

## APPLIED COASTAL

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**Project:** Winthrop Shores Reservation  
Restoration Program, Assessment of  
Physical Borrow Site Characteristics  
for Winthrop Beach

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Prior to evaluating offshore borrow sites, the project proponent and appropriate regulatory agencies should determine the extent of evaluation needed to address environmental concerns. The scope developed should require (1) a description of the particular sand and gravel mining project, (2) a determination of reasonable alternatives, (3) identification of important environmental issues for impact analysis, and (4) mitigation and/or monitoring requirements. This project evaluated the first two scope items above to assess the compatibility of Winthrop Beach, Massachusetts to a borrow site in Massachusetts Bay.

An initial screening of potential borrow sites was performed, based strictly on physical properties regarding known borrow sites, and financial aspects of the dredging process. Utilizing previous work performed by the U.S. Department of Commerce, the Project NOMES Site, approximately eight (8) miles offshore, was investigated as a potential borrow site for Winthrop Beach. Due to the large volume of sand and gravel at this site, an approximate 1,000,000 cubic yard borrow area was sought.

A geophysical analysis was performed to determine the thickness of the sand and gravel deposit within a portion of the NOMES Site. The results of the geophysical analysis provided the basis for determining core locations. Core samples were used to verify the findings of the geophysical survey, as well as to determine the grain size distribution relative to Winthrop Beach. Visual descriptions of the core samples then were utilized to define potential borrow site limits. Based on the likely technique used to dredge the seafloor in regions where the mean water depth is in excess of 90 feet, a 4,500 feet by 1,000 feet area was delineated as the potential borrow site. Grain size analyses of core samples obtained within the upper 10 feet of the potential borrow site were compared to *in situ* Winthrop Beach sediments to determine compatibility of the borrow material to the beach. The potential environmental impacts associated with dredging the NOMES site were briefly described.

