

POTENTIAL DEEPWATER HORIZON OIL SPILL RESTORATION PROJECTS: PROVIDING INFORMATION TO ASSIST WITH PROJECT ASSESSMENT

To help you propose projects to the State of Florida's Department of Environmental Protection (DEP), we developed this project submission form. You are not required to complete this form to submit a project. However, completion of the form will help DEP gather the information required to completely and accurately evaluate a project against the selection and evaluation criteria. Where appropriate in the form, please provide references to any additional supporting information.

Project Name: *(Include project number from DEP's existing list of submitted projects, if applicable.)*

O-10 Norriego Point Stabilization Project UPDATED

Location for Project Implementation: *(For example, city and county, GIS coordinates if known.)*

Destin, Okaloosa County, Florida (30°23'34.24"N, 86°30'44.62"W)

Brief Project Narrative: *(Describe what the project will do.)*

Norriego Point is a natural sand spit in the inlet of East Pass, Destin, Florida, dedicated to the State of Florida in perpetuity "to be used solely and exclusively for public park and recreational purposes" (see attachment 1.) Traditionally, more than 500 recreational boaters utilize the Point and the adjacent channel it protects each day during the summer season. The Point also provides storm protection to the fleet of commercial fishing and recreational vessels in Destin Harbor (Figure 1). The commercial and tourism related fishing industry protected inside Destin Harbor earns over \$500 million in revenue each year. Since 1995, strong tidal currents and focused wave action during storms have eroded nearly eight acres of dry beach on Norriego Point. Dredging of the adjacent channel is required more and more often as the Point continues to erode. In order to restore the recreational acreage and increase storm protection and decrease wave energy along the exposed marinas, the City has elected to permanently stabilize the Point and construct several erosion control structures (Figures A-2, A-3 and A-4).

The existing T-head groins will be expanded, lengthened and raised to reduce wave energy, conserve sand, and offer more storm protection and public use. A continuous revetment and steel sheet pile wall will be built along the seaward edge of the Point, north of the existing structures, to dissipate wave energy and protect the fill placed landward of the revetment to restore the land area lost. In addition, the dune will be restored and revegetated to increase the storm protection to the marinas.

Estimated Project Costs: *(Describe the costs of the project, including any assumptions for contingency and ongoing operations and maintenance. Identify other available funding sources such as matching funds, in kind contributions or state or federal dollars. If possible, attach a schedule of anticipated costs, by year, over the anticipated project life.)*

The project total cost estimate is \$6.93 million to construct the structures (\$6.4 M), replace the eroded sand (\$497,000) and restore the dune. A 10% contingency was included on all costs. Costs for ongoing operations and maintenance of the project were not included. The construction is anticipated to take three-four months.

Anticipated Project Outcome with Respect to Screening Criteria

S1. Technically and administratively feasible: *(Briefly describe the critical technologies involved and any relevant past experience with similar projects.)*

The selected erosion control structures perform by protecting the shoreline from wave action and/or slowing the alongshore transport of sediment from the shoreline into the channel. The irregular surfaces of revetments dissipate wave energy as the wave runs up the structure and significantly reduces the scouring that typically occurs with simply vertical structures. T-head groins act as a combination of a breakwater and a groin. The head (shore parallel) part of the structure protects the shoreline landward of the structure by blocking the waves that would cause erosion. The groin (shore perpendicular) part of the structure traps sediment moving alongshore resulting in a build-up of sand immediately adjacent to the structure. In combination, the components of a T-head groin result in the stabilization of the shoreline immediately adjacent to the structure.

Two T-head groins and a revetment were constructed along the south end of Norriego Point in 2003. Prior to their construction, the wave energy that was focused on the southern end during Hurricane Opal caused a breach of Norriego Point that opened a channel that extended from East Pass to Destin Harbor, resulting in severe damage to the marina. Since the construction of the structures, three major hurricanes have impacted the area yet the land adjacent to the structures has been relatively stable and no permanent breaches have occurred. Based on their performance and condition, improvements of the T-head groins are part of the proposed project.

In a similar near inlet location, a groin field consisting of 14 T-head groins was constructed in phases to stabilize the shoreline of Hideaway Beach, Naples, Florida, located near the mouth of the Big Marco River. Initially in 1997, temporary geotextile groins were installed so the performance of the groins could be monitored. After their proven effectiveness, the first 10 groins were constructed in 2005 and have performed well since then, blocking wave action and slowing the erosion in the area. After Hurricane Wilma (2005), the Florida Department of Environmental Protection concluded the T-head groins and associated nourishment were responsible for reducing the erosional stresses to the shoreline during the storm after observing only minor beach and dune erosion had occurred (FDEP, 2006).

Another example of the successful implementation of T-head groins to slow erosion is the Upham Beach project in Pinellas County, Florida. The erosional stresses of Upham Beach include the influence of the Blind Pass jetties, sand loss to the ebb shoal and the removal of sand from the system as part of channel maintenance dredging. To maintain the shoreline, five T-groins were constructed along the beach, downdrift of the inlet. After nearly two years of monthly monitoring, the groins were found to reduce the net loss of sand by 40% and no negative impacts were observed (Wang & Roberts, 2008).

References:

- Florida Department of Environmental Protection. 2006. Hurricane Wilma, Post-storm Beach Conditions and Coastal Impact Report. FDEP-Bureau of Beaches and Coastal Systems. <http://bcs.dep.state.fl.us/reports/wilma/wilma1.pdf>
- Wang, P. and T. M. Roberts. 2008. Performance of Upham Beach T-Groin Project and Its Impact to the Downdrift Beach. University of South Florida. November 2008.

S2. Provides environmental benefits: *(Briefly describe the nature, magnitude, and timing of any environmental benefits attributable to the project and any potential environmental costs associated with implementing or maintaining the project, e.g., loss of a habitat or conversion of habitat from one type to another during implementation.)*

The dune restoration component of the project provides direct environmental benefit. The planting of approximately 28,000 square feet of sea oats on the dune will result in stabilization of sand as well as provide habitat and a food source for small birds, mammals and insects. Additionally, several migratory birds use sea oats as nesting grounds. These benefits would be increased once the sea oats have become established plants after an initial few years. The project intends to restore the native dune environment that was previously existing resulting in only environmental benefit.

The rock placed below the waterline to construct the T-head groins and revetment provides indirect benefits by serving as habitat for fish and invertebrates. The attraction of fish and enhancement of habitat would occur rapidly after construction. The placement of rock would alter the existing sandy bottom environment; however, no negative environmental impacts are anticipated since hardbottom is naturally occurring along Florida coasts and several hard structures already exist in East Pass.

S3. Does not conflict with any ongoing or planned response or remediation work: *(Briefly describe ongoing response activities in the project implementation area, if any, and why the project does or does not interfere with that work.)*

There are no ongoing response or remediation activities in the project area.

S4. Complies with applicable and relevant federal, state, local, and tribal laws and regulations: *(No information is needed for this screening criteria.)*

The Joint Coastal Permit Application was submitted to the Florida Department of Environmental Protection on Feb. 24, 2012. Copies of all documents included in the application are available for review upon request. All necessary federal, state and local permits will be obtained prior to construction.

Anticipated Project Outcome with Respect to Evaluation Criteria

E1. Will restore, rehabilitate, or replace a natural resource or service¹ believed/demonstrated to have been injured as a result of the Deepwater Horizon oil spill or associated response activities: (Briefly describe the nature of any relationship between the new/improved resources or services and those adversely impacted by the oil spill.)

Norriego Point was a center point of response efforts to protect East Pass and Choctawhatchee Bay. Due to the perception that the recovery of oil at the shoreline was easier than open water, a system of booms with anchor points on Norriego Point were constructed to divert oil to the beaches within the project area. The sand was lightly contaminated by oil sheen and tarballs. The presence of response equipment and toxicity of the oil resulted in a major loss of use for recreational use and fishing. The expansion of Norriego Point, construction of erosion control structures and replacement of sand will rehabilitate the area impacted by the spill and mitigate for the loss of use by the public. The proposed project will add embayments to increase the area available for safe water access, provide a stable beach for recreational use, offer storm protection for the charter fishing fleet (severely impacted by the spill's impact on tourism and marine life) and restore the natural dune environment.



Figure 1. A typical day in Destin, Florida. Norriego Point is the white sand beach spit in the center of the photograph. Destin Harbor is on the left side of Norriego Point. East Pass is on the right side of Norriego Point in the photograph. Norriego Point is heavily used by recreational boaters. (Source: City of Destin).



E2. Is located in, or nearby, resources or services injured by the deepwater horizon spill: (Briefly describe where the project would be implemented with respect to past/ongoing remediation work.)

The project area is located along the northeast shoreline inside East Pass. East Pass was the primary focus of response efforts during the Deepwater Horizon spill to prevent oil from entering Choctawhatchee Bay. Booms were anchored to Norriego Point so that oil could be diverted to the shoreline for recovery. The beaches of Norriego Point were lightly oiled by sheen and tarballs. Boom was also wrapped around the rip rap of the existing T-head groins and revetment. The beaches and nearshore area of Norriego Point are a highly used recreational area that became inaccessible due to the presence of equipment necessary for response and remediation efforts.

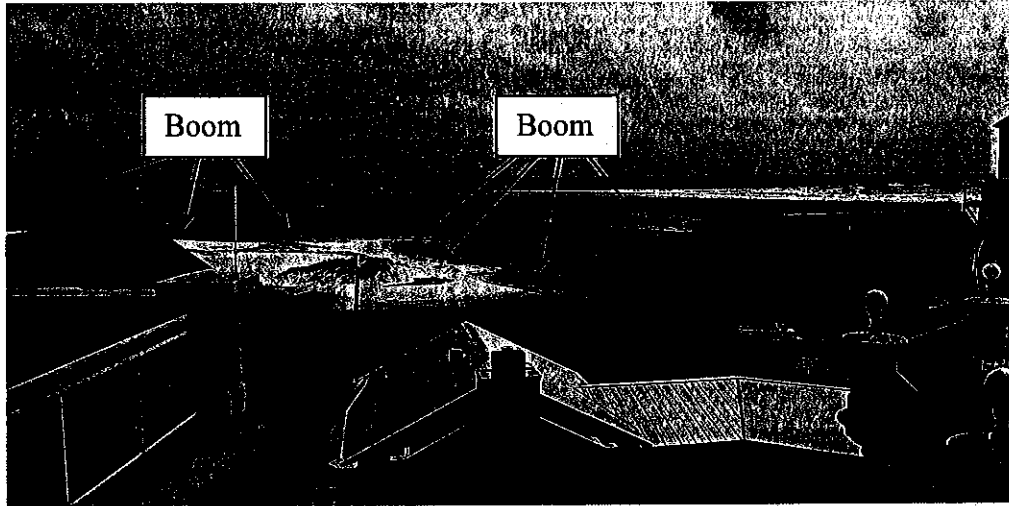
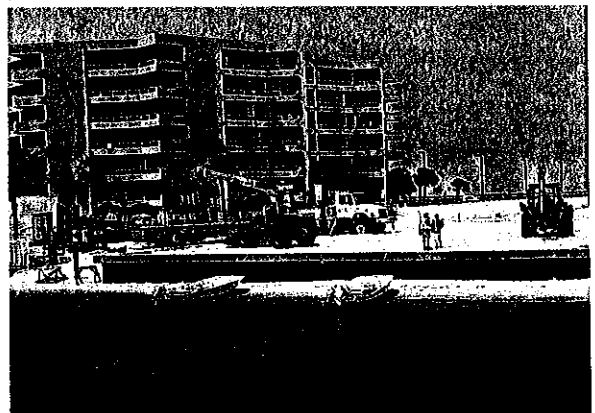
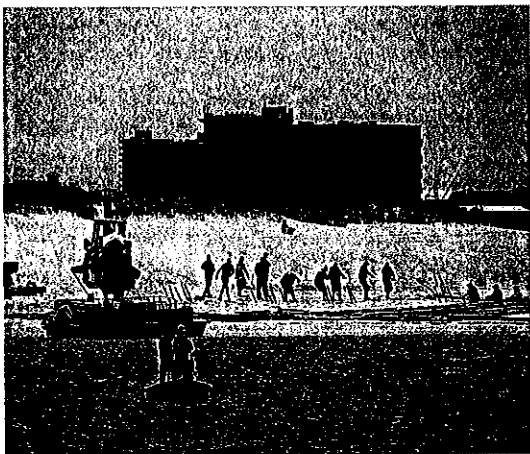


Figure 2. Booms (yellow lines) in place at Norriego Point and in East Pass during the Deepwater Horizon spill response. This area during the summer is usually filled with tourists and recreational boaters as well as charter fishing boats and sightseeing boats as shown below. The lack of human use and economic vitality extended throughout the 2010 tourist season, costing the city millions in lost revenues.



E3. Is ready for implementation, e.g., design, permitting, and necessary impacts assessments have been completed: *(Briefly describe where in the permitting process the project stands along with an estimated date of when the project can be implemented if it is not currently ready.)*

The joint federal and state permitting process is already in process. Construction will be ready to begin immediately following the issuance of the all permits, anticipated at this time to be the late fall of 2012. (See Attachment 2 for final design.)

E4. Is cost effective: *(Briefly describe why you think the project is cost effective. Discuss whether this project is more cost effective than alternative projects which would provide similar resource or service benefits.)*

To date, the City has spent over \$2 million on interim protection measures for Norriego Point. Additionally, the US Army Corps of Engineers has spent millions of dollars to dredge material out of the navigation channel that eroded from the point. Since Hurricane Opal (1995), the Point has breached twice causing costly damage to the commercial and recreational vessels in Destin Harbor. The increase in wave energy in Destin Harbor due to the loss of land at the northern tip of Norriego Point has limited and occasionally prevented the use of portions of the marinas. The City has tried to remedy the situation with interim protection strategies including placing fill and the construction of short geotextile groins. The project was designed to be the most cost effective solution that would provide the significant protection. The total cost of the project is \$6.93 million which is likely equal to or less than the amount the City and federal government has spent on temporary solutions.

E5. Has a high potential for long-term success as demonstrated by incorporating established/reliable methods and technologies: *(Briefly describe if/how critical methods and technologies that will be used to implement the project could be considered reliable or proven.)*

The structural solution proposed for Norriego Point is comprehensive. The project provides maximum storm protection for a primary component of the community's tourism industry, restores the recreational benefits of the previously existing shoreline and restores natural dune habitat. The use of revetments, groins and dune restoration are commonly used erosion control solutions in coastal engineering and have proven effective for decades. Furthermore, similar structures are already in use along the southern end of Norriego Point, effectively reducing erosion from the immediately adjacent area. The design of the existing structures and proposed structures was improved due to the availability of hydrodynamic data for East Pass which was rigorously investigated through physical data collection and numerical modeling. The proposed armoring of the majority of the wave exposed shoreline will restore over 8 acres of recreational beach and provide long-term protection of Norriego Point and Destin Harbor.

E6. Is likely to provide benefits rapidly following implementation: *(Briefly describe the anticipated change in benefits anticipated over time.)*

After construction, Norriego Point will be stabilized and the transport of sand from the point into the channel will be reduced. Since less material will need to be dredged from the channel, the US Army Corps of Engineers (the agency responsible for maintaining the navigation channel) will obtain a significant cost benefit during the next maintenance dredging. Similarly, since interim protection measures will no longer be needed, the City will receive a great cost benefit.

The expansion of the point and enhancement of fish habitat will provide immediate additional recreational area to the public.

The environmental benefits of the dune restoration will grow over time as the vegetation is established, the habitat is developed and the attractiveness of the nesting area increases.

After the completion of construction, the revetment, T-groins, nourishment and dune restoration will provide immediate erosion control and long term storm protection to Destin Harbor.

E7. Has a high likelihood of public acceptance: *(Briefly describe evidence to support the given answer based on surveys or results and assessments from past projects. Known or likely opposition to a project should be recognized.)*

This project is highly anticipated by the public. The public values protection of Destin Harbor, the recreational usage of Norriego Point and East Pass and the reduction of expense to the local and federal government for temporary solutions. The popularity and critical importance of this project prompted the appointment of a Blue Ribbon Panel of community members to incorporate the local perspective on the best long term solution for Norriego Point. The general consensus of the panel is that Norriego Point is "one of the most critical pieces of infrastructure in the city for marine protection and the general health of the harbor as a whole..." including "the fishing industry and boat operators, but also the city itself and local businesses" (Destin, 2011)

Delays in the commencement of permitting and construction are directly associated with the reduction in funds available after the spill impacted the community's tourism and fishing industries.

There is no known opposition to the project.

Reference:

"A very vulnerable time: Blue ribbon panel appointed, set to discuss protecting Norriego Point." June 25, 2011.

<http://www.destin.com/news/point-18291-destinlog-blue-ribbon.html>

DEDICATION

BOOK 194 PAGE 573
OFFICIAL RECORDS

WHEREAS, Okaloosa County, Florida, is receiving from the Trustees of the Internal Improvement Fund of the State of Florida a quit claim deed of all right, title and interest of the State of Florida in and to certain dredge spoil areas which have been deposited upon sovereign lands of the State of Florida immediately adjacent to a portion of Santa Rosa Island owned by Okaloosa County, and said county in exchange therefor has agreed to make a dedication of a portion of said lands for public park and recreational purposes, which lands are hereinafter described, and

WHEREAS, the parties hereto, in order to perfect their agreements, are simultaneously exchanging instruments, NOW THEREFORE,

KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned, the County Commissioners of Okaloosa County, Florida, for and in consideration of the conveyance by the Trustees of the Internal Improvement Fund of the State of Florida to Okaloosa County, Florida, heretofore mentioned, do hereby set aside and dedicate to the State of Florida in perpetuity the lands hereinafter described to be used solely and exclusively for public park and recreational purposes, viz:

The Northwesterly 1600 feet of that portion of land which formerly comprised a part of Santa Rosa Island that lies east of the New East Pass Channel, more particularly described as: Begin at a concrete monument on the South right-of-way line of Highway 98, on the East line of Calhoun's subdivision as per plat recorded in the Office of the Clerk of Circuit Court of Okaloosa County, Florida, thence run South 2147.80 feet to a concrete monument; thence run N 85° 08' W 1232.68 feet to a point; thence run N 78° 02' W 1437.22 feet to a point; thence run N 76° 56' W 1180.53 feet to a point; thence run N 56° 16' W 981.30 feet to a point; thence run N 45° 41' W 748.90 feet to a concrete monument for the point of beginning of the parcel to be described. Thence run S 44° 19' W to the shore of New East Pass; thence meander



NORRIEGO POINT
OKALOOSA COUNTY, FLORIDA
REFINED ALTERNATIVE 1
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LEGEND:
 (Symbol) EXISTING OR PROPOSED ELEVATION (NAVD)
 (Symbol) DUNE FILL AREA
 (Symbol) DUNE FILL AREA
 (Symbol) PIONEER VEGETATION
 (Symbol) NAVIGATION CHANNEL CENTER LINE
NOTE:
 DATE OF AERIAL PHOTOGRAPH: 2010.

FIGURE A-2

Attch. 2