



Strategies for Evaluating NNBF Shoreline Protection Technologies along the Intracoastal Waterway

ERDC Dredging Operations Technical Support Program (DOTS)

U.S. ARMY CORPS OF ENGINEERS

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Response Summary:

This DOTS request was to establish the criteria for evaluating oyster castles and other Natural and Nature Based Features (NNBF) technologies as shoreline protection measures along the Intracoastal Waterway (ICW) and other shallow water regions frequented by vessel traffic. The study included a review of existing living shoreline structures that have been recently implemented as demonstration projects. In 2016, a breakwater consisting of oyster castles and other materials was constructed to dissipate vessel wake energy along a section of the ICW near Sullivan's Island, South Carolina. Vessel traffic information obtained from the Automatic Identification System Analysis Package (AISAP) was used to drive an empirical vessel wake prediction tool to estimate the wave impact of watercraft operating in the ICW. While the AISAP tool identified a number of vessels, a site visit conducted in September 2019 indicated that the actual number of vessels greatly exceeds those obtained through the AISAP. Therefore, it was determined that direct monitoring of vessel traffic and wake is a necessary requirement to fully assess the functionality of NNBF technologies as shoreline protection measures along the ICW.



Period of Performance:

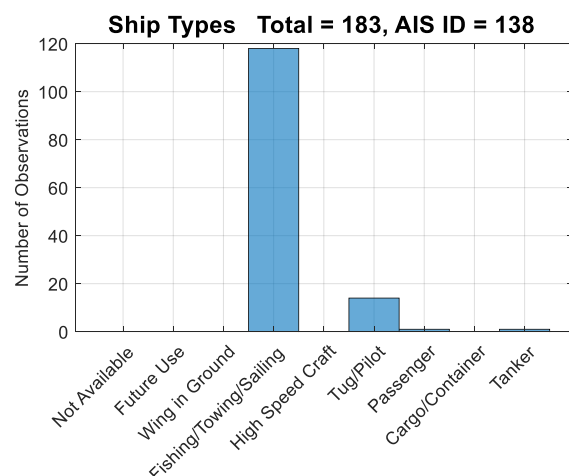
1-June to 30-September, 2019

Benefits of the Response to the USACE Dredging/Navigation Program:

Shore protection measures derived from NNBF technologies provide cost effective management alternatives to traditional seawalls, bulkheads or other hard engineering structures. Oyster castles, and similar technologies, can be constructed and deployed less expensively and generally with fewer restrictions as they are not permanent features. Because they serve as habitats for indigenous organisms, oyster castles also provide an ecological benefit.

Deliverable:

The product includes a report describing the requirements to conduct an assessment of NNBF as shore protection measures in regions frequented by vessel traffic. The report summarizes a case study in which oyster castles and other easily obtained material were used to protect a section of eroding saltmarsh along the ICW. A methodology for evaluating the potential efficacy of cost effective NNBF including the requirements for monitoring, analyzing, and evaluating similar technologies for use in other systems is presented.



Providing environmental and engineering technical support to the U.S. Army Corps of Engineers Operations and Maintenance navigation and dredging missions

