

## EXECUTIVE SUMMARY

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A monitoring survey was conducted in June 2004 at the Western Long Island Sound Disposal Site (WLDS) as part of the Disposal Area Monitoring System (DAMOS). The 2004 field effort consisted of bathymetric and sediment-profile imaging surveys designed to characterize the seafloor topography of the disposal site, document the distribution of dredged material around recent and historic disposal locations, and assess the benthic conditions over recently formed and historic disposal mounds.

The June 2004 bathymetric survey was performed over a 1.44 km<sup>2</sup> area of the southwest portion of WLDS. The survey area encompassed the region where disposal occurred from 2001 - 2004. Placement of a total of 70,000 m<sup>3</sup> of dredged material at the Western Long Island Sound Disposal Area buoy (WDA) during the 2001-2002, 2002-2003, and 2003-2004 disposal seasons resulted in an increase in height and diameter of the WLIS J Mound. The height of WLIS J increased 1.5 m and the diameter increased 150 m. It was evident that some of the material that was directed to the WLIS J Mound had spread and settled nearby on the WLIS H Mound. The disposal resulted in a coalescence of the WLIS J Mound with the adjacent WLIS H Mound to form a single, oblong-shaped mound, the WLIS J/H Mound Complex. There was also evidence of a 0.5 m decrease in height of the WLIS L Mound. This scale of volume decrease is typical of self-weight consolidation of recently disposed dredged materials in Long Island Sound (SAIC 1995).

The June 2004 sediment-profile imaging survey was performed at the newly-formed WLIS J/H Mound and two historical mounds, WLIS K and WLIS L. SPI results indicated that benthic recovery of both the recent and historic mounds had proceeded better than expected. Stage III assemblages were found at all stations on all mounds monitored as well as at all stations in the three reference areas. Mean apparent RPD depths at all stations were substantially greater than those measured in the past at WLDS (SAIC 2002) and there was no difference in biological community attributes as measured by sediment-profile imaging between the disposal site and the ambient seafloor. One factor that likely contributed to the rapid recovery and apparent lack of any measured impact to the benthic community was the relatively low volume of material disposed at the site since the previous monitoring event (approximately 70,000 m<sup>3</sup> of material since June 2001). Equivalence tests indicated that the differences in OSI and RPD values between the WLDS mounds and the references areas were not ecologically meaningful, based on analysis of differences observed at reference areas and historic survey results.

Western Long Island Sound typically exhibits seasonal hypoxia in late summer, which has been considered a complicating factor in benthic recovery at WLDS. One way to minimize the interaction of this naturally confounding condition while monitoring