



DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69A HAGOOD AVENUE
CHARLESTON, SOUTH CAROLINA 29403-5107

FINDING OF NO SIGNIFICANT IMPACT

EDISTO BEACH COASTAL STORM DAMAGE REDUCTION GENERAL INVESTIGATION STUDY

Edisto Beach, South Carolina

August 20, 2013

The National Environmental Policy Act (NEPA) requires the U.S. Army Corps of Engineers, Charleston District (The Corps) to evaluate the effect of proposed projects on both the environment and human health and welfare. This Finding of No Significant Impact (FONSI) summarizes the results of The Corps' evaluation and documents The Corps' conclusions.

The Corps has prepared an Environmental Assessment (EA) that covers the proposed coastal storm damage reduction project for the Town of Edisto Beach. This EA is presented in an integrated Feasibility Study/Environmental Assessment. Compliance with NEPA is documented within this report. Edisto Island is a barrier island located at the mouth of the South Edisto River in Colleton County, South Carolina, approximately 45 miles southwest of Charleston, South Carolina and approximately 20 miles east-northeast of Beaufort, South Carolina. The incorporated Town of Edisto Beach is located on the island, as is Edisto Beach State Park. Edisto Beach encompasses approximately 6 miles of sand shoreline, all of which are included as part of the current feasibility study. The Town of Edisto Beach and Edisto Beach State Park are part of Edisto Island. They are separated from the main body of Edisto Island by Big Bay Creek, Scott Creek, and the associated salt marsh to the northwest and Jeremy Inlet to the northeast. The

Town of Edisto Beach and Edisto Beach State Park are also bounded by the South Edisto River and St. Helena Sound to the southwest and the Atlantic Ocean to the southeast.

The Town of Edisto Beach has indicated that the most significant problem facing the study area in the near future and over the next 50 years is the threat to buildings and infrastructure from coastal storms, particularly along the northern shoreline. The threat to structures is exacerbated by high levels of long-term beachfront erosion. The loss of the beachfront threatens not only the local economy and tourism in the small coastal community, but has National Economic Development impacts as well when resources that could be used elsewhere are devoted to storm recovery and rebuilding efforts that could have been prevented. The goal of the study is to reduce the adverse economic effects of coastal storms at Edisto Beach, SC.

The Corps evaluated a wide range of alternatives for this project, including: construction of emergent breakwaters, submerged artificial reefs, new groins, groin lengthening, seawalls, revetments, beach fill, dune vegetation planting, dune sand fencing, coastal structure retreat, relocation, demolition, floodproofing structures, elevating structures, and regulatory changes. Details of these evaluations are presented in the EA, and were narrowed down to the following:

Alternative 1: Mid-size dune and berm fill (comparable to 2006 fill) + 1,090 ft of groin lengthening

Alternative 2: Minimum size dune and berm fill + 360 ft of groin lengthening

Alternative 3: Maximum size dune and berm fill + 1,970 ft of groin lengthening

Alternative 4: Mid-size dune and berm fill (economic bracketing alternative) + 1,130 ft of groin lengthening

Alternative 5: Dune Sand Fencing (reaches I1-I4) + dune and berm fill in remaining reaches.

Alternative 6: Non-Structural/Demolition (reaches E14, E15)

Alternative 7: No Action

The Corps' environmental criteria for evaluating the effects of the no action and the project alternatives are summarized in the following table.

Account: EQ						
Item	Sub-Item	Alternative				
		Beachfill With Groin Extensions	Beachfill Without Groin Extensions	Dune Sand Fencing + Beachfill ¹	Nonstructural (E14-E15)	No Action
Marine Environment	Benthic Resources - Nearshore Ocean	Short term impacts to benthic macro-invertebrates associated with dredging activities. A small area of sand substrate will be covered by the groin extensions; however, the groins will provide hard substrate for benthic invertebrates Risk of demersal fish entrainment by dredging activities.	Short term impacts to benthic macro-invertebrates associated with dredging activities Risk of demersal fish entrainment by dredging activities.	No additional impact	Status quo maintained	Status quo maintained
	Benthic Resources - Beach and Surf Zone	Short term and localized impact to surf zone benthic macro-invertebrate community from direct burial and turbidity associated with beach placement of sediment. Invertebrate recruitment will occur relatively quickly post construction.	Short term and localized impact to surf zone benthic macro-invertebrate community from direct burial and turbidity associated with beach placement of sediment. Invertebrate recruitment will occur relatively quickly post construction.	No additional impact	Short term reduction in surf zone habitat and benthic macro-invertebrate abundance due to erosion, scarping, and scour of beach habitat towards existing infrastructure (i.e. Hwy 174) and long term impacts from the emergency stabilization techniques (i.e. sand bags, revetments) to protect the road.	Long term reduction in surf zone habitat and intertidal benthic macro-invertebrate abundance due to erosion and scour of beach habitat towards existing homes, infrastructure (i.e. roads), and short term stabilization techniques (i.e. sand bags, revetments, etc.). Along the inlet reaches, the status quo would be maintained.
	Turbidity	Short term impacts to adult, larval, and juvenile surf zone fishes from elevated turbidity levels associated with beach placement of sediment and dredging activities.	Short term impacts to adult, larval, and juvenile surf zone fishes from elevated turbidity levels associated with beach placement of sediment and dredging activities.	No additional impact	Short term impacts to adult, larval and juvenile fish from periodic emergency stabilization techniques to protect the road.	Status quo maintained
	EFH-HAPC	Short term impacts to the physiography of borrow areas. The location of the borrow area on an ebb tidal shoal will help to ensure relatively rapid recovery of the borrow area.	Short term impacts to the physiography of the borrow area. The location of the borrow area on an ebb tidal shoal will help to ensure relatively rapid recovery of the borrow area.	No additional impact	Status quo maintained	Status quo maintained
Terrestrial Environment	Beach and Dune	Short term impacts to portions of the existing dune vegetation during construction of the new dune field. Planting of dune vegetation will mitigate this impact.	Short term impacts to portions of the existing dune vegetation during construction. Planting of dune vegetation will mitigate this impact.	Existing dune vegetation will be able to keep pace with the dune accretion.	Long term degradation of beach habitat due to continued erosion of the berm and dune	Long term degradation of beach habitat due to continued erosion of the berm and dune along the atlantic facing reaches. The inlet reaches will continue to accrete and build dune system similar to what is present. The dune system will be more expansive than currently exists. Periodic inundation from storms will allow overwash fans to support bird habitat as well.
		Long term sustainability of dune habitat for nesting sea turtles and other dependent mammal and avian species	Long term sustainability of dune habitat for nesting sea turtles and other dependent mammal and avian species	No additional impact		
	Shorebird Habitat	Short term impacts to ghost crabs and other invertebrates and their beach and dune habitat with long term stability of habitat.	Short term impacts to ghost crabs and other invertebrates and their beach and dune habitat with long term stability of habitat	No additional impact	Short term impacts to ghost crabs and their beach and dune habitat from short term restoration protection measures (ie, beach scraping, sand bags, dune stabilization)	Short term impacts to ghost crabs and their beach and dune habitat from short term protection measures (ie, beach scraping, sand bags, revetments, dune stabilization)
		Short term impacts to shorebird foraging due to a temporary change in the species and diversity of surf zone macro-invertebrates	Short term impacts to shorebird foraging due to a temporary change in the species and diversity of surf zone macro-invertebrates	No additional impact	Short term reduction in surf zone habitat and benthic macro-invertebrate abundance due to erosion, scarping, and scour of beach habitat towards existing infrastructure (i.e. roads) and short term stabilization techniques (i.e. sand bags).	Long term reduction in surf zone habitat and benthic macro-invertebrate abundance due to erosion and scour of beach habitat towards existing homes, infrastructure (i.e. roads), and short term stabilization techniques (i.e. sand bags).
Threatened and Endangered Species	Sea Turtles	Prevention of overwash fan habitat for shorebirds as a result of the constructed dunes.	Prevention of overwash fan habitat for shorebirds as a result of the constructed dunes.	No additional impact	Short term impacts would result in creation of overwash fan habitat for shorebirds with loss to development in the long term	Short term creation of available overwash fan habitat for shorebirds with loss to development in the long term. The State Park reach will migrate landward. Shorebird foraging habitat should be favorable; however, nests could be compromised by overwash risk.
		Short term decrease in sea turtle nest success associated with changes to the physical characteristics of the beach. Construction equipment associated with groin extensions could impede sea turtle ingress to the beach. However, this effect will be minimal as construction will only be on one groin at a time and will proceed along the beach. Therefore, no area will be impacted for a considerable period of time.	Short term decrease in sea turtle nest success associated with changes to the physical characteristics of the beach	Sand fencing design would adhere to the sea turtle requirements. No additional impacts anticipated.	Long term decrease in sea turtle nesting habitat and nest success due to beach erosion scarping and scouring of the dune.	Long term decrease in sea turtle nesting success due to beach erosion and scouring of the dune. Eventually there may only be a revetment fronting and protecting Hwy 174. In this case, there would be no available nesting habitat for turtles along the atlantic reaches of the Town. However, the inlet reaches would see an increasing beach front as the MHW line moves seaward. The wider beach would likely serve as a site for the turtle volunteers to relocate any nests from the atlantic reaches.
		Long term sustainability of sea turtle nesting habitat due to preservation of the beach berm. The additional groin length will not effect sea turtle nesting/hatchling success.	Long term sustainability of sea turtle nesting habitat due to preservation of the beach berm	No additional impact		
	North Atlantic Right Whale	Long term reduction of beach lighting impacts to sea turtles from constructed dune	Long term reduction of beach lighting impacts to sea turtles from constructed dune (will help block some light from houses/street lights).	No additional impact	Risk of increased beach lighting impacts to sea turtles as dune erodes	Risk of increased beach lighting impacts to sea turtles as dune erodes
		Risk of sea turtle entrainment from hopper dredge	Risk of sea turtle entrainment from hopper dredge			
		Minimal threat of collision with whales during dredging and groin construction operations.	Minimal threat of collision with whales during dredging operations.	No additional impact	Status quo maintained	Minimal impact associated with periodic emergency nourishment which would occur to protect beachfront homes and Hwy 174.
Atlantic Sturgeon	Minimal risk of Atlantic sturgeon entrainment from hopper dredge.	Minimal risk of Atlantic sturgeon entrainment from hopper dredge.	No additional impact	No additional impact	Minimal risk of Atlantic sturgeon entrainment from dredging during likely periodic emergency nourishment events.	
Piping Plover	No impact	No impact	No impact	No impact	No impact	

Account: EQ						
Item	Sub-Item	Alternative			Nonstructural	No Action
		Beachfill with Groin Extensions	Beachfill Without Groin Extensions	Dune Sand Fencing + Beachfill ¹		
Cultural Resources		Slight risk of encountering resources associated with beach placement and borrow area dredging, although risk in dredging areas is minimal since they have been surveyed. Long-term protection of any future potential historic resources that would be affected by natural processes.	Slight risk of encountering resources associated with beach placement and borrow area dredging, although risk in dredging areas is minimal since they have been surveyed. Long-term protection of any future potential historic resources that would be affected by natural processes.	No additional impact or risk	Even with the removal of the at risk homes in E14 and E15, Hwy 174 will continue to be protected. Source of borrow material will be an issue as it is uncertain where emergency material would be obtained from.	Potential resources along the Atlantic reaches would continue to be vulnerable to natural processes. Source of borrow material will be an issue as it is uncertain where emergency material would be obtained from.
Water Quality		Short term and localized elevated turbidity and suspended solid concentrations offshore and in the surf zone associated with dredging and beach placement as well as groin construction activities.	Short term and localized elevated turbidity and suspended solid concentrations offshore and in the surf zone associated with dredging and beach placement activities.	Fewer impacts than the beachfill only alternatives due to eliminating need for heavy construction equipment along the inlet reaches.	Impacts could occur from the removal of the homes and infrastructure (e.g., water, sewer, power lines). Additionally, since emergency actions will still occur to protect Hwy 174, short term impacts to water quality could occur during these actions.	Since emergency actions will still occur to protect Hwy 174, short term impacts to water quality could occur during these actions. Additionally, certain infrastructure would be at greater risk to being compromised which could affect nearshore water quality (e.g., water, sewer, power lines, etc.).
Air Quality		Temporary air pollutant increase associated with dredging and heavy equipment during initial construction and the renourishment events.	Temporary air pollutant increase associated with dredging and heavy equipment during initial construction and the renourishment events.	No additional impacts	Temporary air pollutant increase associated with heavy equipment during structure demolition and removal. Temporary air pollutant increase associated with dredging and heavy equipment during emergency protection events.	Temporary air pollutant increase associated with dredging and heavy equipment during emergency protection events.
Noise Quality		Temporary noise increase associated with dredging and heavy equipment during initial construction and the renourishment events. These impacts will not affect any property disproportionately because construction will proceed along the beach.	Temporary noise increase associated with dredging and heavy equipment during initial construction and the renourishment events. These impacts will not affect any property disproportionately because construction will proceed along the beach.	No additional impacts	Temporary noise increase associated with heavy equipment during structure demolition and removal	Temporary noise increase associated with heavy equipment during periodic emergency protection events.
Recreational and Aesthetic Resources		Improved appearance of beach would enhance recreational experience, and wider berm would increase recreational area. Lengthened groins could exacerbate downdrift scalloping effect that is currently seen along the beachfront.	Improved appearance of beach would enhance recreational experience, and a wider berm would increase recreational area.	There would be no burial of existing vegetation and minimal aesthetic impact to beach goers/homeowners in the inlet reach. Sand fencing may be considered an eyesore to some.	A more natural appearance along the beach that may be valued more by some users. Recreation capacity would decrease as beach erodes. Emergency protection measures (especially seawalls, revetments) would be a major impediment to beach access as well as an aesthetic eyesore. Temporary inconvenience to beach users during removal and demolition of structures.	Recreation capacity would decrease as beach erodes. Inlet reach would maintain a high quality beach and dune system as the MHW line moves seaward.
		Temporary inconvenience to beach users during initial construction and future maintenance, although these would occur during low visitation months (Winter), when possible	Temporary inconvenience to beach users during initial construction and future maintenance, although these would occur during low visitation months (Winter), when possible.			

¹ Impacts are only described in this column in terms of effects on the inlet reach. The remaining reaches would receive beachfill with or without groin extensions and the impacts would be identical to the impacts would be identical to what is contained in those columns

The proposed project was determined after a detailed alternatives analysis documented within the Feasibility Study/Environmental Assessment. The project consists of the following elements (Figures 1-3): 1) A 15-foot high (elevation), 15-foot wide dune beginning at the northern end of the project (i.e., Reach E15 – the southern end of the State Park) and extending southward along the beach for 16,530 feet. This dune would be fronted by a 7-foot high (elevation) berm. The first 7,740 feet of berm length would have a width of 75 feet. The width would then taper to a 50-foot width for the remaining length of the berm. The width of each end of the berm would taper to tie into the existing beach profile; 2) At Reach I4, the dune would transition into a 14-foot high (elevation), 15-foot wide dune that extends around the end of the island for 5,290 feet. No berm would be constructed in front of this dune because the existing beach profile provides an adequate berm; and 3) Approximately 1,130 ft of total groin lengthening across 23 of the existing groins. The renourishment interval for the proposed project has been estimated to occur every 8 years and is triggered by a mobilization threshold of 220,400 cubic yards of sand. The borrow area for the proposed project occurs on an ebb-tidal shoal located approximately 1.5 miles to 2.5 miles southeast of the southern point of Edisto Beach and is approximately 649 acres in size (Figure 1). The site was determined from a

larger search area and was narrowed down to include sands that most appropriately match the native beach sands on Edisto Beach. The borrow area contains approximately 7.2 million cubic yards of beach compatible sands. Details of the impacts of the proposed project can be found in the EA.



Figure 1. Location of Edisto Beach and proposed borrow site



Figure 2. Project footprint along inlet reaches

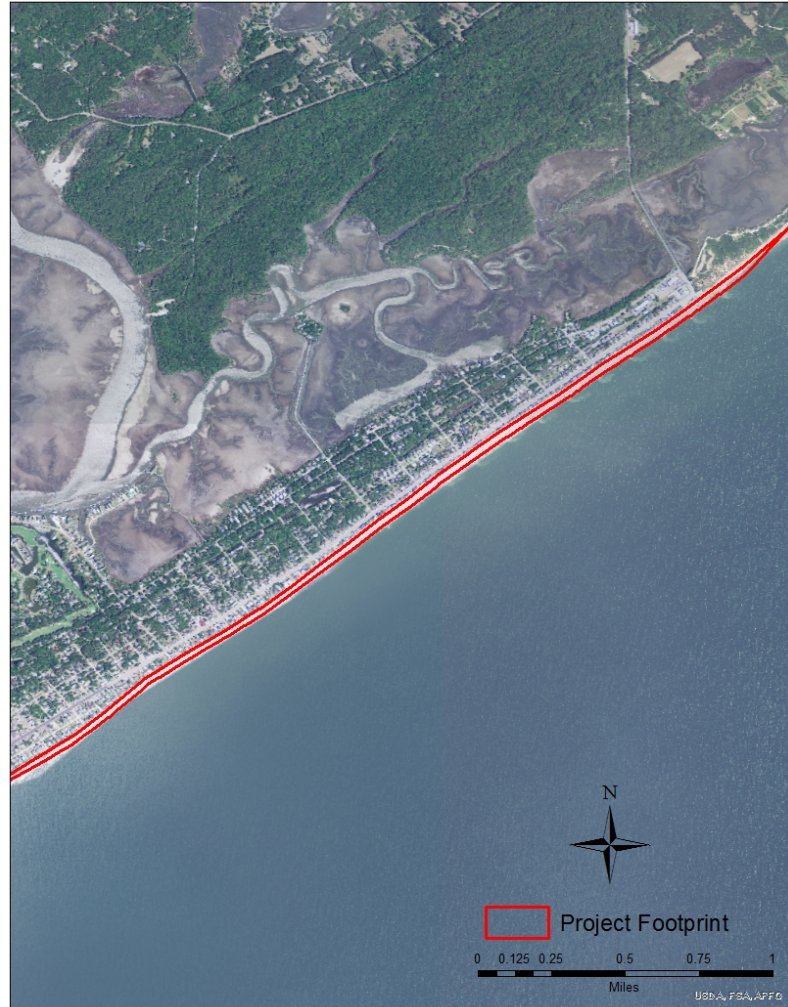


Figure 3. Project footprint along Atlantic Ocean facing reaches

The draft EA and FONSI have been distributed in August 2013 for a 30 day comment and review period. Since the Corps' findings demonstrate that the project will not significantly adversely affect environmental resources or human health, the preparation of an Environmental Impact Statement is not warranted. The full Environmental Assessment can be downloaded from the internet at <http://www.sac.usace.army.mil/Missions/CivilWorks/NEPADocuments.aspx> or a copy may be obtained by contacting Mark Messersmith by telephone at (843) 329-8162 or by email at mark.j.messersmith@usace.army.mil.

Date _____

JOHN T. LITZ, PMP
Lieutenant Colonel, EN
Commander, US Army
Engineer District, Charleston