

**Feasibility Report
and
Environmental Impact Statement
on
Coastal Storm Damage Reduction**

**SURF CITY AND NORTH TOPSAIL BEACH,
NORTH CAROLINA**

Appendix T

Public Comments and USACE Responses

APPENDIX T

Comments and Responses

Comments received on the Feasibility Report and Environmental Impact Statement on Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina, dated January 13, 2010 and the U. S. Army Corps of Engineers, Wilmington District response to each comment.

1.0 INTRODUCTION

This Appendix includes all comments received on the Feasibility Report and Environmental Impact Statement on Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina and responses by the U. S. Army Corps of Engineers, (USACE) Wilmington District. These comments are listed in the following order: Federal agencies, State agencies, local agencies/municipalities, and conservation groups. No comments were received from interested businesses, groups, and individuals.

The Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA), 40 CFR Part 1503.4 Response to Comments (b), states, "All substantive comments received on the draft statement (or summaries thereof where the response has been exceptionally voluminous), should be attached to the final statement whether or not the comment is thought to merit individual discussion by the agency in the text of the statement." Additionally, the Environmental Quality; Procedures for Implementing the National Environmental Policy Act (NEPA); Final Rule, 33 CFR 230.19 (c) Comments Received on the Draft EIS, states, "District commanders will avoid lengthy or repetitive verbatim reporting of comments and will keep responses clear and concise."

In keeping with these regulations, the USACE will respond to summaries of lengthy written comments. Additionally, in order to reduce repetition, responses will be made once to a comment and a particular issue. If the issue appears again, in another letter, the reader will be referred to the initial comment and response. Detailed responses will not be given to comments which repeat information in the Feasibility Report/EIS or state opinions on the proposed action. Form letters and signed petitions with multiple signatures are not responded to individually. In some instances, our response to a comment may be indicated as "Noted." Noted means that the comment was evaluated and it will be considered in making the decision on whether to sign the Record of Decision.

2.0 PUBLIC AND AGENCY COORDINATION

On January 13, 2010 the Feasibility Report/EIS referenced above was mailed to Federal and State agencies and the interested public for a 45-day review and comment period. Responses to the Feasibility Report/EIS were received from the following:

Federal Agencies

- US Department of the Interior, Minerals Management Service
- US Department of Agriculture, Natural Resources Conservation Service
- US Department of Commerce, National Marine Fisheries Service
- US Department of the Interior, Fish and Wildlife Service
- US Environmental Protection Agency, Region IV

State Agencies

- NC Wildlife Resources Commission
- NC Division of Water Quality
- NC Department of Environment and Natural Resources
- NC Division of Marine Fisheries
- NC Division of Parks and Recreation
- NC Division of Land Resources
- NC Division of Coastal Management
- NC State Historic Preservation Office
- NC Department of Environment and Natural Resources, Shellfish Sanitation
- NC Coastal Reserve
- NC Division of Water Resources, Water Projects Section
- NC Natural Heritage Program

Local Agencies/Municipalities

- County of Pender

Copies of the actual correspondence received from these agencies are included at the end of the document.

MINERALS MANAGEMENT SERVICE (MMS)

1. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The Environmental Effects chapter (Chapter 8) offers a robust discussion of the potential environmental impacts related to the Tentatively Selected Plan. In contrast, the document offers a limited discussion of potential impacts associated with other alternatives, including the no action alternative. Chapter 5 presents a conceptual comparison of the environmental effects of beach fill, non-structural, and no action alternatives.

The MMS suggests the Corps clearly indicate which alternatives were dismissed and on what basis. Otherwise, the direct and indirect impacts of alternatives should be discussed in more detail and in context of their relative significance in the Environmental Effects chapter.

RESPONSE: Text will be added to section 5.06.4 to indicate why non-structural and no-action plans were screened out

REPORT CHANGE: Section 5.06.4 modified

Old Text: In addition to the economic comparison, the impacts of the major categories of plans on the resources described in Section 2.00, Affected Environment, are considered. Table 5.4 presents the comparative impacts on these resources. The “No Action” alternative is defined as no action by the Federal government on this particular proposed coastal storm damage reduction project.

New Text : In addition to the economic comparison, the impacts of the major categories of plans on the resources described in Section 2.00, Affected Environment, are considered. Table 5.4 presents the comparative impacts on these resources. The “No Action” alternative is defined as no action by the Federal government on this particular proposed coastal storm damage reduction project. It should be noted that categories of plans were not screened out based on environmental effects. As mentioned earlier in the report, the No Action plan was screened out because it does not provide any NED benefits, and the non-structural was screened out because the BC ratio was < 1. However, an environmental comparison of plans was still done to show if categories of plans are consistent with protecting the Nation’s environment.

2. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: Since most of the borrow areas identified for the proposed project are located on the Outer Continental Shelf (OCS), the MMS may need to authorize their use for initial and/or maintenance construction. The MMS, as a cooperating federal agency, may undertake a connected action (i.e., authorize use of the OCS borrow area) that is related, but unique from the Corps’s proposed action (i.e., construction of the project). Consequently, the purpose and need of the MMS’s proposed action is different. Ideally, the EIS should provide a more accurate description of the MMS’s involvement under the Corps’ proposed action.

The MMS’s proposed action is the issuance of a negotiated agreement pursuant to its authority under the Outer Continental Shelf Lands Act. The purpose of that action is to authorize the use of OCS sand (or other sediment) resources in beach nourishment and coastal restoration projects undertaken by federal,

state or local government agencies, and/or in other federally authorized construction projects. The MMS's action will be needed because the Towns of Surf City and North Topsail Beach and the Corps submitted authorization requests to the MMS.

RESPONSE: Concur. Section 1.03 will be updated using the MMS provided text to more appropriately incorporate the purpose and need of MMS as a cooperating agency.

REPORT CHANGE: Section 1.03 "Purpose and Need for Action" will be replaced with the following:

"The purpose and need for the Corps' proposed coastal storm damage risk reduction project is to reduce both storm damages and beach erosion along the ocean shoreline of the Surf City and North Topsail Beach study area. There is a wide variety of possible measures that would reduce the impacts of erosion, flooding, and waves on commercial and residential structures and infrastructure of the island as well as provide incidental environmental and recreational benefits. Beach nourishment measures which include dredging of sediment from offshore borrow areas located on the Outer Continental Shelf (OCS) may require authorization by the Minerals Management Service (MMS) for use during initial and/or maintenance construction (See Section 10.11). The MMS Leasing Division is charged with environmentally responsible management of federal OCS sand and gravel resources. Public Law 102-426 (43 U.S.C. 1337(k)(2)), enacted 31 October 1994, gave MMS the authority to negotiate, on a noncompetitive basis, the rights to OCS sand, gravel, and shell resources for coastal storm damage reduction, beach or wetlands restoration projects, or for use in construction projects funded in whole or part by or authorized by the federal government. The MMS, as a cooperating federal agency, may undertake a connected action (i.e., authorize use of the OCS borrow area) that is related, but unique from the Corps's proposed action. The MMS's proposed action is the issuance of a negotiated agreement pursuant to its authority under the Outer Continental Shelf Lands Act. The purpose of that action is to authorize the use of OCS sand (or other sediment) resources in beach nourishment and coastal restoration projects undertaken by federal, state or local government agencies, and/or in other federally authorized construction projects."

3. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The feasibility study and proposed action should be presented in context of historical and proposed beach nourishment activities in the vicinity of Topsail Island. The Study Overview chapter should include a transparent and up-to-date discussion of historical and planned beneficial use projects (see 3.06), historical navigation and planned inlet management projects, as well as proposed Civil Works and Regulatory projects (see 7.04.2).

RESPONSE: Concur. Updates will include appropriate information.

REPORT CHANGE: Text added at end of section 1.09 (formerly 1.08)

New Text: Additionally, over the last 25 to 30 years, material resulting from maintenance dredging of New River, the AIWW and connecting channels has been placed on the northernmost mile of the study area in the vicinity of New River Inlet. Records from FY1998 through FY2007 show that this total placement of 680,000 cubic yards has occurred on an irregular basis, generally every 1 to 3 years, with dredging quantities varying from 70,000 to 170,000 cubic yards and averaging about 110,000 cubic yards per event.

The towns of North Topsail Beach and Topsail Beach are also currently proposing non-federally funded beach renourishment actions. North Topsail Beach has proposed putting 4 million cubic yards of material

in the CBRA zone, which is outside of the federal project study area. Topsail Beach has proposed putting about 1.3 million cubic yards of material as an “interim”

4. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The introductory text to the Affected Environment chapter should be revised to indicate that the footprint of the proposed action is not limited to the sub-aerial beach, but includes the marine environment offshore the barrier island.

RESPONSE: Concur.

REPORT CHANGE: Section 2.0 "Affected Environment" should be replaced with the following text:

"The project is located in Pender and Onslow Counties in the towns of Surf City and North Topsail Beach, NC. Topsail Island is a 22-mile long barrier island on North Carolina's south-central coast consisting of three communities, from south to north; Topsail Beach, Surf City, and North Topsail Beach. The footprint of the proposed action includes the sub-aerial beaches of Surf City and North Topsail Beach as well as the marine environment offshore of the barrier island. Significant Resources found within the vicinity of the project area, in both the marine and terrestrial environment, are described below. Physical resources, socioeconomic resources, recreation and aesthetic resources, cultural resources, Section 122, P.L. 91-611 Resources, and water quality conditions are also discussed in this section. Vertical datum for this report is NGVD29."

5. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: Pelagic and benthic sargassum should be addressed as an important biological resource in the marine environment.

RESPONSE: Concur

REPORT CHANGE: The following paragraph will be included at the end of section 2.01:

"Sargassum is an abundant seaweed that occurs near the surface in warm waters of the western North Atlantic. With an exceptionally fast growth rate, floating rafts of Sargassum represent a highly renewable natural resource that can be harvested for various uses. Sargassum supports a wide range of marine organisms that include micro- and macro-epiphytes, fungi, more than 100 species of invertebrates, over 100 species of fishes, and four species of sea turtles. The SAFMC previously designated Sargassum as essential fish habitat for snappers, groupers, and coastal migratory pelagic fishes of the South Atlantic region (Coston-Clements *et al.*, 1991)."

The “References” section 15.0 should be updated to include the following:

Coston-Clements, L., L.R. Settle, D.E. Hoss and F.A. Cross. 1991. Utilization of the Sargassum habitat by marine invertebrates and vertebrates - a review. NOAA Technical Memorandum NMFS-SEFSC-296, 32 p.

6. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The narrative description of the location of both New Topsail and New River Inlets is unclear. The MMS suggests referring to a figure to clarify the narrative.

RESPONSE: Concur

REPORT CHANGE: The first and third sentence of Section 2.01.2 should be updated to include a reference to Figure 1.1.

7. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The biological assessment discusses protected species that are likely to occur in the proposed project area. However, the draft IFR/EIS does not address other marine mammals without protection status, such as dolphin species, that are likely to be present and may be affected by the proposed action.

RESPONSE: Concur

REPORT CHANGE: The last sentence of section 2.01.7 will be removed and replaced with the following:

"All marine mammals are protected by the Marine Mammal Protection Act (MMPA) of 1972, as amended, but the West Indian manatee and six large whales are also listed as endangered and, therefore, are afforded additional protection under the Endangered Species Act (ESA). The MMPA prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S. All marine mammals and reptiles that may be present within the project area and are federally listed as threatened or endangered under the ESA are addressed in the biological assessment (See Appendix I)."

The following additional paragraph will also be added at the end of Section 2.01.7:

"Several marine mammal species occur in the project which are not federally listed but are protected under the MMPA. The Navy uses the Marine Resource Assessment (MRA) program to develop a comprehensive data and literature compilation of protected and managed marine resources within its various operating areas. The document is used for planning purposes and for various types of environmental documentation, such as biological and environmental assessments, that must be prepared in accordance with the National Environmental Policy Act (NEPA), Marine Mammal Protection Act (MMPA), Endangered Species Act (ESA), and Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). Thirty-eight marine mammal species have been recorded in or adjacent to the Surf City and North Topsail Beach project area. These species include 33 cetaceans (whales, dolphins, and porpoises), four pinnipeds (seals, sea lions, and fur seals), and one sirenian. Only 24 of those species are expected to regularly occur in the region (Table X.X). Some cetacean species occur in the project area year-round (e.g., bottlenose dolphin, beaked whales), while others (e.g., right whale, humpback whale) occur seasonally as they migrate through the area. Only rare occurrences of the West Indian manatee are anticipated. Although bottlenose dolphins are common in the project area, USACE has never documented a direct effect on bottlenose dolphins from dredging activities during its numerous dredging projects throughout the United States; therefore, an Incidental Harassment Authorization (IHA) in accordance with the MMPA is not anticipated for this project. In the April 25, 2005 notice in the Federal Register for the issuance of an IHA for blasting at the Port of Miami, NMFS concluded: "According to the Corps, bottlenose dolphins and other marine mammals have not been documented as being directly affected by dredging activities and, therefore, the Corps does not anticipate any incidental harassment of bottlenose dolphins. NMFS concurs." (NMFS, 2005)." Therefore, no further coordination under the MMPA is anticipated for this project."

The "References" Section 15.0 should be updated with the following:

"NMFS. 2005. Taking Marine Mammals Incidental to Specified Activities; Port of Miami Construction Project (Phase II). 70 FR 21174. April 25, 2005." and "Department of the Navy. 2008. Marine Resource Assessment Update for the Cherry Point Operating Area. Department of the Navy, U.S. Fleet Force Command, Norfolk, Virginia. Contract #N62470-02-D-9997, CTO 0056. Prepared by Geo-Marine, Inc., Hampton Virginia."

"Department of the Navy. 2008. Marine Resources Assessment Update for the Cherry Point Operating Area. Department of the Navy, U.S. Fleet Forces Command, Norfolk, Virginia. Contract #N62470-02-D-9997, CTO 0056. Prepared by Geo-Marine, Inc., Hampton, Virginia."

The following Table X.X. will be included in the report:

Table X. Marine mammal species found within the project area. Those species identified as endangered under the ESA are addressed in the biological assessment (Appendix I). (Source: Department of the Navy. 2008)

Order Cetacea

Suborder Mysticeti (baleen whales)

Family Balaenidae

North Atlantic right whale *Eubalaena glacialis* ENDANGERED
Family Balaenopteridae (rorquals)
Humpback whale *Megaptera novaeangliae* ENDANGERED
Minke whale *Balaenoptera acutorostrata*
Bryde's whale *Balaenoptera edeni*
Sei whale *Balaenoptera borealis* ENDANGERED
Fin whale *Balaenoptera physalus* ENDANGERED
Blue whale *Balaenoptera musculus* ENDANGERED

Suborder Odontoceti (toothed whales)

Family Physeteridae

Sperm whale *Physeter macrocephalus* ENDANGERED
Family Kogiidae
Pygmy sperm whale *Kogia breviceps*
Dwarf sperm whale *Kogia sima*

Family Ziphiidae (beaked whales)

Cuvier's beaked whale *Ziphius cavirostris*
True's beaked whale *Mesoplodon mirus*
Gervais' beaked whale *Mesoplodon europaeus*
Blainville's beaked whale *Mesoplodon densirostris*
Sowerby's beaked whale *Mesoplodon bidens*
Northern bottlenose whale *Hyperoodon ampullatus*

Family Delphinidae (dolphins)

Rough-toothed dolphin *Steno bredanensis*
Bottlenose dolphin *Tursiops truncatus*
Pantropical spotted dolphin *Stenella attenuata*
Atlantic spotted dolphin *Stenella frontalis*
Spinner dolphin *Stenella longirostris*
Striped dolphin *Stenella coeruleoalba*
Clymene dolphin *Stenella clymene*
Short-beaked common dolphin *Delphinus delphis*
Fraser's dolphin *Lagenodelphis hosei*
Risso's dolphin *Grampus griseus*
Melon-headed whale *Peponocephala electra*
Pygmy killer whale *Feresa attenuate*
False killer whale *Pseudorca crassidens*
Killer whale *Orcinus orca*
Long-finned pilot whale *Globicephala melas*
Short-finned pilot whale *Globicephala macrorhynchus*
Family Phocoenidae
Harbor porpoise *Phocoena phocoena*

Order Carnivora

Suborder Pinnipedia (seals, sea lions, walruses)

Family Phocidae (true seals)

Harbor seal *Phoca vitulina*

Gray seal *Halichoerus grypus*

Harp seal *Pagophilus groenlandicus*

Hooded seal *Cystophora cristata*

Order Sirenia

Family Trichechidae

West Indian manatee *Trichechus manatus*

8. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The description of and potential impacts to protected marine mammals and sea turtles are incorporated by reference to the biological assessment. The MMS recommends a brief summary be provided in the EIS, or, the biological assessment should be included as a physical attachment to the Final IFR/EIS.

RESPONSE: Concur

REPORT CHANGE: The biological assessment will be included as a physical attachment to the Final IFR/EIS.

9. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: A detailed discussion of habitat association between benthic populations and habitat type (RSDs, hard bottom, sand and muddy substrate) should be provided. The benthic resources or hard bottom descriptions should include a detailed description of the occurrence and quality of benthic sargassum, corals, and sponges. The equivalent information requested is provided in 8.01.8.3 and 8.01.8.5 of the Environmental Effects chapter.

RESPONSE: Concur

REPORT CHANGE: Section 2.01.9 will be replaced with the following:

2.01.9 Benthic Resources – Nearshore Ocean

“Aquatic organisms that live in close association with the bottom, or substrate, of a body of water, are collectively called the benthos. Benthos communities provide a link between planktonic and benthic production and commercially important fish species (Posey, 1991). Benthic communities of the project area exhibit a wide range of organism composition and density, and community structure may vary considerably depending on substrate type, salinity regime, proximity to structural habitat, etc. Benthic substrate type and structural habitat within the project area range between fine to course grained sand, gravel and shell hash, and low, moderate and high relief hard bottom. Specifically, the nearshore “soft bottom” environment just offshore of the beach-face consists of transitioning regions of course gravel and shell hash and sand. These features, common to North Carolina, are defined in the literature as “rippled scour depressions, rippled channel depressions, and/or sorted bed forms.” They are thought to be the result of a feedback mechanism whereby an existing deposit of course shell hash and gravel material is built upon and segregated from fine material due to wave motion interacting with the enhanced roughness of the seafloor bed around patches of course material (Cacchione *et al.*, 1984; Thieler *et al.*, 1999; Thieler *et al.*, 2001; Murray and Thieler, 2004) (See Section 8.01.8.2). The specific biological functions of these features have not been heavily studied; however, the benthic species composition, population, and community structure likely shift depending on the substrate type. Most nearshore benthic invertebrates in soft bottom substrates tend to be r-strategists, which are characteristically small-bodied, short-lived, and have high fecundity, efficient dispersal mechanisms, and rapid growth rates. Thus, re-colonization of a disturbed area is generally initiated by r-strategists (Bowen and Marsh, 1988).

As discussed in Section 2.01.10, “hard bottom” communities are located in the offshore environment of the project area and are found within the proposed borrow areas and consist of low, moderate, and high relief features (Moser and Taylor, 1995; Moser *et al.*, 1995). Benthic organisms and community structure associated with hard bottom features are unique from other “soft bottom” benthic communities. Section

2.01.10 and Appendix R4 discuss the specific organisms identified within representative hard bottom communities found within the study area. In summary, moderate to high relief hard bottom communities were more diverse and supported predominantly *Oculina* sp. colonies, tunicates, sponges, macro-algae (i.e. benthic sargassum), bryozoans, and hydrozoans; whereas, low relief communities were characterized by lower stony coral cover and higher cover by fast growing octocorals.

A myriad of benthic surveys of representative “soft bottom” nearshore ocean sites have been conducted throughout the Mid-Atlantic and South Atlantic regions, including within the vicinity of the proposed project area. Three nearshore ocean sites located off Virginia Beach were conducted for the USDO Minerals Management Service (MMS) in 1996 and 1997 by Cutter and Diaz (1998). They collected a total of 119 taxa from 13 Smith-Macintyre grabs collected in 1996. Half of the top 14 taxa (occurrence and abundance) were polychaetes. The remainder included representatives from the amphipods, decapods, bivalves, nemertean, tanaids, echinoderms, and chordates. They found the overall community composition to be typical for sandy shallow continental shelf habitats and with similar species composition for similar depths and sediment types reported by Day *et al.* (1971) for North Carolina (Table 2.1). Day *et al.* (1971) defines the nearshore ocean as the “turbulent zone”, which includes ocean waters from below low tide to a depth of about 60 feet. According to Day *et al.*, polychaete species are highly represented in this zone with pelecypods, decapods, amphipods, echinoderms, and cephalochordates also present. Biological characterization results from field surveys performed by MMS of offshore shallow shelf habitats in the Outer Banks, North Carolina identified members of the major invertebrate and vertebrate groups commonly found in the general area. Dominant infaunal groups consisted of crustaceans, echinoderms, mollusks, and polychaetes, while epifaunal taxa consisted primarily of decapods, sea stars, and squid. Dominant demersal fish species included clearnose skate (*Raja eglanteria*), flounder (*Paralichthys* sp.), scup (*Stenotomus chrysops*), and sea robin (*Prionotus scitulus*) (Byrnes *et al.*, 2003). Posey and Alphin (2000), collected offshore benthic infaunal samples at depths of 30-40 ft. from pre-borrow sites of Kure Beach, North Carolina. Results indicate that the benthic community was very diverse, with over 600 species, and largely dominated by polychaetes, with crustaceans and bivalves comprising most of the remaining taxa.

Benthic infaunal samples were collected by Dial Cordy and Associates Inc. within six borrow sites offshore of Topsail Beach in 2007 (USACE, 2009; USACE, 2007a). Benthic invertebrate abundance, species composition, and biomass were calculated and qualitative comparisons of the data were made to the results of other pertinent benthic studies in the Mid- and South-Atlantic regions. Results indicate that the benthic resources in the sampled borrow areas off of Topsail Beach are similar in composition and taxa dominance to those described in other studies along the North Carolina and South Carolina coasts (Table 2.1) (Byrnes *et al.*, 2003; Van Dolah *et al.*, 1984; Versar, 2002 and 2006; and Posey and Alphin 2000 and 2002). However, the benthic community found offshore of Topsail Beach was less diverse and abundant than baseline sampling performed for the Kure Beach restoration project (Posey and Alphin, 2000 and 2002) and for the Dare County beach coastal storm damage reduction project (Versar, 2006). It is likely that the differences between the benthic community off Topsail Beach and the two referenced studies are due to the more extensive sampling effort associated with baseline monitoring programs as compared to a less intensive sampling regime for a general characterization study (i.e. ten sampling stations per site off Dare County as compared to three to five stations per site for the Topsail Beach benthic characterization study). Of the 104 total taxa collected for the one-time sampling performed off Topsail Beach, polychaetes also dominated the community, comprising over 30% of the relative abundance at four of the six borrow sites (USACE, 2009; USACE, 2007a).

Though specific borrow areas identified for the Surf City and North Topsail Beach Coastal Storm Damage

Reduction Project have not been sampled, considering (1) the similarities in species composition and taxa dominance throughout all previously conducted benthic studies offshore of Virginia, North Carolina, and South Carolina, (2) the nearness of the Topsail Island sampled borrow areas (USACE, 2009; USACE, 2007a) to the proposed SCNTB project borrow areas, and (3) the similarity in sediment characteristics among the previous studies, it is expected the benthic infaunal communities within the borrow areas offshore of SCNTB will be similar to previous studies.”

The following introduction in Section 2.01.10 Hard Bottoms page 27 should be updated to include an appendix reference as follows:

(3) USACE. 2008. Surf City/North Topsail Beach, NC Shore Protection Project, Hard Bottom Resource Confirmation and Characterization Study. Contract W912HN-08-C-0009. Submitted by ANAMAR Environmental Consulting Inc. and Coastal Planning and Engineering, Inc. (Appendix R; Attachment 4).

10. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The detailed narrative discussing the suite of investigations and the results of those investigations used to support assessment of hard bottom areas needs to be better synthesized. The synthesis should address the location, type, nature, and quality of hard bottom habitat and benthic communities in an integrated manner. The presentation of the chronological investigation is better suited for inclusion in another appendix. Likewise, the discussion of buffer requirements should be relegated to the Environmental Effects chapter in context of potential effects and effects-reducing mitigation measures. The MMS recommends the Corps provide a series of figures that clearly illustrate 1) the spatial extent of hard bottom areas and 2) the quality of habitat and diversity of supported biological communities. The description of nearshore hard bottom areas should not be limited to the offshore immediately east of the project area, but should include hard bottom areas identified offshore northern Topsail Island.

Also, the Corps should indicate that the calculated depth of closure is derived from “averaged” incident wave conditions, and/or a relative determination of nominal vertical change from a series of cross-shore beach profiles. Depth of closure is documented to be event-dependent (Nicholls et al., 1998). It should be stated that cross-shore sediment transport will likely occur beyond the depth of closure, but ultimately depends on the forcing conditions and the profile state at the time of the forcing event.

RESPONSE: Comment Acknowledged. The rationale for discussing the suite of investigations in Section 2.01.10 was to provide the historic context for how the selection and refinement of proposed borrow areas was based on screening effort utilizing data from each investigation to narrow from a macro to a micro scale. The hard bottom output from each investigation was not equally comprehensive; therefore, the intent of summarizing these investigations was to support how the hard bottom was avoided to the maximum extent practicable. The final diver ground truth hard bottom investigation (Appendix R; Attachment 4) was designed to confirm the presence of low, moderate, and high relief hard bottom resources within the borrow areas and characterize the biota along representative transects within a select number of borrow areas. These ground truth data confirmed the interpretation of the side scan sonar relative to relief categories and provided some representative species characterization so that impact evaluations could be made relative to potential sedimentation risk associated with the designated buffer distances. However, recognizing that all of the borrow areas and associated hard bottom features would not be characterized and mapped to the same level of detail, these ground truth and characterization data were interpolated across the rest of the study area to indicate representative

species for the relief categories. The discussion of buffer requirements were initiated in Section 2.0 because it was important to discuss that the PDT recommended ground truthing be done at select locations so that impacts could be better evaluated based on sedimentation risk from 400 ft. and 500 m. buffer differences. Considering that hard bottom communities are a significant resource within the study area and classified as HAPC, the Corps feels that it is important to clearly lay out in the main text, rather than an appendix, the processes that the PDT went through to identify borrow material while avoiding direct impacts to hard bottom resources.

Depth of closure (DoC) value is an engineering tool and is based upon average conditions. Wave forces can transport sediment cross-shore anytime above average conditions prevail.

REPORT CHANGE: Figure A-1 has been updated to indicate the spatial extent of high, moderate, and low relief hard bottom features throughout all borrow areas as well as associated buffers based on relief. Appendix R; attachment 4 contains all of the biological characterization data that is representative for each relief category. The additional nearshore hard bottom information within North Topsail Beach has been obtained from Coastal Planning and Engineering and is included in Figure A-1 as well.

11. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The draft IFR/EIS references a 2004 document as the source for information on federally managed fish species and their associated habitat. The fishery management plans are authoritative sources, and most plans have been updated and new information added since 2004. The MMS recommends that the Corps consult with the National Marine Fisheries Service on the completeness of the species and HAPCs lists.

Note that the Atlantic Highly Migratory Species Fishery Management Plan (2006) is implemented by the Secretarial Council.

RESPONSE: Comment Acknowledged. The Corps has consulted with the NMFS under the Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Act. In a letter dated 8 March 2010, NMFS provided comments and EFH recommendations pursuant to authorities of the FISH and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act. One of their provided comments states that "the DEIS provides an adequate overview of EFH and associated species managed by the South Atlantic Fishery Management Council, Mid-Atlantic Fishery Management Council, and NMFS. The discussion of impacts to EFH meets the information requirement of 50 CFR 600.920(e)." Based on this consultation, the Corps concludes that the species and HAPC list are complete.

REPORT CHANGE: No action required.

12. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The description of benthic seagrass, coral, and hard bottom HAPC in the project area is limited. The appropriate sections of the document concerning these sensitive resources should be cross-referenced.

RESPONSE: Concur

REPORT CHANGE: The last three sentences of Section 2.01.11 Essential Fish Habitat will be replaced with the following:

"Table 2.6 shows the categories of EFH and Habitat Areas of Particular Concern (HAPC) for managed species, which were identified in the Fishery Management Plan Amendments affecting the South Atlantic area. A description of specific HAPC resources (i.e. hard bottom, coral, artificial reef, and *sargassum*) within the project area can be found in Sections 2.01.9, 2.01.10, and Appendix R (Attachment 4). The fish species and habitats shown in these tables require special consideration to promote their viability and sustainability. The potential impacts of the proposed action on these fish and habitats are discussed in Section 8.01.8 of this report." Also, an introductory paragraph on report layout will explain that more detailed explanations of resources are contained in Chapters 7 and 8.

13. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The MMS recommends a more complete discussion of bird utilization of hard bottom areas and other offshore habitat.

RESPONSE: Concur

REPORT CHANGE: See USFWS Comment #2.

14. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The document should reference and include updated information from bird surveys completed in support of the North Topsail Shore Protection Project.

RESPONSE: Comment Acknowledged. This data is already included and referenced in Table 2.10

REPORT CHANGE: No action required.

15. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: Table 2.7 should indicate the federal status (including candidate listing) for respective birds.

RESPONSE: Comment Acknowledged. As indicated in the table footnote for the "NC Status" column, Federal status is indicated in parentheses. Only the piping plover is federally listed as threatened and there are no species with candidate status.

REPORT CHANGE: Table 2.7 will be updated to indicate that the state status for both the Wilson's Plover and American Oystercatcher have been changed from "Significantly Rare (SR)" to "Special Concern (SC)." Text on page ? was also updated to and reflect the change from "Significantly Rare (SR)" to "Special Concern (SC)."

16. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: It is recommended that physical resources be addressed prior to the biological resources to provide for appropriate environmental context.

The description of the geological and physical oceanographic environment should be presented prior to the discussion of shoreline and sand transport to provide for appropriate geological context. The description of the geological environment should be expanded referencing relevant material provided in the discussion of hard bottom habitat (USACE, 2003; USACE 2004a). The Corps should describe the

dominant physical processes occurring offshore, especially those processes responsible for the maintenance of sorted bed forms and the ephemeral exposure of hard bottom.

RESPONSE: Comment Acknowledged. The information requested is in the report. Though the recommended restructuring of the report may improve the biological context of section 2.0, the Corps does not believe that it will improve the overall content of the report to a level that warrants the time required to make the change.

17. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: Ambient and anthropogenic noise in the marine environment is not described.

RESPONSE: Concur.

REPORT CHANGE: A third paragraph will be added to section 2.07.1 which will include the following:

"Within any harbor or open water coastal environment, there are a number of underwater ambient noise sources such as: commercial and recreational vessel traffic, dredges, wharf/dock construction (pile driving, etc.), natural sounds (storms, biological, etc.), etc. In order to better assess potential species impacts (i.e. disturbance of communication among marine mammals) associated with dredge specific noise from navigation maintenance, deepening, or borrow area dredging operations, Clarke *et al.* (2002) performed underwater field investigations to characterize sounds emitted by bucket, hydraulic cutterhead, and hopper dredge operations. A summary of results from this study are presented below and are a first step towards the development of a dredge sounds database which will encompass a range of dredge plant sizes and operational features:

Cutterhead Suction Dredge

Noise generated by a cutterhead suction dredge is continuous and muted and results from the cutterhead rotating within the bottom sediment and from the pumps used to transport the effluent to the placement area. The majority of the sound generated was from 70 to 1,000 Hz and peaked at 100 to 110 dB range. Though attenuation calculations were not completed, reported field observations indicate that the cutterhead suction dredge became almost inaudible at about 500 meters (Clarke *et al.*, 2002).

Hopper Dredge

The noise generated from a hopper dredge is similar to a cutterhead suction dredge except there is no rotating cutterhead. The majority of the noise is generated from the dragarm sliding along the bottom, the pumps filling the hopper, and operation of the ship engine/propeller. Similar to the cutterhead suction dredge, most of the produced sound energy fell within the 70 to 1,000 Hz range; however peak pressure levels were at 120 to 140 dB (Clarke *et al.*, 2002).

Bucket Dredge

Bucket dredges are relatively stationary and produce a repetitive sequence of sounds generated by winches, bucket impact with the substrate, bucket closing, and bucket emptying. The noise generated from a mechanical dredge entails lowering the open bucket through the water column, closing the bucket after impact on the bottom, lifting the closed bucket up through the water column, and emptying the bucket into an adjacent barge. Based on the data collected for this study, which included dredging of

coarse sands and gravel, the maximum noise spike occurs when the bucket hits the bottom (120 dB peak amplitude). A reduction of 30 dB re 1 $\mu\text{Pa}/\text{m}$ occurred between the 150 m and 5,000 m listening stations with faintly audible sounds at 7-km. All other noises from this operation (i.e., winch motor, spuds, etc.) were relatively insignificant (Clarke *et al.*, 2002).

The “References” Section 15.0 will be updated to include the following:

“Clarke, D, C. Dickerson, and K. Reine. 2002. Characterization of Underwater Sounds Produced by Dredges. Proceedings of the Third Specialty Conference on Dredging and Dredged Material Disposal. May 5-8 2002, Orlando, FL.”

18. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: Table 5.4 does not address the full suite of potential impacts from the range of beach fill and non-structural alternatives proposed, including potential impacts to physical processes, air quality, noise, etc.

RESPONSE: Concur

REPORT CHANGE: Section 5.06.4 was modified to read as follows:

New Text: In addition to the economic comparison, the impacts of the major categories of plans on the resources described in Section 2.00, Affected Environment, are considered. Table 5.4 presents the comparative impacts on these resources. Only impacts to areas that are of greater concern are listed in the table. The “No Action” alternative is defined as no action by the Federal government on this particular proposed coastal storm damage reduction project. It should be noted that categories of plans were not screened out based on environmental effects. As mentioned earlier in the report, the No Action plan was screened out because it does not provide any NED benefits, and the non-structural was screened out because the BC ratio was < 1 . However, an environmental comparison of plans was still done to show if categories of plans are consistent with protecting the Nation’s environment.

19. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The mitigation measures enumerated should be linked to the effects analysis. The requirement to monitor turbidity levels appears to have been excluded.

RESPONSE: Concur

REPORT CHANGE: Table 7.1 has been updated to include appropriate references following each enumerated commitment (This will be provided as a separate file). No commitment to turbidity monitoring was made in the report.

20. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The description mis-identifies the borrow areas proposed for the regulatory projects. The analysis of volume requirements across federal and non-federal projects is also inaccurate.

RESPONSE: Concur

REPORT CHANGE: The text and table in Section 7.04.2 “Regional Sand Requirements” have been replaced with the following.

New Text:

There are four beachfill projects planned or being planned for Topsail Island as shown schematically in Figure 7.3. These projects consist of the Surf City/North Topsail Beach Federal Coastal Storm Damage Reduction Project, the North Topsail Beach Non-Federal Project, the West Onslow Beach and New River Inlet (Topsail Beach) Federal Coastal Storm Damage Reduction Project, and the Topsail Beach Non-Federal Project. of the two federal projects and the North Topsail Beach Non-Federal project are planning to use material from offshore borrow areas identified for the Federal projects. However, the Topsail Beach Non-Federal project is not proposing to use material from these borrow areas. The estimated volume requirements for 50-year period of analysis of these projects are shown in Table 7.4.

By evaluating all Topsail Island offshore borrow areas together, the sixteen borrow areas contain approximately 50.5 million cubic yards of borrow material. The four Topsail Island project volume requirements are approximately 46.2 million cubic yards or about 91% of the available borrow material in all of the borrow areas evaluated for the Federal projects.

Project	Volume, Million CY
Surf City/North Topsail Beach Federal *	32.3
North Topsail Beach Non-Federal	0.34 #
Topsail Beach Federal	13.6
Topsail Beach Non-Federal	0 [^]
Total, required	46.2
Total, available	50.5

* brought back from NED plan identification.

The amount estimated for the project is approximately 4 million cubic yards. However, only 340,000 cubic yards will be required from the borrow areas identified for the Federal project.

[^] The amount estimated for the project is approximately 1.3 million cubic yards. However, none of this material is coming from the borrow areas identified for the Federal project.

21. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: A plan for pump-out and pipeline conveyance operations is not well articulated. It is presumed that the hopper dredge will transfer dredged material through pump-outs located immediately offshore the placement site. Ideally, pump-out locations and pipeline corridors would be identified to illustrate the spatial relationship to any sensitive habitat, archaeological resources, etc.

RESPONSE: Comment Acknowledged. Details associated with hopper dredge pumpout locations and pipeline corridor locations will be identified during Pre-construction Engineering and Design (PED). As discussed in appendices R2-R4, a significant amount of remote sensing and ground truth diver survey efforts were conducted between the shore face and -23 ft. and no hard bottom resources were identified.

However, based on diver ground truth of two sites located about 500 to 600 feet offshore of the -23 ft Depth of Closure (DOC) line, low relief hard bottom and rock/gravel bottom was identified offshore of the -23 foot DOC. It is anticipated that any selected pipeline corridor for hopper dredge pumpout could extend from the shore face to approximately 2,500 to 3,000 feet offshore. Therefore, considering the ephemeral nature of the low relief hard bottom features in the nearshore environment and the identification of low lying outcrops located within the pipeline corridor distance requirements, the Corps intends to survey potential pipeline corridor routes prior to construction in order to develop a corridor that avoid hard bottom features. All existing remote sensing and ground truth data will be used in combination with the new survey data. All information associated with the surveys, data analysis, and identification and mapping of pipeline corridors, appropriate buffers, etc. and subsequent measures developed to avoid resource impacts will be coordinated with the resource agencies prior to construction. All necessary survey requirements for identifying and avoiding cultural resource targets will be incorporated.

REPORT CHANGE: Table 7.1 has been updated to reflect this commitment (To be provided as a separate attachment).

22. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The Corps' conclusion that offshore dredging and/or nearshore placement operations will not have any adverse physical impact on hard bottom areas may require clarification or re-phrasing. Based on its review of the substantial analyses undertaken by the Corps and affiliated contractors, the MMS prefers language that suggests impacts will occur but will not likely exceed natural sedimentation and burial, provided strict adherence to buffer requirements for all offshore activities. The dredging buffer should be applied consistently to all vessel activities, including anchoring and other bottom-disturbing activities by tugs and support vessels. The Corps should consider the potential effects of the proposed action on alongshore and across-shore sediment transport processes and any implications for hard bottom areas identified by Coastal Planning and Engineering immediately north of the project area.

Given the ephemeral exposure and burial of hard bottom areas, it is probable that the seafloor expression and configuration of hard bottom areas (as mapped from existing remote sensing / diver observations) will change prior to construction in 2018. Coastal Planning and Engineering's geophysical investigations and diver observations document a similar phenomena offshore the northern reaches of Topsail Island. The MMS recommends the Corps consider the appropriateness of additional mitigation that would require borrow area clearance via a geophysical survey immediately before dredging. Since a pre-dredge bathymetric survey is commonplace and typically required by the MMS, deploying side scan sonar would not constitute much of an additional cost to provide additional assurance that impacts to hard bottom areas would be avoided to the extent possible.

RESPONSE: Concur

REPORT CHANGE: The first sentence of the last paragraph on page 148 will be updated to read:

"As identified in Section 8.01.8.2, dredging in the selected borrow areas will not have an adverse physical impact on any hard bottoms in the area. Though secondary sedimentation impacts could occur from dredging operations, they will likely not exceed natural sedimentation and burial levels, provided strict adherence to buffer requirements for all offshore activities."

23. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The Corps' conclusion that there will be no impacts to benthic sargassum from dredging operations is not supported especially since benthic sargassum was documented to occur in most of the offshore borrow areas.

RESPONSE: Concur. As discussed in Section 2.01.10, and in more detail in Appendix R-4, benthic sargassum was identified as a dominant macroalgae in almost all surveyed transects. All dive transects in which benthic sargassum was identified were located on hard bottom communities, not within the sediments proposed for dredging. As discussed in Section 8.01.8.5, considering that no direct impacts will occur from dredging and no indirect impacts are anticipated from sedimentation considering the incorporation of buffers, the Corps believes that the conclusion of no impacts to benthic sargassum from the dredging activities is supported.

REPORT CHANGE: No action required.

24. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The Corps should discuss the potential benefits/costs of a borrow area management plan that requires the rotational use of borrow areas over initial and maintenance construction cycles as a means to mitigate cumulative effects to benthic communities and habitat.

RESPONSE: Comment Acknowledged. As discussed in Section 8.01.7 and in Appendix J "cumulative impacts," there are many possible sequences and methods for dredging available material for the project and a site specific borrow area use plan has yet to be defined. The economic optimization of the use of the borrow areas for the life of the project will be further evaluated when the final borrow area data has been collected and fully analyzed during the Plans and Specifications (P&S) phase. However, for a majority of the identified borrow sites to be utilized for this project, the depths of available sediment are relatively shallow with an average range of 2.6 to 6.4 ft for borrow areas G-T located offshore of Surf City and North Topsail Beach. Under the proposed plan, initial construction would require 11.8 mcy and each nourishment interval would require 2.6 mcy. Both initial construction and each nourishment interval will likely utilize multiple borrow areas with a sequence of temporary impacts to benthic resources over the life of the project. Considering the shallow average thickness of the borrow areas and the associated dredging operations and production capabilities to effectively dredge the sediment, it is anticipated that individual dredged areas within each borrow area will be fully utilized and will not be dredged again at consecutive dredging events. Therefore, once the dredged site recovers from the initial dredging impact, it will likely not be impacted again as all of the available sediment would be exhausted from the dredged area.

REPORT CHANGE: No action required.

25. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The emission inventory presented is based on the incorrect assumption that each of the four windows of initial construction will require 2 million cubic yards of sand. Since the initial fill requirement is approximately 12 million cubic yards, approximately 3 million cubic yards will be dredged during each cycle.

RESPONSE: Concur.

REPORT CHANGE: Section 8.08.1 will be updated with new emission numbers (Separate document will be provided by Hugh Heine containing replacement tables and text)

26. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The Environmental Effects chapter does not discuss the potential noise-related impacts of offshore dredging operations on marine mammals, sea turtles, and fish. The MMS refers the Corps to the following report: “A generic investigation into noise profiles of marine dredging in relation to the acoustic sensitivity of the marine fauna in UK waters with particular emphasis on aggregate dredging” (Thomsen et al., 2009).

RESPONSE: Concur

REPORT CHANGE: The following paragraph from Section 8.08.1 (page 182) should be removed:

“Noise from construction equipment is slightly out ofevaluation included with this document Appendix G.”

The following new paragraph should be added following Table 8.4 at the end of Section 8.08.1:

“Water quality impacts are discussed in Section 8.07.2 and in the Section 404(b)(1) (P.L. 95-217) evaluation included with this document as Appendix G. Noise in the outside environment associated with beach construction activities is expected to minimally exceed normal ambient noise within the project area; however, construction noise will be attenuated by background sounds from wind and surf. In water noise is expected in association with the dredging activities for this project. Specifically, noise associated with dredging may occur from (1) ship/machinery noise – noise associated with on-board machinery and propeller and thruster noise, (2) pump noise – noise associated with pump driving the suction through the pipe, (3) collection noise – noise associated with the operation and collection of material on the sea floor, (4) deposition noise – noise associated with the placement of the material within the barge or hopper, and (5) transport noise - noise associated with transport of material up the suction pipe. The limited available data indicate that dredging is not as noisy as seismic surveys, pile driving and sonar; but it is louder than for example most shipping, operating offshore wind turbines and drilling (Thomsen *et al.*, 2009).

Dredging produces broadband and continuous low frequency sound (below 1 kHz) and estimated source sound pressure levels range between 168 and 186 dB re 1 μ Pa at 1 m which can trigger avoidance reaction in marine mammals and marine fish. In some instances physical auditory damage may occur. Auditory damage is the physical reduction in hearing sensitivity due to exposure to high intensity sound and can be either temporary (temporary threshold shift – TSS) or permanent (permanent threshold Shift – PTS) depending on the exposure level and duration. Other than physical damage, the key auditory effect is the increase in background noise levels, such that the ability of an animal to detect a relevant sound signal is diminished, which is known as ‘auditory masking’. Masking marine mammal vocalisations used for finding prey, navigation and social cohesion could compromise the ecological fitness of populations (Compton *et al.*, 2008).

According to Richardson *et al.* (1995) the following noise levels may be detrimental to marine mammals:

Prolonged Exposure of 140 dB re 1 μ Pa/m (continuous manmade noise), at 1 km may cause Permanent Hearing Loss

Prolonged Exposure of 195 to 225 dB re 1 μ Pa/m (intermittent noise), at a few meters or tens of meters, may cause Immediate Hearing Damage

According to Richardson et al. (1995), “Many marine mammals would avoid these noisy locations, although it is not certain that all would do so.” In a study evaluating specific reaction of bowhead whales

to underwater drilling and dredge noise, Richardson *et al.* (1990) also noted that bowhead whales often move away when exposed to drillship and dredge sound; however, the reactions are quite variable and may be dependent on habituation and sensitivity of individual animals. According to Richardson *et al.* (1995), received noise levels diminish by about 60 dB between the noise source and a radius of 1 km. For marine mammals to be exposed to a received level of 140 dB at 1 km radius, the source level would have to be about 200 dB re 1 micro Pa-m. Furthermore, few human activities emit continuous sounds at source levels greater than or equal to 200 dB re 1 micro Pa-m; however, supertankers and icebreakers may exceed the 195 dB noise levels.

According to Clarke *et al.* (2002), hopper dredge operations had the highest sustained pressure levels of 120-140 dB among the three measured dredge types; however, this measurement was taken at 40 m from the operating vessel and would likely attenuate significantly with increased distance from the dredge. Based on: (1) the predicted noise impact thresholds noted by Richardson *et al.* (1995), (2) the background noise that already exists within the marine environment, and (3) the ability of marine mammals and to move away from the immediate noise source, noise generated by bucket, cutterhead, and hopper dredge activities will not affect the migration, nursing/breeding, feeding/sheltering or communication of large whales. Although behavioral impacts are possible (i.e., a whale changing course to move away from a vessel), the number and frequency of vessels present within a given project area is small and any behavioral impacts would be expected to be minor. Furthermore, for hopper dredging activities, endangered species observers (ESOs) will be on board and will record all large whale sightings and note any potential behavioral impacts. As per the standard Corps specifications for all dredging projects, the Corps and the Contractor will keep the date, time, and approximate location of all marine mammal sightings. Care will be taken not to closely approach (within 300 feet) any whales, manatees, or other marine mammals during dredging operations or transportation of dredged material. An observer will serve as a lookout to alert the dredge operator and/or vessel pilot of the occurrence of these animals. If any marine mammals are observed during other dredging operations, including vessel movements and transit to the dredged material disposal site, collisions shall be avoided either through reduced vessel speed, course alteration, or both. During the evening hours, when there is limited visibility due to fog, or when there are sea states of greater than Beaufort 3, the dredge must slow down to 5 knots or less when transiting between areas if whales have been spotted within 15 nautical miles of the vessel's path within the previous 24 hours. Sightings of whales or manatees (alive, injured, or dead) in the work area shall be reported to NMFS Whale Stranding Network.

Similar to conclusions made regarding impacts of sound to marine mammals, non-injurious impacts to sea turtles may also occur due to acoustic annoyance or discomfort. It has been hypothesized, based on anatomical studies that sea turtle hearing range centers around low frequency sounds. Ridgeway *et al.* (1969 and 1970) evaluated the frequency sensitivity of green sea turtles and found that green turtles detected limited sound frequencies (200-700 Hz) and displayed high level of sensitivity at the low tone region (approx 400 Hz). According to Bartol *et al.* (1999), the most sensitive threshold for loggerhead sea turtles is 250 Hz to 750 Hz with the most sensitive threshold at 250 Hz. Though noise generated from dredging equipment is within the hearing range of sea turtles, no injurious impacts are anticipated considering that sea turtles can move from the area and the significance of the noise generated by the dredging equipment dissipates with an increasing distance from noise source."

The "References" Section 15.0 should be updated to include:

Richardson, W.J., C.R. Greene, Jr., C.I. Malme, D.H. Thomson with contributions by S.E. Moore and B. Wursig. 1995. Marine Mammals and Noise.

USACE. 2008. Regional Biological Assessment for Dredging Activities in the Coastal Waters, Navigation Channels (including designated Ocean Dredged Material Disposal Sites (ODMDS)), and Sand Mining Areas in the South Atlantic Ocean. USACE, Wilmington District. Submitted to NMFS on 12 September 2008.

Ridgway S.H., E.G. Wever, J.G. McCormick, J. Palin and J.H. Anderson. 1969. Hearing in the giant sea turtle, *Chelonia mydas*, Proc Natl Acad Sci 64 (1969), pp. 884–890.

Ridgway, S.H., E.G. Wever, J.G. McCormick, J. Palin and J. Anderson. 1970. Sensitivity of the green sea turtle's ear as shown by its electrical potentials, J Acoust Soc Am 47 (1970), p. 67.

Bartol, S.M., J.A. Musick and M.L. Lenhardt. 1999. Auditory evoked potentials of the loggerhead sea turtle (*Caretta caretta*), Copeia 3 (1999), pp. 836–840.

Compton, R., L. Goodwin, R. Handy, V. Abbott. 2008. A Critical Examination of Worldwide Guidelines for Minimising the Disturbance to Marine Mammals During Seismic Surveys. Marine Policy. 32; 255-262.

Thomsen, F. S. McCully, D. Wood, F. Pace, and P. White. 2009. A generic investigation into noise profiles of marine dredging in relation to the acoustic sensitivity of the marine fauna in UK waters with particular emphasis on aggregate dredging. Marine Aggregate Levy Sustainability Fund (MALSF). MEPF Ref No. MEPF/08/P21.

27. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: Draghead screening may be necessary to reduce the risk of ordnance entrainment and any unintended consequences related to ordnance re-location onto the sub-aerial beach. Recent experiences with the dredging and placement of ordnance have occurred in Sandbridge Beach, VA, Bethany Beach, DE, and Long Beach Island, NJ. Placement of ordnance, or the risk of placement, can lead to serious public safety concerns and/or perception problems.

RESPONSE: Do not concur. No further work in regard to unexploded ordnance (UXO) is planned to be undertaken in the offshore borrow sites. Potential UXO in the area poses no risk and is too small to be detected by conventional survey techniques and deflector screening or to be identified by typical magnetometers. Furthermore, incorporation of draghead screening presents concerns with respect to Endangered Species Act compliance. Specifically, screening of dragheads for UXO minimizes or prevents the ability to detect sea turtles that may be incidentally taken by the dredging operation. However, to address the potential for encountering UXO during dredging, Section 8.08.3 of the report contains the following commitment: "To mitigate the very remote chance of encountering ordnance, the beach will be inspected on a daily basis and any ordnance discovered will be handled in accordance with the Military Munitions Rule, 40 CFR 260-270. The Marine Corps Base Explosive Ordnance Disposal Team will be available ("on call") during the dredging process. Additionally, the contract specifications for

the proposed project would direct the contractor to immediately stop dredging or disposal. At that time, additional measures will be implemented, as necessary, including inspection of dredged material on the beach and installation of outflow screens on the dredge pipeline. Any unexploded ordnance found on the beach would be promptly removed.”

REPORT CHANGE: Table 7.1 will be updated to include the following language (updated table will be provided as a separate file):

“To mitigate the very remote chance of encountering ordnance, the beach will be inspected on a daily basis and any ordnance discovered will be handled in accordance with the Military Munitions Rule, 40 CFR 260-270. The Marine Corps Base Explosive Ordnance Disposal Team will be available (“on call”) during the dredging process. Additionally, the contract specifications for the proposed project would direct the contractor to immediately stop dredging or disposal. At that time, additional measures will be implemented, as necessary, including inspection of dredged material on the beach and installation of outflow screens on the dredge pipeline. Any unexploded ordnance found on the beach would be promptly removed.”

28. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The Corps has “lead agency” status for Section 7 and EFH consultations/coordination, and as “lead agency”, the Corps should notify NMFS HCD, NMFS PRD, and FWS of MMS’s involvement in the proposed action.

RESPONSE: Concur

REPORT CHANGE: As a component of consultation requirements associated with Section 7 and EFH consultations/coordination, the Corps has discussed within the respective consultation transmittal letters that the Corps is functioning as “lead agency” and MMS is functioning as a “cooperating agency.”

29. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: Appendix A-1 should be revised to accurately display all hard bottom habitat by relief type. Buffers should be indicated for each relief type on the map, not just high quality. If known, the pump-out locations and pipeline corridors should be identified. The hard bottom habitat identified immediately north of the project area should be added to the map.

RESPONSE: Comment Acknowledged. All hard bottom within the borrow areas that has been surveyed using both side scan sonar and diver ground truthing is depicted in Figure A-1 as high relief (Blue), moderate relief (purple), and low relief (grey). Also, 500 m buffer distances were also mapped (yellow) relative to the High Relief hard bottom sites.

REPORT CHANGE: Figure A-1 will be updated to reflect a 500 m buffer around moderate relief sites and a 400 ft. buffer for low relief sites. Additionally, locations of nearshore hard bottom identified by Coastal Planning and Engineering north of project will be added to figure (updated Figure will be provided as a separate file).

The pipeline corridor has not been identified at this point in time; however, additional hard bottom surveys will be completed within proposed corridor routes prior to construction in order to assure that potential hard bottom resources are avoided.

Table 7.1 will be updated to include the following commitment for “hard bottom”:

“Considering the ephemeral nature of the low relief hard bottom features in the nearshore environment and the potential for low lying outcrops to occur within the pipeline corridor distance requirements and associated dredge and pipeline anchor points, the Corps intends to survey all areas associated with potential pumpout and pipeline corridor requirements prior to construction in order avoid potential impacts to hard bottom features. All information associated with the surveys, data analysis, identification and mapping of pipeline corridors, appropriate buffers, etc. and subsequent measures developed to avoid resource impacts will be coordinated with the resource agencies prior to construction.”

30. COMMENT SOURCE: Public/Mineral Management Service

The Corps does not fully address the potential for prehistoric sites within the survey area. The MMS recommends that the following tasks relating to prehistoric site potential be addressed:

1. review current literature on late Pleistocene and Holocene geology, paleogeography, and sea level change in the area; marine and coastal prehistory; and previous archaeological resource reports in the area if available.
2. discuss relict geomorphic features and their archaeological potential that includes the type, age, and association of the mapped features; the acoustic characteristics of channels and their fill material; evidence for preservation or erosion of channel margins; evidence for more than one generation of fluvial downcutting; and the sea level curves used in the assessment.
3. discuss, based on the capabilities of current technology in relation to the thickness and composition of sediments overlying the area of a potential site, the potential for identification and evaluation of buried prehistoric sites.

The analysis for potential prehistoric sites was not included in the survey report, Archaeological Remote Sensing Survey of Topsail and West Onslow Beaches Offshore Borrow Areas (December 2004), used as the basis for the majority of the cultural resources material within the draft IFR/EIS. Furthermore, the cultural resource sections (2.05 and 8.06) do not adequately discuss the changes that occurred during the Holocene period with respect to exposed lands on the outer continental shelf (OCS) and sea level rise, and how prehistoric peoples might have interacted with the landscape that is now inundated.

The DEIS should incorporate information that summarizes the potential for prehistoric sites within the project area. There was geophysical data collected via sub-bottom profilers and vibrocores within the project area (Appendices C0-C3 Geotechnical Analysis). With archaeological interpretation, this information could provide valuable insight into the paleogeography of the area, the effects of Holocene transgression on this landscape, and the potential for prehistoric site preservation.

Within Section 2.05 (Cultural Resources, p. 61), the following paragraph should be expanded to provide additional context and references to the scientific literature:

To date, there are few indications that Native American populations made significant use of ocean-side resources. Indeed, the intensive use of the sounds may indicate that resources there were so plentiful that an interest in exploiting the open-ocean never developed.

Within Section 8.06 (Cultural Resources, p. 178), the following sentences should be expanded to provide additional context and references to the scientific literature:

No prehistoric sites were specifically considered in the survey. While there has been some success developing upland-offshore site location correlations in Florida and perhaps elsewhere, the methodology is not very well developed for sites within the Carolinas region, nor are there a significant number of upland locations that could be used to model settlement in now inundated areas.

In Section 8.06 (Cultural Resources, p. 178-179), the Corps discusses the possibility of having UAB (specify acronym incidentally) archaeologists monitoring the dredging activities. The MMS suggests that

this might not be the most efficient use of UAB archaeologists' time and might create a burden on the State of North Carolina. MMS does request, however, that a monitoring protocol be implemented, with clear instructions on reporting and avoidance of prehistoric or historic sites that might be encountered during the dredging operations. This information, or reference to the applicable protocols, should be included in the DEIS (perhaps in Section 10.07). [Perhaps language similar to the Archaeological Discoveries clause in MMS' NTL No. 2008-G05 (<http://www.gomr.mms.gov/homepg/regulate/regs/ntls/2008NTLs/08-g05.pdf>)]

Response: Concur. Additional information on prehistoric sites will be added to the appropriate sections.

REPORT CHANGE: Section 2.05 (Cultural Resources) and Section 8.06 (Cultural Resources) have been replaced with the following, and additional references added to the references section:

2.05 Cultural Resources

Recent archaeological findings in the Mid-Atlantic and Southeastern regions demonstrate that coastal areas were being exploited soon after human occupations began in North America. The most complete regional evidence of these early Americans comes from the Cactus Hill site, located on the coastal plain of the Nottaway River in Sussex County, Virginia. This site has abundant evidence of a Clovis occupation, which is so named after the distinctive fluted Clovis projectile point. This point is a marker for this nationally widespread horizon. The Clovis occupation at Cactus Hill is firmly dated and supports other dates from throughout North America, which place Clovis occupations around 13,000 B.P. (McAvoy 1997). Research at this and other sites throughout the Mid-Atlantic and Southeastern coasts of Virginia and North and South Carolina demonstrate that Paleoindian occupation of the coastal plain was widespread during these times of much lower sea level and cooler climate.

Glaciation during the late Pleistocene (ca. 18,000 to 14,000 B.P.) may have lowered sea level south of Cape Hatteras, North Carolina 60 or more meters below present level, exposing the entire continental shelf for settlement and exploitation (Boss and Hoffman 2001; Science Applications, Inc. 1981). Some exposed areas, however, lacked stabled land surfaces and mature estuaries due to down-cutting and other fluvial dynamics associated with lower stream base level (Sassaman 1996). Some research, particularly at Cactus Hill, suggests a pre-Clovis occupation going back to 18,000 B.P. Both archaeological and geological research suggest that the Paleoindians and the megafauna they hunted disappeared or became very scant in the archaeological record around 12,900 B.P., presumably as a result of a catastrophic event (Goodyear 2006).

Warming trends produced a major rise in sea level from water released from melting glaciers after 14,000 B.P. (Faught 2004). The rise in sea level was interrupted during the Younger Dryas (ca. 11,000 to 10,000 B.P.), as the climate returned to near glacial conditions. Sea levels were within a few meters of present levels by 9,000 B.P., and reached present sea level ca. 2,000 to 5,000 B.P. (Anderson et al. 1996; Haynes 2002; Lewis 2000).

After the demise of post-Pleistocene mega-fauna, Native Americans adapted with a new lifestyle and associated tool kit. These people, referred to by archaeologists as Archaic, focused on plant gathering and the hunting of modern game animals. Their tool kit remained limited but elegant, including a

variety of projectile points, ground stone tools, and basketry. Archaic populations appear in the archaeological record around 10,000 years ago and persist until the advent of agriculture around 3,000 years ago. Social organization probably still centered on extended families and bands, with possible larger seasonal gatherings; however, Russo (1996) proposes, based on analyses at a number of mid-Holocene coastal deposits, estuarine environments at this time were capable of supporting year-round occupation. The Archaic period was an extremely important foundation upon which later, more complex societies would grow. The early Woodland period, in particular, probably inhabited the same riverside locations and followed much the same lifestyle as their Archaic predecessors. However, regional subsistence specialization and incipient agriculture allowed for the development of a more settled lifestyle, support of larger permanent populations, and the establishment of defended territories.

While there are many scattered coastal Archaic and Early Woodland period sites and artifact finds, the most significant occupations tend to occur during Middle and Late Woodland periods (Ward and Davis 1999). This is a time of increasing reliance of agriculture, more settled village life, the development of pottery, and especially sophisticated political organization. Through time, many regional cultures appear along the coast with several cultural and language affiliations with groups to the north, west, and south (Phelps 1983; Ward and Davis 1999). Seasonal exploitation of sound-side resources is now full blown and some villages persisted long enough to establish large settlement, complete with ossuary pits (mass burials). The Colington phase of the Woodland Period is equated with the Carolina Algonkian culture, who greeted the first English explorers (Phelps 1983).

To date, there are few indications that Native American populations made significant use of ocean-side resources. Littoral zones, especially intertidal areas, appear to have been more important extractive locales than ocean-facing beaches (Phelps 1981; Science Applications, Inc. 1981). Inner and outer coast populations of North Carolina during the Middle Woodland period shared similar settlement and foraging strategies, with fish, shellfish, deer, rabbit, and raccoon being important food resources (Hargrove 1983; Hutchinson 2002). Indeed, the intensive use of the sounds may indicate that resources there were so plentiful that an interest in exploiting the open-ocean never developed.

The proposed borrow areas are located 1 to 6 miles offshore of the towns of Topsail Beach, Surf City and North Topsail Beach, and stretch from the New Topsail Inlet to the New River Inlet. This area has seen significant maritime activity since at least the early-eighteenth century when permanent settlement began. One of the earliest land grants included the inlet and area surrounding the sound, and by 1755 New Topsail Sound was designated as an official inspection point for export commodities in New Hanover County, along with counties Brunswick, Wilmington, and New Exeter (Anglely 1984). Inspections were conducted for export commodities of fish, flour, butter, flax seed, beef, pork, rice, tar, pitch and turpentine, staves and headings, sawed lumber and shingles.

Throughout the Colonial Period, the inlet was relatively stable and was suitable for passage by schooners and small sloops. During the latter part of the eighteenth century and throughout most of the nineteenth century, New Topsail Inlet migrated significantly to the north. According to Wilson

Anglely's (1984) analysis, the Mouzon Map of 1775 and the Price-Strother Map of 1808, the inlet migrated northward some 2 miles. While the Mac Rae-Brazier Map of 1833 indicates no significant change, the U.S. Coast Survey Map of 1865 shows that an additional migration of 2 miles occurred during that period. The migration appears to have abated during the end of that century, as is suggested by review of the Kerr-Cain Map of 1882 and the Post Route Map of 1896. A detailed U.S. Coast Survey Map of 1885 indicates that the New Topsail Inlet was approximately 3,000 feet wide at that time.

Five miles northeast of North Topsail Beach lies New River, another important waterway in coastal North Carolina history. In 1705, three Englishmen established a settlement at Town Point, the first in Onslow County. Within 20 years, the population had grown to approximately 35 families with English, German, and French Huguenot ancestry. The Moseley map of 1733 indicates that settlement spread along the coast and up the rivers and streams, a pattern typical of the southern colonies. A county seat was platted at Mittam's Point on New River in 1742. The town, called "Johnston," was struck by a hurricane in 1752 that devastated much of the coastal southeast. In response to the destruction of the storm, the county seat was moved inland. Land was acquired from James Wantland, who operated a ferry and tavern at the site where the Boston–Charleston Post Road crossed the New River. This road was the precursor to US Highway 17, following nearly the same route as the present-day road. In 1775, a bill officially established a town at the ferry to be known as "Onslow Courthouse" but in 1842 the name of the town was changed to Jacksonville in honor of Andrew Jackson.

Production of turpentine and naval stores (tar and pitch) represented the primary occupation of small and large landholders in Onslow County. Substantial acres were planted in corn, with smaller investments in wheat, flax, and rice. In 1860, several military companies were formed. Hostilities were concentrated along the lower New River and Bear Inlet. Union raids, intended to quash blockade running and to demolish the coastal saltworks, occurred from 1862 to 1864. As was the case elsewhere in the South, the Civil War resulted in poverty, economic stagnation, and strained relations in Onslow County. Share-cropping and tenancy replaced plantation agriculture. In response to the gradual decline of the naval stores industry in southeastern North Carolina, local people turned to crop and livestock farming, mostly on the basis of relatively small-scale farms. Cotton began to emerge as a prominent market crop in the first postbellum decade, followed by tobacco in the 1890s, though neither became a dominant factor in the county's economy.

Eleven vessels are reported or believed to have been lost in the area of Topsail Inlet (Table 2.14), and an additional 19 recorded in the vicinity of New River Inlet. This number includes one of four vessels lost in 1750 as part of the Spanish Plate Fleet. That ship, the packet boat, *El Salvador*, was lost in the vicinity of Topsail Inlet on August 18, 1750. Due to the shifting sands, the surviving remains were buried in a matter of days, making salvaging operations difficult.

Table 2.14 NC Division of Archives and History,

Underwater Archaeology Section Shipwreck Files

1737	UNK, wrecked at mouth of New River with ten lives lost
1750	EL SALVADOR, wrecked at Topsail Inlet
1765	UNK, sloop lost in vicinity of New River
1769	UNK, brigantine lost below Topsail Inlet
1771	BETSY, merchant ship lost at Old Topsail Inlet
1799	SALLY, schooner lost east of New River Inlet bar channel
1815	UNK, vessel and cargo and crew (?) lost at mouth of New River
1837	SEAMAN, lost in or near New River Inlet
1838	PULASKI, wrecked off-shore of New River with 141 lives lost
1841	SUPERIOR, schooner driven ashore near Topsail Inlet
1858	ALBION, lost inside New River Inlet bar
1862	ADELAIDE, schooner wreck at mouth of New Topsail Inlet
1863	ALEXANDER COOPER, schooner wrecked at New Topsail
1863	INDUSTRY, schooner lost 5 miles north of Topsail Inlet
1863	PHANTOM, steamer sunk 200 yards off Topsail Inlet in 30 feet of water
1863	UNK, schooner lost west of Stump Inlet
1864	NUTFIELD, blockade runner, run ashore at New River Inlet
1867	ELLIS, federal gun boat lost 5 miles above New River Inlet, possibly salvaged
1871	HERTFORD, steamer aground inside New River Inlet bar, may have gotten off
1879	MARION GAGE, schooner lost in New River, total loss
1880	UNK, lost at mouth of New River
1881	N.W. DREW, schooner disabled and ashore 3 miles south of New River Inlet

1881	UNK, shipwreck at mouth of New River
1881	MARY BEAR, schooner wrecked 4 miles south of New River Inlet
1884	UNK, shipwreck at mouth of New River
1890	CHARLES, schooner aground on New River inlet bar, total loss
1892	LORENZO, schooner wrecked in New River Inlet, total loss
1894	UNK, lost in New River Inlet
1895	UNK, sharpie sunk at its mooring near Jacksonville
1919	WILLIAM H. SUMNER

Before the Civil War, the following vessels were lost in the vicinity: schooner *Superior*, driven ashore November 24, 1841; an unknown brig in September 1769, run ashore below Topsail Inlet; and English merchantman *Betsy* in 1771 at Old Topsail Inlet. The Civil War also resulted in a number of wrecks, including the schooner *Adelaide* of Halifax, an unidentified schooner west of Stump Inlet, the iron-hulled steamer *Phantom*, and the schooner *Industry*. During the late-nineteenth and early-twentieth centuries the following losses are recorded: the schooner *Mary Bear* on September 9, 1881, at New Topsail Inlet; and schooner *William H. Sumner* on September 7, 1919, grounded at Topsail Inlet.

As was indicated by the vessels seized, the inlet was active in salt production. An 1864 military map shows at least 2 Confederate salt works situated on either side of Holmes Landing. The presence of the salt works is further substantiated in a letter from November 1, 1862, written by USS Lieutenant William Cushing to his superior (Anglely 1984).

In 1932, a 12-foot deep and 90-foot wide segment of the Intracoastal Waterway between Beaufort and the Cape Fear south of Wilmington was completed (USACE 1961). The channel allowed for an increase in vessel traffic from 33,710 tons in 1932 to 243,000 tons in 1939. As reported the previous year, the character of the vessel traffic – of around 9,000 vessel trips – consisted of approximately 8,500 motor vessels, 300 tugs, 200 barges, and a smattering of pleasure craft. Cargo vessels transported agricultural commodities, lumber, petroleum products, seafood, fertilizer, and general merchandise.

8.06 Cultural Resources

The Coastal Plain remains the least known archaeological region in North Carolina (Phelps 1983; Science Applications, Inc. 1981; Ward and Davis 1999). While there has been some success developing upland-offshore site location correlations in Florida and perhaps elsewhere, the methodology is not very well developed for sites within the Carolinas region. There are not a significant number of known upland locations that could be used to model settlement in now inundated areas (Ward and Davis 1999). Scientific Applications, Inc. (1981) noted the paucity of archaeological data in their study area along the Atlantic coast from North Carolina to Florida, and their need to use data from outside the study area to develop their model for predicting the location of archaeological sites on the submerged continental shelf. Anderson (1996) also found a low site incidence for Early, Middle and Late Archaic Period sites for the coastal area of North Carolina when examining Archaic settlement in the Southeast.

Five chronological cultural units, Pre-Paleoindian, Paleoindian to Early Archaic (early), Early Archaic (late) to Middle Archaic, Late Archaic to Woodland, and Woodland were used for assembling the data for modeling. Pre-Paleoindian sites are assumed to date prior to 11,500 B.P. and represent transient camps of a low density population (Scientific Applications, Inc. 1981). Paleoindian and Early Archaic sites tend to be clustered along major drainages and sources of knappable stone (Anderson and Faught 2000; Ward and Davis 1999). These sites are likely to be associated with paleochannels; however, these sites are very rare in the North Carolina coastal region and consist only of single point (Science Applications, Inc. 1981). Terminal Early through Middle Archaic sites are also associated with riverine settings and upland swamps, with base camps located on terraces of major rivers, and specialized sites occurring in throughout interfluvial areas (Blanton 1996; Sassaman 1996; Scientific Applications, Inc. 1981; Ward and Davis 1999). Settlement during the Late Archaic and Early Woodland appears to have shifted to the mouths of major rivers, and by the Woodland period, sites are located in most estuarine settings (Scientific Applications, Inc. 1981; Ward and Davis 1999). Base camps, especially shell middens, tend to be in the most productive estuaries and adjacent landforms (Scientific Applications, Inc. 1981). However, Anderson (1996) noted the lower Coastal Plain and coastal areas of North Carolina appear to have been of limited use during the Late Archaic.

The Science Applications, Inc. model uses three sensitivity zones with zone 1 having the highest probability of containing archaeological sites, and zone 3 having the least probability. Zone 1 includes areas from the present day shoreline to the 8,000 B.P. shoreline (ca. the 39 foot depth contour). Zone 2 extends outward from the 8,000 B.P. shoreline to the 12,000 B.P. shoreline (ca. the 75 foot depth contour). Zone 3 continues outward from the 12,000 B.P. shoreline to the 16,000 B.P. shoreline (ca. 200 foot depth contour). The paleoshorelines for the above zones are based upon the sea level curve proposed in the same study (Science Applications, Inc. 1981).

The proposed borrow areas are located in water depths ranging from 28 feet to 52 feet. These depths would correlate to roughly the 9,000 B.P. to 6,000 B.P. shorelines proposed by Science Applications, Inc. (1981). Early to Middle Archaic base camps could occur along major inundated channels, with specialized sites in most riverine settings. Pump-out locations closer to shore may contain Late Archaic

and Woodland period sites. Significant sites of these periods tend to be larger than earlier base camps and contain shell middens in estuarine environments.

The proposed project is also located within Zone 1, the highest probability zone; however, the North Carolina coastline is considered a high-energy, wave-dominated zone because of the narrow and steep nature of the continental shelf. Most of the North Carolina continental shelf is believed to have been dominated by erosional transgression and have a low preservation potential (Scientific Applications, Inc. 1981).

Monitoring of renourished beach areas may be a way to determine if such sites were encountered during dredging, but the use of heavy equipment throughout the renourishment process might make precise relocation of sites very difficult. Inshore areas subject to pump-out activities will be identified and investigated for cultural resources in conjunction with hard bottom surveys. In addition, the District will discuss with archaeologists from the Underwater Archaeology Branch (UAB) of the North Carolina Office of State Archaeology the option of monitoring. In their reviews of the project, the UAB has not mentioned prehistoric sites or impacts to other types of sites; shipwrecks have been the major concern. The SHPO letter accepting the final report of investigations is dated March 1, 2005 and is included in Appendix H of the Draft Feasibility Report and EIS.

Whereas the Topsail Island vicinity is known to have had an active historical maritime trade, the Wilmington District, in consultation with the North Carolina Division of Archives and History, undertook contracted remote sensing survey designed to meet the intent of the National Historic Preservation Act and the Abandoned Shipwreck Act. During summer and fall of 2004, Mid-Atlantic Technology and Environmental Research, Inc. conducted a magnetometer and side-scan sonar survey of the ten proposed borrow areas. The results of that survey are reported in *Archaeological Remote Sensing Survey of Topsail and West Onslow Beaches Offshore Borrow Areas* (Contract DACW54-03-D-0002, Order 0003, Wes Hall, Principal Investigator, December 2004). Data was collected along parallel lines spaced at 65-foot (20-meter) intervals. Magnetic data, along with corresponding positioning data, was recorded at one-second sample intervals (or approximately every 8 feet along a track line at 5 knots).

It should be noted, originally seven potential offshore borrow areas (extending from the Topsail Beach/Surf City town limit to New River Inlet) were identified at the time the cultural resources survey was conducted. After completion of the survey, hard bottom was identified in several borrow areas, which required modification to the boundaries of several borrow areas and elimination of three borrow areas (currently identified as I, K, and M). Consequently, the remaining viable borrow areas were renamed and reconfigured into ten borrow areas. The boundaries of these reconfigured borrow areas are completely contained within the boundaries of the original seven borrow areas.

No single, isolated magnetic anomalies or acoustic targets were identified during the survey of the ten borrow areas. There is a low potential for encountering submerged prehistoric sites based upon proposed borrow areas and material type, preservation potential, and current data on North Carolina prehistoric sites in coastal/submerged settings. No further cultural resources studies are anticipated for the project within the proposed borrow areas. By letter of November 2, 2004, the North Carolina State

Historic Preservation Officer (NC SHPO) concurred with the reported findings. The USACE shall , pursuant to 36 CFR 800.13(b), immediately secure the jobsite, suspend work in the vicinity of the affected resource, and consult with the NC SHPO and MMS in the event previously unidentified culture resources are discovered during the execution of the project.

31. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: Consistent with the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, the Corps has combined the preparation of an Environmental Impact Statement (EIS) with a planning instrument. The draft Integrated Feasibility Report (IFR) and EIS integrate alternative development, engineering and economic analyses, and environmental review in a single document. In the draft document, the elements required in an EIS are presented in an atypical order, and the re-organization presents some fundamental challenges to the reader. For example, the reader must first read the Tentatively Selected Plan chapter (Chapter 7), the practical description of the proposed action, to fully comprehend the site-specific discussion of resources (e.g., Hard Bottoms, Artificial Reefs, Birds, etc.) in the Affected Environment chapter (Chapter 2). Environmental commitments are enumerated in Table 7.1 (Chapter 7) before the presentation of the impact analyses in the Environmental Effects chapter (Chapter 8). Therefore, the reader must first read the effects analyses to fully appreciate the need and purpose of the proposed mitigation.

The MMS recommends the Corps prepare prefatory guidance to better orient the reader to the organization of the document. Alternatively, the Corps could insert the Affected Environment chapter after the Tentatively Selected Plan chapter and before the Environmental Effects chapter. Mitigation should be linked in a logical manner to the effects analysis.

RESPONSE: Concur.

REPORT CHANGE: New Section added after Study Organization

New Text:

1.01 Report Organization

This report is a combined feasibility study and Environmental Impact Statement (EIS), meaning it contains elements that are required for both a USACE planning feasibility report as well as an EIS as per the National Environmental Policy Act (NEPA). Chapter 1 of the report is an overview of the feasibility study. Chapter 2 contains background information on the environment that could potentially be affected by a USACE project resulting from the study. Chapters 3 to 6 discuss the plan formulation process that led to the selection of the final plan recommended in this report. Chapter 7 is a detailed description of the selected plan. Chapter 8 contains more expansive discussions on the resources that were discussed in Chapter 2, and describes in detail the environmental effects the selected plan will have on these resources. The chapter also contains briefer descriptions of the environmental effects of other major alternatives (No Action and Non-Structural) that were considered during the formulation process. Chapter 9 contains information on plan implementation such as schedule and cost-sharing. Chapter 10 lists the study's compliance with all applicable environmental laws and Executive Orders. Chapter 11 is a summary of agency and public involvement that has been undertaken throughout the course of the study. Chapters 12 to 16 contain, respectively, the report's conclusions, recommendations, main point of contact, literature references, and a list of report preparers.

32. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: The study area description should more accurately describe the entire footprint of the proposed action, including the offshore borrow areas. Consider referencing Chapter 7 for a more complete description of the footprint of the proposed action. Similarly, the location map (Figure 1) should more clearly illustrate the footprint of proposed action, including the proposed borrow areas. Reference to Figure A-1 may be more appropriate. However, on Figure A-1, the beach fill zone should be clearly delineated. Inlets should be labeled. All figures and text references should use the same alongshore profile station or reach designations.

RESPONSE: Concur.

REPORT CHANGE: Figure 1 modified.

33. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: Reference Figure A-1 to illustrate historical SEAMAP hard bottom observations.

RESPONSE: Concur.

REPORT CHANGE: Section 2.01.10 modified

Old Text: The location of the hard bottom communities offshore of Surf City, North Topsail Beach, and Onslow Beach, as identified in this study, are found in Table 2.2.

New Text: The location of the hard bottom communities offshore of Surf City, North Topsail Beach, and Onslow Beach, as identified in this study, are found in Table 2.2 and also shown in Figure A-1 in Appendix A.

34. COMMENT SOURCE: Public/Mineral Management Service

COMMENT: Figure A-7 does not show shoreline change as indicated in the narrative.

RESPONSE: Concur.

REPORT CHANGE: Text deleted in Section 3.02

Old Text (deleted): Refer to Figure A-7 in Appendix A for reach locations.

National Marine Fisheries Service

1. COMMENT SOURCE: Public/National Marine Fisheries Service

COMMENT: The DEIS adequately describes the project alternatives currently under consideration and the basis for selecting the NED plan as the preferred alternative. As noted earlier, NMFS assumes that the District would reinstate EFH coordination with NMFS should any option other than the NED plan move forward.

RESPONSE: Concur. The Corps will reinstate EFH coordination with NMFS should any option other than the NED plan move forward.

REPORT CHANGE: No Action Required

2. COMMENT SOURCE: Public/National Marine Fisheries Service

COMMENT: NMFS agrees with the District that use of the offshore borrow areas is more appropriate than using shoals associated with New River Inlet. In addition, The DEIS adequately describes the range of marine and estuarine habitats and associated fishery resources found in the project area.

RESPONSE: Concur

REPORT CHANGE: No Action Required.

3. COMMENT SOURCE: Public/National Marine Fisheries Service

COMMENT: While NMFS is pleased the DEIS addresses several environmental concerns, including potential impacts to nearshore hard bottom habitats, pipeline corridors and other key project details are unknown at this time. NMFS requests that the District continue to coordinate with us as construction-level detail is developed to ensure that any additional opportunities to avoid or minimize impacts to NOAA trust resources are fully considered.

RESPONSE: Concur. During Pre-construction Engineering and Design (PED), any impacts NOAA trust resources not previously addressed in this report relative to "construction level detail" will be coordinated to ensure that any additional opportunities to avoid or minimize impacts to NOAA trust resources are fully considered. As discussed in appendices R2-R4, a significant amount of remote sensing and ground truth diver survey efforts were conducted between the shoreface and -23 ft. and no hard bottom resources were identified. However, based on diver ground truth of two sites located about 500 to 600 feet offshore of the -23 ft Depth of Closure (DOC) line, low relief hard bottom and rock/gravel bottom was identified offshore of the -23 foot DOC. It is anticipated that any selected pipeline corridor for hopper dredge pumpout could extend from the shoreface to approximately 2,500 to 3,000 feet offshore. Therefore, considering the ephemeral nature of the low relief hard bottom features in the nearshore environment and the identification of low lying outcrops located within the pipeline corridor distance requirements, the Corps intends to survey potential pipeline corridor routes prior to construction in order to develop a corridor that avoid hard bottom features. All existing remote sensing and ground truth data will be used in combination with the new survey data. All information associated with the surveys, data analysis, identification and mapping of pipeline corridors, appropriate buffers, etc. and subsequent measures developed to avoid resource impacts will be coordinated with the NMFS prior to construction.

REPORT CHANGE: The hard bottom commitment section of Table 7.1 will be updated with the following:

“Considering the ephemeral nature of the low relief hard bottom features in the nearshore environment and the potential for low lying outcrops to occur within the pipeline corridor distance requirements and associated dredge and pipeline anchor points, the Corps intends to survey all areas associated with potential pumpout and pipeline corridor requirements prior to construction in order avoid potential impacts to hard bottom features. All information associated with the surveys, data analysis, identification and mapping of pipeline corridors, appropriate buffers, etc. and subsequent measures developed to avoid resource impacts will be coordinated with the resource agencies prior to construction (Section 8.01.8.2)”

4. COMMENT SOURCE: Public/National Marine Fisheries Service

COMMENT: The DEIS adequately describes the project alternatives currently under consideration and the basis for selecting the NED plan as the preferred alternative. As noted earlier, NMFS assumes that the District would reinstate EFH coordination with NMFS should any option other than the NED plan move forward.

RESPONSE: Concur. The Corps will reinstate EFH coordination with NMFS should any option other than the NED plan move forward.

REPORT CHANGE: No action required.

5. COMMENT SOURCE: Public/National Marine Fisheries Service

COMMENT: Table 7.1 lists 30 commitments to reduce environmental impacts. Three commitments, (18, 19, and 20) address benthic invertebrates, many of which serve as a forage base for fishery species. Commitments 19 and 20 deal with the timing of construction. NMFS agrees that limiting construction to the period between December 1 and March 31 would minimize impacts to fishery species by avoiding the peak recruitment and abundance times for surf zone fish and benthic invertebrates (commitment 18). However, we are concerned that other than the brief mention in Table 7.1 of this construction window being associated with minimizing impacts to fishery resources, the rationale for the window elsewhere in the DEIS is based on minimizing impacts to sea turtles, suggesting the window may be relaxed should alternate means to protect sea turtles be found (e.g., use of cutterhead pipeline dredge). From EFH and fisheries perspectives, deviating from a window of November 15 to March 31 would not be acceptable, and NMFS requests the District reinstate EFH consultation with NMFS should any in-water work be proposed outside this time period.

Commitment 19 and corresponding text on page 106 briefly describe a monitoring program that would evaluate project impacts to benthic invertebrates. NMFS requests the District coordinate with us during the further develop of the monitoring program, and that this coordination occur well in advance of baseline sampling.

Three commitments (21, 22, and 23) address live/hard bottom habitat. The District proposes to implement a 122-meter (400 feet) dredging buffer around the low relief hard bottom (less than 0.5 meters [1.6 feet]) identified by MATER in the offshore borrow sites and 500-meter (1640 feet) buffer for high-relief hard bottom as defined within the state rule language (commitment 21 and page 27). NMFS requests the District coordinate with NMFS during development of the monitoring plan for sedimentation impacts (commitment 23).

RESPONSE: Concur

REPORT CHANGE: 1. The current plan for initial construction and each nourishment event is to complete the dredging and nourishment events within the least biologically productive months and the period when the risk of impacts to sea turtles from dredging is low. Any deviation from the selected plan would require the Corps reinstate EFH consultation with NMFS.

2. Commitment number 19 has been updated to reflect the following:

"Prior to initiating any land disturbing activities related to the initial construction period, the Corps will develop Monitoring Plan, in coordination with the resource agencies, to assess project impacts on fisheries and fish prey habitat that outlines: (1) the methodologies for evaluating for hard bottom and intertidal beach habitat impacts, (2) the criteria for determining whether significant, adverse impacts to these habitats have occurred, (3) implementation of the monitoring plan. Though unlikely, based on the avoidance measures incorporated in the study design, should the Monitoring Plan document that a significant adverse impact to habitat has occurred, a Mitigation Plan will be developed outlining the appropriate actions that will be implemented in cooperation with state and federal agencies to rectify the adverse impacts to a level of insignificance."

As indicated in the commitment, the Corps will coordinate with NMFS during the further develop of the monitoring plan prior to any baseline sampling.

3. All sedimentation monitoring of offshore hard bottom habitats will be coordinated with NMFS.

6. COMMENT SOURCE: Public/National Marine Fisheries Service

COMMENT: NMFS agrees the District has taken significant steps towards avoiding and minimizing impacts to EFH and fishery species from this project. However, we do not agree that the cumulative effect of the several beach nourish projects currently underway or under review also is minimal. As noted in our comment letters on these projects, NMFS has concerns over borrow sites that are not the least damaging practicable alternative (e.g., Town of North Topsail Beach, Action ID No. 2005-00344-067) or dredging outside recommended seasonal restrictions solely for economic reasons (e.g., Town of Nags Head, Action ID No. 2006-40282).

RESPONSE: Concur. The Corps has taken significant planning steps towards avoiding and minimizing impacts to EFH and fishery species from this project. Based on the planning considerations of this study to avoid impacts, the Corps believes that the impacts associated with the proposed action will be minor. Not all projects throughout the state include similar consideration for adhering to seasonal restrictions and therefore, may sustain more significant impacts and longer recovery period. Multiple adjacent projects with extended recovery times due to the inability to adhere to environmental window restrictions may result in more significant cumulative impacts.

REPORT CHANGE: No action required.

7. COMMENT SOURCE: Public/National Marine Fisheries Service

COMMENT: EFH Conservation Recommendation 1: Before construction begins, the District shall provide NMFS with a map and description of the pipeline corridors relative to live/hard bottom habitats. The description shall include measures the District would take to ensure minimal impacts would occur to NOAA trust resources.

RESPONSE: Concur. During Pre-construction Engineering and Design (PED), any impacts NOAA trust resources not previously addressed in this report relative to "construction level detail" will be coordinated

to ensure that any additional opportunities to avoid or minimize impacts to NOAA trust resources are fully considered. As discussed in appendices R2-R4, a significant amount of remote sensing and ground truth diver survey efforts were conducted between the shoreface and -23 ft. and no hard bottom resources were identified. However, based on diver ground truth of two sites located about 500 to 600 feet offshore of the -23 ft Depth of Closure (DOC) line, low relief hard bottom and rock/gravel bottom was identified offshore of the -23 foot DOC. It is anticipated that any selected pipeline corridor for hopper dredge pumpout could extend from the shoreface to approximately 2,500 to 3,000 feet offshore. Therefore, considering the ephemeral nature of the low relief hard bottom features in the nearshore environment and the identification of low lying outcrops located within the pipeline corridor distance requirements, the Corps intends to survey potential pipeline corridor routes prior to construction in order to develop a corridor that avoid hard bottom features. All existing remote sensing and ground truth data will be used in combination with the new survey data. All information associated with the surveys, data analysis, identification and mapping of pipeline corridors, appropriate buffers, etc. and subsequent measures developed to avoid resource impacts will be coordinated with the NMFS prior to construction.

REPORT CHANGE: Section 8.01.8.2; paragraph titled "Monitoring" (pg. 164) will be updated with a new paragraph following the "Silent Inspector" paragraph. The new paragraph will be titled, "Nearshore Hard Bottom Monitoring - Pipeline Corridor." This paragraph will include the following:

"As discussed in Section 8.01.8.2 and Appendix R, Attachments 2-4, a significant amount of remote sensing and ground truth diver survey efforts were conducted between the shoreface and -23 ft. and no hard bottom resources were identified. It is anticipated that any selected pipeline corridor for hopper dredge pumpout during construction could extend from the shoreface to approximately 2,500 to 3,000 feet offshore. Considering the ephemeral nature of the low relief hard bottom features in the nearshore environment and the potential for low lying outcrops to occur within the pipeline corridor distance requirements and associated dredge and pipeline anchor points, the Corps intends to survey all areas associated with potential pumpout and pipeline corridor requirements prior to construction in order avoid impacts to hard bottom features. All existing remote sensing and ground truth data will be used in combination with the new survey data. All information associated with the surveys, data analysis, identification and mapping of pipeline corridors, appropriate buffers, etc. and subsequent measures developed to avoid resource impacts will be coordinated with the resource agencies prior to construction."

The last sentence within the last paragraph of the "Nearshore" section (pg. 156) of Section 8.01.8.2 should be removed and replaced with the following:

"Though surveys and diver ground truth efforts did not identify hard bottom within the -23 ft. depth contour, it is anticipated that any selected pipeline corridor and associated pumpout anchor point features could extend approximately 2,500 to 3,000 feet offshore into areas that were not surveyed. Therefore, considering the ephemeral nature of the low relief hard bottom features in the nearshore environment and that pipeline corridors and pumpout stations may be located outside of the surveyed areas, the Corps intends to survey all potential pipeline corridor routes prior to construction in order to avoid potential hard bottom features."

8. COMMENT SOURCE: Public/National Marine Fisheries Service

COMMENT: EFH Conservation Recommendation 2: The District shall coordinate with NMFS on the final design of the sampling programs for examining impacts to benthic invertebrate communities and sedimentation on live/hard bottom areas; this coordination shall occur well in advance of baseline sampling.

RESPONSE: Concur. The Corps will coordinate with NMFS on the final design of the sampling programs for examining impacts to benthic invertebrate communities and sedimentation on live/hard bottom areas; this coordination will occur well in advance of baseline sampling. As discussed in the report, a significant amount of monitoring for both dredging and beach placement impacts to benthic invertebrates has already been conducted with varying levels of impacts and associated recovery times ranging between 1 and 4 years depending on project specific design considerations. Management measures for reducing impacts to benthic invertebrates and associated recovery times (based on data analysis and recommendations from historic literature) from both dredging and beach placement related impacts have been incorporated into the design of this project and are discussed in detail in the report (see Section 8.01.6 and 8.01.7). Though a significant amount of data already exists regarding impacts and recovery rates of benthic invertebrates from dredging and beach placement of sediment, benthic invertebrate monitoring will be conducted during initial construction. Monitoring efforts will be based on a carefully developed plan, with input from NMFS and other appropriate regulatory agencies, which support improved future project planning by filling existing data gaps on benthic invertebrates. A monitoring consideration for this study may be to evaluate impacts and recovery rates of beach placement associated impacts to benthic invertebrates relative to the staggered construction event over the 4 year initial construction period. Other federal and non-federal beach nourishment projects under study or already authorized/permitted throughout the state will be considered in development of the final monitoring plan in order to develop a comprehensive, inter-related, cumulative approach to how information gained from each project can be used to build upon one another in order to achieve long term goals.

During Pre-Construction Engineering and Design (PED) of this project, prior to initial construction, the final monitoring plan will be coordinated with NMFS and other appropriate regulatory agencies. Information gained from this monitoring will be used to support a long term strategy for understanding dredging and beach placement impacts. Identifying management measures for improved project planning and implementation of future dredging and beach nourishment projects will be a goal of this plan.

As discussed in section 8.01.8.2 under the “monitoring” paragraph as well as within Table 7.1 of the report, the Corps has committed to sedimentation monitoring of offshore hard bottom communities relative to dredging activities. The monitoring plan has already been reviewed by state and federal agencies as a part of the permitted non-federal North Topsail Beach Shore Protection Project; however, prior to implementation as a component of the this federal project, the monitoring plan will be coordinated again. Details associated with this plan are provided in the report.

REPORT CHANGE: No action required.

9. COMMENT SOURCE: Public/National Marine Fisheries Service

COMMENT: EFH Conservation Recommendation 3: The District shall reinstate EFH consultation with the NMFS Habitat Conservation Division should any in-water work be proposed outside the period of November 15 to March 31.

RESPONSE: Concur. The Corp will reinstate EFH consultation with the NMFS Habitat Conservation Division should any in-water work be proposed outside the period of November 15 to March 31.

REPORT CHANGE: No action required.

10. COMMENT SOURCE: Public/National Marine Fisheries Service

COMMENT: EFH Conservation Recommendation 4: Section 305(b)(4)(B) of the Magnuson-Stevens Act and its implementing regulations at 50 CFR 600.920(k), requires your office to provide a written response to our EFH recommendations within 30 days of receipt. If it is not possible to provide a substantive response within 30 days, in accordance with our "findings" with your Planning Functions Branch, an interim response should be provided to NMFS. A detail response must then be provided prior to final approval of the action. Your detail response must include a description of measures proposed by your agency to avoid, mitigate, or offset the adverse impacts of the activity. If your response is inconsistent with our EFH conservation recommendations, you must provide a substantive discussion justifying the reasons for not following the recommendation. The detail response should be received by the NMFS at least ten days prior to final approval of the action.

RESPONSE: Concur. In accordance with Section 305(b)(4)(B) of the Magnuson-Stevens Act and its implementing regulations at 50 CFR 600.920(k), the Corps provided a written response letter (dated 5 April 2010) indicating our concurrence with the EFH recommendations provided by NMFS.

REPORT CHANGE: No action required.

11. COMMENT SOURCE: Public/National Marine Fisheries Service

COMMENT: These comments do not satisfy your consultation responsibilities under Section 7 of the Endangered Species Act of 1973, as amended. If any activity "may effect" listed sea turtles and marine mammals and their habitats under NMFS purview, consultation should be initiated with our Protected Species Division at the letterhead address.

RESPONSE: Concur. In accordance with Section 7 of the Endangered Species Act of 1973, a letter (dated 13 January 2010) was provided to the Protected Species Division containing our effect determination for all listed species and their habitats within the study area under NMFS purview. In an email response (dated 19 January 2010) provided by Eric Hawk of the NMFS Southeast Regional Office (SERO) for protected resources, NMFS provided the following determination: "NMFS agreed with the COE's determination that the proposed beach renourishment action, consisting (in part) of utilizing hopper dredges to mine offshore sand sources for deposition of sand onto North Carolina beaches (a 17-mile section extending from Topsail Beach/Surf City town limits to the northern end of Topsail Island) falls under the authority of the current NMFS South Atlantic regional biological opinion on hopper dredging of navigation channels and borrow areas in the southeastern United States, dated September 25, 1997 (i.e., SARBO). The SARBO is in the process of being revised and will eventually supersede the current opinion. The COE will abide by the revised SARBO when it is ultimately issued. Sea turtle or shortnose sturgeon takes resulting from the proposed dredging action when conducted under the RPMs and T&Cs of the SARBO are authorized and will be counted against the ITS take limit as set forth in the SARBO."

REPORT CHANGE: No action required.

US Department of Interior (DOI) & US Fish and Wildlife Service (FWS)

1. COMMENT SOURCE: Public/US DOI & FWS

COMMENT: Most of the references utilized in the draft document (67%) are over ten years old, and 47% are over fifteen years old. These include several references used for discussions on biological impacts. The discussion on sea level rise, for instance, includes a 1987 National Research Council reference (page 130, discussion on risk and uncertainty in sea level rise assumptions). It is suggested that the authors insure that the final EIS include the most recently available references in its discussions and in its assessments

RESPONSE: Environmental: Comment Acknowledged. The Corps believes that appropriate literature pertaining to the resources of interest was utilized in order to develop appropriate impact determinations relative to the proposed action. Though in some cases, the literature appears to be dated, they may still be significant studies that support conclusions made in the report. In the event that more recent literature exists for a specific species or resource which provided significant new information that could change an impact evaluation, those literature sources were utilized and cited in the report. If additional specific literature sources are recommended by USFWS that could be reviewed and incorporated into the report where appropriate, the Corps would be interested in reviewing them. Specific studies referenced in subsequent USFWS comments will be reviewed and cited where appropriate.

REPORT CHANGE: No action required.

2. COMMENT SOURCE: Public/US DOI & FWS

COMMENT: The DEIS identifies several species that may be impacted from proposed activities, but does not address available scientific information that could be utilized for an impact assessment or provide a discussion of proposed mitigation options. For instance, the document identifies several species of birds that may be impacted from proposed activities and provides tables with summary of surveys, stating that (page 48) "Annual shorebird surveys conducted by the NCWRC within the project vicinity are limited and complete surveys for American oystercatchers and Wilson's plovers have only been conducted in 2004 and 2007....". The DEIS also lists several threatened and endangered species that have been documented to inhabit the project area, but does not discuss in any detail potential mitigation options for the alternatives identified, such as for the loggerhead and green sea turtles (page 75) or the Florida manatee (page 192). The public would benefit from having recent available scientific information and surveys that could be used for conducting an impact assessment and discussing mitigation options in the final EIS. Suggested recent scientific references include the Sauer et al, 2008 reference for status and trends of bird populations, the Douglas and Dechant-Shaffer 2002 reference that provides a discussion of the effects of management practices on wetland birds, and the Adimey et al, 2009 and Lefebvre et al. 2009 references that provide important information on factors affecting Florida manatee survival.

RESPONSE: Comment Acknowledged. The Corps believes that all available scientific information pertaining to existing literature and survey data for bird resources within the project area was incorporated into the report, including waterbird survey data collected at North Topsail beach in 2007. However, the recommended citations will be incorporated into the report where appropriate. Furthermore, recognizing all of the avoidance and minimization measures incorporated into the project planning and design, the Corps does not believe that mitigation for impacts to bird resources is warranted. Section 8.02.3 discusses the rationale for this conclusion in more detail. Specifically, the last paragraph of section 8.02.3 concludes: "Based on the following considerations, the proposed construction activities will not

8.02.3 concludes: "Based on the following considerations, the proposed construction activities will not significantly impact breeding and nesting shorebirds or colonial waterbirds within the project area: 1.) timing of the initial construction activities and periodic renourishments will adhere to the 1 April to 31 August bird nesting window, 2) beach nourishment and construction activities will not occur within the New River and New Topsail Inlet complexes, which most likely to support foraging, loafing, roosting, and nesting shorebirds, and 3) project construction timing and planning will allow for rapid recovery of intertidal foraging habitat in the project area."

REPORT CHANGE:

First 3 paragraphs of Section 2.02.3 "Birds" were replaced with the following replaced with the following:

New Text:

Birds common to the nearshore ocean in the project area include loons, grebes, gannets, cormorants, scoters, red-breasted mergansers, gulls, and terns (LeGrand, 1983, USACE 2007b, and Sauer et al., 2008). The habitat and food source of these seabirds is the marine environment, whether coastal, offshore or pelagic. They can be divided into four groups by their feeding strategies, which are reflected in their anatomy, physiology and habitat niche: surface feeders, surface swimmers/pursuit divers, plunge-divers, and scavengers and pirates (i.e. steal from other birds). The waters off of Topsail Island are very important to migrating and wintering northern gannets, loons and grebes because of the abundant hard bottom habitat located offshore of Surf City and North Topsail Beach (See Section 2.01.10) (Sue Cameron, pers. comm.). These hard bottom communities support a rich diversity of invertebrates which are refuges and food sources for fish and other marine life. These diverse communities support a variety of reef and pelagic fish species which in-turn provide a forage base for migrating and wintering sea birds. The USFWS indicate that sea ducks raft in large numbers in the nearshore ocean waters of the project area during spring and fall migrations. Ducks, geese, and many kinds of shorebirds may also be found here during the spring and fall (Sauer et al., 2008).

The beaches and inlets of the project vicinity are heavily used by migrating shorebirds. However, dense development and high public use of project area ocean front beaches may reduce their value to shorebirds. Along the ocean beach, black-bellied plovers, ruddy turnstones, whimbrels, willets, red knots, semi-palmated sandpipers, and sanderlings may be found (LeGrand, 1983, USACE 2007b, and Sauer et al., 2008). Table 2.7 provides a more complete list of waterbirds found in the project area. The dunes of the project area support fewer numbers of birds but can be very important habitats for resident species and for other species of songbirds during periods of migration. The maritime forest along Topsail Island is important for painted buntings and in the herbaceous dune areas, the American kestrel, merlin, bald eagle, peregrine falcon, northern harrier, and other raptors may be found during migration. Other birds occurring in this area are mourning doves, swallows, fish crows, starlings, meadowlarks, redwinged blackbirds, boat tailed grackles, and savannah sparrows (Douglas and Dechant-Shaffer, 2002 and Sauer et al., 2008).

The black skimmer, least tern, and common tern are State listed species of concern for Pender and Onslow counties, North Carolina and are found on Topsail Island year round during both the breeding season and during migration, with peak abundance occurring in the summer months. Terns feed by diving from the air upon insects and small fish and the black skimmer feeds on shrimp or small fish by flying just above the water with the tip of the long lower mandible shearing the surface. All of these bird species may use Topsail Island for roosting, foraging, breeding, and nesting (Potter et al., 1980).

Section 15.0 "References" of the report should be updated to include the following citations:

Sauer, J.R., J.E. Hines, and J. Fallon. 2008. The North American Breeding Bird Survey, results and analysis 1966-2007. Version 5.15.2008. Patuxent Wildlife Research Center, Laurel, MD.

Dechant, J. A., M. L. Sondreal, D. H. Johnson, L. D. Igl, C. M. Goldade, B. D. Parkin, and B. R. Euliss. 2003. Effects of management practices on grassland birds: Willet. Northern Prairie Wildlife Research Center, Jamestown, ND. Northern Prairie Wildlife Research Center Online. <http://www.npwr.usgs.gov/resource/literatr/grasbird/will/will.htm> (Version 12DEC2003).

3. COMMENT SOURCE: Public/US DOI & FWS

COMMENT: The DEIS includes several incomplete citations in the References section, such as the Coastal Science Associates, Inc. 2002 and the North Carolina Division of Coastal Management. The final EIS should provide complete references.

RESPONSE: Concur

REPORT CHANGE: The "References" section 15.0 of the report will be updated with the following citations:

Coastal Science Associates (CSA), Inc. 2002. Bogue Banks Beach Nourishment Second Post-Dredge Environmental Monitoring Study. Prepared for Carteret County, Town of Pine Knoll Shores, Town of Indian Beach, and Town of Emerald Isle, NC.

USACE Permit #200000325 and NC CAMA Permit #124001. NCAC 07H. 0208 (Use Standards) (b) (12)(A)(iv)). North Carolina Division of Coastal Management. CAMA Rules and Policies. Effective October 1 2009. <http://dcm2.enr.state.nc.us/Rules/rules.htm>.

4. COMMENT SOURCE: Public/US DOI & FWS

COMMENT: Several important conservation measures incorporated in the plan are provided (USACE 2009b, pp. 192-194) in Section 10.06.1. These commitments to reduce impacts to listed species include limiting hopper dredging to the period from December 1 through March 31, but only to the "maximum extent practicable." There would also be a commitment to use sediment compatible with the existing beach along with measures to assess and rectify any sediment compaction or escarpment formation.

RESPONSE: Concur

REPORT CHANGE: No Action Required.

5. COMMENT SOURCE: Public/US DOI & FWS

COMMENT: Section 8 of the DEIS provides (USACE 2009b, pp. 139 - 185) a detailed discussion of the anticipated environmental effects of implementing the tentatively selected plan. In general, all the major resources are considered and the likely impacts of initial construction and the early reconstruction events are considered. However, the discussion seems based on the assumption that present environmental conditions will continue throughout the 50 years of the authorized project. The DEIS appears to lack a

consideration of adverse environmental impacts that could occur in the final decades of the project if sea level rise is greater than currently predicted. For example, the plan assumes a consistent four-year reconstruction cycle throughout the project (USACE 2009b, p. 103). Plans for initial construction (USACE 2009b, pp. 100-101) indicate that a portion of the beachfill would be below mean low water, approximately -1.9 feet NGVD. Placing beachfill below the low tide line is essentially putting sand in the ocean. As sea level rises over the decades of the project, efforts to save the existing ocean front structures would result in a greater portion of imported sediment for each reconstruction event being placed in an area that would be open ocean under natural conditions. Sediment placed below the natural low tide line is likely to be less stable than that placed on an intertidal or dry beach. Any accelerated loss of imported material is very likely to result in a reduction of the reconstruction interval. Such a reduction could pose a risk to beach macro invertebrates that form an important base on the coastal food chain. Literature dating back to the early 1970's along the southeast coast indicates that opportunistic infauna species (ex. Emerita and Donax) found in the beachfill areas are subject to direct mortality from burial; but recovery often occurs within one year (USACE 2009b, p. 143 and references therein). More frequent reconstruction operations along with post-storm, emergency sand placements would provide less time for these organism to recover and maintain healthy population levels.

RESPONSE: Comment Acknowledged. Beach projects place beachfill below the low tide elevation as part of construction of the required template that provides the storm protection. The renourishment interval was analyzed as part of the coastal studies and it was found that net benefits were relatively equal at intervals between 4 and 7 years. Accelerated SLR would likely result in larger renourishment volumes which could still be placed using the 6-year renourishment interval. Annual surveys will be used to monitor the project performance and will also reveal increases in renourishment volume requirements, so changes will be noted and any required adjustments will be recommended as part of the adaptive management plan. Based on the conclusion that SLR will not result in a reduction in the renourishment interval, but rather a potential increase in renourishment volume, the Corps does not believe that beach macro-invertebrates will be impacted by a more frequent renourishment interval.

REPORT CHANGE: No action required.

6. COMMENT SOURCE: Public/US DOI & FWS

COMMENT: Over time, beach reconstruction at intervals less than four years would pose a risk to sea turtle reproductive success. Overall, the historical literature indicates that there are inherent changes in beach characteristics as a result of mechanically placing sediment on a beach from alternate sources. The change in beach characteristics often results in short-term decreases in nest success and/or alterations in nesting processes. Any decrease in the reconstruction interval on Topsail Island could result in less time for the imported material to assume the natural characteristics of beaches necessary for successful sea turtle reproduction.

RESPONSE: Comment Acknowledged. See response to comment 5 above. The Corps does not believe that there will be reduction in the proposed 6 year nourishment interval over the duration of the project but rather a potential for increased renourishment volumes. Therefore, sea turtle reproductive success will not be impacted by a presumed reduction in the renourishment interval over the 50 year project life as a result of potential sea level rise scenarios.

REPORT CHANGE: No action required.

7. COMMENT SOURCE: Public/US DOI & FWS

COMMENT: Overall, based on the information provided in the DEIS and BA, the USFWS believes that the proposed action is not likely to adversely affect federally listed species or their critical habitat as defined by the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543). Therefore, the requirements of section 7 (a)(2) of the ESA have been satisfied for this project. However, the Corps' obligations under the ESA must be reconsidered if: (1) new information identifies impacts of this action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is modified in a manner that was not considered in this review; or, (3) a new species is listed or critical habitat determined that may be affected by the identified action. With regard to project modification, the Corps should contact the USFWS if beachfill must be extended outside the proposed schedule of December 1 through March 31 or the material to be used for the beachfill deviates significantly from the standards proposed in the DEIS. Furthermore, significant placements of beachfill between the scheduled reconstruction operations given in Table 7.11 (USACE 2009b, p. 126) would represent modification of the proposed effort. The Corps should contact the USFWS if more than 1.6 million cubic yards of material, the standard reconstruction volume, are placed on project area beaches between established reconstruction events.

RESPONSE: Concur. The Corps' obligations under the ESA will be reconsidered if: (1) new information identifies impacts of this action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is modified in a manner that was not considered in this review; or, (3) a new species is listed or critical habitat determined that may be affected by the identified action. Furthermore, the Corps will contact the USFWS if beachfill must be extended outside the proposed schedule of December 1 through March 31, the material to be used for the beachfill deviates significantly from the standards proposed in the DEIS, and/or more than 1.6 million cubic yards of material, the standard reconstruction volume, are placed on project area beaches between established reconstruction events.

REPORT CHANGE: No action required.

Environmental Protection Agency (EPA)

1. **COMMENT SOURCE:** Public/EPA

COMMENT: We are currently reviewing the Final Environmental Impact Statement (FEIS) for the proposed project adjacent to this one, known officially as the "Relocation of New River Inlet Ebb Tide Channel Between North Topsail Beach and Onslow Beach, and the Placement of the Dredged Material Along the Ocean Shoreline of North Topsail Beach in Onslow County, NC."

RESPONSE: Comment Acknowledged.

REPORT CHANGE: No change required.

2. **COMMENT SOURCE:** Public/EPA

COMMENT: Based upon the recommendations regarding use of public funds for the reduction of damages along this shoreline, the Sponsors have reportedly agreed to provide public access and parking in accordance with Corps guidelines, at "intervals of no more than a half mile, throughout Surf City and the reach of North Topsail Beach benefitted by the cost-shared project." EPA recommends that the FEIS include an excerpt(s) from the Corps guidelines about public access and parking to ensure that the project interval "of no more than a half mile" meets these guidelines.

RESPONSE: The Corps Guidance simply states that parking should be available within a "reasonable walking distance of the beach" and should be sufficient to "accommodate the lesser of the peak hour demand or the beach capacity". The "half mile" guidelines were established by Wilmington District in coordination with the South Atlantic Division.

REPORT CHANGE: No action required.

3. **COMMENT SOURCE:** Public/EPA

COMMENT: Council on Environmental Quality (CEQ) regulations (40 CFR 1502.15) require an EIS to describe the environment of the areas to be affected (or created) by the alternatives under consideration. The data and analysis in the draft report were found to be commensurate with the importance of the impacts, although EPA still has some general concerns about the potential impacts from use of a hopper dredge on marine threatened and endangered resources (e.g., such as the potential for entrainment of sea turtles associated with hopper dredges). EPA's specific concerns are the project's impacts to the green sea turtle, loggerhead sea turtle, Kemp's ridley sea turtle, and the leatherback sea turtle, which are all known to nest in the project vicinity. These species could be affected by initial project construction and periodic renourishment, and the sea turtles that occur in offshore waters may be affected by hopper dredges. EPA strongly recommends initial construction and periodic renourishment activities not be conducted during the sea turtle nesting season. EPA further recommends that hopper dredging not be conducted during months when water temperatures are warm and the various turtle species may be present.

RESPONSE: Comment Acknowledged. Section 3.02.4 of Appendix I (Biological Assessment) discusses in detail the potential impacts of the proposed action on nesting and in-water sea turtles, proposed commitments to reduce impacts, and subsequent effect determination. Section 4.00 (commitments to reduce impacts to listed species) includes specific commitments to avoid the sea turtle nesting season

during initial construction and periodic re-nourishment activities (commitment #4). Additionally, hopper dredging will be conducted during the winter months (1 December to 31 March) to avoid warm water periods when sea turtles may be present (commitment #1).

REPORT CHANGE: No action required.

4. **COMMENT SOURCE:** Public/EPA

COMMENT: EPA continues to have concerns about the project's impacts to the piping plover, which has been documented to feed along the 10-mile project reach. During the winter months the piping plover has been documented to be found in the surf zone. EPA strongly recommends the development and implementation of stringent construction criteria to ensure that the project does not affect the piping plover's foraging activities on the beach. EPA is particularly concerned that the piping plover's beach food resources may be affected by beach fill operations.

RESPONSE: Comment Acknowledged. Section 3.02.8 of Appendix I (Biological Assessment) discusses in detail the potential impacts of the proposed action on piping plovers and their foraging activities and subsequent effect determination. Beach placement of sand for this project during initial construction and each periodic nourishment interval is scheduled to avoid the breeding and nesting season as well as peak recruitment periods for benthic invertebrate forage base; however, short term impacts to foraging may occur. In summary, the long-term effects of the project may restore lost roosting and nesting habitat through the addition of beach fill; however, short-term impacts to foraging, sheltering, roosting habitat may occur during project construction.

REPORT CHANGE: No action required.

5. **COMMENT SOURCE:** Public/EPA

COMMENT: EPA recommends that the U.S. Fish and Wildlife Service and the National Marine Fisheries Service review and provide recent concurrence letters (to be included in the FEIS) regarding the adequacy of the Biological Assessment developed for this project pursuant to Section 7 (of the Endangered Species Act of 1973) and presented with the draft report.

RESPONSE: Concur. The USFWS and NMFS have reviewed the draft report and have provided their concurrence letters regarding the adequacy of the Biological Assessment pursuant to Section 7 of the ESA. Specifically, the USFWS has indicated that "overall, based on the information provided in the DEIS and BA, the USFWS believes that the proposed action is not likely to adversely affect federally listed species or their critical habitat as defined by the ESA of 1973, as amended. Therefore, the requirements of Section 7 (a)(2) of the ESA have been satisfied." The NMFS indicated the following: "NMFS agrees with the COE's determination that the proposed beach renourishment action, consisting (in part) of utilizing hopper dredges to mine offshore sand sources for deposition of sand onto North Carolina beaches (a 17-mile section extending from Topsail Beach/Surf City town limits to the northern end of Topsail Island) falls under the authority of the current NMFS South Atlantic regional biological opinion on hopper dredging of navigation channels and borrow areas in the southeastern United States, dated September 25, 1997 (i.e., SARBO). The SARBO is in the process of being revised and will eventually supersede the current opinion. The COE will abide by the revised SARBO when it is ultimately issued. Sea turtle or shortnose sturgeon takes resulting from the proposed dredging action when conducted under the RPMs and T&Cs of the SARBO are authorized and will be counted against the ITS take limit as set forth in the SARBO."

REPORT CHANGE: No action required.

6. COMMENT SOURCE: Public/EPA

COMMENT: As mentioned previously, we are also currently reviewing the FEIS for the adjacent project known as the "Relocation of New River Inlet Ebb Tide Channel Between North Topsail Beach and Onslow Beach, and the Placement of the Dredged Material Along the Ocean Shoreline of North Topsail Beach in Onslow County, NC." This FEIS describes a plan by the Town of North Topsail Beach to develop a non-Federal coastal storm damage reduction project for the parts of the town that lie within the Coastal Barrier Resources System (Topsail Unit, L06). EPA recommends careful coordination between the two projects to ensure that there are no conflicts between the Federal and non-Federal projects, either on the shoreline or in the borrow areas. Your draft report states that in the event that the non-Federal project is not in place when the Federal project begins, then the northern 2,000 ft of the dune and berm system will be replaced with a transition section. Your FEIS should include specific engineering details about what this 2,000 ft transition section would look like and how it may affect the overall NED Plan.

RESPONSE: Concur. Coordination between the two projects continues to occur to ensure that there are no conflicts between the Federal and non-Federal projects, either on the shoreline or in the borrow areas. Specific engineering and design details are not done until the PED (Pre-Construction Engineering and Design) phase of the study.

REPORT CHANGE: No action required.

7. COMMENT SOURCE: Public/EPA

COMMENT: We understand that the Agency Technical Review (ATR) was conducted in accordance with the Corps' "Peer Review of Decision Documents" process, and this means the proposed project "has been reviewed by Corps staff outside the originating office, conducted by a regional and national team of experts in the field, and coordinated by the National Planning Center of Expertise in Coastal Storm Damage Reduction, North Atlantic Division, U.S. Army Corps of Engineers." EPA recommends that the FEIS include all comments and responses developed as part of the ATR process.

RESPONSE: ATR occurs at several stages during the development of the feasibility report, and the report undergoes revisions at each stage, based on the comments. The final FEIS reflects all changes that were made in response to these comments. The Corps does not believe it will add to the report to include these comments with the report.

REPORT CHANGE: No action required.

8. COMMENT SOURCE: Public/EPA

COMMENT: We further understand that an "Independent External Peer Review" (IEPR) will be conducted (following the ATR) by a "non-USACE national team of experts in the field, and coordinated by the National Planning Center of Expertise in Coastal Storm Damage Reduction, North Atlantic Division, U.S. Army Corps of Engineers." EPA recommends that the FEIS include all comments and responses developed as part of the IEPR process.

RESPONSE: IEPR comments and USACE responses are made public separately from the publication of the FEIS.

REPORT CHANGE: No action required.

9. COMMENT SOURCE: Public/EPA

COMMENT: CEQ regulations (40 CFR 1502.14(a)) require that an EIS is to "rigorously explore and objectively evaluate all reasonable alternatives" for a proposed action. The regulations (40 CFR 1502.14(b)) further require that substantial treatment be made of each alternative considered in detail, including the proposed action. The draft report appropriately notes that study team considered both structural and non-structural measures. EPA recommends that the FEIS include complete details on the nonstructural measures that were considered, such as removal and relocation, as well as final summaries of the economic analyses (using recent economic data) that found these nonstructural measures to have greater costs than benefits.

RESPONSE: Concur. Details on the non-structural analysis were provided in Appendix P of the FEIS.

REPORT CHANGE: No action required.

10. COMMENT SOURCE: Public/EPA

COMMENT: The draft report appropriately assesses project risk, uncertainty, and consequences, and generally describes these with sufficient detail so that that "decisions can be made with knowledge of the degree of reliability of the estimated benefits and costs and of the effectiveness of alternative plans." EPA concurs that all recommendations made in the FEIS should be capable of being implemented through adaptive management, should future conditions warrant such. The draft report appropriately notes that "renourishment may be needed more often or less often, depending on the occurrence of large storms and accompanying erosion."

RESPONSE: Comment Acknowledged.

REPORT CHANGE: No action required.

11. COMMENT SOURCE: Public/EPA

COMMENT: To avoid conflicts, the project should be coordinated with monitoring efforts led by the North Carolina Recreational Water Quality Program (NCRWQ), which regularly tests these coastal waters in order to protect public health by monitoring and notifying the public when bacteriological standards for safe bodily contact are exceeded. Also, the project should be coordinated with the North Carolina Department of Environmental and Natural Resources, Division of Environmental Health, Shellfish Sanitation Section, which is also continually monitoring and classifying these coastal waters as to their suitability for shellfish harvesting for human consumption.

RESPONSE: Comment Acknowledged. Prior to commencement of construction activities, the Corps will coordinate with the NCRWQ as well as the NCDENR, shellfish sanitation section. Appropriate requirements will be incorporated into the project plans and specifications.

REPORT CHANGE: No action required.

12. **COMMENT SOURCE:** Public/EPA

COMMENT: The main channel of the Atlantic Intracoastal Waterway (AIWW) in North Carolina has been maintained by dredging for over 70 years to remove shoals that periodically develop. Some of the dredged material removed during maintenance activities is reported to be high quality beach sand. This material has been placed directly on nearby ocean beaches, or stockpiled in confined disposal areas near the shoreline of the AIWW. Other area sand sources are from dredging activities in the New Topsail Inlet and Connecting Channels, as well as the New River Inlet. EPA recommends that these sand sources be considered for renourishment activities for the 10-mile long project reach.

RESPONSE: Material available from the AIWW would be a very small amount compared to the size of the project, and would not be cost-effective for placement on Surf City/North Topsail Beach. This information has been added to section 5.06.3 of the FEIS.

REPORT CHANGE: No action required.

13. **COMMENT SOURCE:** Public/EPA

COMMENT: The FEIS should include complete supporting geotechnical information, especially representative boring logs and/or grain size analysis plots from soil borings conducted in the finalized borrow areas.

RESPONSE: Concur. Details on geotechnical information were included in Appendix C of the FEIS

REPORT CHANGE: No action required.

14. **COMMENT SOURCE:** Public/EPA

COMMENT: EPA recommends that areas with extensive hard bottom area and/or relatively low volumes of beach compatible material be ruled out as potential sources of borrow material for this project. Final selection of borrow areas should be based upon high volumes of accessible, beach quality sands. We recommend rigorous delineation of all hard bottom resources within each prospective borrow area before commencement of work in order to avoid potential impacts to hard bottom resources (particularly from hopper dredging activities). The State of North Carolina's hard bottom buffer rule language requires that dredging should not be conducted "on or within 500 meters of significant biological communities, such as high relief hard bottom areas." EPA supports the Corps' efforts to use divers to conduct ground truth confirmation in the potential borrow areas, as well as collecting sediment samples, conducting video documentation, and employing sidescan technology, all for the purpose of assisting with hard bottom avoidance.

RESPONSE: Concur. During the planning process borrow areas with extensive hard bottom and/or relatively low volumes of beach compatible material were ruled out as potential sources of borrow material for this project. Specifically, borrow areas I, K, M, and R were excluded as noted in Figure A-1 of the report. Additional borrow area refinement will occur during the PED stage of the study. Specific discussion of hard bottom within the proposed borrow areas as well as potential impacts and associated buffers and avoidance measures are discussed in Sections 2.01.10 and 8.01.8.2 of the report.

REPORT CHANGE: No action required.

15. **COMMENT SOURCE:** Public/EPA

COMMENT: EPA supports the on-going characterization of potential borrow areas during all 4 seasons in order to determine if there are significant differences in species composition and diversity for each sampling period.

RESPONSE: Comment Acknowledged.

REPORT CHANGE: No action required.

16. **COMMENT SOURCE:** Public/EPA

COMMENT: The FEIS should cite North Carolina Division of Marine Fisheries (NCDMF) commercial finfish and shellfish updated data (from 2009).

RESPONSE: Section 2.04.3 of the report has been updated to include the North Carolina Division of Marine Fisheries (NCDMF) commercial finfish and shellfish updated data (from 2009).

REPORT CHANGE: The beginning of the first paragraph of Section 2.04.3 of the report will be updated to include the following:

“According to the North Carolina commercial fish landings report produced annually by the North Carolina Division of Marine Fisheries (NCDMF), the commercial finfish harvest was up 17 percent from 2008-2009. However, the commercial shellfish harvest was down 7.3 million pounds in 2009 mostly due to a 43 percent decrease in shrimp harvest from 2009. Total commercial landings in 2009 were 68.6 million pounds which is about 2.5 million pounds lower than in 2008 (NCDMF, 2009). The NCDMF report approximately 136,000 pounds of commercial.....

Section 15.00 References should be updated to include:

North Carolina Division of Marine Fisheries. 2009. Annual Fisheries Bulletin – 2009 Commercial and Recreational Statistics. License and Statistics Section, Morehead City, NC. April 2010.
http://www.ncfisheries.net/download/2009AnnualNC_FisheriesBulletin.pdf.

17. **COMMENT SOURCE:** Public/EPA

COMMENT: The FEIS should discuss efforts to protect the 937-foot long Surf City Ocean Pier during construction, as it is apparently located within the proposed beach fill area.

RESPONSE: During Planning Engineering and Design (PED) and prior to construction, the Corps will evaluate potential construction related concerns associated with placement of beach fill within the vicinity of the Surf City Ocean Pier.

REPORT CHANGE: No action required.

18. **COMMENT SOURCE:** Public/EPA

COMMENT: The draft report has a section reporting on the Administration's position on funding of coastal storm damage reduction projects. As this report was under development in 2008, this should be clarified (e.g., the current Administration?). We understand that the Office of Management and Budget (OMB) advises that "while the Water Resources Development Act of 1999 (WRDA 99) changed the cost-sharing formula for the long-term sand renourishment component of certain future shore protection projects," these changes did not go far enough considering the long-term cost of most of these projects. Further, because WRDA 99 delayed the effect of the change in cost sharing for up to a decade or more, it reportedly "did not address current constraints on Federal spending," and therefore the Administration intends to work with Congress to address these problems. However, EPA understands that until these issues are satisfactorily resolved, there will be no authorization of new shore protection projects "that involve significant long-term Federal investments beyond the initial construction of these projects, and will give new shore protection projects that are already authorized low priority for funding."

RESPONSE: Language regarding the "Administration's position" has been removed from the report.

REPORT CHANGE: No action required.

19. **COMMENT SOURCE:** Public/EPA

COMMENT: Finalized mitigation measures should be presented in the FEIS, to include specific measures recommended by U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) for protection of all threatened and endangered species. The finalized mitigation plan should include specific finalized protocols to be employed should any sea turtles be encountered during the dredging activity.

RESPONSE: Concur. All planning considerations and final mitigation measures recommended by the Corps and other state and federal resource agencies, including measures recommended by the USFWS and NMFS for protection of threatened and endangered species, have been included in Table 7.2 and Section 10.06.1 of the main report as well as Section 4.00 of Appendix I. The development of specific monitoring plans (i.e. hard bottom sedimentation monitoring and benthic invertebrate monitoring), as identified in the list of commitments to reduce environmental impacts, will be coordinated with the EPA and other state and federal resource agencies prior to implementation.

REPORT CHANGE: No action required.

NC Wildlife Resources Commission (NCWRC)

1. COMMENT SOURCE: Public/NC Wildlife Resources Commission (NCWRC)

COMMENT: The NCWRC recommends that all work to be conducted outside of the established moratoriums for nesting shorebirds (01 April-31 Aug) and nesting sea turtles (01 May - 15 Nov or until the last known nest hatches). Any encroachment in these time frames will increase the chances for significant, adverse impacts to important wildlife species and would require further consultation with NCWRC biologists before the project can proceed.

RESPONSE: Concur. The proposed 1 December through 31 March schedule for initial construction and each periodic nourishment events was planned around avoidance of resource impacts. Specifically, work will be conducted outside of the established moratoriums for nesting shorebirds (01 April-31 Aug) and nesting sea turtles (01 May - 15 November). Though not anticipated, in the event that these construction schedules are modified and encroach in these time frames, further consultation with NCWRC biologists will be initiated before the project can proceed.

REPORT CHANGE: No action required.

2. COMMENT SOURCE: Public/National Marine Fisheries Service

COMMENT: To reduce impacts to benthic invertebrates, the NCWRC supports staggering the renourishment areas so that the first renourishment event would start at the section or the project area where initial construction began; avoiding the most recent beach disposal area. Staggering these areas will allow a greater time for benthic invertebrates to adequately recover to sustainable levels.

RESPONSE: Concur. As discussed in the report, in order to allow a greater time for benthic invertebrates to adequately recover to sustainable levels, the proposed initial construction plan is to stagger the intervals of the initial construction beach fill template over the course of four years. Additionally, the first renourishment event would start at the section of the project where initial construction began.

REPORT CHANGE: No action required.

3. COMMENT SOURCE: Public/NC Wildlife Resources Commission (NCWRC)

COMMENT: The NCWRC requests that our recommendations be considered throughout the 50 years of this project and that any alterations to this plan be reviewed by NCWRC staff.

RESPONSE: Concur. All recommendations are considered throughout the 50 year life of this project. Though not anticipated, any alterations to this plan will be appropriately coordinated with NCWRC staff.

REPORT CHANGE: No action required.

NC Division of Water Quality

1. COMMENT SOURCE: Public/NC Division of Water Quality

COMMENT: The Division of Water Quality (DWQ) has no objections to the project as proposed as long as they comply with the dredging moratoriums and environmental monitoring discussed in the document.

RESPONSE: Concur

REPORT CHANGE: No Action Required.

NC Natural Heritage Program

1. COMMENT SOURCE: Public/NC Natural Heritage Program

COMMENT: The Federal and State Threatened sea beach amaranth (*Amaranthus pumulus*) is typically an annual that grows on accreting sand beaches, and thus is found mostly on ends of islands. As long as the dredging and beach renourishment can be done/completed within the December 1 to March 31 period, the impacts to the amaranth should be negligible.

RESPONSE: Concur

REPORT CHANGE: No action Required.

NC State Consistency Concurrence

NC Department of Environment and Natural Resources (NCDENR): NCWRC, DMF, Division of Parks and Recreation, Natural Heritage Program, DWQ, Division of Land Resources, DCM, SHPO, Shellfish Sanitation, Coastal Reserve, DWR (Water Projects Section), and County of Pender

1. COMMENT SOURCE: Public/State Consistency

COMMENT: The Applicant, prior to initiating any land or water disturbing activities, shall obtain a Section 401 Water Quality Certification from the NC Division of Water Quality for the proposed project. The Applicant shall comply with the requirements of the Section 401 Water Quality Certification. A copy of the certification shall be forwarded to DCM.

RESPONSE: Concur

REPORT CHANGE: Table 7.1 will be updated with the following:

“Prior to initiating any land or water disturbing activities, the Corps will obtain a Section 401 Water Quality Certification from the NC Division of Water Quality for the proposed project. The Corps will comply with the requirements of the Section 401 Water Quality Certification and will provide a copy of the certification to DCM”

2. COMMENT SOURCE: Public/State Consistency

COMMENT: The Applicant, prior to initiating any land disturbing activities, shall obtain the approval of the NC Division of Land Resources of an erosion and sedimentation control plan. The Applicant shall comply with the requirements of the approved erosion and sedimentation control plan. A copy of the plan approval shall be forwarded to DCM.

RESPONSE: Concur

REPORT CHANGE: Table 7.1 will be updated with the following:

“Prior to initiating any land disturbing activities, the Corps will obtain the approval of the NC Division of Land Resources of an erosion and sedimentation control plan. The Corps will comply with the requirements of the approved erosion and sedimentation control plan and a copy of the plan will be provided to DCM.”

3. COMMENT SOURCE: Public/State Consistency

COMMENT: In order to protect nesting shorebirds, work will not be allowed from April 1st through August 31st of any year without the prior approval of the Division of Coastal Management, in consultation with the North Carolina Wildlife Resources Commission.

RESPONSE: Concur. The proposed 1 December through 31 March schedule for initial construction and each periodic nourishment events was planned around avoidance of resource impacts. Specifically, work will be conducted outside of the established moratoriums for nesting shorebirds (01 April-31 Aug). Though not anticipated, in the event that these construction schedules are modified and encroach in these time frames, the Corps will seek approval from the NC Division of Coastal Management in consultation with NCWRC biologists.

REPORT CHANGE: No action required.

4. COMMENT SOURCE: Public/State Consistency

COMMENT: In order to protect nesting sea turtles and their hatchlings, work will not be allowed from May 1st through November 15th (or until the last known nest hatches) of any year without the prior approval of the Division of Coastal Management, in consultation with the North Carolina Wildlife Resources Commission.

RESPONSE: Concur. The proposed 1 December through 31 March schedule for initial construction and each periodic nourishment events was planned around avoidance of resource impacts. Specifically, work will be conducted outside of the established moratoriums for nesting sea turtles (01 May - 15 November). Though not anticipated, in the event that these construction schedules are modified and encroach in these time frames, the Corps will seek approval from the NC Division of Coastal Management in consultation with NCWRC biologists.

REPORT CHANGE: No action required.

5. COMMENT SOURCE: Public/State Consistency

COMMENT: Only beach quality sand shall be used for this project. Should the dredging operations encounter sand deemed non-compatible with native grain size or sorting characteristics of the native beach, the dredge operator shall immediately cease operation and contact the DCM. Dredge operations will resume only after resolution of the issue of sand compatibility is achieved.

RESPONSE: Concur. Table 7.1 (Project Commitments) incorporates these commitments for assurance of sediment compatibility.

REPORT CHANGE: No action required.

6. COMMENT SOURCE: Public/State Consistency

COMMENT: The Applicant shall adhere to any mitigation measures described in the consistency submission and the *Draft Integrated Feasibility Report and Environmental Impact Statement, Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina*" (August 2009) to the extent that they do not conflict with any of the conditions of concurrence stated above.

RESPONSE: Concur

REPORT CHANGE: No action required.

7. COMMENT SOURCE: Public/State Consistency

COMMENT: The North Carolina Wildlife Resources Commission (NCWRC) and the North Carolina Division of Marine Fisheries (NCDMF) are concerned about the impact of proposed dredging operations on benthic habitat. NCWRC recommend that during the four year initial construction event that beach nourishment activities be staggered to minimize the adverse effects on benthic invertebrates. Benthic invertebrates are an important food source for foraging shorebirds and many species of fish. To assure the availability of this food source, DCM recommends that the Corps, to the extent practical, implement the recommendations of the NCWRC and the NCDMF

RESPONSE: Concur. The proposed project, as currently written, incorporates these recommended measures in order minimize impacts to benthic invertebrates.

REPORT CHANGE: No action required.



United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Washington, DC 20240



Colonel Jefferson Ryscavage
U.S. Army Corps of Engineers, Wilmington District
District Command
69 Darlington Avenue
Wilmington, North Carolina 28403-1343

MAR 5 - 2010

Dear Colonel Ryscavage:

The Minerals Management Service (MMS) appreciates the opportunity to review the U.S. Army Corps of Engineers' Draft Integrated Feasibility Report /Environmental Impact Statement (IFR/EIS), Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina.

The draft IFR/EIS describes the Corps' proposal to construct a berm and dune along approximately 10 miles of oceanfront between Surf City and North Topsail Beach. The draft IFR/EIS identifies several borrow areas on the Outer Continental Shelf (OCS) that may be used to obtain sand for the proposed project. Since the MMS has jurisdiction over borrow areas located on the OCS, the MMS was designated as a cooperating agency for the environmental review of the proposed project. As a cooperating agency, the MMS may adopt and use the Final IFR/EIS to support future leasing decisions.

Please find our comments on the draft IFR/EIS enclosed. If you have any questions, please contact Geoffrey Wikel at (703) 787-1283 or by e-mail at Geoffrey.Wikel@mms.gov.

Sincerely,

James F. Bennett
Chief, Branch of Environmental Assessment

Enclosure

cc: Doug Piatkowski, Corps-SAW



**Draft Integrated Feasibility Report / Environmental Impact Statement
Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina (August 2009)**

Section No.	Page No.	MMS Comment or Recommended Change
		<p>Consistent with the Council on Environmental Quality’s (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, the Corps has combined the preparation of an Environmental Impact Statement (EIS) with a planning instrument. The draft Integrated Feasibility Report (IFR) and EIS integrate alternative development, engineering and economic analyses, and environmental review in a single document. In the draft document, the elements required in an EIS are presented in an atypical order, and the re-organization presents some fundamental challenges to the reader. For example, the reader must first read the Tentatively Selected Plan chapter (Chapter 7), the practical description of the proposed action, to fully comprehend the site-specific discussion of resources (e.g., <i>Hard Bottoms, Artificial Reefs, Birds</i>, etc.) in the Affected Environment chapter (Chapter 2). Environmental commitments are enumerated in Table 7.1 (Chapter 7) before the presentation of the impact analyses in the Environmental Effects chapter (Chapter 8). Therefore, the reader must first read the effects analyses to fully appreciate the need and purpose of the proposed mitigation.</p> <p>The MMS recommends the Corps prepare prefatory guidance to better orient the reader to the organization of the document. Alternatively, the Corps could insert the Affected Environment chapter after the Tentatively Selected Plan chapter and before the Environmental Effects chapter. Mitigation should be linked in a logical manner to the effects analysis.</p>
		<p>The MMS assumes the “without project” and “with project” engineering and economic analyses were prepared without consideration of the potential impacts of the proposed inlet management and beach fill proposals currently being considered under the Corps’ Regulatory purview. The Corps should address if the proposed interim projects change any assumptions used as the basis for the existing engineering analyses (i.e., sediment transport and budget, beach profile and plan form design, fill equilibration, longevity, volume requirements, etc). If there are potential implications for “without project” and “with project” engineering considerations, the cascading effect to project economics and environmental effects should also be considered.</p>

**Draft Integrated Feasibility Report / Environmental Impact Statement
Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina (August 2009)**

Section No.	Page No.	MMS Comment or Recommended Change
		<p>The Environmental Effects chapter (Chapter 8) offers a robust discussion of the potential environmental impacts related to the Tentatively Selected Plan. In contrast, the document offers a limited discussion of potential impacts associated with other alternatives, including the no action alternative. Chapter 5 presents a conceptual comparison of the environmental effects of beach fill, non-structural, and no action alternatives.</p> <p>The MMS suggests the Corps clearly indicate which alternatives were dismissed and on what basis. Otherwise, the direct and indirect impacts of alternatives should be discussed in more detail and in context of their relative significance in the Environmental Effects chapter.</p>
		<p>Since most of the borrow areas identified for the proposed project are located on the Outer Continental Shelf (OCS), the MMS may need to authorize their use for initial and/or maintenance construction. The MMS, as a cooperating federal agency, may undertake a <i>connected action</i> (i.e., authorize use of the OCS borrow area) that is related, but unique from the Corps's proposed action (i.e., construction of the project). Consequently, the purpose and need of the MMS's proposed action is different. Ideally, the EIS should provide a more accurate description of the MMS's involvement under the Corps' proposed action.</p> <p>The MMS's proposed action is the issuance of a negotiated agreement pursuant to its authority under the Outer Continental Shelf Lands Act. The purpose of that action is to authorize the use of OCS sand (or other sediment) resources in beach nourishment and coastal restoration projects undertaken by federal, state or local government agencies, and/or in other federally authorized construction projects. The MMS's action will be needed because the Towns of Surf City and North Topsail Beach and the Corps submitted authorization requests to the MMS.</p>
1.02	5	<p>The study area description should more accurately describe the entire footprint of the proposed action, including the offshore borrow areas. Consider referencing Chapter 7 for a more complete description of the footprint of the proposed action. Similarly, the location map (Figure 1) should more clearly</p>

**Draft Integrated Feasibility Report / Environmental Impact Statement
Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina (August 2009)**

Section No.	Page No.	MMS Comment or Recommended Change
		illustrate the footprint of proposed action, including the proposed borrow areas. Reference to Figure A-1 may be more appropriate. However, on Figure A-1, the beach fill zone should be clearly delineated. Inlets should be labeled. All figures and text references should use the same alongshore profile station or reach designations.
1.08		The feasibility study and proposed action should be presented in context of historical and proposed beach nourishment activities in the vicinity of Topsail Island. The Study Overview chapter should include a transparent and up-to-date discussion of historical and planned beneficial use projects (see 3.06), historical navigation and planned inlet management projects, as well as proposed Civil Works and Regulatory projects (see 7.04.2).
2.0	10	The introductory text to the Affected Environment chapter should be revised to indicate that the footprint of the proposed action is not limited to the sub-aerial beach, but includes the marine environment offshore the barrier island.
2.01	10	Pelagic and benthic sargassum should be addressed as an important biological resource in the marine environment.
2.0.2	12	The narrative description of the location of both New Topsail and New River Inlets is unclear. The MMS suggests referring to a figure to clarify the narrative.
2.01.7	16	The biological assessment discusses protected species that are likely to occur in the proposed project area. However, the draft IFR/EIS does not address other marine mammals without protection status, such as dolphin species, that are likely to be present and may be affected by the proposed action.
2.01.7 / 2.02.4 / 8.01.5		The description of and potential impacts to protected marine mammals and sea turtles are incorporated by reference to the biological assessment. The MMS recommends a brief summary be provided in the EIS, or, the biological assessment should be included as a physical attachment to the Final IFR/EIS.
2.01.9	17-18	A detailed discussion of habitat association between benthic populations and habitat type (RSDs, hard bottom, sand and muddy substrate) should be provided. The benthic resources or hard bottom descriptions should include a detailed description of the occurrence and quality of benthic sargassum,

**Draft Integrated Feasibility Report / Environmental Impact Statement
Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina (August 2009)**

Section No.	Page No.	MMS Comment or Recommended Change
		corals, and sponges. The equivalent information requested is provided in 8.01.8.3 and 8.01.8.5 of the Environmental Effects chapter.
2.01.10	20	Reference Figure A-1 to illustrate historical SEAMAP hard bottom observations.
2.01.10	23-30	<p>The detailed narrative discussing the suite of investigations and the results of those investigations used to support assessment of hard bottom areas needs to be better synthesized. The synthesis should address the location, type, nature, and quality of hard bottom habitat and benthic communities in an integrated manner. The presentation of the chronological investigation is better suited for inclusion in another appendix. Likewise, the discussion of buffer requirements should be relegated to the Environmental Effects chapter in context of potential effects and effects-reducing mitigation measures. The MMS recommends the Corps provide a series of figures that clearly illustrate 1) the spatial extent of hard bottom areas and 2) the quality of habitat and diversity of supported biological communities. The description of nearshore hard bottom areas should not be limited to the offshore immediately east of the project area, but should include hard bottom areas identified offshore northern Topsail Island.</p> <p>Also, the Corps should indicate that the calculated depth of closure is derived from “averaged” incident wave conditions, and/or a relative determination of nominal vertical change from a series of cross-shore beach profiles. Depth of closure is documented to be event-dependent (Nicholls et al., 1998). It should be stated that cross-shore sediment transport will likely occur beyond the depth of closure, but ultimately depends on the forcing conditions and the profile state at the time of the forcing event.</p>
2.01.11	34	<p>The draft IFR/EIS references a 2004 document as the source for information on federally managed fish species and their associated habitat. The fishery management plans are authoritative sources, and most plans have been updated and new information added since 2004. The MMS recommends that the Corps consult with the National Marine Fisheries Service on the completeness of the species and HAPCs lists.</p> <p>Note that the Atlantic Highly Migratory Species Fishery Management Plan (2006) is implemented by</p>

**Draft Integrated Feasibility Report / Environmental Impact Statement
Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina (August 2009)**

Section No.	Page No.	MMS Comment or Recommended Change
		the Secretarial Council.
2.01.11	34	The description of benthic seagrass, coral, and hard bottom HAPC in the project area is limited. The appropriate sections of the document concerning these sensitive resources should be cross-referenced.
2.02.3	47	The MMS recommends a more complete discussion of bird utilization of hard bottom areas and other offshore habitat.
2.02.3	51	The document should reference and include updated information from bird surveys completed in support of the North Topsail Shore Protection Project.
2.02.3	47	Table 2.7 should indicate the federal status (including candidate listing) for respective birds.
2.03	55-57	<p>It is recommended that physical resources be addressed prior to the biological resources to provide for appropriate environmental context.</p> <p>The description of the geological and physical oceanographic environment should be presented prior to the discussion of shoreline and sand transport to provide for appropriate geological context. The description of the geological environment should be expanded referencing relevant material provided in the discussion of hard bottom habitat (USACE, 2003; USACE 2004a). The Corps should describe the dominant physical processes occurring offshore, especially those processes responsible for the maintenance of sorted bed forms and the ephemeral exposure of hard bottom.</p>
2.05 / 8.06	60-64 / 178-179	<p>The Corps does not fully address the potential for prehistoric sites within the survey area. The MMS recommends that the following tasks relating to prehistoric site potential be addressed:</p> <ol style="list-style-type: none"> 1. review current literature on late Pleistocene and Holocene geology, paleogeography, and sea level change in the area; marine and coastal prehistory; and previous archaeological resource reports in the area if available. 2. discuss relict geomorphic features and their archaeological potential that includes the type, age, and association of the mapped features; the acoustic characteristics of channels and their

**Draft Integrated Feasibility Report / Environmental Impact Statement
Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina (August 2009)**

Section No.	Page No.	MMS Comment or Recommended Change
		<p>fill material; evidence for preservation or erosion of channel margins; evidence for more than one generation of fluvial downcutting; and the sea level curves used in the assessment.</p> <p>3. discuss, based on the capabilities of current technology in relation to the thickness and composition of sediments overlying the area of a potential site, the potential for identification and evaluation of buried prehistoric sites.</p> <p>The analysis for potential prehistoric sites was not included in the survey report, <i>Archaeological Remote Sensing Survey of Topsail and West Onslow Beaches Offshore Borrow Areas</i> (December 2004), used as the basis for the majority of the cultural resources material within the draft IFR/EIS. Furthermore, the cultural resource sections (2.05 and 8.06) do not adequately discuss the changes that occurred during the Holocene period with respect to exposed lands on the outer continental shelf (OCS) and sea level rise, and how prehistoric peoples might have interacted with the landscape that is now inundated.</p> <p>The DEIS should incorporate information that summarizes the potential for prehistoric sites within the project area. There was geophysical data collected via sub-bottom profilers and vibracores within the project area (Appendices C0-C3 Geotechnical Analysis). With archaeological interpretation, this information could provide valuable insight into the paleogeography of the area, the effects of Holocene transgression on this landscape, and the potential for prehistoric site preservation.</p> <p>Within Section 2.05 (Cultural Resources, p. 61), the following paragraph should be expanded to provide additional context and references to the scientific literature:</p> <p style="padding-left: 40px;">To date, there are few indications that Native American populations made significant use of ocean-side resources. Indeed, the intensive use of the sounds may indicate that resources there were so plentiful that an interest in exploiting the open-ocean never developed.</p>

**Draft Integrated Feasibility Report / Environmental Impact Statement
Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina (August 2009)**

Section No.	Page No.	MMS Comment or Recommended Change
		<p>Within Section 8.06 (Cultural Resources, p. 178), the following sentences should be expanded to provide additional context and references to the scientific literature:</p> <p style="padding-left: 40px;">No prehistoric sites were specifically considered in the survey. While there has been some success developing upland-offshore site location correlations in Florida and perhaps elsewhere, the methodology is not very well developed for sites within the Carolinas region, nor are there a significant number of upland locations that could be used to model settlement in now inundated areas.</p> <p>In Section 8.06 (Cultural Resources, p. 178-179), the Corps discusses the possibility of having UAB (specify acronym incidentally) archaeologists monitoring the dredging activities. The MMS suggests that this might not be the most efficient use of UAB archaeologists' time and might create a burden on the State of North Carolina. MMS does request, however, that a monitoring protocol be implemented, with clear instructions on reporting and avoidance of prehistoric or historic sites that might be encountered during the dredging operations. This information, or reference to the applicable protocols, should be included in the DEIS (perhaps in Section 10.07). [Perhaps language similar to the Archaeological Discoveries clause in MMS' NTL No. 2008-G05 (http://www.gomr.mms.gov/homepg/regulate/regs/ntls/2008NTLs/08-g05.pdf)]</p>
2.05	60-64	There is no discussion of the potential for archaeological resources in the vicinity of pump-out locations and pipeline corridors, and the likely areas for those operations are not identified. Consideration of these areas may be important as they are subject to bottom disturbing activities such as anchoring, anchor drag, and pipeline emplacement.
2.07		Ambient and anthropogenic noise in the marine environment is not described.
3.02	69	Figure A-7 does not show shoreline change as indicated in the narrative.
5.04	87-88	The assertion that the "no action plan" or "no action alternative" has no implication for welfare economics (i.e., costs and benefits are zero) may need to be clarified. Since the economic analysis did

**Draft Integrated Feasibility Report / Environmental Impact Statement
Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina (August 2009)**

Section No.	Page No.	MMS Comment or Recommended Change
		not address non-use or non-market valuation of benefits (e.g., improved or reduced ecosystem services), this may not be an accurate statement. The CEQ has proposed systematic changes to the <i>Principles and Guidelines</i> for such water resource projects, suggesting that both monetary (use and non-use) and non-monetary benefits should be considered in cost benefit analyses. The assertion in question should also be revised to indicate that the no action alternative was evaluated for environmental purposes, but not for engineering or economic purposes.
5.06.4	97	Table 5.4 does not address the full suite of potential impacts from the range of beach fill and non-structural alternatives proposed, including potential impacts to physical processes, air quality, noise, etc.
7.03.6	106-112	The mitigation measures enumerated should be linked to the effects analysis. The requirement to monitor turbidity levels appears to have been excluded.
7.04.2	117	The description mis-identifies the borrow areas proposed for the regulatory projects. The analysis of volume requirements across federal and non-federal projects is also inaccurate.
7.06.2	120	A plan for pump-out and pipeline conveyance operations is not well articulated. It is presumed that the hopper dredge will transfer dredged material through pump-outs located immediately offshore the placement site. Ideally, pump-out locations and pipeline corridors would be identified to illustrate the spatial relationship to any sensitive habitat, archaeological resources, etc.
8.01.7	148	The Corps' conclusion that offshore dredging and/or nearshore placement operations will not have any adverse physical impact on hard bottom areas may require clarification or re-phrasing. Based on its review of the substantial analyses undertaken by the Corps and affiliated contractors, the MMS prefers language that suggests impacts will occur but will not likely exceed natural sedimentation and burial, provided strict adherence to buffer requirements for all offshore activities. The dredging buffer should be applied consistently to all vessel activities, including anchoring and other bottom-disturbing activities by tugs and support vessels. The Corps should consider the potential effects of the proposed action on alongshore and across-shore sediment transport processes and any implications for hard

**Draft Integrated Feasibility Report / Environmental Impact Statement
Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina (August 2009)**

Section No.	Page No.	MMS Comment or Recommended Change
		<p>bottom areas identified by Coastal Planning and Engineering immediately north of the project area.</p> <p>Given the ephemeral exposure and burial of hard bottom areas, it is probable that the seafloor expression and configuration of hard bottom areas (as mapped from existing remote sensing / diver observations) will change prior to construction in 2018. Coastal Planning and Engineering's geophysical investigations and diver observations document a similar phenomena offshore the northern reaches of Topsail Island. The MMS recommends the Corps consider the appropriateness of additional mitigation that would require borrow area clearance via a geophysical survey immediately before dredging. Since a pre-dredge bathymetric survey is commonplace and typically required by the MMS, deploying side scan sonar would not constitute much of an additional cost to provide additional assurance that impacts to hard bottom areas would be avoided to the extent possible.</p>
8.01.8.5	168	The Corps' conclusion that there will be no impacts to benthic sargassum from dredging operations is not supported especially since benthic sargassum was documented to occur in most of the offshore borrow areas.
8.01	145-167	The Corps should discuss the potential benefits/costs of a borrow area management plan that requires the rotational use of borrow areas over initial and maintenance construction cycles as a means to mitigate cumulative effects to benthic communities and habitat.
8.03	174	Section 8.03 presents a limited discussion of the potential impacts to physical processes resulting from offshore bathymetric modification, including wave transformation, changes in flow regime, and changes in sediment transport processes. The assertion that incident waves will not be substantively transformed when propagating over the modified seafloor should be supported by appropriate reference(s).
8.08.1	181	The emission inventory presented is based on the incorrect assumption that each of the four windows of initial construction will require 2 million cubic yards of sand. Since the initial fill requirement is approximately 12 million cubic yards, approximately 3 million cubic yards will be dredged during each

**Draft Integrated Feasibility Report / Environmental Impact Statement
Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina (August 2009)**

Section No.	Page No.	MMS Comment or Recommended Change
		cycle.
8.08.1	182	The Environmental Effects chapter does not discuss the potential noise-related impacts of offshore dredging operations on marine mammals, sea turtles, and fish. The MMS refers the Corps to the following report: “A generic investigation into noise profiles of marine dredging in relation to the acoustic sensitivity of the marine fauna in UK waters with particular emphasis on aggregate dredging” (Thomsen et al., 2009).
8.08.3	183-184	Draghead screening may be necessary to reduce the risk of ordnance entrainment and any unintended consequences related to ordnance re-location onto the sub-aerial beach. Recent experiences with the dredging and placement of ordnance have occurred in Sandbridge Beach, VA, Bethany Beach, DE, and Long Beach Island, NJ. Placement of ordnance, or the risk of placement, can lead to serious public safety concerns and/or perception problems.
10	191-192	The Corps has “lead agency” status for Section 7 and EFH consultations/coordination, and as “lead agency”, the Corps should notify NMFS HCD, NMFS PRD, and FWS of MMS’s involvement in the proposed action.
	A-1	Appendix A-1 should be revised to accurately display all hard bottom habitat by relief type. Buffers should be indicated for each relief type on the map, not just high quality. If known, the pump-out locations and pipeline corridors should be identified. The hard bottom habitat identified immediately north of the project area should be added to the map.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5511
(727) 824-5317; FAX (727) 824-5300

March 8, 2010

F/SER4:RS/pw

(Sent via Electronic Mail)

Colonel Jefferson Ryscavage
District Engineer, Wilmington District
Department of the Army, Corps of Engineers
P.O. Box 1890
Wilmington, North Carolina 28402-1890

Attention: Ms Jan Brodmerkel, Project Manager

Dear Colonel Ryscavage:

NOAA's National Marine Fisheries Service (NMFS) reviewed the *Draft Feasibility Integrated Report and Environment Impact Statement for Coastal Damage Reduction, Surf City and North Topsail Beach, North Carolina* (DEIS), dated August 2009, prepared by the Wilmington District, and the accompanying letter dated January 13, 2010, requesting consultation under the essential fish habitat (EFH) provisions of the Magnuson-Stevens Act. The Wilmington District is the lead agency in development of the DEIS and EFH consultation, and the US Minerals Management Services (MMS) is a cooperating agency due to the inclusion of borrow areas within federal waters. The DEIS examines options for reducing erosion along the shoreline of the Town of Surf City and the Town of North Topsail Beach (collectively Towns) on Topsail Island, Pender and Onslow Counties, North Carolina. The DEIS includes a preferred plan and discussion of potential impacts to EFH, and the Wilmington District and MMS tentatively conclude in DEIS section 8.01.8.11 that impacts from the project to EFH and federally managed fishery species are expected to be minor on an individual and cumulative effects basis. As the nation's federal trustee for the conservation and management of marine, estuarine, and anadromous fishery resources, the following comments and recommendations are provided pursuant to authorities of the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Project Description

The principle purpose of the project would be to reduce damages associated with coastal storms and beach erosion; the analysis period is 50 years. Alternatives considered include various combinations of dunes and berms and the "no-action" alternative. After consideration of the costs, benefits, and environmental consequences, the District proposes to construct the plan they



believe has the greatest net National Economic Development (NED) benefit. At this time, the Towns have not identified their preferred plan; therefore, the NED plan is currently the recommended plan; NMFS assumes that the District would coordinate with the agencies should any option other than the NED plan move forward.

The NED plan requires about 11.5 million cubic yards of borrow material during initial construction, averaging 220 cubic yards per linear foot over approximately 10 miles of ocean front beach (including the Town of Surf City and the southern section of the Town of North Topsail Beach) and consists of a sand dune constructed to an elevation of 15 feet NGVD (National Geodetic Vertical Datum), fronted by a 50-foot wide beach berm constructed to an elevation of 7 feet NGVD. The northern portion of the Town of North Topsail Beach is separated from the southern section by an area designated as a Coastal Barrier Resource Area (CBRA); the CBRA section, in principle, would not be directly affected by the proposed federal project. At the project's terminal ends, the beach fill sections would gradually transition to join with the unaltered beach.

Volume requirements for the 4-year nourishment cycle are about 1.6 million cubic yards of borrow material; in total, about 31.1 million cubic yards of borrow material would be required for the 50-year project. These estimated volumes are 12 percent greater than the in-place volumes to account for losses during construction. The material would be pumped to the beach from hopper dredges and shaped on the beach by earth moving equipment. The construction profile would extend seaward of the design (equilibrium) profile by 100 to 200 feet to cover anticipated sand movement during and immediately following construction. The anticipated construction plan is to use two hopper dredges during four separate construction seasons to complete the initial project; maintenance of the berm on a 4-year cycles is expected to require two hopper dredges in one construction season. Environmental windows to protect sea turtles from limit the construction season to December 1 to March 31.

Sixteen borrow areas have been identified for the project. These borrow areas include 10 identified for the Surf City/North Topsail Beach project and six borrow areas identified for the Topsail Beach federal project. These areas are typically between 1 and 6 miles offshore and have pre-dredge bottom depths between 35 and 50 feet. Extensive geophysical investigations were conducted to identify live/hardbottom in and near the borrow areas. Buffers of 500 meters (1,640 feet) would be established for high- and moderate-relief live/hardbottom and 122 meters (400 feet) would be established for low-relief hard bottom.

General Comments on the DEIS

The DEIS adequately describes the project alternatives currently under consideration and the basis for selecting the NED plan as the preferred alternative. As noted earlier, NMFS assumes that the District would reinstate EFH coordination with NMFS should any option other than the NED plan move forward.

The DEIS examines a range of alternative borrow sites and beach fill configurations, addressing both their benefits and problematic issues. NMFS agrees with the District that use of the offshore borrow areas is more appropriate than using shoals associated with New River Inlet. In addition, the DEIS adequately describes the range of marine and estuarine habitats and

associated fishery resources found in the project area. The project would be located in highly productive marine and estuarine environments that support commercial and recreational fisheries, some recognized as aquatic resources of national importance. While NMFS is pleased the DEIS addresses several environmental concerns, including potential impacts to nearshore hardbottom habitats, pipeline corridors and other key project details are unknown at this time. NMFS requests that the District continue to coordinate with us as construction-level detail is developed to ensure that any additional opportunities to avoid or minimize impacts to NOAA trust resources are fully considered.

Specific Comments

Section 2.01.11 – [Affected Environment] Essential Fish Habitat

The DEIS provides an adequate overview of EFH and associated species managed by the South Atlantic Fishery Management Council, Mid-Atlantic Fishery Management Council, and NMFS. The discussion of impacts to EFH meets the information requirement of 50 CFR 600.920(e).

Section 7.03.6 – Environmental Monitoring and Other Commitments

Table 7.1 lists 30 commitments to reduce environmental impacts. Three commitments, (18, 19, and 20) address benthic invertebrates, many of which serve as a forage base for fishery species. Commitments 19 and 20 deal with the timing of construction. NMFS agrees that limiting construction to the period between December 1 and March 31 would minimize impacts to fishery species by avoiding the peak recruitment and abundance times for surf zone fish and benthic invertebrates (commitment 18). However, we are concerned that other than the brief mention in Table 7.1 of this construction window being associated with minimizing impacts to fishery resources, the rationale for the window elsewhere in the DEIS is based on minimizing impacts to sea turtles, suggesting the window may be relaxed should alternate means to protect sea turtles be found (e.g., use of cutterhead pipeline dredge). From EFH and fisheries perspectives, deviating from a window of November 15 to March 31 would not be acceptable, and NMFS requests the District reinitiate EFH consultation with NMFS should any in-water work be proposed outside this time period.

Commitment 19 and corresponding text on page 106 briefly describe a monitoring program that would evaluate project impacts to benthic invertebrates. NMFS requests the District coordinate with us during the further develop of the monitoring program, and that this coordination occur well in advance of baseline sampling.

Three commitments (21, 22, and 23) address live/hardbottom habitat. The District proposes to implement a 122-meter (400 feet) dredging buffer around the low relief hard bottom (less than 0.5 meters [1.6 feet]) identified by MATER in the offshore borrow sites and 500-meter (1640 feet) buffer for high-relief hard bottom as defined within the state rule language (commitment 21 and page 27). NMFS requests the District coordinate with NMFS during development of the monitoring plan for sedimentation impacts (commitment 23).

Section 7.10.4 – [The Tentatively Selected Plan] Risk and Uncertainty in the Sea Level Rise Assumptions

The second paragraph in the section addresses recommendations by the National Research Council in their 1987 report *Responding to Changes in Sea Level*. The DEIS should be revised

to reflect the latest scientific consensus on expected rates of sea level rise for the project area. In January 2010, the North Carolina Division of Coastal Management accepted the recommendations of the state's Science Advisory Panel and is planning for a 1 meter (3.3 feet) increase in sea level by 2100. A similar rate has been adopted for planning purposes by the states of Florida, Maine, and Maryland. This is a substantial increase in the rate of sea level rise experienced over the last 25 to 30 years, upon which the conclusions of the DEIS are based. In addition, in February 2010, a group of scientists from the federal government and academia that had previously disagreed about the effect of global warming on hurricanes published a paper agreeing that there will likely be fewer, but stronger, hurricanes in the future¹. Given the frequency and scope of impact which North Topsail Island has experienced from past hurricanes, it seems likely that the area will experience stronger storms in the next few decades.

Section 8.01.8.11 – [Environmental Effects] Impact Summary for Essential Fish Habitat and 8.09 Summary of Cumulative Effects

In section 8.01.8.11, the District indicates the “impacts [from the project] are expected to be minor on an individual and cumulative effects basis”; a determination by the District is required by 50 CFR 600920(e)(3)(iii). NMFS agrees the District has taken significant steps towards avoiding and minimizing impacts to EFH and fishery species from this project. However, we do not agree that the cumulative effect of the several beach nourish projects currently underway or under review also is minimal. As noted in our comment letters on these projects, NMFS has concerns over borrow sites that are not the least damaging practicable alternative (e.g., Town of North Topsail Beach, Action ID No. 2005-00344-067) or dredging outside recommended seasonal restrictions solely for economic reasons (e.g., Town of Nags Head, Action ID No. 2006-40282).

Conservation Recommendation

NMFS appreciates that the plans described in the DEIS include substantive measures to avoid and minimize impacts to EFH and federally managed fishery species. Beach nourishment, however, is an inherently disruptive action to EFH. Section 305(b)(4)(A) of the Magnuson-Stevens Act requires NMFS to provide EFH conservation recommendations when an activity is expected to adversely impact EFH. Based on this requirement, NMFS provides the following:

EFH Conservation Recommendations

- Before construction begins, the District shall provide NMFS with a map and description of the pipeline corridors relative to live/hardbottom habitats. The description shall include measures the District would take to ensure minimal impacts would occur to NOAA trust resources.
- The District shall coordinate with NMFS on the final design of the sampling programs for examining impacts to benthic invertebrate communities and sedimentation on live/hardbottom areas; this coordination shall occur well in advance of baseline sampling.
- The District shall reinitiate EFH consultation with the NMFS Habitat Conservation Division should any in-water work be proposed outside the period of November 15 to March 31.

¹ Thomas R. Knutson, John L. McBride, Johnny Chan, Kerry Emanuel, Greg Holland, Chris Landsea, Isaac Held, James P. Kossin, A. K. Srivastava, and Masato Sugi. 2010. Tropical cyclones and climate change. *Nature Geoscience* 3: 157-163

Section 305(b)(4)(B) of the Magnuson-Stevens Act and its implementing regulations at 50 CFR 600.920(k), requires your office to provide a written response to our EFH recommendations within 30 days of receipt. If it is not possible to provide a substantive response within 30 days, in accordance with our "findings" with your Planning Functions Branch, an interim response should be provided to NMFS. A detail response must then be provided prior to final approval of the action. Your detail response must include a description of measures proposed by your agency to avoid, mitigate, or offset the adverse impacts of the activity. If your response is inconsistent with our EFH conservation recommendations, you must provide a substantive discussion justifying the reasons for not following the recommendation. The detail response should be received by the NMFS at least ten days prior to final approval of the action.

These comments do not satisfy your consultation responsibilities under Section 7 of the Endangered Species Act of 1973, as amended. If any activity "may effect" listed sea turtles and marine mammals and their habitats under NMFS purview, consultation should be initiated with our Protected Species Division at the letterhead address.

Thank you for the opportunity to provide these comments. Related questions or comments should be directed to the attention of Mr. Ronald Sechler at our Beaufort Field Office, 101 Pivers Island Road, Beaufort, North Carolina 28516-9722, or at (252) 728-5090.

Sincerely,



/ for

Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

COE, Jan.P.Brodmerkel@usace.army.mil
USFWS, Howard Hall@fws.gov
SAFMC, Roger.Pugliese@samfc.net
NCDCM, Doug.Huggett@ncmail.net
EPA, Fox.Rebecca@epa.gov
NOAA PPI, PPI.Nepa@noaa.gov
F, nmfs.hq.nepa@noaa.gov
F/SER, nmfs.ser.eis@noaa.gov
F/SER47, Ron.Sechler@noaa.gov



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

February 24, 2010

Mr. Glenn McIntosh
Project Manager
U.S. Army Corps of Engineers
Post Office Box 1890
Wilmington, North Carolina 28402-1890

**Subject: Comments on the Draft Integrated Feasibility Report and
Environmental Impact Statement (EIS) for Coastal Storm Damage
Reduction for Surf City and North Topsail Beach, North Carolina
(report dated August 2009; received January 14, 2010)
CEQ Number: 20100010; ERP Number: COE-E39079-NC**

Dear Mr. McIntosh:

Pursuant to Section 309 of the Clean Air Act (CAA) and Section 102(2)(C) of the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency (EPA) Region 4 has reviewed the combined Draft Integrated Feasibility Report and Environmental Impact Statement (EIS) for Coastal Storm Damage Reduction for Surf City and North Topsail Beach, North Carolina, which we received on January 14, 2010. The draft combined report was issued by the Wilmington District of the US Army Corps of Engineers (Corps), and was intended to comply with the National Environmental Policy Act (NEPA), and therefore a separate EIS has not been provided. The draft document that we were provided has been termed "a fully-integrated report" that is intended to comply with all NEPA requirements, as well as the requirements of the Corps (and Federal) water resources planning process.

We understand that the purpose of the combined Draft Integrated Feasibility Report and EIS is to evaluate coastal storm damage reduction for the Towns of Surf City and North Topsail Beach, NC, and then "develop the most suitable plan of damage reduction for the present and future conditions" for the selected 50-year period of analysis. Topsail Island is on the southeastern North Carolina coast, and (from south to north) the three towns on the island are Topsail Beach, Surf City and North Topsail Beach. The primary study area for the report we reviewed includes the towns of Surf City and North Topsail Beach and the associated nearby borrow sites. We understand that this report was authorized by two U.S. House Committee on Transportation and Infrastructure resolutions dated February 16, 2000 and April 11, 2000, and that a General Reevaluation Report is also currently being completed for the Town of Topsail Beach under a separate authority.

The Wilmington District study team appropriately included representatives of Federal, State, and local governments, in an effort "to identify cost-effective and

environmentally- and technically-sound alternatives to reduce damages within the two towns, and to the adjacent shoreline.” The process reportedly integrated the Corps’ “Twelve Actions for Change”, in all aspects of the NEPA process. The study effort appropriately identified a “National Economic Development” (NED) Plan, which is formulated to “maximize net benefits through reduction of future storm damages.” No Locally Preferred Plan was reportedly suggested, and construction of the NED Plan is the Corps’ tentatively recommended plan of improvement. The study we reviewed concluded that “the most practicable plan” of damage reduction for the primary study area is a “berm and dune project extending along approximately 10 miles of the oceanfront.” The southern limit of the project is the boundary between Topsail Beach and Surf City, while the northern limit is within North Topsail Beach at the southern edge of the Coastal Barrier Resources System (Topsail Unit, L06).

The draft report appropriately included a stated “purpose and need” for the project, to include the “reduction of damages associated with coastal storm events and beach erosion,” as well as “enhancing the beach strand available for recreation use and providing needed habitat for a variety of plants and animals.” The draft report also appropriately included an analysis of various measures and plans, and then recommended selection of the plan with the highest net benefits while determining that the improvement is justified under current planning criteria and policies. The tentatively selected NED Plan consists of a sand dune system constructed to an elevation of 15 feet above the National Geodetic Vertical Datum (NGVD), fronted by a 50-foot wide beach berm constructed to an elevation of 7 feet above NGVD, with the berm and dune extending along a reach of 52,150 feet in length (about 10 miles). This plan is identified among the other alternatives as “Plan 1550.”

The draft report appropriately followed detailed guidance provided in the U.S. Army Corps of Engineers Planning Guidance Notebook (Engineer Regulation 1105-2-100) for studies of water and related land resources. This guidance is “based upon the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies that were developed pursuant to Section 103 of the Water Resources Planning Act (P.L. 89-80) and Executive Order 11747, which were approved by the U.S. Water Resources Council in 1982 and by the President in 1983.” The draft report also appropriately references a number of prior studies conducted in the Topsail Island area, including engineering, planning, and environmental reports. These studies have addressed coastal storm damage reduction as well as navigational needs.

An economic analysis was appropriately conducted as part of the study, and a Benefit/Cost Ratio has been calculated ($BCR = 3.7$) for the tentatively recommended plan (based upon October 2008 price levels). First costs of the project are currently estimated at \$118,000,000, and renourishment costs at 4-year intervals are estimated to be \$17,600,000. Expected annual costs are estimated at \$10,900,000, with expected annual benefits estimated at \$40,000,000 (\$16,900,000 of these annual benefits are coastal storm damage reduction benefits, \$20,000,000 are recreation benefits and \$3,100,000 are benefits during construction). The baseline cost estimate for construction in FY2015 is reported to be \$126,000,000.

The following are EPA's comments on the Draft Integrated Feasibility Report and the EIS:

- We are currently reviewing the Final Environmental Impact Statement (FEIS) for the proposed project adjacent to this one, known officially as the "Relocation of New River Inlet Ebb Tide Channel Between North Topsail Beach and Onslow Beach, and the Placement of the Dredged Material Along the Ocean Shoreline of North Topsail Beach in Onslow County, NC."
- Based upon the recommendations regarding use of public funds for the reduction of damages along this shoreline, the Sponsors have reportedly agreed to provide public access and parking in accordance with Corps guidelines, at "intervals of no more than a half mile, throughout Surf City and the reach of North Topsail Beach benefitted by the cost-shared project." EPA recommends that the FEIS include an excerpt(s) from the Corps guidelines about public access and parking to ensure that the project interval "of no more than a half mile" meets these guidelines.
- Council on Environmental Quality (CEQ) regulations (40 CFR 1502.15) require an EIS to describe the environment of the areas to be affected (or created) by the alternatives under consideration. The data and analysis in the draft report were found to be commensurate with the importance of the impacts, although EPA still has some general concerns about the potential impacts from use of a hopper dredge on marine threatened and endangered resources (e.g., such as the potential for entrainment of sea turtles associated with hopper dredges). EPA's specific concerns are the project's impacts to the green sea turtle, loggerhead sea turtle, Kemp's ridley sea turtle, and the leatherback sea turtle, which are all known to nest in the project vicinity. These species could be affected by initial project construction and periodic renourishment, and the sea turtles that occur in offshore waters may be affected by hopper dredges. EPA strongly recommends initial construction and periodic renourishment activities not be conducted during the sea turtle nesting season. EPA further recommends that hopper dredging not be conducted during months when water temperatures are warm and the various turtle species may be present.
- EPA continues to have concerns about the project's impacts to the piping plover, which has been documented to feed along the 10-mile project reach. During the winter months the piping plover has been documented to be found in the surf zone. EPA strongly recommends the development and implementation of stringent construction criteria to ensure that the project does not affect the piping plover's foraging activities on the beach. EPA is particularly concerned that the piping plover's beach food resources may be affected by beachfill operations.
- EPA recommends that the U.S. Fish and Wildlife Service and the National Marine Fisheries Service review and provide recent concurrence letters (to be included in the FEIS) regarding the adequacy of the Biological Assessment developed for this project pursuant to Section 7 (of the Endangered Species Act of 1973) and presented with the draft report.
- As mentioned previously, we are also currently reviewing the FEIS for the adjacent project known as the "Relocation of New River Inlet Ebb Tide Channel Between North Topsail Beach and Onslow Beach, and the Placement of the

Dredged Material Along the Ocean Shoreline of North Topsail Beach in Onslow County, NC.” This FEIS describes a plan by the Town of North Topsail Beach to develop a non-Federal coastal storm damage reduction project for the parts of the town that lie within the Coastal Barrier Resources System (Topsail Unit, L06). EPA recommends careful coordination between the two projects to ensure that there are no conflicts between the Federal and non-Federal projects, either on the shoreline or in the borrow areas. Your draft report states that in the event that the non-Federal project is not in place when the Federal project begins, then the northern 2,000 ft of the dune and berm system will be replaced with a transition section. Your FEIS should include specific engineering details about what this 2,000 ft transition section would look like and how it may affect the overall NED Plan.

- We understand that the Agency Technical Review (ATR) was conducted in accordance with the Corps’ “Peer Review of Decision Documents” process, and this means the proposed project “has been reviewed by Corps staff outside the originating office, conducted by a regional and national team of experts in the field, and coordinated by the National Planning Center of Expertise in Coastal Storm Damage Reduction, North Atlantic Division, U.S. Army Corps of Engineers.” EPA recommends that the FEIS include all comments and responses developed as part of the ATR process.
- We further understand that an “Independent External Peer Review” (IEPR) will be conducted (following the ATR) by a “non-USACE national team of experts in the field, and coordinated by the National Planning Center of Expertise in Coastal Storm Damage Reduction, North Atlantic Division, U.S. Army Corps of Engineers.” EPA recommends that the FEIS include all comments and responses developed as part of the IEPR process.
- CEQ regulations (40 CFR 1502.14(a)) require that an EIS is to “rigorously explore and objectively evaluate all reasonable alternatives” for a proposed action. The regulations (40 CFR 1502.14(b)) further require that substantial treatment be made of each alternative considered in detail, including the proposed action. The draft report appropriately notes that study team considered both structural and non-structural measures. EPA recommends that the FEIS include complete details on the nonstructural measures that were considered, such as removal and relocation, as well as final summaries of the economic analyses (using recent economic data) that found these nonstructural measures to have greater costs than benefits.
- The draft report appropriately assesses project risk, uncertainty, and consequences, and generally describes these with sufficient detail so that that “decisions can be made with knowledge of the degree of reliability of the estimated benefits and costs and of the effectiveness of alternative plans.” EPA concurs that all recommendations made in the FEIS should be capable of being implemented through adaptive management, should future conditions warrant such. The draft report appropriately notes that “renourishment may be needed more often or less often, depending on the occurrence of large storms and accompanying erosion.”

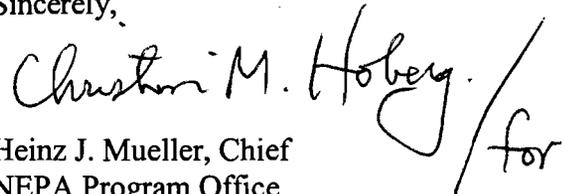
- To avoid conflicts, the project should be coordinated with monitoring efforts led by the North Carolina Recreational Water Quality Program (NCRWQ), which regularly tests these coastal waters in order to protect public health by monitoring and notifying the public when bacteriological standards for safe bodily contact are exceeded. Also, the project should be coordinated with the North Carolina Department of Environmental and Natural Resources, Division of Environmental Health, Shellfish Sanitation Section, which is also continually monitoring and classifying these coastal waters as to their suitability for shellfish harvesting for human consumption.
- The main channel of the Atlantic Intracoastal Waterway (AIWW) in North Carolina has been maintained by dredging for over 70 years to remove shoals that periodically develop. Some of the dredged material removed during maintenance activities is reported to be a high quality beach sand. This material has been placed directly on nearby ocean beaches, or stockpiled in confined disposal areas near the shoreline of the AIWW. Other area sand sources are from dredging activities in the New Topsail Inlet and Connecting Channels, as well as the New River Inlet. EPA recommends that these sand sources be considered for renourishment activities for the 10-mile long project reach.
- The FEIS should include complete supporting geotechnical information, especially representative boring logs and/or grain size analysis plots from soil borings conducted in the finalized borrow areas.
- EPA recommends that areas with extensive hard bottom area and/or relatively low volumes of beach compatible material be ruled out as potential sources of borrow material for this project. Final selection of borrow areas should be based upon high volumes of accessible, beach quality sands. We recommend rigorous delineation of all hard bottom resources within each prospective borrow area before commencement of work in order to avoid potential impacts to hard bottom resources (particularly from hopper dredging activities). The State of North Carolina's hard bottom buffer rule language requires that dredging should not be conducted "on or within 500 meters of significant biological communities, such as high relief hard bottom areas." EPA supports the Corps' efforts to use divers to conduct ground truth confirmation in the potential borrow areas, as well as collecting sediment samples, conducting video documentation, and employing sidescan technology, all for the purpose of assisting with hardbottom avoidance.
- EPA supports the on-going characterization of potential borrow areas during all 4 seasons in order to determine if there are significant differences in species composition and diversity for each sampling period.
- The FEIS should cite North Carolina Division of Marine Fisheries (NCDMF) commercial finfish and shellfish updated data (from 2009).
- The FEIS should discuss efforts to protect the 937-foot long Surf City Ocean Pier during construction, as it is apparently located within the proposed beach fill area.
- The draft report has a section reporting on the Administration's position on funding of coastal storm damage reduction projects. As this report was under development in 2008, this should be clarified (e.g., the current Administration?). We understand that the Office of Management and Budget (OMB) advises that "while the Water Resources Development Act of 1999 (WRDA 99) changed the

cost-sharing formula for the long-term sand renourishment component of certain future shore protection projects,” these changes did not go far enough considering the long-term cost of most of these projects. Further, because WRDA 99 delayed the effect of the change in cost sharing for up to a decade or more, it reportedly “did not address current constraints on Federal spending,” and therefore the Administration intends to work with Congress to address these problems. However, EPA understands that until these issues are satisfactorily resolved, there will be no authorization of new shore protection projects “that involve significant long-term Federal investments beyond the initial construction of these projects, and will give new shore protection projects that are already authorized low priority for funding.”

- Finalized mitigation measures should be presented in the FEIS, to include specific measures recommended by U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) for protection of all threatened and endangered species. The finalized mitigation plan should include specific finalized protocols to be employed should any sea turtles be encountered during the dredging activity.

Thank you for the opportunity to provide comments on this draft report. Because of our concerns about the use of hopper dredges and the potential effects on marine and threatened and endangered resources, we rate this DEIS as EC-2, meaning we have some environmental concerns and have requested that information be provided in the FEIS (the finalized mitigation plan, the finalized sea turtle protocol, and a map of the final selected borrow areas). If you wish to discuss these comments or have any other questions, please contact me at (404) 562-9611 (mueller.heinz@epa.gov) or Paul Gagliano, P.E., of my staff at (404) 562-9373 (gagliano.paul@epa.gov).

Sincerely,

Handwritten signature of Christian M. Hoberg in black ink, written in a cursive style. The signature is followed by a diagonal slash and the word "for" written in a smaller, simpler font.

Heinz J. Mueller, Chief
NEPA Program Office
Office of Policy and Management

United States Department of Agriculture



Natural Resources Conservation Service
4407 Bland Road, Suite 117
Raleigh, North Carolina 27609

Phone: (919) 873-2103
Fax: (919) 873-2156
Email: mike.hinton@nc.usda.gov

February 22, 2010

Ms. Jan Brodmerkel
Project Manager
Wilmington District-COE
69 Darlington Ave
Wilmington, NC 28403

Dear Ms. Brodmerkel:

Thank you for the opportunity to provide comments on the Draft Integrated Feasibility Report and EIS, Coastal Storm Damage Reduction, Surf City and North Topsoil Beach, Onslow, County, North Carolina.

The Natural Resources Conservation Service does not have any comments at this time.

If you need additional information, please feel free to contact me at (919) 873-2103.

Sincerely,

A handwritten signature in black ink, appearing to read "Mike Hinton".

Michael J. Hinton
Assistant State Conservationist for Water Resources





North Carolina Department of Environment and Natural Resources
Division of Coastal Management

Beverly Eaves Perdue
Governor

James H. Gregson
Director

Dee Freeman
Secretary

January 20, 2010

W. Coleman Long, Chief
Planning and Environmental Branch
Wilmington District Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, NC 28403-1343

SUBJECT: Status of Consistency Determination for Proposed Implementation of the Integrated Feasibility Report and EIS Regarding Coastal Storm Damage Reduction at Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina (DCM#20100006)

Dear Mr. Long:

We received your consistency determination on January 14, 2010 for proposed implementation of the Integrated Feasibility Report and EIS regarding coastal storm damage reduction at Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina. On January 20, 2010 we initiated the public review period. The project has been distributed to State agencies that would have a regulatory interest in the proposed activity for review and comment. The public review period will close on February 5, 2010. Please be aware that as we continue to review this submission that we may request additional information. We intend to make a decision regarding whether the proposed activity would be consistent with the State's coastal program soon after.

Pursuant to 15 CFR 930.35 the State of North Carolina has sixty (60) days from the receipt of the consistency determination to either "*concur*" or "*object*" to your consistency determination unless an extension is agreed to. The sixtieth day is March 15, 2010.

The State is entitled, pursuant to 15 CFR 930.41(b), to an extension of up to fifteen (15) days if additional review time is necessary. Furthermore, final Federal agency action cannot be taken sooner than ninety (90) days from the State's receipt of the consistency determination unless State concurrence is obtained. Please feel free to contact me at 252-808-2808 if you have any questions. Thank you for your consideration of the North Carolina Coastal Management Program.

Sincerely,

Stephen Rynas, AICP
Federal Consistency Coordinator

Cc: Doug Huggett, Division of Coastal Management
Steve Everhart, Division of Coastal Management
Jeff Richter, US Army Corps of Engineers
Doug Piatkowski, US Army Corps of Engineers



North Carolina Department of Administration

Beverly Eaves Perdue, Governor

Moses Carey, Jr., Secretary

March 9, 2010

Mr. Doug Piatkowski
Department of the Army
Wilmington District
Corps of Engineers
69 Darlington Avenue
Wilmington, NC 28403-1343

Re: SCH File # 10-E-0000-0249; DEIS; Develop Coastal Storm Damage Reduction plan for Surf City and North Topsail Beach

Dear Mr. Piatkowski:

The above referenced environmental impact information has been submitted to the State Clearinghouse under the provisions of the National Environmental Policy Act. According to G.S. 113A-10, when a state agency is required to prepare an environmental document under the provisions of federal law, the environmental document meets the provisions of the State Environmental Policy Act. Attached to this letter for your consideration are the comments made by agencies in the course of this review.

If any further environmental review documents are prepared for this project, they should be forwarded to this office for intergovernmental review.

Should you have any questions, please do not hesitate to call.

Sincerely,

Chrys Baggett (576)

Ms. Chrys Baggett
State Environmental Review Clearinghouse

Attachments

cc: Region O
Region P

Mailing Address:
1301 Mail Service Center
Raleigh, NC 27699-1301

Telephone: (919)807-2425
Fax (919)733-9571
State Courier #51-01-00
e-mail state.clearinghouse@doa.nc.gov

Location Address:
116 West Jones Street
Raleigh, North Carolina



North Carolina Department of Environment and Natural Resources

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

MEMORANDUM

TO: Valerie McMillan
State Clearinghouse

FROM: Melba McGee *pe*
Environmental Review Coordinator

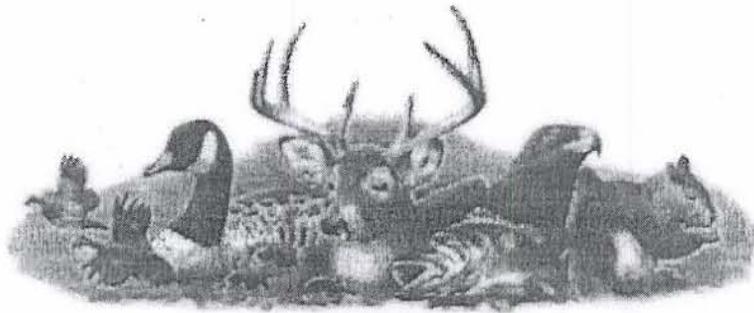
RE: 10-0249 DEIS for the Storm Damage Reduction Plan for Surf City
and North Topsail Beach in Onslow and Pender Counties

DATE: March 8, 2010

The Department of Environment and Natural Resources has reviewed the proposed information. The attached comments are for the applicant's information.

Thank you for the opportunity to review.

Attachments



☒ North Carolina Wildlife Resources Commission ☒

Gordon Myers, Executive Director

MEMORANDUM

TO: Melba McGee
Office of Legislative & Intergovernmental Affairs

And

Stephen Rynas
Federal Consistency Coordinator
Division of Coastal Management

FROM: Molly Ellwood 
Southeastern Permit Coordinator
North Carolina Wildlife Resources Commission

DATE: March 5, 2010

SUBJECT: Comments for the Draft Environmental Impact Statement for the Storm Damage Reduction Plan for Surf City and North Topsail Beach, Onslow and Pender Counties
OLIA 10-0249

Biologists from the N. C. Wildlife Resources Commission (NCWRC) have reviewed the proposed project description. Our comments are provided in accordance with certain provisions of the North Carolina Environmental Policy Act (G.S. 113A-1 through 113A-10; 1 NCAC 25), certain provisions of the Coastal Area Management Act (G.S. 113A-100 through 113A-128), as amended, and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661et seq.).

The United States Army Corps of Engineers is assessing the feasibility of Federal coastal storm damage risk reduction for the Towns of Surf City and North Topsail Beach, which are located on Topsail Island in Pender and Onslow Counties. The preferred alternative as described in the draft Environmental Impact Statement (DEIS) will be to dispose 11.5 mcy of beach compatible material from acceptable offshore sand sources to nourish approximately 52,150 lf in length of ocean front beach with a long dune a berm design constructed to a height of 15 ft NGVD fronted by a 7 ft NGVD (50 ft wide) beach berm. As proposed, the renourishment cycle would be every 4 years after the initial construction phases for a 50 year project.

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • **Fax:** (919) 707-0028

The NCWRC have the following concerns and recommendations:

- The NCWRC recommends that all work to be conducted outside of the established moratoriums for nesting shorebirds (01 April-31 Aug) and nesting sea turtles (01 May – 15 Nov or until the last known nest hatches). Any encroachment in these time frames will increase the chances for significant, adverse impacts to important wildlife species and would require further consultation with NCWRC biologists before the project can proceed.
- The NCWRC is continually concerned with the impacts of beach nourishment on benthic invertebrates. Benthic invertebrates are important food sources for foraging shorebirds and continued, frequent nourishment events can potentially have significant adverse impacts on these populations if they are not provided enough time to recover their populations to sustainable numbers.

The DEIS discusses the proposed 4 year renourishment cycle that would start 1 year after the initial nourishment event. To reduce impacts to benthic invertebrates, the NCWRC supports staggering the renourishment areas so that the first renourishment event would start at the section of the project area where initial construction began; avoiding the most recent beach disposal area. Staggering these areas will allow a greater time for benthic invertebrates to adequately recover to sustainable levels.

Thank you for the opportunity to review and comment on this project. The NCWRC requests that our recommendations be considered throughout the 50 years of this project and that any alterations to this plan be reviewed by NCWRC staff. Moratorium windows are important for the protection of our state and federally listed wildlife species and we recommend that the project avoid any encroachment into these time frames. Please feel free to contact me at (910) 796-7240 if you have any additional questions or concerns pertaining to this project.

Cc: Matthew Godfrey, NCWRC
David Allen, NCWRC
Joanne Steenhuis, NCDWQ
Jessi O'Neal, NCDMF
Dave Timpy, USACE



North Carolina Department of Environment and Natural Resources

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

January 29, 2010

MEMORANDUM

TO: Stephen Rynas, Federal Consistency Coordinator
NC Division of Coastal Management

FROM: Harry LeGrand, ^{HL}Natural Heritage Program

SUBJECT: Proposed Implementation of a Coastal Storm Damage Reduction Program for Surf City and North Topsail Beach; Onslow and Pender counties

REFERENCE: DCM#20100006

The Natural Heritage Program has no record of significant natural communities, significant natural heritage areas, or conservation/managed areas at the site. However, the beachfront is the site for nesting by the Federal and State Threatened loggerhead seaturtle (*Caretta caretta*). The Biological Assessment (Appendix I) provides considerable information on nesting by seaturtles. Our Program concurs with the proposed hopper dredging window of December 1 to March 31. We also strongly hope that all placement of sediment on the beach can be done within this window, as well.

The Federal and State Threatened seabeach amaranth (*Amaranthus pumilus*) is typically an annual that grows on accreting sand beaches, and thus is found mostly on ends of islands. As long as the dredging and beach renourishment can be done/completed within the December 1 to March 31 period, the impacts to the amaranth should be negligible. Both the northeastern and southwestern ends of Topsail Island are used by birds for nesting. Appendix I discusses these species. In general, increasing the amount of sand on the middle portion of an island, through ocean dredging and sand renourishment, will favor build-up of sand on the downdrift end of the island and be favorable to nesting by birds (by providing more extensive habitat), though this might take several years. Impacts to the "updrift" end of an island are probably not clear. Nonetheless, it might be too speculative to comment on the positive or negative impacts to birds nesting on either end of the island, in regard to this project.

Please do not hesitate to contact me at 919-715-8697 if you have questions or need further information.

DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

Inter-Agency Project Review Response

RECEIVED
JAN 26 2010
Project Number
10-0249
County
Pender, Onslow

Project Name Dept of the Army, Wilmington
District Corps of Engineers

Type of Project

Draft Environmental
Impact Statement -
Develop Coastal Storm
Damage Reduction Plan
for Surf City & North
Topsail Beach

Comments provided by:

- Regional Program Person
 Regional Supervisor for Public Water Supply Section
 Central Office program person

RECEIVED

JAN 22 2010

BY: _____

Name Debra Benoy-Wilmington RO Date 01/20/2010

Telephone number: _____

Program within Division of Environmental Health:

- Public Water Supply
 Other, Name of Program: _____

Response (check all applicable):

- No objection to project as proposed
 No comment
 Insufficient information to complete review
 Comments attached
 See comments below

There should not be any impact on any
public water supplies. El

Return to:
Public Water Supply Section
Environmental Review Coordinator for the
Division of Environmental Health

DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

Project Number 10-0249
County Pender, Onslow

RECEIVED

Inter-Agency Project Review Response

JAN 22 2010

Project Name Dept of the Army, Wilmington Type of Project Draft Environmental
District Corps of Engineers Impact Statement -
Develop Coastal Storm
Damage Reduction Plan
for Surf City & North
Topsail Beach

- The applicant should be advised that plans and specifications for all water system improvements must be approved by the Division of Environmental Health prior to the award of a contract or the initiation of construction (as required by 15A NCAC 18C .0300et. seq.). For information, contact the Public Water Supply Section, (919) 733-2321.
- This project will be classified as a non-community public water supply and must comply with state and federal drinking water monitoring requirements. For more information the applicant should contact the Public Water Supply Section, (919) 733-2321.
- If this project is constructed as proposed, we will recommend closure of _____ feet of adjacent waters to the harvest of shellfish. For information regarding the shellfish sanitation program, the applicant should contact the Shellfish Sanitation Section at (252) 726-6827.
- The soil disposal area(s) proposed for this project may produce a mosquito breeding problem. For information concerning appropriate mosquito control measures, the applicant should contact the Public Health Pest Management Section at (919) 733-6407.
- The applicant should be advised that prior to the removal or demolition of dilapidated structures, an extensive rodent control program may be necessary in order to prevent the migration of the rodents to adjacent areas. For information concerning rodent control, contact the local health department or the Public Health Pest Management Section at (919) 733-6407.
- The applicant should be advised to contact the local health department regarding their requirements for septic tank installations (as required under 15A NCAC 18A. 1900 et. sep.). For information concerning septic tank and other on-site waste disposal methods, contact the On-Site Wastewater Section at (919) 733-2895.
- The applicant should be advised to contact the local health department regarding the sanitary facilities required for this project.
- If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Environmental Health, Public Water Supply Section, Technical Services Branch, 1634 Mail Service Center, Raleigh, North Carolina 27699-1634, (919) 733-2321.
- For Regional and Central Office comments, see the reverse side of this form.

Jim McRight

Reviewer

PWSS

Section/Branch

01/20/2010

Date

State of North Carolina
Department of Environment and Natural Resources

Reviewing Office: W:ro

INTERGOVERNMENTAL REVIEW - PROJECT COMMENTS

Project Number: 10-0249

Due Date: 3/3/10

After review of this project it has been determined that the ENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
<input type="checkbox"/> Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
<input type="checkbox"/> NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
<input type="checkbox"/> Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
<input checked="" type="checkbox"/> Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
<input type="checkbox"/> Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
<input type="checkbox"/> Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100 thru 2Q.0300)	Application must be submitted and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (2Q.0113).	90 days
<input checked="" type="checkbox"/> Permit to construct & operate Transportation Facility as per 15 A NCAC (2D.0800, 2Q.0601)	Application must be submitted at least 90 days prior to construction or modification of the source.	90 days
<input type="checkbox"/> Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
<input type="checkbox"/> Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 20.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950.		
<input type="checkbox"/> Complex Source Permit required under 15 A NCAC 2D.0800		
<input checked="" type="checkbox"/> The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Section) At least 30 days before beginning activity. A fee of \$65 for the first acre or any part of an acre. An express review option is available with additional fees.		20 days (30 days)
<input type="checkbox"/> Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.		(30 days)
<input type="checkbox"/> Mining Permit	On-site inspection usual. Surety bond filed with ENR Bond amount varies with type mine and number of acres of affected land. Any acre mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
<input type="checkbox"/> North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
<input type="checkbox"/> Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
<input type="checkbox"/> Oil Refining Facilities	N/A	0-120 days (N/A)
<input type="checkbox"/> Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, certify construction is according to ENR approved plans. May also require permit under mosquito control program. And a 404 permit from Coast of	

PERMITS		SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
<input type="checkbox"/>	Permit to drill exploratory oil or gas well	File surety bond of \$5,000 with ENR running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to ENR rules and regulations.	10 days N/A
<input type="checkbox"/>	Geophysical Exploration Permit	Application filed with ENR at least 10 days prior to issue of permit. Application by letter. No standard application form.	10 days N/A
<input type="checkbox"/>	State Lakes Construction Permit	Application fees based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property.	15-20 days N/A
<input checked="" type="checkbox"/>	401 Water Quality Certification	N/A	60 days (130 days)
<input type="checkbox"/>	CAMA Permit for MAJOR development	\$250.00 fee must accompany application	55 days (150 days)
<input type="checkbox"/>	CAMA Permit for MINOR development	\$50.00 fee must accompany application	22 days (25 days)
<input type="checkbox"/>	Several geodetic monuments are located in or near the project area. If any monument needs to be moved or destroyed, please notify: N.C. Geodetic Survey, Box 27687 Raleigh, NC 27611		
<input type="checkbox"/>	Abandonment of any wells, if required must be in accordance with Title 15A, Subchapter 2C.0100.		
<input type="checkbox"/>	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
<input type="checkbox"/>	Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required.		45 days (N/A)
<input type="checkbox"/>	Tar Pamlico or Neuse Riparian Buffer Rules required.		
* Other comments (attach additional pages as necessary, being certain to cite comment authority)			

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

Asheville Regional Office
2090 US Highway 70
Swannanoa, NC 28778
(828) 296-4500

Mooresville Regional Office
610 East Center Avenue, Suite 301
Mooresville, NC 28115
(704) 663-1699

Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, NC 28405
(910) 796-7215

Fayetteville Regional Office
225 North Green Street, Suite 714
Fayetteville, NC 28301-5043
(910) 433-3300

Raleigh Regional Office
3800 Barrett Drive, Suite 101
Raleigh, NC 27609
(919) 791-4200

Winston-Salem Regional Office
585 Woughtown Street
Winston-Salem, NC 27107
(336) 771-5000

Washington Regional Office

MEMORANDUM
DIVISION OF WATER QUALITY

TO: Melba McGee, Environmental Coordinator

FROM: Joanne Steenhuis, Senior Environmental Specialist *JHS*

THROUGH: Rick Shiver, Surface Water Protection Regional Supervisor *RS*

DATE: February 26, 2010

SUBJECT: EIS Develop Coastal Storm Damage Reduction Plan for Surf City and North Topsail Beach

PROJECT: Implementation of a Coastal Storm Damage Reduction Plan for Surf City and North Topsail Beach

Project No. 10-0249

COUNTY: Pender and Onslow Counties

The Wilmington Regional Office has reviewed the Environmental Impact Statement for the implementation of a coastal storm damage reduction plan for Surf City and North Topsail Beach. The Division of Water Quality (DWQ) has no objections to the project as proposed as long as they comply with the dredging moratoriums and environmental monitoring as discussed in the document.

WIRO

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

COUNTY: PENDER
ON SLOW

H05: IRRIGATION/DRAINAGE/FLOOD
CONTROL

STATE NUMBER: 10-E-0000-0249
DATE RECEIVED: 01/14/2010
AGENCY RESPONSE: 03/03/2010
REVIEW CLOSED: 03/08/2010



MS RENEE GLEDHILL-EARLEY
CLEARINGHOUSE COORDINATOR
DEPT OF CULTURAL RESOURCES
STATE HISTORIC PRESERVATION OFFICE
MSC 4617 - ARCHIVES BUILDING
RALEIGH NC

REVIEW DISTRIBUTION

- CAPE FEAR COG
- CC&PS - DIV OF EMERGENCY MANAGEMENT
- DENR - COASTAL MGT
- DENR LEGISLATIVE AFFAIRS
- DEPT OF AGRICULTURE
- DEPT OF CULTURAL RESOURCES
- DEPT OF TRANSPORTATION
- EASTERN CAROLINA COUNCIL



CH-01-0497
~~12-10-0127~~
A - Cultural resources
addressed *ic497*
2-3-10

Dec 2/1/10

PROJECT INFORMATION

APPLICANT: Department of the Army
TYPE: National Environmental Policy Act
Draft Environmental Impact Statement

DESC: Develop Coastal Storm Damage Reduction plan for Surf City and North Topsail Beach

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: NO COMMENT COMMENTS ATTACHED

SIGNED BY: *Renee Gledhill-Earley*

DATE: *2.5.10*



North Carolina Department of Environment and Natural Resources
Division of Coastal Management

Beverly Eaves Perdue
Governor

James H. Gregson
Director

Dee Freeman
Secretary

April 16, 2010

RECEIVED

APR 20 2010

REG. WILM. FLD. OFC.

Col. Jefferson M. Ryscavage, District Commander
Wilmington District Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, NC 28403-1343

SUBJECT: **CD10-017** – Consistency Concurrence for Proposed Implementation of the Integrated Feasibility Report and EIS Regarding Coastal Storm Damage Reduction at Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina (DCM#20100006)

Dear Col. Ryscavage:

We received your consistency determination on January 14, 2010 for proposed implementation of the Integrated Feasibility Report and EIS regarding coastal storm damage reduction at Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina. The consistency review deadline was extended, by mutual agreement, to April 16, 2010. The submitted National Economic Development (NED) plan consists of a sand dune constructed to an elevation of 15 feet above the National Geodetic Vertical Datum (NGVD), fronted by a 50-foot wide beach berm constructed to an elevation of 7 feet above NGVD. The berm and dune project extends along a reach of 52,150 feet. This plan is identified among other alternatives in the "*Draft Integrated Feasibility Report and Environmental Impact Statement, Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina*" (August 2009) as "*Plan 1550*".

North Carolina's coastal zone management program consists of, but is not limited to, the Coastal Area Management Act, the State's Dredge and Fill Law, Chapter 7 of Title 15A of North Carolina's Administrative Code, and the land use plan of the County and/or local municipality in which the proposed project is located. It is the objective of the Division of Coastal Management (DCM) to manage the State's coastal resources to ensure that proposed Federal activities would be compatible with safeguarding and perpetuating the biological, social, economic, and aesthetic values of the State's coastal waters.

To solicit public comments, DCM circulated a description of the proposed project to State agencies that would have a regulatory interest. No comments asserting that the proposed activity would be inconsistent with the State's coastal management program were received. Nevertheless, comments were received concerning the necessity to minimize adverse environmental effects resulting from dredging. A copy of the responses received has been attached for reference.

DCM has reviewed the submitted information pursuant to the management objectives and enforceable policies of Subchapters 7H and 7M of Chapter 7 of Title 15A of North Carolina's Administrative Code which are a part of the State's certified coastal management program and concurs, as conditioned below, that the proposed Federal activity is consistent, to the maximum extent practicable, with the enforceable policies of North Carolina's coastal management program.

In order to be found consistent with North Carolina's coastal management, the US Army Corps of Engineers (Applicant) shall comply with the following conditions of concurrence.

- The Applicant, prior to initiating any land or water disturbing activities, shall obtain a Section 401 Water Quality Certification from the NC Division of Water Quality for the proposed project. The Applicant shall comply with the requirements of the Section 401 Water Quality Certification. A copy of the certification shall be forwarded to DCM.
- The Applicant, prior to initiating any land disturbing activities, shall obtain the approval of the NC Division of Land Resources of an erosion and sedimentation control plan. The Applicant shall comply with the requirements of the approved erosion and sedimentation control plan. A copy of the plan approval shall be forwarded to DCM.
- In order to protect nesting shorebirds, work will not be allowed from April 1st through August 31st of any year without the prior approval of the Division of Coastal Management, in consultation with the North Carolina Wildlife Resources Commission.
- In order to protect nesting sea turtles and their hatchlings, work will not be allowed from May 1st through November 15th of any year without the prior approval of the Division of Coastal Management, in consultation with the North Carolina Wildlife Resources Commission.
- The Applicant, prior to initiating any land disturbing activities related to the initial construction period, shall submit to DCM a Monitoring Plan to assess project impacts on fisheries and fish prey habitat that outlines: (1) the methodologies for evaluating for hard bottom and intertidal beach habitat impacts, (2) the criteria for determining whether significant, adverse impacts to these habitats have occurred, (3) implementation of the monitoring plan. Though unlikely, based on the avoidance measures incorporated in the study design, should the Monitoring Plan document that a significant adverse impact to habitat has occurred, a Mitigation Plan will be submitted to DCM, in consultation with the NCDMF, for supplementary consistency review. The Mitigation Plan will outline the appropriate actions that will be implemented in cooperation with state and federal agencies to rectify the adverse impacts to a level of insignificance.
- Only beach quality sand shall be used for this project. Should the dredging operations encounter sand deemed non-compatible with native grain size or sorting characteristics of the native beach, the dredge operator shall immediately cease operation and contact the DCM. Dredge operations will resume only after the issue of sand compatibility is resolved.

- Sand excavation activities shall not be conducted on or within 400 feet of significant biological communities, such as high relief hard bottom areas.
- Prior to the initiation of any beach nourishment activity above the normal high water contour (NHW) within the limits of the authorized project, easements or similar legal instruments shall be obtained from all impacted property owners.
- Prior to the initiation of any beach nourishment activity, the Applicant shall coordinate with DCM to determine the static vegetation line that shall be used as the reference point for measuring future oceanfront setbacks. This static vegetation line shall then be marked and a survey depicting this static vegetation line shall be submitted to DCM prior to any beach nourishment activities.
- Temporary dikes shall be used to retain and direct flow of material parallel to the shoreline to minimize surf zone turbidities. The temporary dikes shall be removed and the beach graded in accordance with approved profiles upon completion of pumping activities in that particular section of beach.
- In order to prevent leakage, dredge pipes shall be routinely inspected. If leakage is found and repairs cannot be made immediately, pumping of material shall stop until such leaks are fixed.
- Land-based equipment necessary for beach nourishment work shall be brought to the site through existing accesses. Should the work result in any damage to existing accesses, the accesses shall be restored to pre-project conditions immediately upon project completion in that specific area.
- Where oceanfront development exists at elevations nearly equal to that of the native beach, a low protective dune shall be pushed up along the backwash to prevent slurry from draining towards the development.
- Dune disturbance shall be kept to a minimum. Any alteration of existing dunes shall be coordinated with DCM as well as the appropriate property owner(s). All disturbed areas shall be restored to original contours and configuration with reference to the surveyed normal high water line and shall be revegetated immediately following project completion in that specific area.
- No sand shall be placed on any sandbags that have been determined by DCM to be subject to removal under 15A NCAC 07H .0308(a)(2). In order to ensure compliance with this condition, DCM shall be contacted at 910-796-7215 prior to project initiation so that Division staff may meet on-site with the permittee and/or contractor.
- The Applicant shall adhere to any mitigation measures described in the consistency submission and the *Draft Integrated Feasibility Report and Environmental Impact Statement, Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina* (August 2009) to the extent that they do not conflict with any of the conditions of concurrence stated above.

This letter of concurrence is contingent on the Federal agency agreeing with the conditions stated above. In the event that the Federal agency does not agree with the conditions of concurrence, this letter effectively becomes a letter of State “*Objection*”. Should the Federal agency not agree with the conditions stated above, a letter of non-agreement should be sent to DCM. The procedures of 15 CFR 930.43 would then need to be followed.

The North Carolina Wildlife Resources Commission (NCWRC) and the North Carolina Division of Marine Fisheries (NCDMF) are concerned about the impact of proposed dredging operations on benthic habitat. NCWRC recommend that during the four year initial construction event that beach nourishment activities be staggered to minimize the adverse effects on benthic invertebrates. Benthic invertebrates are an important food source for foraging shorebirds and many species of fish. To assure the availability of this food source, DCM recommends that the Corps, to the extent practical, implement the recommendations of the NCWRC and the NCDMF.

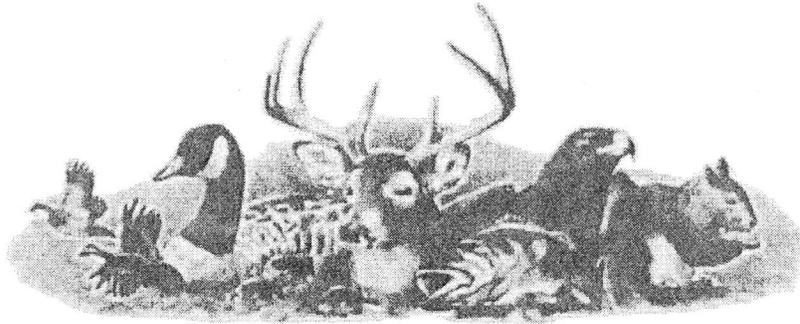
Should the proposed action be modified a revised consistency determination could be necessary. This might take the form of either a supplemental consistency determination pursuant to 15 CFR 930.46, or a new consistency determination pursuant to 15 CFR 930.36. Likewise, if further project assessments reveal environmental effects not previously considered by the proposed development, a supplemental consistency certification may be required. If you have any questions, please contact Stephen Rynas at 252-808-2808. Thank you for your consideration of the North Carolina Coastal Management Program.

Sincerely,

A handwritten signature in black ink that reads "Doug Huggett". The signature is written in a cursive, flowing style.

Doug Huggett
Manager, Major Permits and Consistency Unit

Cc: Steve Everheart, Division of Coastal Management
Doug Piatkowski, US Army Corps of Engineers



◊ North Carolina Wildlife Resources Commission ◊

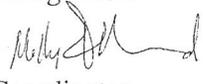
Gordon Myers, Executive Director

MEMORANDUM

TO: Melba McGee
Office of Legislative & Intergovernmental Affairs

And

Stephen Rynas
Federal Consistency Coordinator
Division of Coastal Management

FROM: Molly Ellwood 
Southeastern Permit Coordinator
North Carolina Wildlife Resources Commission

DATE: March 5, 2010

SUBJECT: Comments for the Draft Environmental Impact Statement for the Storm Damage Reduction Plan for Surf City and North Topsail Beach, Onslow and Pender Counties
OLIA 10-0249

Biologists from the N. C. Wildlife Resources Commission (NCWRC) have reviewed the proposed project description. Our comments are provided in accordance with certain provisions of the North Carolina Environmental Policy Act (G.S. 113A-1 through 113A-10; 1 NCAC 25), certain provisions of the Coastal Area Management Act (G.S. 113A-100 through 113A-128), as amended, and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661et seq.).

The United States Army Corps of Engineers is assessing the feasibility of Federal coastal storm damage risk reduction for the Towns of Surf City and North Topsail Beach, which are located on Topsail Island in Pender and Onslow Counties. The preferred alternative as described in the draft Environmental Impact Statement (DEIS) will be to dispose 11.5 mcy of beach compatible material from acceptable offshore sand sources to nourish approximately 52,150 lf in length of ocean front beach with a long dune a berm design constructed to a height of 15 ft NGVD fronted by a 7 ft NGVD (50 ft wide) beach berm. As proposed, the renourishment cycle would be every 4 years after the initial construction phases for a 50 year project.

The NCWRC have the following concerns and recommendations:

- The NCWRC recommends that all work to be conducted outside of the established moratoriums for nesting shorebirds (01 April-31 Aug) and nesting sea turtles (01 May – 15 Nov or until the last known nest hatches). Any encroachment in these time frames will increase the chances for significant, adverse impacts to important wildlife species and would require further consultation with NCWRC biologists before the project can proceed.
- The NCWRC is continually concerned with the impacts of beach nourishment on benthic invertebrates. Benthic invertebrates are important food sources for foraging shorebirds and continued, frequent nourishment events can potentially have significant adverse impacts on these populations if they are not provided enough time to recover their populations to sustainable numbers.

The DEIS discusses the proposed 4 year renourishment cycle that would start 1 year after the initial nourishment event. To reduce impacts to benthic invertebrates, the NCWRC supports staggering the renourishment areas so that the first renourishment event would start at the section of the project area where initial construction began; avoiding the most recent beach disposal area. Staggering these areas will allow a greater time for benthic invertebrates to adequately recover to sustainable levels.

Thank you for the opportunity to review and comment on this project. The NCWRC requests that our recommendations be considered throughout the 50 years of this project and that any alterations to this plan be reviewed by NCWRC staff. Moratorium windows are important for the protection of our state and federally listed wildlife species and we recommend that the project avoid any encroachment into these time frames. Please feel free to contact me at (910) 796-7240 if you have any additional questions or concerns pertaining to this project.

Cc: Matthew Godfrey, NCWRC
David Allen, NCWRC
Joanne Steenhuis, NCDWQ
Jessi O'Neal, NCDMF
Dave Timpy, USACE

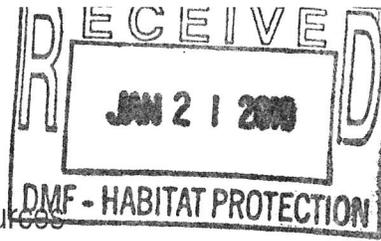
Jessi



North Carolina Department of Environment and Natural Resources
Division of Coastal Management
James H. Gregson
Director

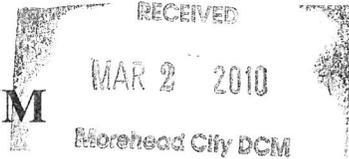
Beverly Eaves Perdue
Governor

Dee Freeman
Secretary



MEMORANDUM

January 20, 2010

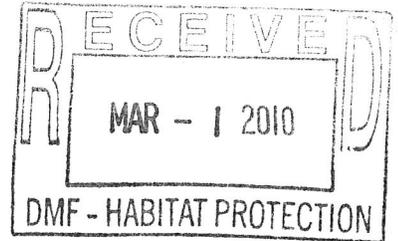


(E)

TO: Anne Deaton
NCDENR - Division of Marine Fisheries
PO Box 769
Morehead City, NC 28557-0769

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT: Proposed Implementation of a Coastal Storm Damage Reduction Program
(DCM#20100006)



LOCATION: Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina

This document is being circulated for **consistency** review and comment by **February 5, 2010**. The US Army Corps of Engineers is proposing to implement a coastal storm damage reduction program at Surf City and North Topsail Beach. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or email me at stephen.rynas@ncdenr.gov.

- REPLY:**
- No Comment.
 - This office supports the project as proposed.
 - Comments to this project are attached.
 - This office objects to the project as proposed.

Signed: Jessi O'Neal Date: 2/26/10
Anne Deaton 2/28/10

CORRECTIONS: Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM TO:
Stephen Rynas, Federal Consistency Coordinator
NC Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557-3421





North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries

Beverly Eaves Perdue
Governor

Dr. Louis B. Daniel III
Director

Dee Freeman
Secretary

MEMORANDUM:

TO: Melba McGee, DENR Environmental Coordinator
Stephen Rynas, DCM Federal Consistency Coordinator

THROUGH: Anne Deaton, DMF Habitat Section Chief *AD*

FROM: Jessi O'Neal, DMF Marine Biologist *JO*

SUBJECT: DEIS for the Surf City -North Topsail Beach (SCNTB) Coastal Storm Damage Reduction program

DATE: February 26, 2010

The North Carolina Division of Marine Fisheries (DMF) submits the following comments pursuant to General Statute 113-131. USACE DMF has reviewed the US Army Corps of Engineers (USACE) EIS for the Surf City -North Topsail Beach (SCNTB) Coastal Storm Damage Reduction project which includes a portion of North Topsail Beach shoreline and the entirety of Surf City shoreline. The fill area will be approximately 10 miles (52,150 feet) in length and material for initial construction will total 11,500,000 cubic yards. Initial construction will take four seasons with an estimated production rate of 14,000 cubic yards per day to construct a 15-foot tall (above msl) dune and 7-foot tall berm. All sand for this project will come from one of 16 offshore borrow sites that are 1 - 6 miles offshore and are 35 - 50 feet deep.

The Division is very concerned about the potential adverse impacts to hard bottom habitat and shoreline benthic populations. Impacts to these communities through dredging of the existing tidal delta and borrow area, in addition to burying the existing surf and swash zones, could impact the most productive forage locations in the project area. The absence of a large quantity of prey organisms could disrupt the local food web. We are also concerned about potential impacts to unidentified near-shore hard bottom due to the erosion of the construction berm. We are concerned that the schedules for construction, renourishment, and monitoring activities could result in adverse impacts to fisheries and fisheries prey.

Construction and sand volumes

The construction sequence is unclear. Please discuss the stages of construction discussed on page 145 including the length and location of each stage in each of the four construction seasons. It is also unclear what the potential construction and design beach widths are from the text or profiles. For example, Figure 7.1 could be updated to assign a more defined width or range of widths to each component of the profile, especially the additional beach width provided by achieving the design profile.

On page 117, it is explained that the total sand required for the life of the project is 86% of the total amount available in the surveyed area. Because of this DMF questions the necessity for the sand volumes proposed in for initial construction and renourishment. The North Topsail Beach nourishment

project that will tie into this project has a design profile of a 14-foot tall dune with a 6-foot berm. Considering the relative lack of sand resources, explain the reason for the additional foot of height on each feature.

Renourishment

On page 104 of the EIS, the Renourishment Interval section, reads as follows.

7.03.4 Renourishment Interval

An analysis of various renourishment intervals from 2 to 7 years determined that a 6-year periodic nourishment interval results in slightly higher net benefits. Net benefits increase as a function of renourishment interval from 2 to 4 years, beyond which net benefits fluctuate about 1 percent as the interval increases. Longer renourishment intervals increase the risks between renourishment events of allowing accumulated erosion to create escarpments, narrow the non-dune portion of the beachfill, erode the toe of the dune, and damage dune vegetation. The potential reduction in the project's ability to sustain recreational uses and to provide a suitable habitat for sea turtles and other species on the beach outweigh the slight gain in net storm damage reduction benefits. Therefore the recommended renourishment interval is 4 years which captures over 99% of the maximum economic benefits and better sustains other benefits.

Although a long interval does increase the risks between renourishment events, it appears that risk is already a factor in the net benefit analysis (as described in Section 5) but environmental factors are not included. Considering the absence of environmental costs to important fisheries habitats in the net benefit analysis, DMF maintains that a renourishment interval of six years should be utilized. The 6-year periodic nourishment interval has the highest net benefit (as described in the scope of the study on page 4) based on the US ACE's calculations and would allow a longer recovery time between disturbances for the beach, surf zone, near-shore, and off-shore habitats.

Mitigation and Monitoring

DMF is very concerned about monitoring for changes in the benthic community in intertidal and hard bottom communities. In addition to the proposed monitoring for impacts to hard bottom habitat, impacts to the beach and borrow areas should be monitored. Please provide a detailed description of proposed biological monitoring protocols including pre- and post-construction monitoring of benthic invertebrates in the intertidal zone and the recovery of grade, substrate, and benthic invertebrates in the borrow areas.

As a part of any good monitoring program, a baseline must be established and then comparisons to that baseline can be made throughout the life of the project. On page 218 USFWS recommends annual monitoring for beach and sub-tidal benthic invertebrate monitoring with a pre-project assessment. The Corps responded that because of the historical data base and since Dare County is already conducting pre- and post- construction benthic invertebrate assessment, there is no need for the data. Below is a

table from the 2010 Coastal Habitat Protection Plan (*in review*) that summarizes several pertinent studies on the topic.

Locaton	Biological recovery following beach nourishment	Reference
North Topsail, N.C.	After 1 year, mole crab, coquina clam, and amphipod abundance remained significantly less than at control sites and body size was significantly smaller. Polychaetes increased in abundance.	Lindquist and Manning 2001
Bogue Banks, NC	Mole crabs recovered within months, coquina clams and amphipods failed to initiate recovery after one growing season. No follow up sampling.	Peterson et al. 2006
Bogue Banks, NC	On ebb tide delta, where sediment deposited, significant coarsening of sediment, and reductions in spinoind polychaetes after 8 mo.	Bishop et al. 2006
Atlantic Beach, N.C.	Densities of mole crabs and coquina clams were 86 – 99% lower than control sites, 5 – 10 weeks post-nourishment, during mid-summer.	Peterson et al. 2000b
Atlantic Beach, N.C.	More than 3 months. Coquina clams in nearshore overwintering bottom killed initially by turbidity; delayed recruitment and repopulation; Haustoriid amphipods had not recovered after 3 months. Polychaete <i>S. squamata</i> recovered 15 – 30 days post nourishment.	Reilly and Bellis 1983
Bald Head Island, Caswell Beach, Oak Island, NC	Coquina clams, mole crabs - > 1 year. Abundance declined 1 – 10 times from control. Most severe reductions and longest times of recovery due to season of project – greatest in spring and summer, except Oak Island coquina clams recovered within 1 year - timing of sand deposition allowed summer recruitment.	Versar 2003
Pea Island N.W.R., N.C.	2 – 9 months for coquina clams and mole crabs.	Donoghue 1999
Hilton Head, S.C.	Density and diversity returned to levels similar to control sites in 6 months.	Van Dolah et al. 1992
Folly Beach, S.C.	2 – 5 months, depending on benthic group and site, polychaetes recruiting earlier than mollusks.	Jutte et al. 1999
Panama City, F.L.	Large reductions in abundance and diversity remained after 2 years.	Rakocinski et al. 1993
Manasquan, N.J.	Abundance, biomass, and diversity completely recovered after 6.5 months. Recovery quickest when filling completed before low point in seasonal infaunal abundance and where grain size of fill material matched natural beach.	COE 2001

Based on the inconclusive results of this research and the unique character of this project using multiple borrow areas around hard bottom, DMF believes that benthic shoreline monitoring remains necessary. Since benthic recovery is site specific and highly dependent on timing and magnitude of disturbance, monitoring results from other sites cannot be substituted.

DMF is very concerned about the monitoring of beach substrate during and after construction activities. Further explanation will be necessary to outline the methodologies, standards, and protocols to follow when standards are surpassed.

Please describe any proposed mitigation for potential impacts revealed by monitoring. Provide information about potential mitigation strategies and who will be responsible for completing the mitigation project.

In addition to concerns about schedules of construction, renourishment, and monitoring, DMF has these additional comments about the EIS.

At two locations in the EIS (Table 7.1 (23) page 111 and p166), the following phrase appears: "...then the Corps will direct the contractor to stop dredging within the 122m buffer and move to another area located 500m from the identified hard bottom site." This phrase may imply that dredge activities occurring within the 122m buffer around hard bottom habitat. Perhaps it needs to be re-phrased.

DMF is very concerned about turbidity, caused by dredging of the borrow areas and construction of the beach areas. High turbidity levels can clog larval fish gills and gills of many surf-zone prey species, smother sessile organisms and bury important hard bottom habitat. Please provide a more detailed description of the proposed method of pumping sand onto the beach and how near-shore turbidity impacts will be reduced (ex. Utilizing a sand catchment basin to control run-off into the surf zone).

DMF is very concerned about secondary and cumulative impacts to offshore fisheries (especially shrimp, snapper and grouper species, and black sea bass) and surf fisheries including surf fishing and pier fishing (especially pompano, red drum, kingfish, spot, and croaker). On page 177, Section 8.04.1 Commercial and Recreational Fisheries, states that "Impacts on shore fishing would be limited to the area where material is being placed on the beach. This localized temporary impact can easily be avoided by anglers in the area. Nearshore fishing boats can operate around the dredging equipment operating in the area." This implies that the only impact to fishing will be the actual physical location of ongoing construction and the dredge itself. In addition to the potential impacts to fish habitats by depletion of the food base, it has been shown that fish react to noise and vibrations caused by in-water work. This should be addressed in the DEIS.

In conclusion, additional information is needed as described above, regarding design, construction schedule, renourishment interval, monitoring types and methodologies, and details on sand placement.

Federal Consistency

The NC Marine Fisheries Commission adopted "Policies for the Protection and Restoration of Marine and Estuarine Resources from Beach Dredging and Filling and Large Scale Coastal Engineering" on November 16, 2000 (see attached). Policy 6 states that projects "...should include compensatory mitigation for all reasonably predictable impacts to the marine and estuarine resources of North Carolina.." and Policy 7 continues that "Projects should include baseline and project-related monitoring adequate to document pre-project conditions and impacts of the projects on the marine and estuarine resources of North Carolina;". Unless this project includes an outline of proposed mitigation for possible impacts and includes documentation of pre- and post-project conditions of marine resources to include common swash zone benthic invertebrates, this project will be inconsistent with the policies of the Division of Marine Fisheries.



North Carolina Department of Environment and Natural Resources
 Division of Coastal Management
 James H. Gregson
 Director

Beverly Eaves Perdue
 Governor

Dee Freeman
 Secretary

MEMORANDUM

January 20, 2010

RECEIVED

FEB 2 2010

Morehead City DCM

TO: Brian Strong
 NCDENR - Division of Parks and Recreation
 512 North Salisbury Street, Seventh Floor
 Raleigh, NC 27604-1170

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT: Proposed Implementation of a Coastal Storm Damage Reduction Program
 (DCM#20100006)

LOCATION: Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina

This document is being circulated for **consistency** review and comment by **February 5, 2010**. The US Army Corps of Engineers is proposing to implement a coastal storm damage reduction program at Surf City and North Topsail Beach. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or email me at stephen.rynas@ncdenr.gov.

- REPLY:**
- No Comment.
 - This office supports the project as proposed.
 - Comments to this project are attached.
 - This office objects to the project as proposed.

Signed: Harry E. Lehman, Jr. Date: Jan. 29, 2010

CORRECTIONS: Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM TO:

Stephen Rynas, Federal Consistency Coordinator
 NC Division of Coastal Management
 400 Commerce Avenue
 Morehead City, NC 28557-3421



North Carolina Department of Environment and Natural Resources

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

January 29, 2010

MEMORANDUM

TO: Stephen Rynas, Federal Consistency Coordinator
NC Division of Coastal Management

FROM: ^{HL} Harry LeGrand, Natural Heritage Program

SUBJECT: Proposed Implementation of a Coastal Storm Damage Reduction Program for Surf City and North Topsail Beach; Onslow and Pender counties

REFERENCE: DCM#20100006

The Natural Heritage Program has no record of significant natural communities, significant natural heritage areas, or conservation/managed areas at the site. However, the beachfront is the site for nesting by the Federal and State Threatened loggerhead seaturtle (*Caretta caretta*). The Biological Assessment (Appendix I) provides considerable information on nesting by seaturtles. Our Program concurs with the proposed hopper dredging window of December 1 to March 31. We also strongly hope that all placement of sediment on the beach can be done within this window, as well.

The Federal and State Threatened seabeach amaranth (*Amaranthus pumilus*) is typically an annual that grows on accreting sand beaches, and thus is found mostly on ends of islands. As long as the dredging and beach renourishment can be done/completed within the December 1 to March 31 period, the impacts to the amaranth should be negligible. Both the northeastern and southwestern ends of Topsail Island are used by birds for nesting. Appendix I discusses these species. In general, increasing the amount of sand on the middle portion of an island, through ocean dredging and sand renourishment, will favor build-up of sand on the downdrift end of the island and be favorable to nesting by birds (by providing more extensive habitat), though this might take several years. Impacts to the "updrift" end of an island are probably not clear. Nonetheless, it might be too speculative to comment on the positive or negative impacts to birds nesting on either end of the island, in regard to this project.

Please do not hesitate to contact me at 919-715-8697 if you have questions or need further information.



North Carolina Department of Environment and Natural Resources
Division of Coastal Management

Beverly Eaves Perdue
Governor

James H. Gregson
Director

Dee Freeman
Secretary

MEMORANDUM

January 20, 2010

RECEIVED
MAR 3 2010
Morehead City DCM
RECEIVED
JAN 22 2010
BY: _____

TO: Joanne Steenhuis (401 Water Quality)
DWQ - 401 Water Quality Certification (Wilmington)
NCDENR - Division of Water Quality
127 Cardinal Drive Extension
Wilmington, NC 28405-5406

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT: Proposed Implementation of a Coastal Storm Damage Reduction Program
(DCM#20100006)

LOCATION: Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina

This document is being circulated for consistency review and comment by **February 5, 2010**. The US Army Corps of Engineers is proposing to implement a coastal storm damage reduction program at Surf City and North Topsail Beach. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or email me at stephen.rynas@ncdenr.gov.

REPLY:

_____ No Comment.

_____ This office supports the project as proposed.

X _____ Comments to this project are attached. *JHS*

_____ This office objects to the project as proposed.

Signed: *Dick Pliner* Date: *02.20.10*

CORRECTIONS: Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM TO:

Stephen Rynas, Federal Consistency Coordinator
NC Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557-3421

MEMORANDUM

DIVISION OF WATER QUALITY

TO: Stephen Rynas, Division of Coastal Management Federal Consistency Coordinator

FROM: Joanne Steenhuis, Senior Environmental Specialist *JAS*

THROUGH: Rick Shiver, Surface Water Protection Regional Supervisor *RS*

DATE: February 26, 2010

SUBJECT: EIS Develop Coastal Storm Damage Reduction Plan for Surf City and North Topsail Beach

PROJECT: Implementation of a Coastal Storm Damage Reduction Plan for Surf City and North Topsail Beach
DCM Project No. 10-0006

COUNTY: Pender and Onslow Counties

The Wilmington Regional Office has reviewed the Environmental Impact Statement for the implementation of a coastal storm damage reduction plan document for Surf City and North Topsail Beach. The Division of Water Quality (DWQ) has no objections to the project as proposed as long as they comply with the dredging moratoriums and environmental monitoring as discussed in the document.

Thank You

WiRO



North Carolina Department of Environment and Natural Resources
Division of Coastal Management

Beverly Eaves Perdue
Governor

James H. Gregson
Director

Dee Freeman
Secretary

RECEIVED

JAN 29 2010

Morehead City DCM

MEMORANDUM

January 20, 2010

TO: Dan Sams
NCDENR - Division of Land Resources
127 Cardinal Drive Extension
Wilmington, NC 28405-5406

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

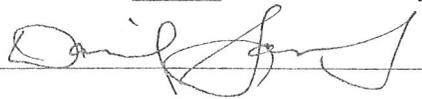
SUBJECT: Proposed Implementation of a Coastal Storm Damage Reduction Program
(DCM#20100006)

LOCATION: Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina

This document is being circulated for consistency review and comment by **February 5, 2010**. The US Army Corps of Engineers is proposing to implement a coastal storm damage reduction program at Surf City and North Topsail Beach. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or email me at stephen.rynas@ncdenr.gov.

- REPLY:
- No Comment.
 - This office supports the project as proposed.
 - Comments to this project are attached.
 - This office objects to the project as proposed.

Activity over one acre in size requires erosion and sediment plan application and approval.

Signed:  Date: JAN. 25, 2010

CORRECTIONS: Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM TO:

Stephen Rynas, Federal Consistency Coordinator
NC Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557-3421





North Carolina Department of Environment and Natural Resources

Division of Coastal Management

Beverly Eaves Perdue
Governor

James H. Gregson
Director

Dee Freeman
Secretary

MEMORANDUM

January 20, 2010

TO: John Giles
Division of Coastal Management - Wilmington
127 Cardinal Drive Extension
Wilmington, NC 28405-5406

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT: Proposed Implementation of a Coastal Storm Damage Reduction Program
(DCM#20100006)

LOCATION: Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina

This document is being circulated for consistency review and comment by **February 5, 2010**. The US Army Corps of Engineers is proposing to implement a coastal storm damage reduction program at Surf City and North Topsail Beach. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or email me at stephen.rynas@ncdenr.gov.

REPLY:

- No Comment.
- This office supports the project as proposed.
- Comments to this project are attached.
- This office objects to the project as proposed.

Signed: _____

Date: _____

2/12/10

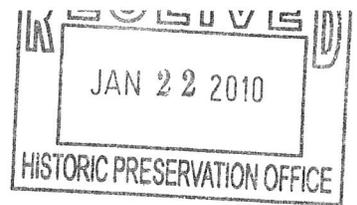
CORRECTIONS:

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM TO:

Stephen Rynas, Federal Consistency Coordinator
NC Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557-3421

RECEIVED
DCM WILMINGTON, NC
JAN 28 2010



North Carolina Department of Environment and Natural Resources
 Division of Coastal Management
 James H. Gregson
 Director

Beverly Eaves Perdue
 Governor

Dee Freeman
 Secretary

MEMORANDUM

January 20, 2010

RECEIVED

CH 01-0497
EP 10-0131
A - Cultural resources prev. addressed with ltr 2-3-10

TO: Renee Gledhill-Early
 State Historic Preservation Office
 4617 Mail Service Center
 Raleigh, NC 27699-4617

FEB 11 2010

Morehead City DCM

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

Due 2/1/10

SUBJECT: Proposed Implementation of a Coastal Storm Damage Reduction Program (DCM#20100006)

LOCATION: Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina

This document is being circulated for consistency review and comment by **February 5, 2010**. The US Army Corps of Engineers is proposing to implement a coastal storm damage reduction program at Surf City and North Topsail Beach. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or email me at stephen.rynas@ncdenr.gov.

REPLY:

- No Comment.
- This office supports the project as proposed. *←*
- Comments to this project are attached.
- This office objects to the project as proposed.

Signed: *Renee Gledhill-Early* Date: *2.5.10*

CORRECTIONS: Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM TO:

Stephen Rynas, Federal Consistency Coordinator
 NC Division of Coastal Management
 400 Commerce Avenue
 Morehead City, NC 28557-3421

1-25-10

55



RECEIVED

JAN 26 2010

North Carolina Department of Environment and Natural Resources

Morehead City DCM

Beverly Eaves Perdue
Governor

RECEIVED
JAN 25 2010
Shellfish Sanitation & Recreational
Water Quality Section

Division of Coastal Management
James H. Gregson
Director

RECEIVED
JAN 20 2010
Shellfish Sanitation & Recreational
Water Quality Section

Dee Freeman
Secretary

MEMORANDUM

January 20, 2010

TO: Patti Fowler
Shellfish Sanitation and Recreational Water Quality Section
NCDENR - Division of Environmental Health
PO Box 769
Morehead City, NC 28557-0769

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT: Proposed Implementation of a Coastal Storm Damage Reduction Program
(DCM#20100006)

LOCATION: Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina

This document is being circulated for consistency review and comment by **February 5, 2010**. The US Army Corps of Engineers is proposing to implement a coastal storm damage reduction program at Surf City and North Topsail Beach. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or email me at stephen.rynas@ncdenr.gov.

REPLY:

No Comment.

This office supports the project as proposed.

Comments to this project are attached.

This office objects to the project as proposed.

Signed: *Steph Rynas* for Patti Fowler Date: 1/22/10

CORRECTIONS: Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM TO:

Stephen Rynas, Federal Consistency Coordinator
NC Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557-3421

RECEIVED
JAN 21 2010
Shellfish Sanitation & Recreational
Water Quality Section





North Carolina Department of Environment and Natural Resources
Division of Coastal Management

Beverly Eaves Perdue
Governor

James H. Gregson
Director

Dee Freeman
Secretary

MEMORANDUM

January 20, 2010

TO: John Fear
Coastal Reserve Program - Beaufort
101 Pivers Island Road
Beaufort, NC 28516-9701

FROM: Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT: Proposed Implementation of a Coastal Storm Damage Reduction Program
(DCM#20100006)

LOCATION: Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina

This document is being circulated for **consistency** review and comment by **February 5, 2010**. The US Army Corps of Engineers is proposing to implement a coastal storm damage reduction program at Surf City and North Topsail Beach. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or email me at stephen.rynas@ncdenr.gov.

REPLY:

- No Comment.
- This office supports the project as proposed.
- Comments to this project are attached.
- This office objects to the project as proposed.

Signed: _____

John Fear

Date: _____

2-3-10

CORRECTIONS: Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM TO:

Stephen Rynas, Federal Consistency Coordinator
NC Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557-3421



North Carolina Department of Environment and Natural Resources
Division of Coastal Management

Beverly Eaves Perdue
Governor

James H. Gregson
Director

Dee Freeman
Secretary

MEMORANDUM

January 20, 2010

RECEIVED

FEB 8 2010

Morehead City DCM

TO:

County of Pender
PO Box 444
Burgaw, NC 28425-0444

FROM:

Stephen Rynas, AICP; Federal Consistency Coordinator

SUBJECT:

Proposed Implementation of a Coastal Storm Damage Reduction Program
(DCM#20100006)

LOCATION:

Surf City and North Topsail Beach, Onslow and Pender Counties, North Carolina

This document is being circulated for consistency review and comment by **February 5, 2010**. The US Army Corps of Engineers is proposing to implement a coastal storm damage reduction program at Surf City and North Topsail Beach. Your responses will assist us in determining whether the proposed project would be consistent with the State's Coastal Management Program. If the proposed project does not conform to your requirements, please identify the measures that would be necessary to bring the proposed project into conformance. If you have any additional questions regarding the proposed project you may contact me at 252-808-2808 or email me at stephen.rynas@ncdenr.gov.

REPLY:

No Comment.

This office supports the project as proposed.

Comments to this project are attached.

This office objects to the project as proposed.

Signed:



Date:

2/3/10

CORRECTIONS:

Please identify any corrections, additions, or deletions that should be made in terms of contact information.

RETURN COMPLETED FORM TO:

Stephen Rynas, Federal Consistency Coordinator
NC Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557-3421

From: Eric G. Hawk [Eric.Hawk@noaa.gov]
Sent: Tuesday, January 19, 2010 9:31 AM
To: Piatkowski, Douglas SAW
Cc: David Bernhart; Robert Hoffman; Michael Barnette
Subject: August 2009 Draft Integrated Feasibility Report and EIS,
Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North
Carolina

Attachments: eric_hawk.vcf

Hi Doug,

We received and reviewed Colonel Ryscavages's January 13, 2010, letter and attached Draft Integrated Feasibility Report and EIS, Coastal Storm Damage Reduction, Surf City and North Topsail Beach, North Carolina, dated August 2009.

NMFS agrees with the COE's determination that the proposed beach renourishment action, consisting (in part) of utilizing hopper dredges to mine offshore sand sources for deposition of sand onto North Carolina beaches (a 17-mile section extending from Topsail Beach/Suf City town limits to the northern end of Topsail Island) falls under the authority of the current NMFS South Atlantic regional biological opinion on hopper dredging of navigation channels and borrow areas in the southeastern United States, dated September 25, 1997 (i.e., SARBO). The SARBO is in the process of being revised and will eventually supersede the current opinion. The COE will abide by the revised SARBO when it is ultimately issued. Sea turtle or shortnose sturgeon takes resulting from the proposed dredging action when conducted under the RPMs and T&Cs of the SARBO are authorized and will be counted against the ITS take limit as set forth in the SARBO. If you have any questions, please contact me or Mike Barnette.

Best Regards,

Eric Hawk