

## EXECUTIVE SUMMARY

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The Boston Harbor Navigation Improvement Project will generate an estimated  $2.2 \times 10^6$  m<sup>3</sup> of dredged material. Approximately 500,000 m<sup>3</sup> of this sediment is expected to be unsuitable for unconfined open water disposal. One alternative proposed was that the unsuitable sediments be deposited at the existing Massachusetts Bay Disposal Site (MBDS), where they would be capped by the remaining  $1.7 \times 10^6$  m<sup>3</sup> of clean dredged material. Successful disposal of contaminated dredged material at open ocean sites requires formation of a distinct dredged material mound, careful placement of capping materials, and bathymetric and environmental monitoring to ensure that the operation is successful initially and effective over the long term.

MBDS is a disposal site approximately 17 nmi east-northeast of Boston Harbor in water depths averaging 90 m. This site is deeper than existing disposal sites in Long Island Sound where capping operations have occurred in a maximum of approximately 25 m water depth. Several concerns have been raised regarding proposals to extend the depth of capped disposal operations to deeper waters (e.g., Dolin and Pederson 1991). Monitoring of disposal at MBDS over the past 7 years has shown that dredged material released at the site does form a distinct disposal mound which can be detected by acoustic bathymetry. The formation of a well-defined disposal mound has been the criterion on which capping decisions have been made at shallower sites.

Such a formation indicates that the dredged material is stable and distinct from

the ambient sediment. If the dredged material forms a distinct, stable mound, then the following conditions can be satisfied: the sediment is being contained at the site; the area over which capping material must be placed is known; and the capped mound can be monitored to verify that the cap is isolating the unsuitable sediments effectively. Based on past disposal at MBDS, as well as deep water sites (> 100 m) in Puget Sound, we can predict that dredged material will form a well-defined mound at these depths and that capping can be a viable means of containing unsuitable sediments at these sites.