty analysis, field notes, and metadata must be submitted to BOEM with the processed bathymetric data products.

If data accuracy, coverage, quality, or other parameters for either pre- or post-dredging surveys are not sufficient to provide for accurate comparisons between the pre-dredge and post-dredge surveys (e.g., do not meet specifications and standards discussed or referenced above), BOEM may require that a new survey (at the pre-dredge and/or post-dredge phase) be conducted.

The delivery format for bathymetry data submission is an ASCII file containing x, y, z data and a digital elevation model in a format agreed upon between BOEM and USACE in writing. The horizontal data will be provided in the NAD83 Virginia State Plane South, U.S. survey feet. Vertical data will be provided in the NAVD 88, U.S. survey feet unless otherwise specified. An 8.5 x 11 inch plan view plot of the pre- and post-construction data will be provided showing the survey vessel navigation tracks, as well as contour lines at appropriate elevation intervals. A plot of the digital elevation model will also be provided. These plots will be provided in Adobe PDF format. Images and descriptions of side scan sonar or bathymetric anomaly targets will be included and identified on an index map.

## **11. Archaeological Resources**

### *Onshore Prehistoric or Historic Resources*

If the USACE discovers any previously unknown historic or archeological resources while accomplishing the activity on Sandbridge Beach, the USACE will notify BOEM of any finding. The USACE will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

### *Offshore Prehistoric or Historic Resources*

The following anomalies (listed in **Table 2**) must be avoided during dredging operations by a radius of at least 200 feet around the target coordinates and 500 feet around two side-scan (S1\*) sonar targets:





- the names and titles of the project managers overseeing the effort (for the USACE, the engineering firm (if applicable), and the contractor), including contact information (phone numbers, mailing addresses, and email addresses);
- the location and description of the Project, including the final total volume of material extracted from the borrow area and the volume of material actually placed on the beach or shoreline (including a description of the volume calculation method used to determine these volumes);
- DQM data, in ASCII files, containing the x, y, z coordinates and time stamp of the cutterhead or drag arm locations;
- a narrative describing the final, as-built features, boundaries, and acreage, including the restored beach width and length;
- a narrative discussing the construction sequences and activities, and, if applicable, any problems encountered and solutions;
- a list and description of any construction change orders issued, if applicable;
- a list and description of any safety-related issues or accidents reported during the life of the project;
- a narrative and any appropriate tables describing any environmental surveys or efforts associated with the Project and costs associated with these surveys or efforts;
- a table listing significant construction dates beginning with bid opening and ending with final acceptance of the Project by the USACE;
- a table showing the various phases of the Project construction, the types of construction equipment used, the nature of their use;
- digital appendices containing the as-built surveys, beach-fill cross-sections, and survey data; and
- metadata appropriate to electronic deliverables; and
- any additional pertinent comments.

#### **14. Reporting Compliance**

The USACE will designate in advance of construction a single point of contact (and preferably a back-up contact) responsible for facilitation of compliance with all MOA requirements. The contact information will be provided to BOEM, electronically, at least 30 days in advance of dredging and construction operations.

The Parties will attempt to reasonably comply with the provisions of this MOA. Should there be an allegation of a failure to comply, the alleged failure will be corrected as soon as possible and/or resolved jointly among BOEM, USACE and the City, including through the dispute resolution process identified in Paragraph 16.

#### **15. Sharing of Information**

Consistent with the purpose stipulated by the Parties in Title II, and to the extent allowed by law, policy and regulation, the USACE, the City, and BOEM agree to: (1) share all information needed for or generated from the Project, including the sharing of implementation and other



applicable schedules; (2) provide such information to the requesting agency as expeditiously as possible; and (3) work to ensure that all required completion report information is received.

The Parties to this MOA acknowledge that information and reports required by and/or exchanged pursuant to the Project that is the subject of this MOA may include confidential business information, proprietary information, or other sensitive information that should be protected from disclosure.

Any Party, contractor or agent of one of the Parties requesting that information or reports provided pursuant to this MOA be treated as confidential, will prominently mark the information and report as “Confidential” along with the bases for the claim of confidentiality. Any covering correspondence submitted with the information or report will likewise note the claim of confidentiality being asserted. To the extent practicable, a Party to this MOA may only request information that has been marked as “Confidential” and is in the possession of another Party to this MOA if the information is needed by the requesting Party to carry out their obligations under this MOA or if the information is necessary for the requesting Party to fulfill their obligations under the law. The Party in possession of the information requested may work with the requesting party to determine if the information can be shared without waiving the confidential nature of the material.

The Parties further agree that they will notify the other Parties as soon as possible, in writing, of any request by any person seeking the release or disclosure of information marked “Confidential” in whole or in part, including, but not limited to, requests pursuant to Court orders, discovery, subpoenas, or other compulsory process, or public access request under applicable Federal or State law. Notification will be considered timely if it provides the Parties or individuals claiming the information or report is confidential a reasonable opportunity to seek a Court order to prevent release or disclosure. Any disputes regarding requests for information or the confidential nature of the information requested will be resolved according to applicable law and through the dispute resolution process identified in Paragraph 16. If the Party or individual claiming the information or report is confidential fails to obtain a timely Court order preventing the release or disclosure of the information, the Party in possession of the information will release it to the extent required by applicable law.

## **16. Resolution of Disputes**

The Parties agree to make every attempt to settle any disputes regarding this MOA at the lowest operational level. In the case of a (1) substantial disagreement between BOEM and USACE or between BOEM and the City with respect to any aspect of BOEM’s authorization of the use of OCS sand resources in accordance with the terms and conditions as specified or (2) any alleged breach by a Party of the terms and conditions as specified herein, the undersigned will designate a senior management official in their respective agencies to state the area(s) of disagreement or alleged breach in writing and present such statement to the other Parties for consideration. If resolution is not reached within 60 days, the undersigned may request the active participation of the District Commander, Norfolk District of the USACE, the Chief of the Office of Strategic Resources of BOEM, and the City Manager for the City of Virginia Beach.

## **17. Miscellaneous**

This MOA will not affect any pre-existing or independent relationships or obligations among DOI, USACE, and the City, including any other relationships or obligations between BOEM and USACE, or any other units of such Departments.

All rights in the SSBA not expressly granted to USACE and the City are hereby reserved to BOEM. BOEM reserves the right to authorize other uses in the SSBA that will not unreasonably interfere with activities authorized under this MOA. BOEM will allow USACE and the City to review and comment on any proposed authorizations for the use of OCS sand resources in the SSBA while this MOA is in effect.

Nothing herein is intended to conflict with current USACE, City, or BOEM statutes or regulations. If the terms of this MOA are inconsistent with existing statutes or regulations of any of the Parties entering into this MOA, then those portions of this agreement which are determined to be inconsistent will be invalid, but the remaining terms and conditions not affected by the inconsistency will remain in full force and effect. At the first opportunity for review of the MOA once such inconsistency is identified, all necessary changes will be accomplished either by an amendment to this MOA or by entering into a new MOA, whichever is deemed expedient to the interest of the Parties.

This agreement may be executed in two (2) or more counterparts, each of which will be deemed an original. The signatures to this agreement may be executed on separate pages, and when attached to this agreement will constitute one complete document.

**Attachment 2**

**Final Environmental Assessment with Appendices**

# Issuance of a Negotiated Agreement for Use of Outer Continental Shelf Sand from Sandbridge Shoal in the Sandbridge Beach Erosion Control and Hurricane Protection Project Virginia Beach, Virginia

## Environmental Assessment



# **Issuance of a Negotiated Agreement for Use of Outer Continental Shelf Sand from Sandbridge Shoal in the Sandbridge Beach Erosion Control and Hurricane Protection Project Virginia Beach, Virginia**

## **Environmental Assessment**

Bureau of Ocean Energy Management  
Division of Environmental Assessment

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# 1 INTRODUCTION

This Environmental Assessment (EA) provides an updated evaluation of the potential environmental impacts associated with the Bureau of Ocean Energy Management (BOEM) authorization for the use of up to 2,200,000 cubic yards (cy) of Outer Continental Shelf (OCS) sand from the Sandbridge Shoal Borrow Areas A and B for the Sandbridge Beach Erosion Control and Hurricane Protection Project near Virginia Beach, VA. BOEM proposes to enter into a noncompetitive agreement with the U.S. Army Corps of Engineers (USACE), Norfolk District and the City of Virginia Beach so that the project proponents can extract, transport, and place sand from Sandbridge Shoal to approximately 5 miles of shoreline along Sandbridge Beach (Figure 1). These borrow areas have been used multiple times for different projects (Table 1).

**Table 1. Past Project Use of Sandbridge Shoal Borrow Areas**

<b>Project</b>	<b>Year completed</b>	<b>Volume leased (cubic yards)</b>	<b>Shore restored (miles)</b>
Dam Neck (Navy)	1996	808,600	1.8
Sandbridge (USACE)	1998	1,100,000	5.0
Sandbridge (USACE)	2003	2,000,000	5.0
Dam Neck (Navy)	2004	700,000	1.8
Sandbridge (USACE)	2007	2,100,000	5.0
Sandbridge (USACE)	2013	2,134,000	5.0
Dam Neck (Navy)	2015	700,000	2.0

Pursuant to the National Environmental Policy Act (NEPA), the USACE described the affected environment, evaluated potential environmental impacts (initial construction and nourishment events), and considered alternatives to the proposed action in a 2009 Environmental Assessment (EA). This EA was subsequently updated and adopted by BOEM in 2012 in association with the most recent 2013 Sandbridge nourishment effort (BOEM 2012). Prior to this, BOEM (previously Minerals Management Service [MMS]) was a cooperating agency on several EAs for previous projects (MMS 1997; MMS 2001; MMS 2006). This current EA, prepared by BOEM, supplements and summarizes the aforementioned 2012 analyses. The purpose of this EA is to determine if the proposed action and alternatives, in light of new information, would have any significant effect on the human environment and whether an Environmental Impact Statement (EIS) is needed.

BOEM has integrated the process of NEPA compliance with other environmental requirements, including the Endangered Species Act (ESA), Magnuson-Stevens Fishery Management and Conservation Act (MSA), National Historic Preservation Act (NHPA), and Coastal Zone Management Act (CZMA). The USACE has served in the role of lead federal agency for these other environmental requirements, while BOEM has acted in a cooperating role.

The USACE (lead agency) and BOEM consulted with the National Marine Fisheries Service (NMFS) on Essential Fish Habitat (EFH) for the previous nourishment event in 2009, with



updates in 2012. NMFS issued Conservation Recommendations on June 19, 2009 focusing on protecting shoal morphology (BOEM 2012). Because there are updates to several species and lifestages, an updated Supplemental Essential Fish Habitat Assessment has been prepared. The EFH consultation with NMFS is ongoing (Appendix A).

The potential project-related impacts on protected species were previously coordinated by USACE with NMFS and are covered in a Batched Biological Opinion (BO) (NMFS 2012) in Appendix B. USACE and BOEM concluded that the project was not likely to adversely affect shortnose sturgeon, hawksbill sea turtles, and sperm, blue, North Atlantic right, humpback or fin whales; the project may adversely affect Atlantic sturgeon, and loggerhead, Kemp's ridley, green, and leatherback sea turtles; however, the proposed project is not likely to jeopardize the continued existence of any ESA-listed species. NMFS was notified of this coverage via letter (dated October 30, 2017), and provided their agreement via email (dated December 22, 2017) (Appendix B). There is no critical habitat for protected species in the project area. All Reasonable and Prudent Measures (RPM's) and Terms and Conditions (T&C's) outlined in the Batched BO will be implemented for the proposed action.

The U.S. Fish and Wildlife Service (USFWS) was notified by letter on October 19, 2017 about the proposed action, with updates to previous analyses conducted in 2008 and 2012. The USACE and BOEM concluded that the proposed action would not adversely affect any protected species in USFWS' jurisdiction, given provisions previously outlined (Appendix C). In addition to this communication, the project details were subject to the USFWS' Virginia Ecological Services online project review process. Upon completion, USACE and BOEM were notified that the consultation was complete on December 21, 2017 (Appendix C).

On December 12, 2017, USACE and BOEM sent a letter to the Virginia Department of Historic Resources (DHR) to consult on the proposed project under the NHPA Section 106 (Appendix D). Previously identified areas of potential cultural resources will again be avoided, with a 200-foot buffer around anomalies and a 500-foot buffer around two side-scan sonar targets, as determined by coordination with DHR. Because of this, USACE and BOEM concluded the proposed project would not adversely affect any potential historic sites; the state's archaeologist provided concurrence on January 23, 2018.

Pursuant to the CZMA, USACE Norfolk and the City of Virginia Beach provided a federal consistency determination to the Virginia Department of Environmental Quality (VDEQ) for the Sandbridge Beach project (dated June 2, 2009). VDEQ provided concurrence that the proposed actions are consistent with the Virginia's Coastal Zone Management Program for the 50-year life of the project. There have been no changes to the project since this determination was made (Appendix E).

## **2 PURPOSE AND NEED FOR THE PROPOSED ACTION**

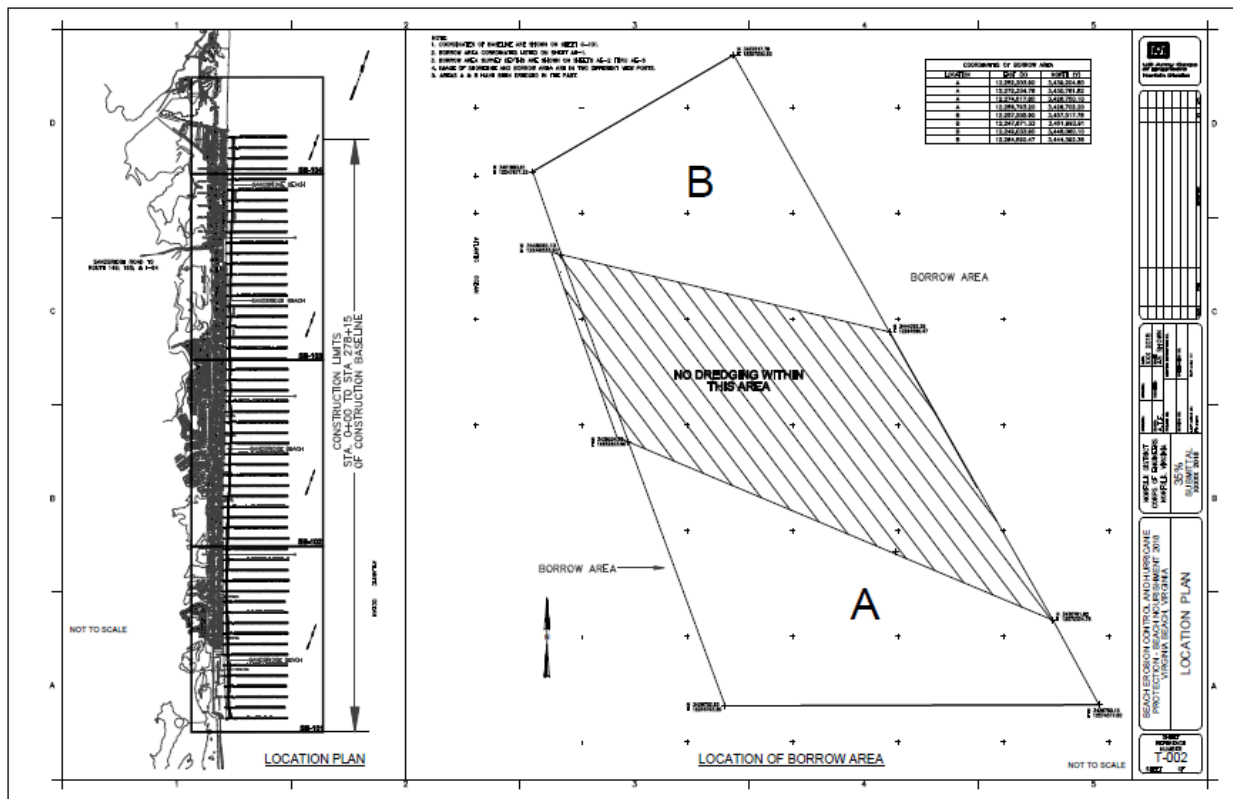
The purpose of the proposed action is to provide protection from erosion-induced damages and also to provide limited protection to the beach and to residential structures from storm damage.

Nourishment is necessary to reinforce the beach berm in anticipation of strong storms (e.g., nor'easters) and hurricanes over the 50-year project life.

More specifically, BOEM's action is to respond to the request for use of OCS sand under the authority granted to the Department of the Interior by the Outer Continental Shelf Lands Act (OCSLA). BOEM's Proposed Action would authorize the use of OCS sand resources from borrow areas A and B to provide storm damage protection to structures that would otherwise be threatened by chronic shoreline retreat and storm-induced beach erosion and to maintain an area suitable for recreation and wildlife habitat by performing periodic beach nourishment.

### 3 DESCRIPTION OF THE PROPOSED ACTION

Details of the proposed action are included in the original EA (BOEM 2012). In summary, USACE and the City of Virginia Beach propose to dredge 2,200,000 cy from Borrow Areas A and B using a trailing suction hopper dredge to nourish the Sandbridge oceanfront, an area approximately 5 miles long and 125 feet wide. BOEM proposes to authorize the use of 2,200,000 cy of OCS sand from Borrow Areas A and B.



## 4 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

This EA updates previous analyses, which remain relevant since the project description is the same and relevant Federal laws have not changed. This EA only provides additional information on the status of, and potential impacts to: 1) noise, 2) benthic environment, 3) Essential Fish Habitat (EFH), and 4) protected species. Previous NEPA documents, particularly the 2012 EA (BOEM 2012), evaluated impacts to other resources, as summarized in Table 2.

**Table 2. Summary of BOEM’s 2012 EA Impacts and Mitigation**

ENVIRONMENTAL RESOURCE	BOEM 2012 EA IMPACTS (Section)	MITIGATION (Proposed Mitigation Measures in Appendix F)
CLIMATE	No impacts (7.1.1)	NA
GEOLOGY AND SOILS	No impacts (7.1.2)	NA
TERRESTRIAL ENVIRONMENT & WILDLIFE	Temporary disruption to food web due to loss of benthic infauna; no impacts (7.1.3)	Shoreline monitoring of nesting activities and beach profile
PHYSICAL OCEANOGRAPHY	Hydrodynamic changes small, local, and temporary; changes in longshore transport minimal (7.1.4)	Keep cut depths to <10 ft in order to minimize disruptions to local hydrodynamics and sediment transport
NOISE	Impacts localized and temporary (i.e., the 3-5 month duration of the project) (7.1.5)	Noise pollution will be minimized as possible
HAZARDOUS MATERIALS	No impacts (7.1.6)	Contractor responsible for proper storage and disposal
WATER QUALITY	Increased turbidity localized and temporary with minimal impacts (7.1.7)	Virginia Water Protection Permit conditions; marine debris and spill control plan required
AIR QUALITY	Low levels of emissions; no impacts (7.1.8)	NA
BENTHIC ENVIRONMENT	Local and temporary removal of benthos and disruption to predators, with recolonization expected within one year; fish entrainment, mortality, abrasions, displacement, and habitat changes expected to be localized and temporary (7.2.1)	Pre- and post-construction bathymetry surveys to monitor geomorphology
SUBMERGED AQUATIC VEGETATION (SAV)	No impact due to absence of SAV in borrow and placement sites (7.2.2)	NA
ESSENTIAL FISH HABITAT (EFH)	Changes to habitat quality and morphology and decreases in water quality localized and temporary (7.2.3)	Conservation Recommendations from EFH Consultation
PROTECTED SPECIES	<i>Sea turtles</i> : entrainment may permanently affect local individuals but population-level impacts not expected with mitigations; nesting disruptions may occur locally and temporarily but renourished beaches may benefit sea turtles with more habitat <i>Whales</i> : impacts from noise and habitat degradation are expected to be local, temporary, and minor; vessel collisions may be cause permanent impacts, but mitigations are expected to minimize risk <i>Birds</i> : no impacts due to low probability of occurrence of species <i>Fish</i> : no impacts due to low probability of occurrence of species (7.2.4)	Reasonable and Prudent Measures and Terms & Conditions in NMFS’ Batched BO (NMFS 2012; Appendix B) and FWS’ 2008 guidance (Appendix C)

<b>ENVIRONMENTAL RESOURCE</b>	<b>BOEM 2012 EA IMPACTS (Section)</b>	<b>MITIGATION (Proposed Mitigation Measures in Appendix F)</b>
SOCIOECONOMIC RESOURCES	No impacts to population or employment; vacation rentals and tourism may have minor, local, short-term impacts but nourishment may enhance activities long-term; recreational and commercial fisheries may be temporarily displaced from local dredge and placement sites but are not significant (7.3.1)	On-shore noise and aesthetics to be minimized to the maximum extent practicable
ENVIRONMENTAL JUSTICE	No impacts because there are not significant low-income or minority populations (7.3.2)	On-shore noise and aesthetics to be minimized to the maximum extent practicable
MILITARY USE/ NAVIGATION	Coordination with the Navy would minimize military use impacts; mariners may experience temporary, local, and minor inconvenience due to activities and pump-out buoys (7.3.3)	The Navy will be alerted as to when construction activities are expected to start
CULTURAL RESOURCES	Avoidance areas around potential cultural resources in the borrow area are established based on previous surveys so no impacts are expected; no impacts on land-based resources (7.3.4)	Avoidance areas and buffers will be required around identified potentially significant cultural resources
AESTHETICS	Local, minor, temporary impacts during construction are expected, though long-term nourishment may be a benefit (7.3.5)	Construction equipment will be monitored and stored out of sight to the maximum extent practicable
CUMULATIVE IMPACTS	Minor, localized, with both short and long-term cumulative effects (8.0)	Monitoring of sediment and bathymetry will improve long-term management

#### **4.1 Noise**

Anthropogenic noises can disrupt animal movement, communication, foraging, and spawning (Hawkins and Popper 2016, Popper and Fay 2011, Southall et al. 2007). While hearing sensitivity is species-specific, animals can generally hear best within the same range of frequencies as their vocalizations. For example, small benthic animals like oysters and fish are most sensitive to low frequency signals at short-range (< 1kHz) (Charifi et al. 2017, Ladich and Fay 2013, Popper and Fay 2011), while larger animals like sperm whales can detect sounds from several kilometers away (Mellinger et al. 2002, Richardson et al. 1995). Dredges, both cutterhead and hopper, produce continuous noises with source levels ranging from 172 to 188 dB re 1 µPa rms, at a 20-30 kHz bandwidth (CEDA 2011). NOAA recently released acoustic guidance that discusses the levels of received sound that would result in temporary or permanent threshold shifts (changes to the lowest-amplitude sounds that an animal can detect) in five hearing groups of marine mammals (NOAA 2016). The non-impulsive noise associated with dredging may result in cumulative sound exposure to marine animals, measured over a 24-hour period; however, it is not expected to result in harassment.

The measured dredge noise was based on source level, so the actual received level of the dredge would be lower by the time it was received by an animal, reducing the likelihood of shifts in animal hearing. Dredging of Sandbridge shoal is expected to occur 24 hours a day for several months (generally, 3 to 5 months depending on the number and capacity of each dredge). Despite the continuous nature of the activity, the dredge sound would be limited to a small area less than 30 m deep, where marine mammals are transient. Therefore, marine mammals are not

expected to be exposed to dredge noise for more than a few hours, further reducing the chance of a 24-hour cumulative exposure resulting in a threshold shift. Because of the low probability and low exposure of animals to sound, impacts are expected to be local, temporary, and minor.

#### 4.2 Benthic Environment

Habitat and morphology changes within Sandbridge Shoal have been monitored since 1989, most often before and after dredging projects. An initial survey of the shoal indicated approximately 39.8 million cy of compatible beach material (Kimball and Dame 1989). Another survey expanded this estimate to over 104 million cy of usable sand (Kimball et al. 1991); however, subsequent surveys revealed there are areas of incompatible sand, resulting in less volume than originally estimated. Dredging over the last 22 years has removed just under 9.6 million cy of material for seven beach nourishment projects. It is possible that infilling has occurred; however, although BOEM requires that bathymetric surveys be conducted pre- and post-construction to continue monitoring physical changes, actual rates of infilling have not been calculated.

There is no new information in regards to physical impacts that suggests there is the potential for significantly different effects to benthic habitat or communities not previously considered. The previous conclusions remain valid; expected effects on this resource is to be localized, moderate, and long-term due to the loss of substrate within the borrow area although some degree of infilling is to be expected.

#### 4.3 Essential Fish Habitat (EFH)

BOEM determined that updates were needed on the most recent assessment of EFH (BOEM 2012). Since the last EFH assessment was submitted for this project, there have been amendments to EFH designations. Designated EFH within the project area has been modified and does not include EFH for juvenile and adult scalloped hammerhead shark and winter skate. HAPC boundaries have been modified such that the borrow area is no longer within a HAPC for Sandbar shark. Multiple species and lifestages were added. These comprehensive updates are included in the Supplemental EFH Assessment (Appendix A) and summarized in Table 3.

**Table 3. Species with EFH in the Sandbridge Borrow Area (highlight indicates updates since the 2012 EFH Assessment)**

Species	Eggs	Larvae/ Neonate	Juveniles	Adults
Albacore Tuna ( <i>Thunnus alalunga</i> )			X	
Angel Shark ( <i>Squatina dumeril</i> )			X	X
Atlantic butterfish ( <i>Peprilus triacanthus</i> )			X	X
Atlantic herring ( <i>Clupea harengus</i> )			X	X
Atlantic mackerel ( <i>Scomber scombrus</i> )			X	X

Species	Eggs	Larvae/ Neonate	Juveniles	Adults
Atlantic sharpnose shark ( <i>Rhizopriondon terraenovae</i> )				X
Atlantic surf clam ( <i>Spisula solidissima</i> )			X	
Black sea bass ( <i>Centropristis striata</i> )	n/a	X	X	X
Bluefin Tuna ( <i>Thunnus thynnus</i> )			X	X
Bluefish ( <i>Pomatomus saltatrix</i> )			X	X
Clearnose skate ( <i>Raja eglanteria</i> )			X	X
Cobia ( <i>Rachycentron canadum</i> )	X	X	X	X
Common Thresher Shark ( <i>Alopias vulpinus</i> )		X	X	X
Dusky shark ( <i>Carcharhinus obscurus</i> )		X	X	X
King mackerel ( <i>Scomberomorus cavalla</i> )	X	X	X	X
Little skate ( <i>Leucoraja erinacea</i> )			X	
Longfin inshore squid ( <i>Loligo pealeii</i> )	X			
Monkfish ( <i>Lophius americanus</i> )	X	X		
Red drum ( <i>Sciaenops ocellatus</i> )	X	X	X	X
Red hake ( <i>Urophycis chuss</i> )	X	X	X	
Sand tiger shark ( <i>Carcharias taurus</i> )		X	X	X
Sandbar shark ( <i>Carcharhinus plumbeus</i> )		X	X	X
Scup ( <i>Stenotomus chrysops</i> )			X	X
Skipjack Tuna ( <i>Katsuwonus pelamis</i> )			X	X
Smooth dogfish ( <i>Mustelus canis</i> )		X	X	X
Spanish mackerel ( <i>Scomberomorus maculatus</i> )	X	X	X	X
Spiny dogfish ( <i>Squalus acanthias</i> )			X	X
Summer flounder ( <i>Paralichthys dentatus</i> )			X	X
Tiger Shark ( <i>Galeocerdo cuvier</i> )		X	X	X
Windowpane flounder ( <i>Scophthalmus aquosus</i> )	X	X	X	
Witch flounder ( <i>Glyptocephalus cynoglossus</i> )	X			
Yellowfin Tuna ( <i>Thunnus albacares</i> )			X	

After considering this new information in the context of the previous analysis (BOEM 2012), no new significant impacts to EFH are expected. The effects are expected to be minor, short-term, and limited to the borrow area.

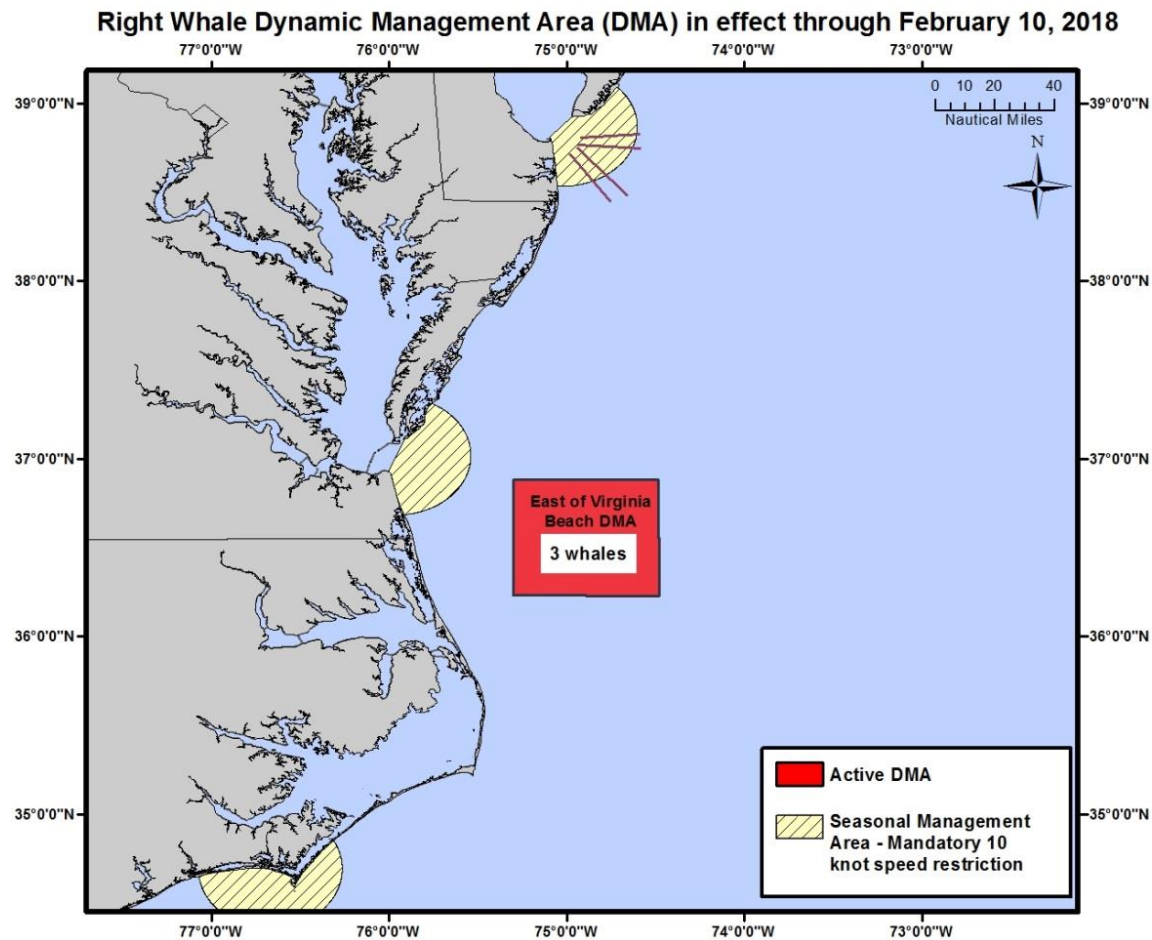
#### 4.4 Protected Species

##### Whales

The humpback whale's listing under the ESA was amended from endangered to a DPS that is not

at risk in the project area (81 FR 62259).

North Atlantic right whale critical habitat was expanded in 2016 (81 FR 4837) to include both a northeastern U.S. foraging area and a southeastern U.S. calving area; however neither overlap with the project area. A Seasonal Management Area (SMA) with mandatory speed restrictions is located off of Virginia Beach in the same area as the Sandbridge Borrow Area (Figure 2). Additionally, on January 31, 2018, three North Atlantic right whales were spotted off the Virginia coast, so a Dynamic Management Area (DMA) with voluntary speed restrictions was established through February 10, 2018 (NMFS 2018). Population data from 2012 indicate an estimated stock size of 440 individuals, which is a historical minimum (NMFS 2017). While whales, including the North Atlantic right whale, are found in the project area, previous analyses remain valid and mitigation measures will be applied, so the proposed project is not expected to significantly affect protected whale species. Effects are expected to be localized, minor, and short-term. Similarly, the biological opinion concludes that the proposed project is not likely to adversely affect large whales (NMFS 2012; Appendix B).



**Figure 2. North Atlantic Right Whale Seasonal Management Area**

## **Birds**

The rufa red knot is a coastal shorebird that was listed as threatened in 2015 (79 FR 73706). This medium-sized bird migrates between breeding areas in the Arctic to warmer wintering areas in the U.S. Southeast, Gulf of Mexico, and points south. During both spring and fall migrations, these birds stopover to rest and forage along their path. Groups that use the Virginia coast appeared to be stable since the mid-1990s, but recent surveys suggest a decrease in abundance (79 FR 73706). Migratory shorebirds, like the rufa red knot and piping plover, frequent the coastal barrier islands of Maryland and Virginia's Eastern Shore; they are less common south of the Chesapeake Bay near the project area. Because there is low probability of spatial overlap, project impacts to the rufa red knot are expected to be minor, temporary, and localized. Consultation with the USFWS under the ESA concluded that while habitat may be present, the species is not likely to be adversely affected because it is not expected to be in the project area (Appendix C).

## **Fish**

Atlantic sturgeon has five DPSs along the U.S. East Coast, designated in 2012 (77 FR 5880; 77 FR 5914). Critical habitat has been designated in 2017 in freshwater habitat, which does not overlap with the project area (81 FR 39160); however, Atlantic sturgeon have been detected on Sandbridge shoal and in nearby waters. In 2017, an acoustic telemetry array detected at least 61 Atlantic sturgeon in the Sandbridge borrow area; the majority of these occurred from November to December. Even with this observed presence, Atlantic sturgeon are mobile and move along the coast throughout the year, so their probability of overlap with dredging depends on the time of year. During the 2012-2013 nourishment event at Sandbridge, an Atlantic sturgeon carcass washed up on the beach near the project site, but due to the level of decomposition, death was determined to be unrelated to dredging. In addition to the risk of entrainment, the proposed project may temporarily remove prey or displace sturgeon. Mitigation measures, including hopper dredge draghead operational measures, would minimize risk to Atlantic sturgeon; therefore, impacts are expected to be localized, short-term, and minor. NMFS concluded that the project may adversely affect Atlantic sturgeon but not jeopardize the population. Munitions screens on the draghead are required because of documented munitions of explosive concern (MEC) and unexploded ordnance (UXO) in the area, so injury and death of animals cannot be directly observed. A proxy estimate is used in place of an onboard marine species observer. Based on the Incidental Take Statement issued by NOAA Fisheries PRD and calculated specifically for the proposed dredged volume (2,200,000 cy), this project assumes a take of one Atlantic sturgeon for work conducted year-round (Appendix B).

## **Sea Turtles**

Since the most recent EA, loggerhead sea turtles have been listed as nine DPSs in 2011 (76 FR 58868). The threatened Northwest Atlantic DPS occurs in the project area. Additionally, critical habitat for loggerheads was designated in 2014 (79 FR 39856), though none of the designations overlap with the dredging or placement area, so it is not expected to be affected. In patrolling 22.5 miles of Atlantic coast in 2010, four loggerhead nests were observed, which resulted in 57-



96% success rate (i.e., percent of emerged hatchlings) (USFWS 2010). Between 1970 and 2016, Virginia has been home to 166 loggerhead nests (VDIFG 2016); therefore, loggerheads may be affected on land and in water. In the 2012-2013 dredge event, one incidental take of a loggerhead was recorded on 5/17/13, when pieces of a specimen were found on the beach near the discharge pipe. Another decomposed loggerhead was observed onshore near the project area; NMFS experts did not consider the death a result of dredging (USACE 2013).

Green sea turtles have been listed as 11 DPSs in 2016 (81 FR 20057); the threatened North Atlantic DPS occurs in the project area. Nesting has been recorded in Virginia in 2005, though only once (VDGIF 2016); therefore, impacts to nesting are not expected, but green sea turtles may be affected in water.

In consultations with NMFS and USFWS, the proposed project may adversely affect loggerhead, Kemp's ridley, green, and leatherback sea turtles, but populations would not be in jeopardy. Munitions screens are required, so NMFS assumes an incidental take of one entrained sea turtle for every 300,000 cy of material dredged from April 1<sup>st</sup> through November 30<sup>th</sup>. Based on the proposed volume of 2,200,000 for this nourishment cycle, an incidental take of seven sea turtles (90% loggerheads, 8% Kemp's ridley, and 2% green) is anticipated for dredging during April 1-November 30 (Appendix B). Other than individual incidental takes, impacts to sea turtles are expected to be localized, temporary, and minor.

#### ***4.5 Cumulative impacts***

Cumulative impacts are those impacts on the environment that result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions. They are analyzed extensively in the previous EA by BOEM (2012), with updates provided here. Dredging over the last 22 years has removed approximately 9.8 million cy of material for beach nourishment of Sandbridge Beach and Dam Neck. BOEM expects both of these areas to continue to depend on the shoal for nourishment.

While the benthos is expected to recover between dredging events, full recovery may be abbreviated if time between events is limited (e.g., less than a year). An incomplete recovery of the prey base may then affect higher trophic level predators. Multiple dredge events are expected to change shoal morphology, which could impact habitat function. BOEM continues to work with previous and future datasets to better estimate rates of erosion or accretion within the borrow area, to inform dredge practices. BOEM continues to improve and implement best practices to mitigate impacts, including minimizing the dredge footprint and encouraging rotational dredging. In addition to dredging, a variety of other activities occurs on or near Sandbridge Shoal. Fishing, both recreational and commercial, may disturb pelagic or benthic habitats while removing marine animals, both targeted and as bycatch. Vessel traffic, such as from military activities, tankering, and for research, may increase noise, turbidity, and strike risk. Offshore development, such as wind farms or oil and gas infrastructure, may occur in the future, and while not likely to directly overlap with Sandbridge Shoal, it may affect vessel traffic, animal movements and populations, or other abiotic factors like water quality. Dredging may incrementally contribute to impacts on marine animals and their habitats, so continued

monitoring and mitigation is necessary to observe and adapt to environmental changes. There is no new information regarding impacts that suggests there is the potential for significantly different effects not previously considered, so this project is not expected to cause substantial cumulative effects.

#### **4.6 Conclusion**

This section included updated information on a selection of resources originally analyzed. For those resources analyzed previously, new information was not found to be relevant to environmental concerns or have bearing on project impacts. Through the findings of this EA, impacts from the proposed nourishment of Sandbridge Beach on the affected environment are not expected to be significant and therefore, BOEM determined that preparation of an EIS is not required.

### **5 ALTERNATIVE TO THE PROPOSED ACTION**

BOEM considered the following as an alternative to the proposed action:

Option A – hard structure: use seawalls, offshore, breakwaters, groins, and a combination of seawalls and raising the beach berm,

Option B – non-structural: flood plain regulation, flood proofing and permanent evacuation, and forecasting warnings, or

Option C – no action: do not undertake the project at this time.

Neither one or any combination of Options A and B provided an acceptable solution in terms of feasibility and/or economics, environmental, and technical concerns to the existing beach erosion and hurricane protection needs of Sandbridge Beach. Under the no action alternative, storms would continue to inflict expensive damages from erosion and storm surge along the oceanfront, and large portions of the beach would continue to be vulnerable. If this erosion continues, beach habitat for resting, foraging, and nesting animals could decrease, which could be especially detrimental to protected species like rufa red knots and sea turtles.

### **6 CONSULTATION AND COORDINATION**

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## 7 REFERENCES

- BOEM. 2012, Environmental Assessment: Sandbridge Beach Erosion Control and Hurricane Protection Project. Originally prepared by USACE and BOEM in June 2009.
- Central Dredging Association (CEDA), 2011. Underwater Sound In Relation to Dredging. CEDA Position Paper. 7 November 2011. 6 pp.
- Charifi, M., M. Sow, P. Ciret, S. Benomar & J. C. Massabuau, 2017. The sense of hearing in the Pacific oyster, *Magallana gigas*. PLoS One, 12, e0185353.
- Hawkins, A. D. & A. N. Popper, 2016. A sound approach to assessing the impact of underwater noise on marine fishes and invertebrates. ICES Journal of Marine Science: Journal du Conseil, fsw205.
- Ladich, F. & R. R. Fay, 2013. Auditory evoked potential audiometry in fish. 23, 317-364.
- Mellinger, D. K., A. Thode & A. Martinez, 2002. Passive acoustic monitoring of sperm whales in the Gulf of Mexico, with a model of acoustic detection distance. In 21st annual Gulf of Mexico information transfer meeting, ed. M. M. S. US Department of the Interior, 493-501. New Orleans, LA.
- NOAA, 2016. Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing. NOAA Technical Memo NMFS-OPR-55. July 2016.
- Popper, A. N. & R. R. Fay, 2011. Rethinking sound detection by fishes. Hear Res, 273, 25-36.
- Richardson, W. J., C. R. Greene, C. Malme & D. H. Thompson, 1995. Marine mammals and noise. San Diego, CA: Academic Press.
- Minerals Management Service (MMS), 1997. Environmental Assessment: Issuance of a Noncompetitive Lease for Sandbridge Shoal Sand and Gravel Borrow Area (Unit 1); Sandbridge Beach Erosion Control and Hurricane Protection Project. Virginia Beach, VA. November 14, 1997.
- MMS, 2001. Environmental Assessment: Issuance of a Noncompetitive Lease for Sandbridge Shoal Sand and Gravel Borrow Area (Borrow Area B); Sandbridge Beach Erosion and Hurricane Protection Project. Virginia Beach, VA. October 24, 2001.
- MMS, 2006. Environmental Assessment: Issuance of a Noncompetitive Lease for Sandbridge Shoal Sand (Borrow Areas A and B); Sandbridge Beach Erosion and Hurricane Protection Project. Virginia Beach, VA. March 2006.
- NMFS, 2012. Maintenance of Chesapeake Bay Entrance Channels and use of sand borrow areas for beach nourishment. NMFS, Endangered Species Act, Biological Opinion. F/NER/2012/01586. October 16, 2012.
- NMFS, 2017. North Atlantic right whale (*Eubalaena glacialis*): Western Atlantic Stock. February 2017. Available at: <http://www.nmfs.noaa.gov/pr/sars/species.htm#largewhales>
- NMFS, 2018. New Voluntary Right Whale Speed Restriction Zone off Virginia. January 31, 2018. Available at: [https://www.greateratlantic.fisheries.noaa.gov/mediacenter/2018/01/31\\_new\\_VA\\_voluntary\\_right\\_whale\\_speed\\_restriction\\_zone.html?utm\\_medium=email&utm\\_source=govdelivery](https://www.greateratlantic.fisheries.noaa.gov/mediacenter/2018/01/31_new_VA_voluntary_right_whale_speed_restriction_zone.html?utm_medium=email&utm_source=govdelivery).
- S. Kimball and J. Dame, 1989. Geotechnical Evaluation of Sand Resources on the Inner Shelf of Southern Virginia, Virginia Institute of Marine Science.
- S. Kimball, J. Dame, and C. Hobbs III, 1991. Investigation of Isolated Sand Shoals on the Inner Shelf of Southern Virginia, Virginia Institute of Marine Science.

- Southall, B. L., A. E. Bowles, W. T. Ellison, J. J. Finneran, R. L. Gentry, C. R. Greene, Jr., D. Kastak, D. R. Ketten, J. H. Miller, P. E. Natchigall, W. J. Richardson, J. A. Thomas & P. L. Tyack, 2007. Marine mammal noise exposure criteria: Initial scientific recommendations. *Aquatic Mammals*, 33, 411-521.
- USACE, 2013. Project Completion Report: Sandbridge Beach Erosion Control and Hurricane Protection Project. OCS-A 0485. October 2013.
- USFWS, 2010. Back Bay National Wildlife Refuge Sea Turtle Program – 2010. Region 0. October 1, 2010. Available: <https://www.fws.gov/FieldNotes/regmap.cfm?arskey=28787>.
- Virginia Department of Game and Inland Fisheries (VDGIF), 2016. Sea Turtles in Virginia. Available at: <https://blog.wildlife.virginia.gov/2016/05/sea-turtles-in-virginia/>.