USACE Coastal Modeling System (CMS) Training and Hands-on Engagement for Stono Inlet Study

Response Summary:

The U.S. Army Corps Engineer Research and Development Center's (ERDC) Coastal and Hydraulics Laboratory (CHL) will perform a numerical modeling study in support of the U.S. Army Corps of Engineer District, Wilmington's (SAW) request for evaluating the transport and fate for sediment material dredged from borrow source areas and placed on Folly Beach adjacent to the Stono Inlet, South Carolina (Figure 1). The Coastal Modeling System (CMS) will be applied for developing and evaluating sediment management alternatives, determining the effect of major forcing conditions (hydrodynamics, waves, and wind) on sediment movement, and investigating the impact of dredge/placement activities on shoreline changes around Stono Inlet (Kiawah Island, bird islands, and Folly River). Using data collected for the Stono Inlet study, CHL needs to provide modeling training to SAW engineer(s). The training was also requested by SAW and will be funded partially by DOTS.

Period of Performance:

12-22 November, 2019.

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

The Stono Inlet study is to evaluate sediment transport and morphologic changes due to sand dredged from borrow areas and placement in nearshore beaches. The CMS will be used to calculate waves, current, tide, and sediment transport within and around the immediate vicinity of the Stono Inlet, Bird Key/Skimmer Flats, Folly Island, and the eastern end of Kiawah Island. Sediment management alternatives on sand dredge and placement will be developed and comparisons between alternative results will be conducted under various forcing conditions in the nearshore area of the Stono Inlet and the Folly River Navigation Channel.

The numerical modeling study will assist the district in reduction of future O&M costs, and in development of adaptation strategies and management plans to support O&M practice.

Deliverable:

The CMS will be set up around Stono Inlet and initial model tests will be conducted. Final deliverables are the CMS model framework at the Stono Inlet.

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