

## EXECUTIVE SUMMARY

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As part of a multidisciplinary sampling program, scientists from DAMOSVision conducted a baseline assessment of the seafloor at the Massachusetts Bay Disposal Site (MBDS). Specifically, a combined Sediment-Profile and Plan-View Imaging (SPI/PV) survey was conducted at the area in Massachusetts Bay known as the historical Industrial Waste Site (IWS) to characterize the benthic environment. The U.S. Environmental Protection Agency (USEPA) is currently pursuing expanding the boundary of the existing MBDS to include the directly abutting portion of the historical IWS in preparation for the potential placement of improvement material (or navigation-project dredged material) dredged from the planned Boston Harbor deepening project. USACE has proposed a Potential Restoration Area within the expanded boundary to place dredged material suitable for open ocean disposal.

Researchers conducted a multibeam echosounder (MBES) survey prior to the SPI/PV survey to provide high-resolution bathymetry of the survey area. The MBES survey covered an area of  $4 \times 4$  km, encompassing the IWS, a portion of the MBDS, and some surrounding areas. To assess the overall condition of the benthic habitat, sediment profile images were collected from stations randomly distributed in and around the IWS, and at three reference areas to the south (the reference areas were not mapped with multibeam). This approach allowed for an accurate spatial assessment of the seafloor in and around the IWS, and the reference areas served as a comparison for ambient seafloor conditions. 45 SPI/PV stations were planned, with 30 stations located in the proposed disposal site expansion area, and 5 stations in each of the three reference areas (FG-23, MBD-REF, and SE-REF). Four replicate images were collected from each station with three images targeted for analysis. Finally, an ROV was used to provide video footage of specified targets on the seafloor for identification of artifacts in the IWS (shipwrecks, barrels, and debris).

The high-resolution bathymetric survey revealed the persistence of disposal mounds previously identified in earlier assessments of MBDS and documented dredged material disposal activity in the potential restoration area. Historical disposal activity in the potential restoration area was confirmed by the SPI/PV survey which documented the presence of layers of dredged material ( $>15$  cm in thickness) at the majority of stations in and around the potential restoration area. Stations where dredged material was not present tended to be located in the western portion of the MBDS survey area. Two shipwrecks were also documented in the MBDS survey area but were not identifiable.

The benthic characteristics of stations in the potential restoration area did not differ from those observed on the ambient seafloor aside from the presence of dredged material. However, there was no apparent adverse impact to the infaunal community associated with the presence of dredged material. Stations in the potential restoration area demonstrated a stable benthic structure or advanced stages of recolonization (Stage 3). The presence of Stage 3 fauna at stations containing dredged material indicates that despite the legacy of disposal in the potential restoration area, the benthic community has recovered. These results show how over time, and after disposal stops, dredged material will eventually be reworked to background by infauna.

## EXECUTIVE SUMMARY (CONTINUED)

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### Conclusions & Recommendations

- Historical dredged material disposal activity has taken place in and around the potential restoration area, identified by bathymetric features, and confirmed by the presence of visible dredged material in the SPI/PV survey.
- The majority of SPI stations in the potential restoration area contained historical dredged material deposits.
- Despite the presence of historical dredged material deposits, benthic characteristics on the seafloor in the potential restoration area did not differ from ambient seafloor conditions.
- Given the complete recovery of the benthic infaunal community in the restoration area to previous disposal activity, the effects from any future disposal operations are expected to be transient, and the infaunal community would quickly reestablish itself following completion of disposal operations.
- As a precaution, until further identification of the two shipwrecks is conducted, avoidance of any impacts is recommended. A buffer of a minimum 50-meter radius from the outside edge of both vessels is recommended during any disposal activity.