

EXECUTIVE SUMMARY

A monitoring survey was conducted in October 2009 at the Rhode Island Sound Disposal Site (RISDS) as part of the Disposal Area Monitoring System (DAMOS) Program. The 2009 field effort consisted of obtaining both sediment-profile images (SPI) and plan-view underwater camera (PUC) images at stations located throughout the disposal site and at three nearby reference areas. This survey was conducted more than four years after the disposal of a relatively large volume of sediment from the Providence River and Harbor Maintenance Dredging Project (PRHMDP). The PRHMDP and related projects disposed dredged material at RISDS every month from April 2003 to January 2005.

The previous DAMOS monitoring survey of July 2005 found that the benthic community was recovering relatively rapidly over the disposal site, with Stage 2 and 3 infauna present throughout the region. Because the July 2005 survey was conducted only six months following the cessation of disposal activities (relatively early in the recolonization process), the results showing lower densities of Stage 2 and 3 fauna at the disposal site as compared to the reference areas were expected and well within the normal range of observed recolonization patterns seen at other DAMOS disposal sites (Germano et al. 1994).

Based on these earlier monitoring results, it was predicted that the October 2009 survey would continue to find evidence of relatively advanced succession (Stages 2 and 3) at RISDS. The 2009 survey found that the berm created on the western side of the disposal site was characterized by a variety of benthic habitat types ranging from silt/clay to small rocks (pebbles and cobbles). Many of the rocks were found to be covered with encrusting epifauna, and small crustaceans were visible in a high percentage of the PUC images. Overall, the hard bottom conditions on the berm were providing habitat for a variety of epifauna, including hydroids, bryozoans, shrimp, crabs, and sea stars. Although they were not observed in the images collected during the 2009 survey, it is possible that juvenile lobsters might also be attracted to these hard bottom conditions.

The 2009 survey also found that the dredged material across most of the site continued to consist of relatively soft, sulfidic mud that had undergone considerable consolidation since its original placement five years ago. The exception to this was a relatively small area within the site where sandy, organic-poor dredged material was placed in late 2008 and early 2009. This newer dredged material was characterized by relatively high apparent redox potential discontinuity (aRPD) values and an advanced successional status.

The 2009 survey showed that while there continued to be ample evidence of advanced succession at the stations sampled within the disposal site, deposit-feeding Stage 3 organisms continued to be present at lower apparent densities within the site compared to nearby reference areas located on the ambient seafloor. Possible explanations include grain size differences, continued consolidation of the Providence River dredged material, elevated levels of organic matter and sulfides in this material, and a lack of nearby populations of Stage 3

EXECUTIVE SUMMARY (CONTINUED)

organisms for recruitment. As benthic recovery at the site has proceeded at a slower rate than expected, additional benthic monitoring is recommended following the DAMOS Tiered Monitoring Protocol (Germano et al. 1994).