

EXECUTIVE SUMMARY

A monitoring survey was conducted in 2009 at the Central Long Island Sound Disposal Site (CLDS) as part of the Disposal Area Monitoring System (DAMOS) Program. The 2009 monitoring effort involved a September multibeam bathymetric survey to document changes in seafloor topography and an October sediment-profile imaging (SPI) survey to assess the benthic recolonization status of several newly created dredged material deposits. These surveys were conducted over a rectangular area in the southwest portion of CLDS, where dredged material disposal activities were concentrated over the period 2005 to 2009.

The 2009 multibeam bathymetric survey revealed that four discrete mounds of dredged material had been created on the seafloor since the previous multibeam bathymetric survey of July 2005. The mounds were labeled by disposal season, as follows: CLIS 05 (2005–06 disposal season), CLIS 06 (2006–07 disposal season), CLIS 07 (2007–08 disposal season), and CLIS 08 (2008–09 disposal season). The size of each mound was generally proportional to the volume of dredged material placed during each season. Comparison of the 2009 data with 2005 and 1997 mapping data confirmed that disposal traces (rings, craters, and pits) can be associated with specific disposal conditions (e.g., volume, grain size, or water content; and whether the area receiving the material is ambient or mound).

Three of the new mounds (CLIS 05, CLIS 06, and CLIS 07) represent additions of dredged material to an existing, crescent-shaped line of mounds that are coalescing into a berm on the seafloor. The berm represents the southern wall of a large confined aquatic disposal (CAD) cell intentionally being created in this part of the disposal site, in accordance with DAMOS management objectives. The other mound (CLIS 08) was located outside and to the west of the existing crescent-shaped berm, but this mound also is being used to create a different, newer berm in the southern part of the disposal site.

The SPI survey found that the benthic recolonization status of each of the four mounds was directly related to its age. The two older mounds (CLIS 05 and CLIS 06), which have had the longest time to recolonize, were characterized by relatively well-developed apparent Redox Potential Discontinuity (aRPD) depths and an advanced, Stage 3 successional status. Benthic conditions over these two mounds were considered comparable to those at the three nearby CLDS reference areas.

The two newer mounds (CLIS 07 and CLIS 08) were found to be in an intermediate successional status, as evidenced by both high variability among replicate images and the widespread presence of transitional “Stage 1 going to 2” and “Stage 2 going to 3” successional seres. As succession proceeds over time at these two newer mounds, it is hypothesized that they will converge both with reference conditions and with conditions observed at the two older mounds.