APPLIED COASTAL

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Project: Collection of Environmental data Within Sand Resource Areas Offshore North Carolina and the Environmental Implications of Sand Removal for Coastal and Beach Restoration

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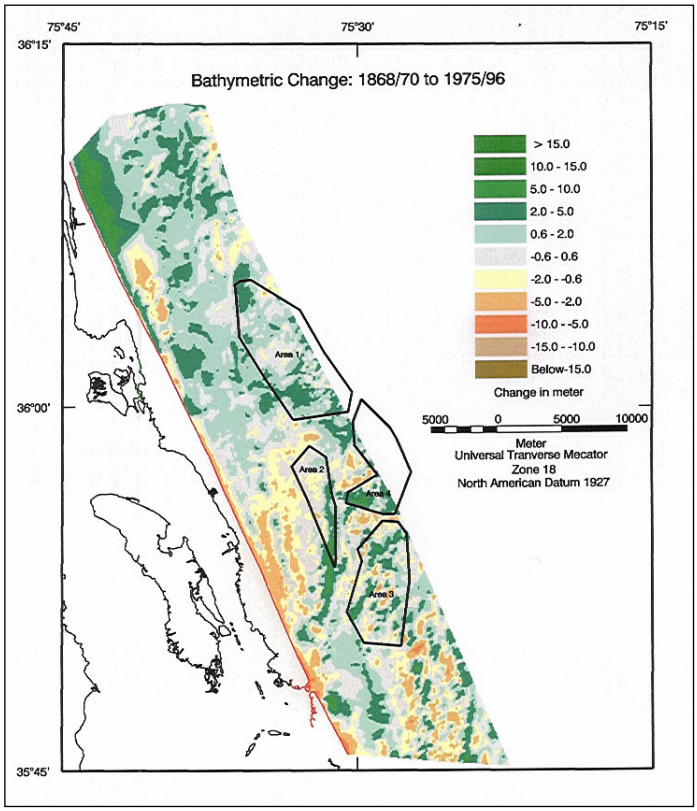

One of the primary purposes of this project is to provide site-specific information on offshore sand deposits and the potential environmental concerns associated with dredging these deposits for decisions on requests for non-competitive leases from other local, State, and Federal agencies. The information may be used to determine whether or not stipulations need to be applied to a lease. The information also may be incorporated into an Environmental Assessment (EA) or Environmental Impact Statement (EIS), if so required. In cooperation with the State, the MMS identified four potential sites of high-quality sand deposits in Federal waters. Five study elements were identified for addressing the study purpose. They include: 1) quantify the potential modifications to waves that cross within the identified borrow areas due to offshore dredging; 2) quantify the impacts of offshore dredging and consequent beach nourishment on local and regional sediment transport patterns, coastal and nearshore sedimentary environments, and local shoreline processes; 3) assess baseline benthic ecological conditions in and around the proposed sand borrow areas; 4) evaluate benthic infauna resident in the potential borrow sites and assessment of potential effects of offshore dredging on these organisms, including an analysis of the potential rate and success of recolonization following cessation of dredging; and 5) develop a schedule of best and worst times for offshore dredging with regards to transitory, pelagic species. This information will be needed should a decision be made to proceed with preparation of an EA or EIS to support a negotiated agreement with the State of North Carolina for access to Federal sand resources.

Applied Coastal personnel conducted study elements 1 and 2 using coastal processes data sets, the spectral wave transformation model STWAVE, historical shoreline and bathymetry data sets, and sediment transport modeling tools. Sediment transport estimates along the shoreline and in the nearshore were determined from wave and current analyses, as well as historical shoreline and bathymetric change data sets. The information gathered and analyzed during the course of this study is expected to enable MMS to monitor and assess the potential impacts of offshore dredging activities and to identify ways in which dredging operations can be conducted to minimize or preclude long-term adverse impacts to the environment.