EXECUTIVE SUMMARY

Bathymetric surveys were conducted in July 2005 at the Central Long Island Sound Disposal Site (CLDS) and the Western Long Island Sound Disposal Site (WLDS) as part of the Disposal Area Monitoring System (DAMOS). In May 2005, the USEPA designated both CLDS and WLDS as long-term open water disposal sites for dredged material. Both sites have been monitored by the DAMOS Program for over 20 years, and the 2005 surveys provide site-wide, baseline bathymetric data following site designation and a slight shift in the site boundaries.

The July 2005 field effort consisted of a multi-beam bathymetric survey designed to establish a detailed baseline bathymetric dataset for the newly designated sites against which future bathymetric surveys will be compared. At CLDS, the 2005 survey, together with a side-scan survey in 1997 and a multi-beam survey in 2000, formed a set of three site-wide high-resolution acoustic surveys which provided a time-series data set used to evaluate the stability of sedimentary features. At WLDS, the 2005 survey was the first site-wide high-resolution bathymetric survey. The July 2005 surveys provided data to explore the formation of the various sedimentary features observed at the sites and to document any significant consolidation and/or accumulation of dredged material at CLDS and WLDS since the previous surveys.

In addition to new mounds formed as expected and previously observed mounds, which showed little change over time, several types of sedimentary features were identified and grouped based on their morphology and causal processes. Several types of ring-like features were identified and were all interpreted as disposal traces. The features had varying expressions in either or both the side-scan and the multi-beam images, and many observed at CLDS persisted over the eight year span from the first to most recent high-resolution survey. The size distribution of material disposed, the level of consolidation of the bottom, and the age of the disposal trace were all considered to have contributed to the observed form of the disposal trace. The persistence of both the man-made and ambient features further supported previous conclusions that bottom sediments at CLDS and WLDS are stable.

The high-resolution bathymetric data can support site management by aiding identification of location and spatial extent of historical disposal activities and assessment of the stability of sedimentary features. A detailed analysis of the sedimentary features and a comparison of these features over time provides insight into the causal dredged material disposal processes. It is recommended that future surveys employ high-resolution survey techniques to further the understanding of the sedimentary features within CLDS and WLDS and their relationship to site management goals.