

EXECUTIVE SUMMARY

As part of the Disposal Area Monitoring System (DAMOS) Program, Science Applications International Corporation (SAIC) conducted an environmental monitoring survey over the Western Long Island Sound Disposal Site (WLDS) between 23 and 25 June 2001. The objectives of the survey were to assess the bottom topography and benthic habitat conditions over the area of WLDS that had received dredged material since 1997. Field efforts consisted of precision bathymetry to evaluate changes in bottom topography and a Remote Ecological Monitoring of the Seafloor (REMOTS[®]) sediment-profile imaging survey to assess benthic conditions and determine the lateral extent of the dredged material on the seafloor. The surveys showed that three distinct mounds (WLIS J, K, and L Mounds) were formed as a result of the disposal operations during the 1997–2001 seasons and that benthic recolonization over WLDS was advanced, with evidence of the presence of Stage III biological organisms throughout the survey area.

The management strategy at WLDS and other DAMOS sites in recent years has involved moving the buoy location at regular intervals to create a ring of dredged material mounds on the seafloor. This creates bowl-like bathymetric features (i.e., an artificial “containment cell”) within which large deposits of non-cohesive dredged material could be confined. The WLIS C, D, E, F, G and I Mounds were arranged in a ring on the seafloor from disposal activities prior to the 1997 disposal season, and were beginning to form a containment cell. The creation of the WLIS J, K and L Mounds during the 1997–2001 disposal seasons was intended to fill the gaps in that ring of mounds to complete a first artificial containment cell at WLDS. The June 2001 bathymetric survey showed that the WLIS J Mound was only a subtle deposit and not easily discerned on the seafloor. This mound did not display sufficient height or width to be useful as a containment structure. As a result, future disposal activity should be directed to the J Mound to close the first artificial containment cell on the WLDS seafloor. The WLIS K and WLIS L Mounds are of sufficient height and width to provide containment of a large unconsolidated sediment deposit.

A sediment-profile imaging survey grid encompassing the WLIS J, WLIS K, and WLIS L Mounds occupied as part of the 2001 survey effort indicated a fairly wide distribution of recently deposited sediment on the WLDS seafloor. Dredged material was detected at depths exceeding camera penetration at 24 of the 25 stations occupied. Benthic recolonization over the dredged material deposit was relatively advanced, with evidence of Stage III activity present at all stations within the survey grid. Redox Potential Discontinuity (RPD) depths over the newly deposited sediment were considered shallow to moderate. However, with mean depths per station ranging from 1.1 to 2.8 cm and an overall average value of nearly 1.9 cm, the RPDs were comparable to those documented at the WLDS reference areas (average mean RPD depths 1.3, 1.7, and 2.5 cm from reference

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areas SW REF, S REF, and SE REF, respectively). Despite the shallow to moderate RPD depths, median Organism-Sediment Index (OSI) values calculated for the recent dredged material deposits remained high due to the advanced successional stage status. OSI values within the 25-station grid ranged from +5 to +9 with an average value of +7.6, comparable to the composite values calculated for the WLDS reference areas.

The June 2001 field operations also included a REMOTS[®] survey over the WLIS I Mound to assess benthic conditions five years after its formation, as well as a survey at two stations at the WLIS D Mound (Stations D200S and D300S) where variable benthic conditions have been observed in the past. These surveys showed that the successional status was also advanced (presence of Stage III organisms) over the WLIS I Mound and that benthic habitat conditions appeared to be stable at Stations D200S and D300S. In accordance with the DAMOS Tiered Monitoring Protocol, no immediate action is required and only periodic monitoring of these stations is recommended during future surveys at WLDS.