

FINDING OF NO SIGNIFICANT IMPACT

Issuance of a Negotiated Agreement for Use of Outer Continental Shelf Sand from Canaveral Shoals in the Brevard County (South Reach) Shore Protection Project

Pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations implementing NEPA (40 CFR 1500) and Department of the Interior (DOI) regulations implementing NEPA (43 CFR 46), the Minerals Management Service (MMS) and the U.S. Army Corps of Engineers (USACE), Jacksonville District, as cooperating agencies, prepared an environmental assessment (EA) to determine whether the issuance of a negotiated agreement for the use of OCS sand from Canaveral Shoals in the Brevard County (South Reach) Shore Protection Project would have a significant effect on the human environment and whether an environmental impact statement (EIS) should be prepared. The MMS has reviewed this EA and analyses incorporated by referenced therein and determined that the potential impacts of the proposed action have been adequately addressed.

The MMS's proposed action is the issuance of a negotiated agreement, and its purpose is to authorize use of an offshore borrow area so that the project proponents, the USACE and local sponsor Brevard County, can obtain the necessary sand resources for a beach restoration project. Public Law 103-426 gives the MMS the authority to convey on a noncompetitive basis the rights to OCS sediment resources for use in beach nourishment projects. The project is needed to reduce shoreline erosion and protect valuable property along the South Reach coastline in Brevard County, Florida. The Brevard County Shore Protection Project was authorized for initial and maintenance construction by Section 101(b)(7) of the Water Resources Development Act of 1996, Public Law 104-303.

In 1996, the USACE programmatically evaluated potential environmental effects resulting from the proposed action and alternatives to the proposed action in its *Brevard County Shore Protection Feasibility and Environmental Impact Statement* (EIS). In 1998, the USACE prepared an *Environmental Assessment: Canaveral Shoals II* to evaluate the potential effects of using the Canaveral Shoals II borrow area, not previously evaluated in the 1996 EIS. In 2005 the MMS prepared an *Environmental Assessment, Issuance of a Non-competitive Lease for Canaveral Shoals II* incorporating additional environmental information, primarily about potential impacts to physical processes and essential fish habitat resulting from. Both EAs tiered from the 1996 EIS and were used by the MMS to support leasing decisions in 2002 and 2005. This EA incorporates by reference those analyses that have been determined to still be valid and augments a subset of analyses in light of new information.

The USACE and MMS 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. No new information was identified that necessitated a re-analysis of the impacts of proposed action. New information was identified that further supports or elaborates on the analyses or information presented in existing NEPA documents, but it did not change the conclusions of any of those analyses. Based on the analyses in the EA, no new significant impacts were identified that were not already adequately addressed, nor was it necessary to change the conclusions of the types, levels, or locations of impacts described in those documents

Alternatives to the Proposed Action

The only alternative to the MMS's proposed action is no action. However, the potential impacts resulting from the MMS' no action actually depend on the course of action subsequently pursued by the USACE and local sponsor, which could include identification of a different offshore or upland sand source. In the case of the no project alternative, habitat deterioration and coastal erosion continue, and the likelihood and frequency of property and storm damage increases.

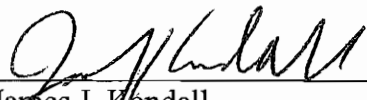
Consultations and Public Involvement

The USACE, as the lead Federal agency, and the MMS, as required by statute and regulation, coordinated with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, Florida Department of Environmental Protection, and the Florida State Historic Preservation Office in support of this leasing decision. After signature of this Finding of No Significant Impact (FONSI), a Notice of Availability of the FONSI and EA will be prepared and published by the MMS in the Federal Register or by other appropriate means.

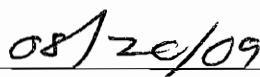
Conclusion

The MMS has considered the consequences of the proposed action of entering into a negotiated agreement with the USACE and Brevard County for use of OCS sand from Canaveral Shoals. The MMS jointly prepared and independently reviewed the EA 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 coordinated cooperatively by the USACE and MMS, appropriate terms and conditions will be incorporated into the negotiated agreement to avoid, minimize, and/or mitigate any foreseeable adverse impacts.

Based on the evaluation of potential impacts and mitigating measures discussed in the attached EA (Attachment 1), the MMS 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.



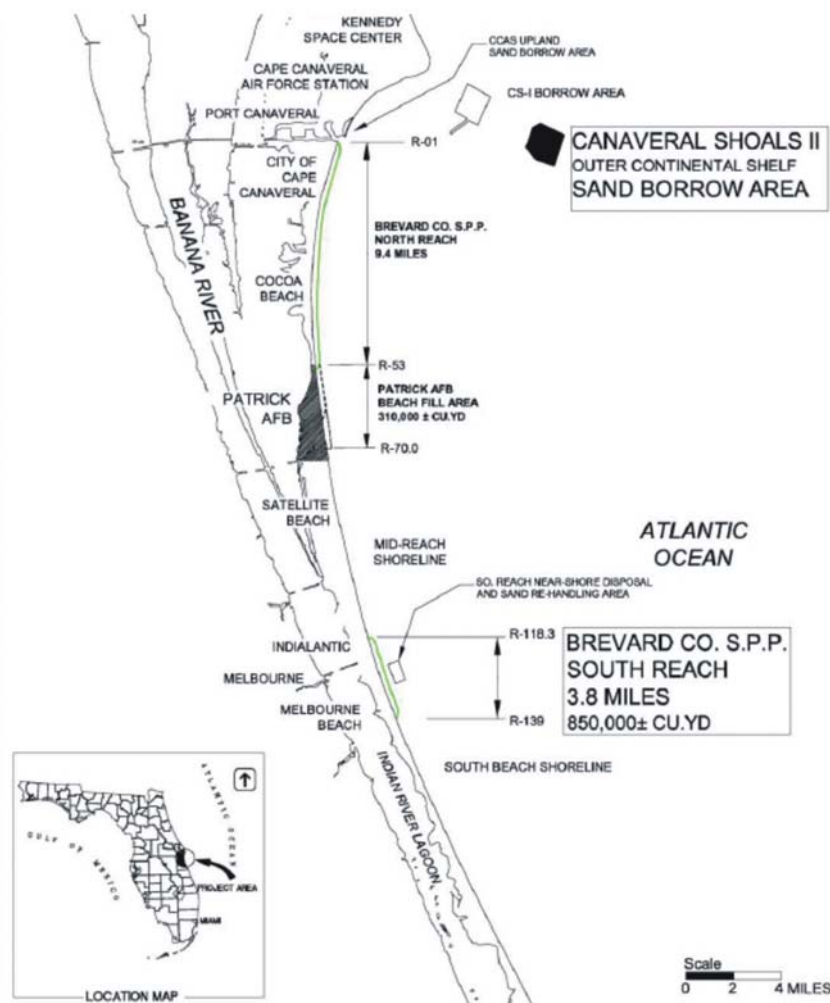
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Chief, Environmental Division



Date

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Environmental Assessment



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Environmental Assessment

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1 INTRODUCTION

This Environmental Assessment (EA) presents an updated evaluation of the potential environmental effects associated with the Minerals Management Service (MMS) authorizing access to 1,300,000 cubic yards of Outer Continental Shelf (OCS) sand from the Canaveral Shoals Borrow Area II (CS II) offshore Cape Canaveral, Florida. The MMS proposes to enter into a noncompetitive agreement with the U.S. Army Corps of Engineers, Jacksonville District and Brevard County, Florida, so that they can extract, transport, and place sand from CS II along 3.8 miles of eroded shoreline known as the South Reach (Figure 1).

Pursuant to the National Environmental Policy Act of 1969 (NEPA), the USACE described the affected environment, evaluated potential environmental effects resulting from the proposed action, and developed and described alternatives to the proposed action in its *Brevard County Shore Protection Feasibility and Environmental Impact Statement* (EIS) (USACE 1996; Appendix A). The USACE prepared an *Environmental Assessment: Canaveral Shoals II* (1998; Appendix B) to evaluate the potential impacts of using the CS II borrow area, not considered in the 1996 EIS. In 2005 the MMS prepared an *Environmental Assessment, Issuance of a Non-competitive Lease for Canaveral Shoals II* (Appendix C) incorporating additional environmental information developed through its Environmental Studies Program. Both EAs tiered from the 1996 EIS and were used by the MMS to support leasing decisions in 2002 and 2005. This EA, prepared by the USACE and MMS as cooperating agencies, supplements these existing environmental analyses. Its purpose is to update potential environmental effects resulting from the issuance of a new negotiated agreement, and to determine if the proposed action, in light of new information, would have a significant effect on the human environment and whether an EIS must be prepared.

The USACE and MMS identified and reviewed new information to determine if any resources should be re-evaluated or if the new information would alter effects determinations. No new information was identified that would necessitate a re-analysis of the impacts of proposed action. This EA further supports or elaborates on the analyses or information presented in existing NEPA documents, but it does not change the conclusions of any of those analyses. Pursuant to 43 CFR 46, the analyses are deemed valid and are incorporated by reference.

The MMS has integrated the process of NEPA compliance with other environmental requirements, including the Coastal Zone Management Act (CZMA), Endangered Species Act (ESA), Magnuson-Stevens Fishery Management and Conservation Act (FCMA), and National Historic Preservation Act (NHPA). The USACE has served in the role of lead federal agency for environmental compliance activities, while the MMS has acted in a cooperating role. Pursuant to Subpart D of the implementing regulations for the CZMA (15 CFR 930), Brevard County provided a consistency concurrence from the Florida Department of Environmental Protection, dated October 8, 2001, indicating the proposed action is consistent with the Florida's Coastal Zone Management Program (Appendix D). The USACE submitted the draft EA in lieu of a biological assessment to the National Marine Fisheries Service (NMFS) on May 14, 2009 to initiate informal consultation for the recently listed smalltooth sawfish. The potential impacts on sea turtles, North Atlantic right whales, and humpback whales were previously coordinated with NMFS and are covered under 1997 Regional Biological Opinion. On July 30, 2009, NMFS

provided written concurrence that the proposed action may affect, but is not likely to adversely affect smalltooth sawfish (Appendix E). The draft EA was also submitted to the U.S. Fish and Wildlife Service (FWS) on May 15, 2009 to re-initiate formal consultation with regard to nesting sea turtles and the West Indian manatee. No critical habitat for piping plover or beach mouse is documented in the highly-developed South Reach project area. On June 18, 2009, the FWS issued a biological opinion, concurring with the USACE's effects determination on nesting sea turtles and manatee (Appendix F). The USACE consulted with NMFS concerning Essential Fish Habitat in late 2004 using existing NEPA documents; a supporting detailed assessment of Essential Fish Habitat was provided in the MMS EA (2005). NMFS issued Conservation Recommendations on January 12, 2005 focusing on protecting sensitive nearshore rock habitat and communities (Appendix G). Post-construction monitoring surveys have been performed annually from 2006 through 2008 to monitor potential impacts. Results indicate that the nearshore rock habitat and communities have not been adversely affected by placement of sand on the South Reach. In its May 14, 2009, correspondence to NMFS, the USACE and local sponsor committed to monitor nearshore rock in post-construction years 1, 2, 3, and 5. The USACE coordinated Section 106 compliance efforts with the Florida State Historic Preservation Officer (SHPO) in 2001. The SHPO confirmed eight targets as debris from Air Force or NASA programs and suggested they could be eligible for listing in the National Register (Appendix H).

2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The Brevard County Shore Protection Project is authorized by Section 101(b)(7) of the Water Resources Development Act of 1996, Public Law 104-303, to reduce damage to structures and shorefront property related to erosion and storms. Initial construction of the South Reach segment was completed in 2002 and 2003 and involved the placement of approximately 1.6 million cubic yards of sand on the beach. The South Reach was last renourished in 2005 under authorization of the Flood Control and Coastal Emergencies Act. Since 2005, storm activity has severely eroded this portion of the Brevard County shoreline. Tropical Storm Fay, in particular, stalled over Brevard County in 2008 and caused extensive beach erosion along the South Reach. The proposed action is needed to authorize access to an additional 1,300,000 cubic yards of OCS sand from CS II to re-nourish the South Reach.

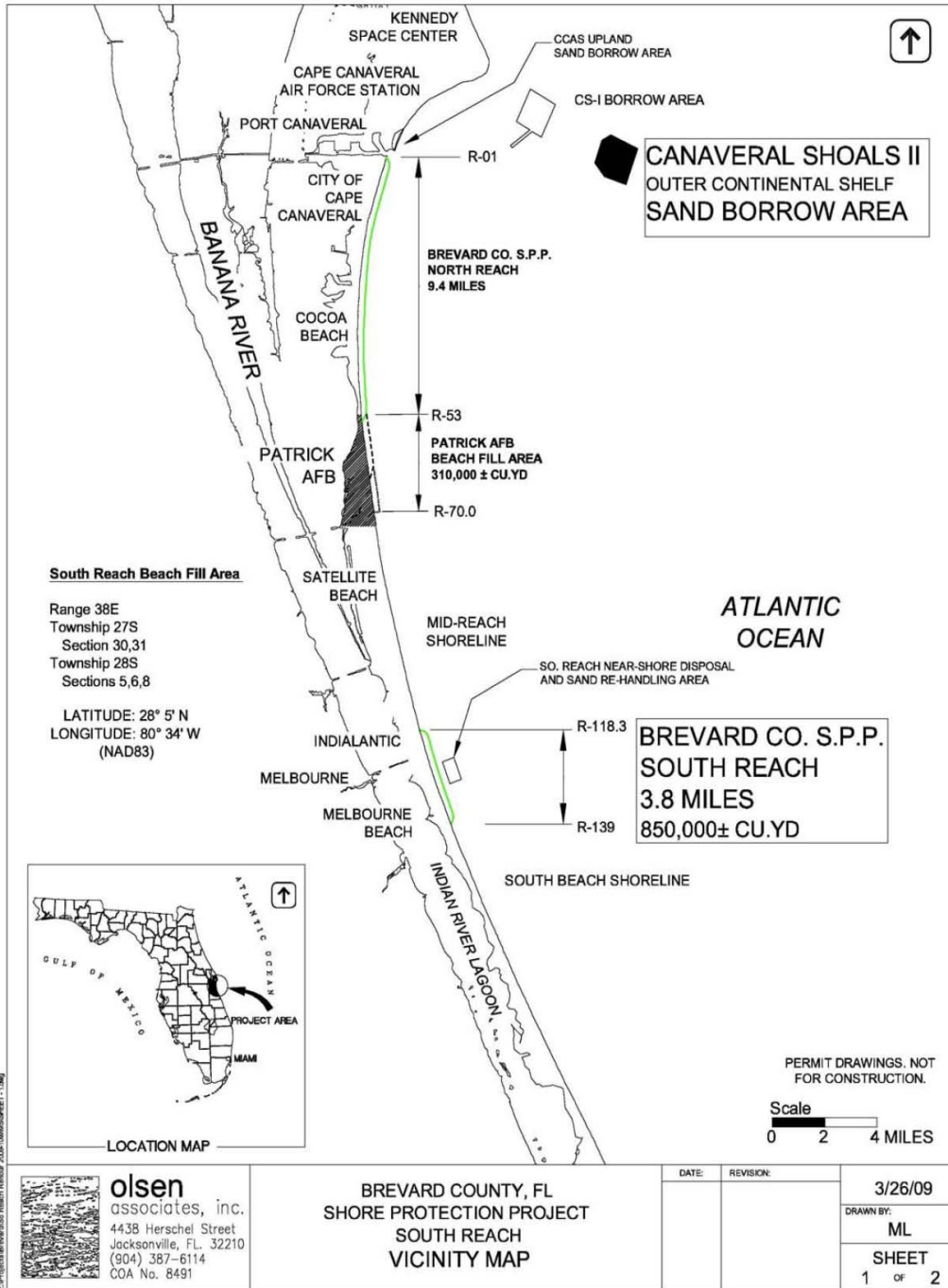
3 DESCRIPTION OF THE PROPOSED ACTION

The MMS's proposed action is the issuance of a negotiated agreement to authorize use of OCS sand from the CS II borrow area. The connected federal action undertaken by the USACE is the maintenance construction, including dredging, transport, and placement of sand. A detailed description of the project and project area can be found in the previous EAs (USACE 1998; MMS 2005). In summary, CS II is an open ocean borrow site, roughly 5 miles from its nearest landward point (Cape Canaveral Air Force Station). It is approximately 6,000 x 6,500 feet with existing depths ranging from -11 to -42 feet. From the core borings and sediment analysis, the substrate of the site consists of beach quality sand (medium sand with a significant shell fraction) which meets the criteria of the Florida Sand Rule. Approximately 20 million cubic yards of sand are currently available in CS II. The South Reach includes 3.8 miles of actively eroding shoreline in the vicinity of Melbourne Beach and Indialantic.

The proposed action would occur between November 1 and April 30 in order to avoid most sea turtle nesting activities. As in the past, the proposed South Reach project would be reconstructed with one or more hopper dredges. Hopper dredging is expected to occur over approximately 163 days to obtain the necessary volume. The time estimated to complete each dredge and placement cycle, including idle time, is approximately 12 hours per load. Hopper dredging would be limited to a relatively small footprint in the designated borrow area. Efficient dredging practice entails excavating sand in 2 to 5 foot thicknesses along relatively straight and adjacent runs along the seabed. The sand dredged from the hydraulic suction heads would be discharged into the vessel's open hopper, and most of the seawater effluent would spill over the sides of the hopper. The hopper dredges would transport the dredged material a distance of approximately 24 miles to pump-outs positioned approximately 0.5 to 1 mile from shore (USACE 1998); the material would be pumped directly from the hopper barge via pipeline to the beach. The placement and relocation of the nearshore mooring buoys used during pump-out may involve the use of tender tugboats and a pipeline hauler or crane. Alternatively, dredged material may be placed by the hopper dredges into previously permitted rehandling areas and henceforth dredged from the rehandling area and pumped onto the beach via a cutterhead pipeline dredge. The permitted 4,500-ft alongshore by 2,450-ft wide rehandling area is located centrally located along the project beach fill area between 2,600- and 5,050-ft from shore. Use of the rehandling area is at the Contractor's option.

The beach construction template would include a 100 foot wide berm with an elevation of +8.1 feet NGVD (with +/- 0.5-ft tolerance) at its seaward edge and elevation +9.6 at its landward edge with a 1V:67H slope. Landward of the sloped segment, the berm (elevation 9.6 feet) is flat and of variable width, depending on the position of the existing beach. The landward end of the template will include a dune feature with crest elevation +10.6 feet with 1V: 10H seaward and landward facing slopes. The landward end of the template toes into the existing beach profile at +8.9 ft. This berm has been designed to be turtle friendly. Unlike a typical beach berm, the seaward elevation of this berm would be lower in order to reduce potential scarping resulting from storm activity or the natural equilibration of the beach. Scarping, the formation of steep slopes, can prevent sea turtles from being able to crawl up onto the beach and nest. This design also reduces ponding of water. The use of up to three bulldozers and/or pipeline movers and two trucks is projected during beach shaping activities.

Figure 1. Brevard County, Florida Federal Shore Protection Project Area



4 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

Pursuant to the NEPA, the proposed action is evaluated to determine the potential environmental effects that may result from issuing a noncompetitive agreement to authorize use of OCS sand resources for beach nourishment. As previously stated, this EA supplements the EIS prepared by the USACE in 1996 and EAs prepared by the USACE in 1998 and the MMS in 2005. It provides additional information on the status of and potential effects to archaeology/cultural resources, air quality, and threatened and endangered species (sea turtles, whales, manatees, and smalltooth sawfish). The reasons for providing this additional evaluation include the following: 1) results of diver surveys conducted within CS II and measures proposed to protect identified cultural resource sites were not described in the previous assessments; 2) there was no evaluation of air quality in the 2005 assessment, and the air quality assessment provided in the 1998 EA needs refinement; 3) interactions between sea turtles, whales, manatees and hopper dredges were documented during the 2005 dredging event; 4) new information about as the potential impacts to nesting sea turtles is available and additional protective measures are recommended; and 5) new information on the recently listed smalltooth sawfish is available and new protective measures for this species are recommended.

Previous NEPA documents (USACE 1996; USACE 1998; MMS 2005) evaluated impacts to other resources including aesthetics, beach and coastal habitat, benthic resources, birds and wildlife, fish and essential fish habitat, non-threatened marine mammals, physical oceanography, recreation and tourism, threatened and endangered species, water quality, and cumulative impacts. These evaluations have been determined to be still valid since the project limits and construction methodologies, scope, and timing have remained the same, the information presented in these evaluations is otherwise valid, and relevant Federal laws have not changed in a manner that would require re-evaluation of these resources. The existing analyses adequately address most of the potential environmental effects of the proposed action and are incorporated by reference and summarized in Table 1.

Table 1: Summary of Environmental Impacts and Mitigation

ENVIRONMENTAL RESOURCE	1996 EIS IMPACTS	1998 EA IMPACTS	2005 EA IMPACTS	2009 EA IMPACTS	MITIGATION (See 8.0 for Proposed Mitigation Measures)
AESTHETICS	Temporary adverse visual impact from construction equipment; long-term positive visual impact from restored beach (5.27)	Not evaluated.	Not evaluated.	Not evaluated.	
AIR QUALITY	Temporary and localized decrease in air quality from construction-equipment emissions. (5.33)	Temporary and localized decrease in air quality from construction-equipment emissions. (5.1)	Not evaluated.	Temporary and localized decrease in air quality from construction-equipment emissions. Estimated emissions within national ambient air quality standards.	
ARCHAEOLOGY/ CULTURAL RESOURCES	No historic or cultural properties identified in the placement area along South Reach. (5.19)	Sixteen targets detected within CS II. No effect with designation of protective buffer zones. (5.10)	No effect since investigations indicate no prehistoric sites within CS II or immediate placement area (p. 4)	Diver investigation revealed 8 space debris sites of cultural significance within or in the vicinity of CS II. No effect with designation of protective buffer zones.	Implement 200 foot avoidance buffer on 8 identified space debris sites; implement chance find clause as necessary. Implement dredge with positioning equipment.
BEACH COMPATIBILITY / COASTAL HABITAT	Stabilization of eroding beach and dune habitats (5.01).	No adverse impacts are anticipated. (5.4)	Not evaluated.	Not evaluated.	Implement best construction practices, beach sampling, and beach profiling requirements of Florida DEP Consistency Certification.
BENTHIC RESOURCES	Short-term and localized reduction in beach infaunal invertebrates. (5.01)	Possible mortality for nonmotile invertebrates in immediate area of dredging. Temporary and localized defaunation from bottom disturbance, sub-lethal effects from elevation turbidity, burial, and habitat degradation. Long term suppression not expected due to dredging intervals. Recolonization expected to occur. (5.5)	Possible mortality for nonmotile invertebrates in immediate area of dredging. Temporary and localized defaunation from bottom disturbance, sub-lethal effects from elevated turbidity, burial, and habitat degradation. Long term suppression not expected due to dredging intervals and highly adaptive benthic assemblages. Recolonization of physically dominated	Not evaluated.	

			environment expected to occur within 2-3 years. (p. 5-9)		
BIRDS AND WILDLIFE	Short and localized disruption of feeding, foraging, and nesting during construction activities. (5.01) See U.S. FWS Coordination Act Report (1995).	Not evaluated.	Not evaluated.	Not evaluated.	
FISH AND ESSENTIAL FISH HABITAT (EFH)	Short and localized disturbance of surf zone habitat and fish during pump-out and sand re-distribution from elevated noise and Turbidity levels, as well as burial. Potential burial of nearshore coquina and scattered worm rock outcrops by longshore transport. (5.01)	Fish and EFH would be temporarily and locally impacted by dredge activity including sub-lethal and lethal effects related to turbidity, prey availability, and dredge entrainment or burial. Long term disruption not expected due to fish mobility and dredging intervals. (5.9)	Possible entrainment and sub-lethal effects from turbidity, noise, and burial. Effects are expected to be minor because of species mobility, avoidance behavior, and widespread occurrence of comparable habitat. Possible trophic effects from benthic disturbance and locally reduced prey. EFH could be temporarily and locally physically disturbed by dredging or beach shaping activity. Long term suppression not expected due to dredging intervals and widely available habitat. Minor impact to nearshore rock habitat (Habitat of Particular Concern) from burial may be avoided or mitigated with protective measures. (p. 9-24)	Not evaluated.	No beach fill within 50 feet of any coquina or worm rock outcrops and continue monitoring program per NMFS Conservation Recommendations.
NON-THREATENED MARINE MAMMALS	Not evaluated.	No adverse impacts are anticipated because of species avoidance mechanisms, but strikes are possible. (5.8)	Not evaluated.	Not evaluated.	See mitigation for Threatened and Endangered Species.
PHYSICAL OCEANOGRAPHY	Not evaluated.	Minor effects anticipated to incident wave field and longshore transport due to bathymetric modification. Infilling of dredge cuts likely from southerly sediment	Modification of offshore bathymetry may result in minor effects in offshore sediment transport pathways, incident wave field, and longshore transport. Infilling	Not evaluated.	Conduct pre- and post-construction bathymetric surveys to monitor physical changes in borrow area.

		transport. (5.2)	anticipated over long-term. (p.24-39)		
RECREATION AND TOURISM	Significantly increased area for beach recreation; temporary and localized visual and noise impact from construction activities. (5.30)	Local and short-term disruption to navigation. Recreational opportunities and tourism would benefit from beach nourishment. (5.11)	Not evaluated.	Not evaluated.	Publish Local Notice to Mariners.
THREATENED AND ENDANGERED SPECIES	Potential increase of nesting habitat for sea turtles; potential disturbance and take of sea turtles, right whales, and related to beach scarping, lighting, dredge entrainment, and vessel strike. (5.09)	Possible entrainment dredge may lead to injury and mortality sea turtles (5.6). Noise and vessel collision may lead to injury and mortality of marine mammals (5.7). Effects to marine turtles and marine mammals may be avoided or minimized with protective measures.	Dredging may affect, but not likely to adversely affect smalltooth sawfish with approved protective measures. No effect to Johnson's seagrass or Southeastern beach mouse since no critical habitat in project area. (p.21-24)	Hopper dredging and beach placement may adversely affect marine turtles. Adverse effects to sea turtles, marine mammals, and smalltooth sawfish may be avoided or minimized with protective measures.	Implement terms and conditions of 1) NMFS 1995/1997 Regional Biological Opinions, 2) NMFS 2009 Concurrence, and 3) 2009 FWS BO.
WATER QUALITY	Temporary, minor impacts (elevated turbidity, decreased dissolved oxygen) in placement area. (5.24)	Temporary, minor impacts (elevated turbidity, decreased dissolved oxygen) to the water column in borrow area. Accidental spills or toxic materials are not expected. (5.3)	Not evaluated.	Not evaluated.	Monitoring water quality conditions per requirements of Florida DEP Consistency Certification. Implement marine pollution control plan. Ensure compliance with U.S. Coast Guard requirements and U.S. EPA Vessel General Permit as applicable.
CUMULATIVE IMPACTS	Restore beach and ecosystem and prevent property damage. (5.37)	Not evaluated.	Currently proposed, past and future use of CS II and beach nourishments expected to be minor to possibly moderate. Of primary concern are long-term impacts to nearshore hardbottom located north of South Reach. (p.39-46)	Not evaluated.	See mitigation for Fish and Essential Fish Habitat

4.1 Archaeology/Cultural Resources

Underwater surveys and diver identifications have been conducted in the proposed borrow area. This effort is documented in a number of reports dating from 1994, and all of these reports were coordinated with the Florida SHPO.

The 1994 report “*A Cultural Resources Survey of Proposed Borrow Area, Vicinity of Cape Canaveral, Brevard County, Florida*” (DHR file No. 942533) identified six potentially significant targets within CS II. The 1999 report “*A Submerged Cultural Resources Remote Sensing Survey of Four Proposed Borrow Areas and Archaeological Diver Identification and Evaluation of Eight Potentially Significant submerged Targets for the Brevard County Shore Protection Project, Brevard County, Florida*” (DHR Nos. 992156 and 2000-02415) determined that the targets identified in 1994 were not significant, but identified eight additional potentially significant targets in an expanded borrow area. In 2001, a diver investigation was conducted in order to identify these eight targets. The State of Florida asked that an additional six anomalies also be investigated. The results of the diver evaluations revealed that some of these objects were products of the United States space and/or missile programs, one was the remains of a modern fishing vessel, and another was identified as a section of steel cable. The space or missile debris consisted of cylinders of various lengths, some of which were capped with shallow convex-shaped objects. Motor components and ferrous objects were also discovered which were associated with the space program. In one case, a partial label was identified on a motor with information on the manufacturer. It was determined that the motor was a component of a Delta II rocket which was launched on 14 February 1989. The objective of this particular mission was to place a NAVSTAR II-1 satellite into orbit. All of these findings are documented in the 2001 report “*Archaeological Diver Identification and Evaluation of Fourteen Potentially Significant Submerged Targets for the Brevard County Shore Protection Project*” (DHR file No. 2001-316). The USACE has determined that these space and missile program objects are potentially significant cultural resources. Additional areas were surveyed in 2002 which is documented in “*A Cultural Resources Marine Remote Sensing Survey of the Offshore Borrow and Re-Handling Areas South Reach Brevard County Shore Protection Project, Brevard County, Florida*” (DHR file No. 2002-06980); however, no anomalies were identified.

In 2001, the SHPO concurred with the USACE determination that the space debris discovered within CS II, while modern, are potentially significant cultural resources. Their association with NASA and the U.S. Air Force missile program suggests that these objects may be potentially eligible for listing in the National Register. As during previous dredging events, these resources shall be protected by requiring the dredging contractor to maintain a buffer zone around each of these sites. Therefore, significant impacts to cultural resources in the borrow area are not anticipated provided the mitigation below is implemented:

Onshore Prehistoric or Historic Resources

If the USACE discovers any previously unknown historic or archeological property, the USACE must immediately notify the MMS 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 Historic Resources

The eight anomalies shall be avoided during dredging operations by at least 200 feet, as described in Table 2.

Table 2: Archaeological avoidance areas

Target	Area/Block	Amplitude (gammas)	Duration (ft)	FL East State Plane Coordinates NAD 1927 (X /Y Coordinate)	Avoidance Radius (ft)
C2-01	Canaveral Shoals II	422	120	667682/1487363	200
C2-02	Canaveral Shoals II	330	85	670907/1485875	200
C2-08	Canaveral Shoals II	147	140	675523/1482444	200
C2-12	Canaveral Shoals II	51	125	679892/1482496	200
C2-13	Canaveral Shoals II	36	110	681022/1480316	200
C2-14	Canaveral Shoals II	61	165	681364/1480843	200
C2-16	Canaveral Shoals II	52	100	676571/1481617	200
C2-17	Canaveral Shoals II	65	75	670297/1486107	200

If the USACE determines that the anomalies listed in Table 2 cannot be avoided during dredging operations, the USACE shall notify the MMS. The USACE, subject to the availability of appropriations and in accordance with the requirements of applicable law, may conduct further investigations to assess the significance of the objects producing the signatures in accordance with the criteria at 36 CFR Part 60.4, "Criteria for evaluation."

The proposed investigation procedures shall be discussed with the MMS archaeologist prior to commencing fieldwork. At a minimum, this assessment must include an analysis of the age, physical composition, and structural integrity of the object (i.e., wood or metal, intact or dispersed). Measured drawings and/or underwater video or still photographs of the feature shall be made for documentation and submitted with the final "Report of Findings." A "Report of Findings" prepared in accordance with the archaeological report writing standards specified in the MMS Notice To Lessees (NTL) 2005-G07 must be submitted to the MMS for approval within ten work days of the completion of fieldwork.

Offshore Chance Finds Clause

In the event that the dredge operators, discover any archaeological resource while conducting dredging operations in the CSII Borrow Area, the USACE shall require that dredge operations will be halted immediately within the borrow area. The USACE shall then immediately report the discovery to the MMS. If investigations determine that the resource is significant, the parties shall together determine how best to protect it.

4.2 Air Quality

Criteria air pollutant emissions were estimated for the proposed dredging of Federal sand from CS II and placement along the South Reach using estimates of power requirements, duration of operations, and emission factors for the various equipment types. Multiplying horsepower rating, activity rating factor (percent of total power), and operating time yields the energy used. The energy used multiplied by an engine-specific emission factor yields the emission estimate. Operational data from the 2005 nourishment cycle was used to estimate power requirements and duration for each phase of the proposed hopper dredging activity. The horsepower rating of the dredge plant was assumed for each activity as follows: propulsion (3500 hp), dredging (2000 hp), pumping (2000 hp), and auxiliary (1165 hp). Different rating or loading factors were used for dredging, propulsion, and pumping. The estimated duration of dredging was approximately 163 days. The estimated time to complete each dredge cycle, including idle time, was approximately 12 hours per load. It was assumed that about 3,983 yd³ of material would be moved in each cycle, requiring about 326 loads to excavate enough material to place 1.048 million yd³ of sand on the beach. The placement and relocation of the nearshore mooring buoys used during pump-out may involve up to two tender tugboats, and a pipeline hauler / crane would also be used. It was assumed that the buoy would need to be moved at most five times during the project, with each move taking approximately 12 hours. It was assumed that a crew/supply vessel would operate daily for four hours as well.

All dredging was assumed to occur at CS II, whereas 60% of hopper transport and crew/supply vessel activities were assumed to occur over state waters or at the placement site. The beach fill related estimates assumed the use of up to three bulldozers/pipeline movers and two trucks, each operating eighty percent of the time for the duration of the project.

Emission factors for the diesel engines on the hopper dredge, barge, tugboats were obtained from EPA's *Compilation of Air Pollutant Emissions Factors, AP-42, Volume 1* (2002). Emission factors for tiered equipment used in beach construction were derived from NONROAD model (5a) estimates. Total project emissions of nitrogen oxides (NO_x), sulfur dioxide (SO₂), carbon monoxide (CO), volatile organic compounds (VOC), and particulate matter (PM) are presented in Table 3.

The proposed action may result in small, localized, temporary increases in concentrations of NO_x, SO₂, CO, VOC, and PM. Since the project is located in an attainment area, there is no requirement to prepare a conformity determination. Nonetheless, estimates were tallied to determine the portion of total emissions that would occur within state limits. Since the Federal waters attainment status is unclassified, there is no provision for any classification in the Clean Air Act for waters outside of the boundaries of state waters. Calculating the increase in emissions that may occur within the state limits was done by subtracting out the dredging-related and 40% of transport emissions, since those activities would take place entirely over Federal waters.

Table 3: Estimated emissions for the preferred alternative (tons per year)

Activity	Emissions (tons)					
	NOx	SO2	CO	VOC	PM _{2.5}	PM ₁₀
Dredge Plant (Hopper)						
Dredging/Operation	64.2	1.1	14.7	1.7	1.0	1.1
Turning/Sail	37.7	0.6	8.6	1.0	0.6	0.6
Pump-out	8.7	0.1	2.0	0.2	0.1	0.1
Idle / Connect-Disconnect	9.1	0.2	2.1	0.2	0.1	0.2
Supporting Offshore Activities	3.9	0.1	0.9	0.1	0.1	0.1
Beach Fill	12.4	2.3	5.9	0.9	1.0	1.0
Total Emissions	135.9	4.3	34.2	4.1	3.0	3.0
Total Emissions within State	53.5	3.0	15.3	1.9	1.7	1.7
Total Emissions at CS II	82.4	1.4	18.9	2.2	1.4	1.4
2002 Brevard County Emissions Nonpoint + Mobile (Point and Nonpoint + Mobile)	34,251 (46,403)	10,318 (25,865)	216,995 (218,319)	44,902 (45,561)	5,548 (6,712)	11,989 (13,350)
Brevard County 2002 emissions from EPA National Emission Inventory http://www.epa.gov/air/data/						

Emissions associated with the dredge plant would be the largest contribution to the inventory. However, the total increases are relatively minor in context of the existing point and nonpoint and mobile source emissions in Brevard County (Table 3). Projected emissions from the proposed action would not adversely impact air quality given the relatively low level of emissions and the likelihood for prevailing offshore winds. With the proposed action, the criteria pollutant levels would be well within the national ambient air quality standards.

4.3 *Threatened and Endangered Species*

Sea turtles - Offshore

In 2005 the Weeks Marine hopper dredges *BE Lindholm* and *RN Weeks*, as well as the subcontracted Bean Stuyvesant hopper dredge *Stuyvesant*, were used to excavate Federal sand from CS II and transport it to the South Reach placement area. The dredging was performed in compliance with the 1997 NMFS regional biological opinion (RBO) concerning the use of hopper dredges in channels and borrows areas along the Southeast U.S. Atlantic coast. Terms and conditions within the RBO include the use of rigid turtle deflectors, which are installed on the dragheads of the dredge. The deflectors move, or deflect, turtles which may be resting on the bottom away from the draghead. All dredge activities were monitored by two endangered species observers which were approved by the NMFS. The observers periodically checked the intake screens leading to the hopper for entrained sea turtles and their parts.

A total of 128 “dredge days” were observed in 2005. During this time frame, three loggerhead sea turtle (*Caretta caretta*) mortalities, or take, were documented. All occurred on the dredge *Lindholm*. Given the efficiency of the screening on the dredges, it is unlikely that additional turtle mortalities went unrecorded. According to the observers, the take numbers were not considered particularly high given the location, season, and number of turtle observations. Each of the mortalities were coordinated with NMFS and were applied to the USACE-South Atlantic Division authorized annual incidental take limit of 35 loggerhead sea turtles associated with hopper dredging.

The USACE has previously determined that the use of a hopper dredge may affect sea turtles (USACE 1998). NMFS has concurred with this determination in their 1997 RBO and July 30, 2009, concurrence, and determined that take resulting from hopper dredging activity will not jeopardize the continued existence of any sea turtle species (Appendix E). In compliance with the NMFS RBO, the following protective measures, in summary, shall be implemented to minimize the risk of taking sea turtles during proposed hopper dredging activities at CS II:

- The Contractor shall instruct all personnel associated with the project of the potential presence of threatened and endangered species, such as sea turtles, and the need to avoid collisions with these animals or harming them in any way.
- All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing sea turtles, which are protected under the Endangered Species Act. The Contractor may be held responsible for any threatened and endangered species harmed, harassed, or killed as a result of construction activities.
- During dredging operations, an observer approved by the NMFS shall be aboard the dredge to monitor for the presence of sea turtles.
- Any take concerning a sea turtle or sighting of any injured or incapacitated sea turtle shall be reported immediately to the USACE contracting officer.

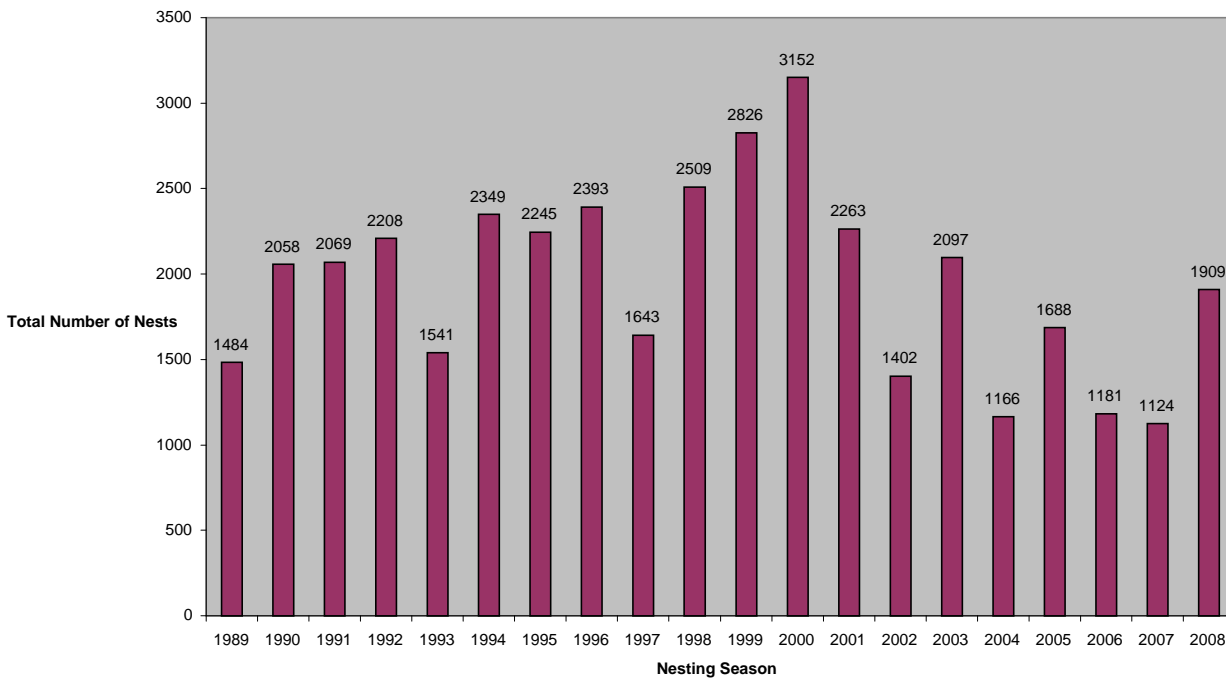
- Hopper dredge drag heads shall be equipped with rigid sea turtle deflectors which are rigidly attached. No dredging shall be performed by a hopper dredge without an installed turtle deflector device approved by the USACE contracting officer.
- The Contractor shall install baskets or screening over the hopper inflow(s) with no greater than 4" x 4" openings. The method selected shall depend on the construction of the dredge used and shall be approved by the contracting officer prior to commencement of dredging. The screening shall provide 100% screening of the hopper inflow(s). The screens and/or baskets shall remain in place throughout the performance of the work.
- The Contractor shall install and maintain floodlights suitable for illumination of the baskets or screening to allow the observer to safely monitor the hopper basket(s) during non-daylight hours or other periods of poor visibility. Safe access shall be provided to the inflow baskets or screens to allow the observer to inspect for turtles, turtle parts or damage.
- The Contractor shall operate the hopper dredge to minimize the possibility of taking sea turtles and to comply with the requirements stated in the Incidental Take Statement provided by the NMFS in their RBO.
- The turtle deflector device and inflow screens shall be maintained in operation condition for the entire dredging operation.
- When initiating dredging, suction through the drag heads shall be allowed just long enough to prime the pumps, and then the drag heads must be placed firmly on the bottom. When lifting the drag heads from the bottom, suction through the drag heads shall be allowed just long enough to clear the lines, and then must cease. Pumping water through the drag heads shall cease while maneuvering or during travel to/from the disposal area.
- Raising the drag head off the bottom to increase suction velocities is not acceptable.
- The Contractor shall keep the drag head buried a minimum of 6 inches in the sediment at all times.
- During turning operations the pumps must either be shut off or reduced in speed to the point where no suction velocity or vacuum exists.

The entire suite of terms and conditions to implement the prudent measures required by NMFS is provided in the NMFS 1995 and 1997 Regional Biological Opinions of Hopper Dredging along the South Atlantic Coast. The 1997 RBO authorized annual incidental take, by injury or mortality, of 35 loggerheads, 7 Kemp's ridley, 7 green turtles, and 2 hawksbill. Any takes will be counted against the regional incidental take statement.

Sea Turtles - Onshore

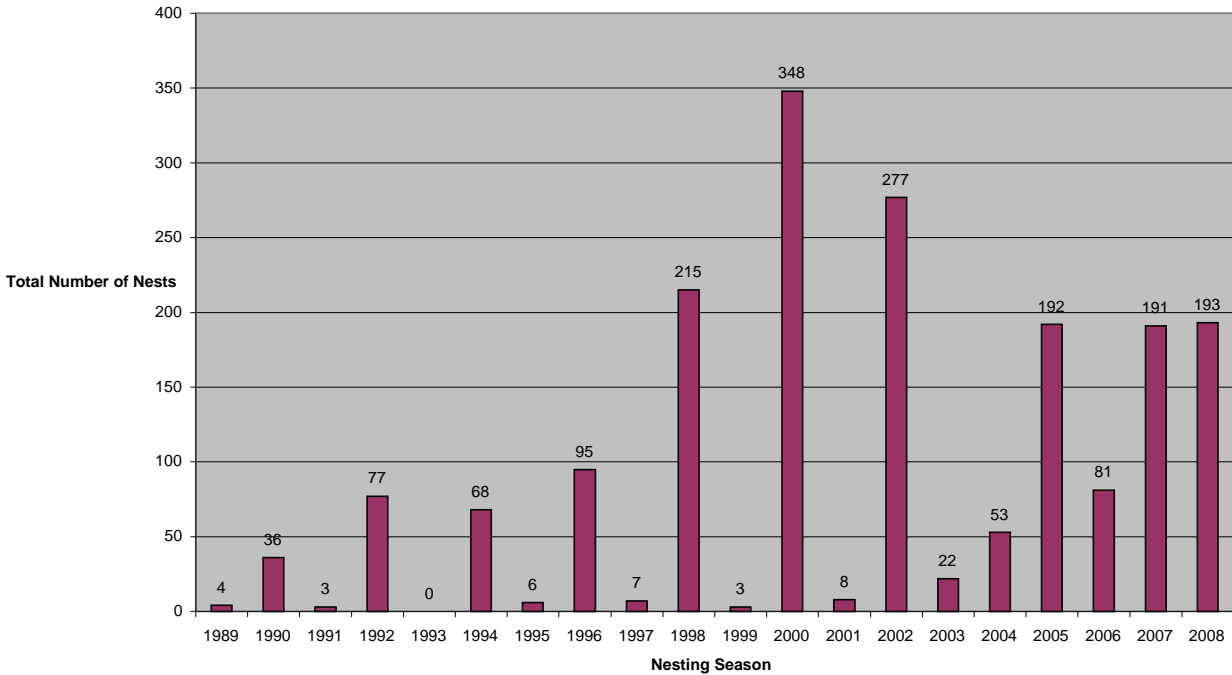
Three sea turtle species are known to nest within the South Reach beach placement area. In order of abundance, they are the loggerhead, green, and leatherback sea turtles. Densities of loggerhead turtle nests reported along the South Reach are shown on Figure 2. Nest densities recorded from the South Reach area ranged from 185 to 518 nests per km between 1989 through 2008 nesting seasons (Ehrhart and Williamson 2009).

Figure 2. Loggerhead Nest Totals for the South Reach, 1989 through 2008



Densities of green turtle nests reported along the South Reach from 1989 through 2008 are shown in Figure 3. Nest densities recorded from the South Reach area ranged from 0 to 57 nests per km during this time frame (Ehrhart and Williamson 2009).

Figure 3. Green Turtle Nest Totals for the South Reach, 1989-2008



Leatherback nests in Brevard County are relatively few in number when compared with Florida beaches to the south, especially Martin and Palm Beach Counties (NMFS and USFWS, 1992; B. Brost 2002, pers. comm.). Leatherback nesting within the South Reach ranged from 0 to 7 between 2005 and 2008 (Ehrhart et al. 2006-2009).

Results of prior annual monitoring of sea turtle nesting activity in Brevard County on beaches nourished in 2000-03 and 2005 with offshore borrow sand from Canaveral Shoals II, as proposed for this project, indicate that the fill material is suitable for sea turtle nesting purposes and compatible with sea turtle nesting behavior and hatching success. The hatchling success ratio in the South Reach study area was similar and reasonably high for loggerheads (78.25%), green turtles (70.55), and leatherbacks (66.23%) (Ehrhart and Hirsch 2008). These results were reported to be comparable to many Florida beaches and exceeded documented statewide means of 50.77% for hatching and 48.03% for hatchling emergence success for loggerhead sea turtles (Geomar 2008). These and prior-year data provide evidence of the overall high quality of the fill material as an incubation medium (Ehrhart and Hirsch 2008) which may be attributed to the relatively coarse sand grain size of the fill material that includes well-graded shell fragments which may have prevented the hydraulically placed fill material from excessive compaction that would otherwise adversely affect sea turtle nesting success (Geomar 2008).

The USACE has determined that the beach placement of dredged material may affect nesting sea turtles, and the U.S. Fish and Wildlife Service (USFWS) issued a biological opinion, dated June 18, 2009, concurring with this determination (Appendix F). The FWS determined that no more than the following types of incidental take may result from the proposed action: (1) destruction of all nests that may be constructed and eggs that may be deposited and missed by a nest survey and egg relocation program within the boundaries of the proposed project; (2) destruction of all nests

deposited during the period when a nest survey and egg relocation program is not required to be in place within the boundaries of the proposed project; (3) reduced hatching success due to egg mortality during relocation and adverse conditions at the relocation site; (4) harassment in the form of disturbing or interfering with female turtles attempting to nest within the construction area or on adjacent beaches as a result of construction activities; (5) disorientation of hatchling turtles on beaches adjacent to the construction area as they emerge from the nest and crawl to the water as a result of project lighting; (6) behavior modification of nesting females due to escarpment formation within the project area during a nesting season, resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs; and (7) destruction of nests from escarpment leveling within a nesting season when such leveling has been approved by the Service. The terms and conditions of the Biological Opinion shall be implemented in order to avoid or minimize take of sea turtles. These conditions, in abbreviated summary, include:

- Use of beach quality sand suitable for sea turtle nesting, incubation and hatchling emergence.
- No construction activity or equipment on the beach from May 1 through October 31.
- Daily early morning nesting surveys and restricted nest relocation and/or avoidance beginning March 1 if beach construction activities occur between March 1 and April 30.
- Daily early morning nesting surveys beginning 65 days prior to construction, through September 30 for beach construction activity from November 1 through 30.
- Measurement of sand compaction and tilling of the nourished beach if required, prior to March 1, after construction and for three subsequent years.
- Visual surveys for escarpments after construction and for three subsequent years, and removal of escarpments prior to March 1 (and thereafter, pursuant to coordination with the USFWS and FWC) that interfere with sea turtle nesting.
- Requisite meetings between the construction contractor, USFWS, FWC and marine turtle State permit holder.
- Minimization of storage of construction equipment upon the beach from March 1 through April 30 and from November 1 through 30.
- Avoidance and minimization of lighting of the beach and nearshore waters, and upon offshore equipment, from March 1 through April 30 and from November 1 through 30.

Whales

Endangered species observers recorded one right whale (*Eubalaena glacialis*) and approximately four humpback whales (*Megaptera novaeanglia*) during hopper dredging activities at CS II in 2005. The sighting of the right whale occurred during the month of March, and the observers felt that this was unusually late in the winter calving season for the species. Information on the sighting was also reported to the USN Whale Sighting Node, and the information was then relayed across the pager system that alerts military and merchant mariners to right whale locations. None of the dredging activities had any adverse effects on these species.

The USACE has previously determined that hopper dredging activities may affect, but is not likely to adversely affect protected species of whales. With implementation of the necessary protective measures, NMFS determined in the July 30, 2009 concurrence that the risk to North Atlantic right whales and humpback whales is discountable (Appendix E). In compliance with the NMFS RBO, during the period December through March, barges or dredges moving through project waters shall implement the following precautionary measures in order to protect whales:

- The Contractor shall instruct all personnel associated with the project of the potential presence of threatened and endangered species, such as whales, and the need to avoid collisions with these animals or harming them in any way.
- All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing whales, which are protected under the Endangered Species Act and the Marine Mammal Protection Act. The Contractor may be held responsible for any protected species harmed, harassed, or killed as a result of construction activities.
- During dredging operations, an observer approved by the NMFS shall be aboard the dredge to monitor for the presence of whales.
- During the period 1 December through 30 March, daily aerial surveys within 15 nm of the dredging and placement sites will be conducted by others to monitor for the presence of the right whale. Right whale sightings will be immediately communicated by marine radio to the dredging contractor. During evening hours or when there is limited visibility due to fog or sea states greater than Beaufort 3, the tug/barge or dredge operator shall slow down to 5 knots or less when traversing between areas if whales have been spotted within 15 nautical miles (nm) of the vessels path within the previous 24 hours.
- If a right whale or any other species of whale is reported within the area, then the vessel operator will be required to follow the NMFS' Southeast Region Vessel Strike Avoidance Measures and Reporting for Mariners. The tug/barge or dredge operator shall maintain a 500-yard buffer between the vessel and any whale.
- If a stranded/injured/incapacitated whale is observed within the construction site, the contractor is requested to immediately contact the NMFS Whale Stranding Network pager number at 305-862-2850.

The entire suite of terms and conditions to implement the prudent measures required by NMFS is provided in the NMFS 1995 and 1997 Regional Biological Opinions of Hopper Dredging along the South Atlantic Coast.

West Indian Manatee

A single West Indian manatee (*Trichechus manatus*) was sighted during dredging activities during the 2005 dredging event. This was not considered unusual as this species prefers inshore grass beds, structures where macro-algae proliferates, sources of freshwater such as creeks and

not the open ocean. The manatee was not adversely affected by dredging activities.

The USACE has determined that the proposed project may affect, but is not likely to adversely affect the manatee, and the FWS has concurred with this determination. The terms and conditions of the Biological Opinion shall be implemented in order to avoid or minimize take of manatees (Appendix F). These conditions include the following Standard Manatee Construction Conditions:

- The Contractor shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees.
- All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the Endangered Species Act and Marine Mammal Protection Act. The Contractor may be held responsible for any manatee harmed, harassed, or killed as a result of construction activities.
- If siltation barriers are used, they shall be made of material in which manatees cannot become entangled, are properly secured, and are regularly monitored to avoid manatee entrapment. Barriers shall not block manatee entry to or exit from essential habitat.
- All vessels associated with the project shall operate at “no wake/idle” speeds at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom, and vessels shall follow routes of deep water whenever possible. Boats used to transport personnel shall be shallow-draft vessels, preferably of the light-displacement category, where navigational safety permits. Mooring bumpers shall be placed on all barges, tugs, and similar large vessels wherever and whenever there is a potential for manatees to be crushed between two moored vessels. The bumpers shall provide a minimum standoff distance of 4 feet.
- If a manatee is sighted within 100 yards of the project area, all appropriate precautions shall be implemented by the Contractor to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. If a manatee is closer than 50 feet to moving equipment or the project area, the equipment shall be shut down and all construction activities shall cease within the waterway to ensure protection of the manatee. Construction activities shall not resume until the manatee has departed the project area.
- Prior to commencement of construction, each vessel involved in construction activities shall display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign at least 8.5 x 11” reading, “CAUTION: MANATEE HABITAT/IDLE SPEED IS REQUIRED IN CONSTRUCTION AREA.” In the absence of a vessel, a temporary 3’ x 4’ sign reading “CAUTION: MANATEE AREA” will be posted adjacent to the issued construction permit. A second temporary sign measuring 8.5 x 11” reading “CAUTION: MANATEE HABITAT. EQUIPMENT MUST BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50

FEET OF OPERATION” shall be posted at the dredge operator control station and at a location prominently adjacent to the issued construction permit. The Contractor shall remove the signs upon completion of construction.

- Any collisions with a manatee or sighting of any injured or incapacitated manatee shall be reported immediately to the USACE. The Contractor shall also immediately report any collision with and/or injury to a manatee to the Florida Fish and Wildlife Conservation Commission (FWC) “Manatee Hotline” 1-888-404-FWCC (3922) as well as the U.S. Fish and Wildlife Service, Jacksonville Field Office.

In addition, Brevard County with the FWC will continue to conduct sea turtle monitoring for a minimum of two additional nesting seasons after the nourishment event if placed-sand remains.

Smalltooth Sawfish

Smalltooth sawfish (*Pristis pectinata*) is currently listed as endangered by NMFS and may rarely occur within the project area; however, it has not been observed during previous dredging events. The National Sawfish Encounter Database (Simpendorfer and Wiley, 2006) managed by the Florida Museum of Natural History, University of Florida revealed 9 encounters for Brevard County from as far back as 1895. Six of the observations occurred in the Indian River Lagoon and three occurred in the Atlantic coastal waters. Currently, the core of the smalltooth sawfish Distinct Population Segment is surviving and reproducing in the waters of southwest Florida and Florida Bay, primarily within the jurisdictional boundaries of Everglades National Park where important habitat features are still present and less fragmented than in other parts of the historic range. The NMFS proposed critical habitat for the sawfish in 2008, but the project area does not overlap any of these proposed locations.

In their July 30, 2009 concurrence, NMFS determined that the smalltooth sawfish may be affected, but is not likely to be adversely affected by the proposed action. The project area is not a known nursery or foraging area for smalltooth sawfish, and it does not support the type of habitat favored by juvenile sawfish. While adults may move through or forage in the project area, NMFS determined that the project would not impact the sawfish from critical habitat loss or entrainment. The risk of injury was presumed to be discountable due to the species’ mobility and implementation of NMFS’ Smalltooth Sawfish Construction Conditions. In order to protect this species, the USACE proposes to implement the smalltooth sawfish construction conditions, which include the following:

- The Contractor shall instruct all personnel associated with the project of the potential presence of this species and the need to avoid collisions with smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of sawfish.
- The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing smalltooth sawfish, which are protected under the Endangered Species Act.

- Siltation barriers shall be made of material in which a smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment.
- All vessels associated with the construction project shall operate at “no wake/idle” speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.
- If a smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.
- Any collision with and/or injury to a smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service’s Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.

5 ALTERNATIVE TO THE PROPOSED ACTION

The MMS considered the following as an alternative to the proposed action:

Do Not Authorize Use of OCS Sands: Under this alternative, the USACE and Brevard County would not be authorized to access offshore sands in the CSII borrow area. The project proponents could either:

- (a) Re-evaluate the project to choose another alternative method or sand source to restore the South Reach, or
- (b) locate an onshore source of comparable high-quality sand.

Option A would not minimize overall environmental effects because of the need to protect the shoreline associated with the Brevard County project by either constructing new or augmenting existing protection mechanisms for the beaches. Option B is not considered to be viable as sources of approved onshore sand are limited. Plus, even if a sufficient amount of high-quality sand is located onshore, Option B is likely to result in increased environmental disruption/effect from the onshore excavation of and overland transport.

6 CONSULTATION AND COORDINATION

List of agencies and persons consulted:

National Marine Fisheries Service, Southeast Regional Office
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8 PROPOSED MITIGATION MEASURES

The following mitigation measures are proposed to avoid, reduce, or eliminate environmental impacts associated with the proposed action (herein referred to as the “Project”). Mitigation measures in the form of terms and conditions are added to the negotiated agreement and are shall be considered enforceable as part of the agreement. Application of terms and conditions will be individually considered by the Director or Associate Director of the MMS. Minor modifications to the proposed mitigation measures may be made during the noncompetitive negotiated agreement process if comments indicate changes are necessary or if conditions warrant.

Plans and Performance Requirements

The USACE will provide the MMS with a copy of the Project’s “Construction Solicitation and Specifications Plan” (herein referred to as the “Plan”). No activity or operation authorized by the negotiated agreement (herein referred to as the Memorandum of Agreement or MOA) at the CSII Borrow Area shall be carried out until the MMS has had an opportunity to review and comment on the Plan, thus ensuring that each activity or operation is conducted in a manner that is in compliance with the provisions and requirements of the MOA. The USACE will ensure that all operations at the CSII Borrow Area are conducted in accordance with the final approved Plan and all terms and conditions in this MOA, as well as all applicable regulations, orders, guidelines, and directives specified or referenced herein.

The preferred method of obtaining and conveying sediment from the CSII Borrow Area involves the use of a hopper dredge. The USACE will allow MMS to review and comment on any modifications to the Plan, including the use of a cutterhead dredge, or submerged or floated pipelines to convey sediment, that may affect the project area, before implementation of the modification. Said comments shall be delivered in a timely fashion in order to not delay the Corps’ construction contract.

The USACE, at the reasonable request of the MMS, shall allow access, at the site of any operation subject to safety regulations, to any authorized Federal inspector and shall provide the MMS any documents and records that are pertinent to occupational or public health, safety, or environmental protection as may be requested.

Notification of Activity in or near the Borrow Area

The USACE will notify the MMS at dredgeinfo@mms.gov of the commencement and termination of operations at the CSII Borrow Area within 24 hours after the USACE receives such notification from its contractor(s) for the Project. The MMS will 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.

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.

The USACE will serve as the lead federal agency for Endangered Species Act (ESA) Section 7 compliance concerning protected species under the purview of U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS). The USACE will instruct its contractor to implement the mitigation terms, conditions, and measures required by the FWS, NMFS, and MMS pursuant to applicable federal laws and regulations. The required mitigation terms, conditions, and measures are reflected in the attached Biological Opinions, Conservation Recommendations, and Consistency Determination.

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 cutterhead or draghead as practicable.

During dredging operations, the USACE will immediately notify the MMS at dredgeinfo@mms.gov if dredging occurs outside of the approved borrow area. Anchoring, spudding, or other bottom disturbing activity is to be avoided outside the authorized borrow area.

Local Notice to Mariners

The USACE shall 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.

Marine Pollution Control and Contingency Plan

The USACE will require its contractors and subcontractors to prepare for and take all necessary precautions to prevent discharges of oil and releases of waste and hazardous materials that may impair water quality. In the event of an occurrence, notification and response will be in accordance with applicable requirements of 40 C.F.R. 300. All dredging and support operations shall be compliant with U.S. Coast Guard regulations and the Environmental Protection Agency's Vessel General Permit, as applicable. The USACE will notify the MMS of any occurrences and remedial actions and provide copies of reports of the incident and resultant actions at dredgeinfo@mms.gov.

Encounter of Ordinance

If any ordinance is encountered while conducting dredging activities at the CSII Borrow Area, the USACE will report the discovery within 24 hours to Ms. Renee Orr, Chief, MMS Leasing Division, at (703) 787-1215 and dredgeinfo@mms.gov.

Cultural Resources

Onshore Prehistoric or Historic Resources

If the USACE discovers any previously unknown historic or archeological remains while accomplishing activity in Brevard County, FL authorized by Section 101(b)(7) of the Water Resources Development Act of 1996, Public Law 104-303, the USACE must immediately notify the MMS 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 Historic Resources

An archaeological survey was conducted in 2001 and was reported “Archaeological Diver Identification and Evaluation of Fourteen Potentially Significant Submerged Targets for the Brevard County Shore Protection Project” (DHR file No. 2001-316). Eight anomalies, from a 1999 survey, were identified as debris from the space program and potentially significant, and avoidance was recommended. The eight anomalies shall be avoided during dredging operations by at least 200 feet, as described in the table below.

Table: Archaeological avoidance areas

<u>Target</u>	<u>Area/Block</u>	<u>Amplitude (gammas)</u>	<u>Duration (ft)</u>	<u>FL East State Plane Coord. NAD 1927 (X/Y Coordinate)</u>	<u>Avoidance Radius (ft)</u>
C2-01	Canaveral Shoals II	422	120	667682/1487363	200
C2-02	Canaveral Shoals II	330	85	670907/1485875	200
C2-08	Canaveral Shoals II	147	140	675523/1482444	200
C2-12	Canaveral Shoals II	51	125	679892/1482496	200
C2-13	Canaveral Shoals II	36	110	681022/1480316	200
C2-14	Canaveral Shoals II	61	165	681364/1480843	200
C2-16	Canaveral Shoals II	52	100	676571/1481617	200
C2-17	Canaveral Shoals II	65	75	670297/1486107	200

If the USACE determines that the anomalies listed in Table 2 cannot be avoided during dredging operations, the USACE shall notify the MMS. The USACE, subject to the availability of appropriations and in accordance with the requirements of applicable law, may conduct further investigations to assess the significance of the objects producing the signatures in accordance

with the criteria at 36 CFR section 60.4, "Criteria for evaluation."

The proposed investigation procedures shall be discussed with the MMS archaeologist prior to commencing fieldwork. At a minimum, this assessment must include an analysis of the age, physical composition, and structural integrity of the object (*i.e.*, wood or metal, intact or dispersed). Measured drawings and/or underwater video or still photographs of the feature shall be made for documentation and submitted with the final "Report of Findings." A "Report of Findings" prepared in accordance with the archaeological report writing standards specified in the MMS Notice To Lessees (NTL) 2005-G07 must be submitted to the MMS for approval within ten work days of the completion of fieldwork.

Offshore Chance Finds Clause

In the event that the dredge operators, discover any archaeological resource while conducting dredging operations in the CSII Borrow Area, the USACE shall require that dredge operations will be halted immediately within the borrow area. The USACE shall then immediately report the discovery to Ms. Renee Orr, Chief, MMS Leasing Division, at (703) 787-1215. If investigations determine that the resource is significant, the parties shall together determine how best to protect it.

Bathymetric Surveys

The USACE and the County will provide the MMS with pre- and post-dredging bathymetric surveys of the CSII Borrow Area. The pre-dredging survey will be conducted within 30 days prior to dredging. The post-dredging survey will be conducted within 30 days after the completion of dredging. Additional bathymetry surveys are recommended at 1 year and 3 years following the completion of dredging. Hydrographic surveys will be performed in accordance with the U.S. Army Corps of Engineers Hydrographic Surveying Manual EM 1110-2-1003 unless specified otherwise. Survey lines of the specific dredge area, within the CSII Borrow Area, will be established at no greater than 50 m intervals perpendicular to a baseline. Three equidistant cross-tie lines will be established parallel to the same baseline. Survey lines will extend at least 50 m beyond the edge of the dredge areas. All data shall be collected in such a manner that post-dredging bathymetry 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 nature of post-dredging bathymetric change.

Copies of pre-dredging and post-dredging hydrographic data will be submitted to MMS within thirty (30) days after each survey is completed. The delivery format for data submission is an ASCII file containing x,y,z data. The horizontal data will be provided in the North American Datum of 1983 (NAD '83) Florida State Plane East Zone, U.S. survey feet. Vertical data will be tidally corrected and provided in the North American Vertical Datum of 1988 (NAVD '88), U.S. survey feet. An 8.5x11" plan view plot of the pre- and post-construction data will be provided showing the individual survey points, as well as contour lines at appropriate elevation intervals. These plots will be provided in PDF format. All data will be submitted to dredgeinfo@mms.gov within 30 days of completion.

Submittal of Production and Volume Information

The USACE, in cooperation with the dredge operator, shall submit to the MMS and the County on a biweekly basis a summary of the dredge head track lines, outlining any deviations from the original Plan. A color-coded plot of the cutterhead or drag arms will be submitted, showing any horizontal or vertical dredge violations. This map will be provided in PDF format. The USACE will provide a biweekly update of the construction progress including estimated volumetric production rates to MMS. The biweekly deliverables will be provided electronically to dredgeinfo@mms.gov. The project completion report, as described in paragraph 13 below, will also include production and volume information.

Project Completion Report

A project completion report will be submitted by Brevard County to MMS within 90 days following completion of the activities authorized under this MOA. This report and supporting materials should be sent to Ms. Renee Orr, Chief, MMS Leasing Division, 381 Elden Street, MS 4010, Herndon, Virginia 20170 and dredgeinfo@mms.gov. The report shall contain, at a minimum, the following information:

- the names and titles of the project managers overseeing the effort (for 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);
- ASCII files containing the x,y,z 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 table, an example of which is illustrated below, showing the various key project cost elements;

	Project Cost Estimate (\$)	Cost Incurred as of Construction Completion (\$)
Construction		
Engineering and Design		
Inspections/Contract Administration		
Total		

- a table, an example of which is illustrated below, showing the various items of work construction, final quantities, and monetary amounts;

Item No.	Item	Estimated Quantity	Unit	Unit Price	Estimated Amount	Final Quantity	Bid Unit Price	Final Amount	% Over/Under
1	Mobilization and Demobilization								
2	Beach Fill								
3	Any beach or offshore hard structure placed or removed								

- a listing of construction and construction oversight information, including the prime and subcontractors, contract costs, etc.;
- a list of all major equipment used to construct the project;
- 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;
digital appendices containing the as-built drawings, beach-fill cross-sections, and survey data; and any additional pertinent comments.

9 APPENDICES

Appendix A. Army Corps of Engineers Environmental Impact Statement (1996)

Appendix B. Army Corps of Engineers Environmental Assessment (1998)

Appendix C. Minerals Management Service Environmental Assessment (2005)

Appendix D. Florida Dept. of Environmental Protection Consistency Certification (2001)

Appendix E. National Marine Fisheries Service (NMFS) Concurrence (2009)

Appendix F. U.S. Fish and Wildlife Service Biological Opinion (2009)

Appendix G. NMFS Essential Fish Habitat Conservation Recommendations (2005)

Appendix H. Florida State Historic Preservation Officer Coordination (2001)