

EXECUTIVE SUMMARY

Science Applications International Corporation (SAIC) conducted a monitoring survey at the Central Long Island Sound (CLIS) Disposal Site from 18 to 23 June 1991 as part of the DAMOS (Disposal Area Monitoring System) Program. The objectives of the June 1991 field operations were to map the distribution and thickness of dredged material in areas that received project materials after the 1990 DAMOS survey (CLIS-90 and CS-90-1) and to evaluate the status of inactive mounds: MQR, NHAV-74, CLIS-88, CLIS-89, CS-1, and FVP. Surveying and monitoring techniques included precision bathymetry, REMOTS® sediment-profile photography, CTD and dissolved oxygen information, and sediment grab samples.

In September 1990, the CLIS disposal buoy was deployed at 41°9.212' N, 72°53.25' W. Barges released approximately 59,000 m³ of dredged material at this location between September 1990 and May 1991. It was predicted that a new disposal mound would form at this location. During the 1989/1990 disposal season, material was released at, and formed a mound at, the CS-90-1 location. During the 1990/1991 disposal season, barges released 8,730 m³ of additional dredged material at CS-90-1 to increase cap thickness.

The precision bathymetric survey detected a small, newly formed disposal mound at the CLIS-90 buoy location. The addition of 8,730 m³ of material to the CS-90-1 was detectable in the bathymetric survey as two 20 cm thick areas of accumulation. REMOTS® sediment-profile photography detected the presence of dredged material at all stations within the survey area. "Fresh" or recent dredged material, identified by sedimentary fabric and shallow apparent RPD (Redox Potential Discontinuity) depths, was several hundred meters away from the active mounds. The limit of the dredged material mound, as mapped acoustically, was within a 100 m radius of the CLIS-90 buoy location.

Benthic recolonization was determined from analysis of REMOTS® photographs obtained at CLIS and at three outlying reference areas. Recolonization predictions from the DAMOS tiered monitoring and management protocol were that the active mounds should be in a Stage I sere while Stage III sere should colonize the inactive mounds: MQR, NHAV-74, CLIS-88, CLIS-89, CS-1, and FVP. The 1991 REMOTS® data supported these predictions.

Water column profiles of temperature, salinity, sigma-t, and dissolved oxygen were determined on June 18th at the CLIS-90 buoy and three reference areas. The water column at these four sampling stations was stratified with respect to both temperature and salinity. Dissolved oxygen (DO) concentrations below the pycnocline were 6 to 7 ppm, 2 to 3 ppm lower than near-surface values. DO values were similar between the CLIS-90 buoy location and the three reference areas.

Sediment samples collected from the CLIS reference areas contained metals in similarly low concentrations as measured during previous CLIS surveys. Polyaromatic hydrocarbons (PAHs) were also analyzed to provide a baseline for future sampling. PAHs were measured at all three reference areas in concentrations generally within ranges present in regional Long Island Sound.