

EXECUTIVE SUMMARY

Under the Disposal Area Monitoring System (DAMOS) Program, Science Applications International Corporation (SAIC) conducted an environmental monitoring survey at the New London Disposal Site from 10 to 13 August 2000. Field operations were concentrated over the Seawolf and US Coast Guard Academy (USCGA) disposal mounds, as well as the New London 1991 (NL-91) and Dow/Stonington (D/S) mound complex. The August 2000 field effort consisted of collecting precision bathymetric and Remote Ecological Monitoring of the Seafloor (REMOTS[®]) sediment-profile photography data. These survey techniques were used to determine whether there were any significant changes in seafloor topography over the Seawolf mound or the NL-91 and D/S Mound Complex, as well as to characterize the benthic recolonization status of all three of the surveyed dredged material disposal mounds.

The NL-91 and D/S Mound Complex is a historic sediment deposit on the NLDS seafloor located within the US Navy submarine corridor established near the center of the disposal site. This subtle bottom feature is composed of material dredged and disposed during the 1991 and 1992 disposal season. Several previous REMOTS[®] sediment profile photography surveys have served to demonstrate that the mound complex has been successfully recolonized by benthic organisms since its creation in 1992, while previous bathymetric surveys have indicated a need to increase the thickness of the capping dredged material (CDM) layer over the mound complex. Since the 1996-97 disposal season, over 30,000 m³ of supplemental CDM has been placed over the NL-91 and D/S Mound Complex as a part of a cap augmentation plan.

The August 2000 bathymetric survey showed a detectable depth difference over the NL-91 and D/S Mound Complex relative to September 1997. Accumulations of sediment up to 0.5 m thick were attributed to the placement of supplemental CDM at several recommended capping points. The recently-placed, supplemental CDM also was apparent in the majority of the REMOTS[®] sediment-profile images obtained over the NL-91 and D/S Mound Complex in August 2000. The REMOTS[®] images served to demonstrate that the footprint of the supplemental CDM deposit completely covered the original unacceptably-contaminated dredged material (UDM) deposit. These images also showed that the supplemental CDM had been colonized successfully by a benthic community comprised of both Stage II and Stage III organisms.

The Seawolf Mound was developed in the northwest quadrant of NLDS during the 1995-96 disposal season by the placement of 877,500 m³ of dredged sediment emanating from three separate projects in the eastern Long Island Sound region (Seawolf, Venetian Harbor, and Mystic River). Dredging and disposal operations were tightly controlled to create a single capped disposal mound, the U.S. Navy Seawolf Mound, consisting of 306,000 m³ of UDM and 571,500 m³ of suitable CDM. In addition to the multiple bathymetric surveys performed over the mound to ensure successful development,

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comprehensive environmental monitoring surveys were performed over the Seawolf Mound in 1997 and 1998.

The August 2000 bathymetric survey showed no significant changes in the topography of the Seawolf Mound relative to the survey performed in July 1998. REMOTS[®] sediment profile photography showed the Seawolf Mound continued to be populated by a benthic community consisting of advanced successional stage assemblages, with relatively deep apparent aeration of the sediments comprising the surface of the mound.

The USCGA mound is also a historic dredged material disposal mound, developed within the northeast quadrant of NLDS during the 1994-95 disposal season. This mound consists of 124,000 m³ of sediment sequentially removed from the area surrounding the Eagle Pier at the US Coast Guard Academy on the Thames River. This bottom feature was considered a confined aquatic disposal (CAD) mound, as the project sediments were directed to a disposal point located between the pre-existing NL-TR and NL-RELIC mounds. Based on the findings of the initial survey effort in August 1995, follow-on monitoring was deferred until the August 2000 field effort.

An advanced benthic successional stage (Stage III) was noted at the majority of REMOTS[®] stations sampled over the USCGA mound. As the USCGA material has been recolonized and subject to increased aeration over time, it has become increasingly difficult to distinguish it from ambient sediments.

Overall, the August 2000 REMOTS[®] sediment-profile imaging survey showed healthy benthic conditions at USCGA, as well as the other project mounds (NL-91 and D/S, and Seawolf) and the NLDS reference areas (NLON-REF, NE-REF, and WEST-REF). The RPD values were consistently deep, indicating good oxygen penetration within the surface sediments. In contrast to previous surveys, little physical disturbance was observed, as many images over each mound and reference area displayed intact amphipod mats and a depositional layer of organic matter on top of the sediments. Amphipods appeared to be in a transition from inactive decaying mats to the reestablishment of active juvenile populations. The average OSI values at the three mounds (NL-91 and D/S, +8; Seawolf, +8; and USCGA, +9) were all greater than the average for the reference areas (+7). Both the mound and reference area OSI values are indicative of healthy or undisturbed benthic habitat quality at the time of the August 2000 survey.