

# Peer Review Plan

**Date:** 10/3/2014

**Source Center:** U.S. Geological Survey (USGS)  
St. Petersburg Coastal and Marine Science Center  
600 4<sup>th</sup> Street South  
St. Petersburg, FL 33701

**Preliminary Title:** Impacts of Proposed Sediment Borrow Pits on Nearshore Wave Climate and Longshore Sediment Transport Rate along Breton Island, LA.

**Subject and Purpose:** As part of an approach to preserve bird habitat on Breton Island, the southernmost extent of the Chandeleur Islands and part of the Breton National Wildlife Refuge (BNWR), the U.S. Fish and Wildlife Service (FWS) plans to restore island elevation with sand supplied from offshore sand resources. Proposed sand extraction sites include areas offshore where the seafloor morphology suggests suitable quantities of sediment may be found. Two potential locations east and south of the island in 3-6 m of water have been identified. Because borrow pits are perturbations to shallow-water bathymetry, they can impact the wave field in a variety of ways, and may result in alterations in sediment transport and new erosional or accretional patterns along the beach. The subject report describes a scenario-based numerical modeling strategy that was used to assess the impacts of the proposed offshore borrow pits on the nearshore wave field. Impacts were assessed over a range of wave conditions, and were gauged by changes in significant wave height and wave direction inshore of the borrow sites, as well as by changes in the calculated longshore sediment transport rate. Comparisons between the wave height predicted for the baseline case and the two borrow pit configurations showed that significant changes in the wave environment were isolated to the immediate vicinity of the borrow pits, with changes in wave height of less than 10 cm. The longshore transport rate (LSTR) direction and magnitude depended on the individual wave scenario, as well as the contour from which wave conditions were taken for LSTR calculation. The change in magnitude of the calculated LSTR with the addition of the two borrow pits was two orders of magnitude less than the LSTR calculated for the baseline case. In addition, the longshore variability of LSTR did not change significantly for the borrow pits cases, and no new convergences or divergences of sediment transport were identified. The report will be published as a USGS Open File Report.

**Impact of Dissemination:** This information product is considered by the USGS to be Influential Scientific Information.

**Timing of Review (Including Deferrals):** September – October 2014. Deferrals are not anticipated at this time.

**Manner of Review, Selection of Reviewers, and Nomination Process:** Review will be by individual letters/memoranda/documents. USGS will select peer reviewers pursuant to requirements in Survey Manual chapter 502.3—Fundamental Science Practices: Peer Review (<http://www.usgs.gov/usgs-manual/500/502-3.html>).

**Expected Number of Reviewers:** Anticipate a minimum of two peer reviewers.

**Requisite Expertise:** Surf zone sediment transport processes; barrier island shoreline dynamics; hydrodynamic modeling; nearshore geology.

**Opportunity for Public Comment:** No opportunity for public comment is formally incorporated for this product.

**Agency Contact:** [peer\\_review\\_agenda@usgs.gov](mailto:peer_review_agenda@usgs.gov).