

EXECUTIVE SUMMARY

A monitoring survey was conducted at the Muscongus Bay Disposal Site (MuBDS) as part of the Disposal Area Monitoring System (DAMOS). The July and September 2005 field efforts consisted of bathymetric and sediment-profile and plan view imaging surveys designed to evaluate the physical distribution of the dredged material and assess the status of the benthic community relative to ambient sediment conditions. The July/September field operations mark the first monitoring surveys conducted at MuBDS under the DAMOS program. This survey provides a characterization of existing conditions at the disposal site that can serve as a baseline against which future impacts can be assessed.

The MuBDS is located in southwestern Muscongus Bay, Lincoln County, Maine immediately offshore of the mouth of New Harbor in Bristol. [The NAD83 coordinates for MuBDS are: Center: -69.4749, 43.8739; NW: -69.4807, 43.8780; SW: -69.4806, 43.8696; SE: -69.4690, 43.8697; NE: -69.4691, 43.8781.] MuBDS was last used during the period of November 1965 to March 1966 for disposal of about 22,142 cubic meters of material removed from the New Harbor Federal Navigation Project during improvement dredging of the upper harbor channel extension and the new Back Cove anchorage. Maintenance dredging of New Harbor in 1936 and the original improvement dredging in 1905 may also have used the site, but no records are available to confirm the disposal site used for those operations. There is interest in using the site again for the next maintenance operation at New Harbor, proposed improvement dredging of Round Pond Harbor, and for future work at these and other harbors on the Pemaquid Peninsula and western Muscongus Bay area.

The bathymetric survey indicated a prominent ledge in the northwest corner of the site, where depths were as shallow as 4 meters. A deep natural channel ran from the northeast corner of the site to the south where it split into two channels ranging in depth from 40 to 50 meters. Less prominent ledges were present along the sides of the channel in the southern portion of the site. No disposal mounds were evident within MuBDS.

The sediment-profile and plan view imaging survey indicated that surface sediments at most of the disposal site stations were composed of fine-grained mud and the grain-size major mode within the disposal site was ≥ 4 phi. There was no distinct sedimentary layer or unique optical marker identifying the presence of historic dredged material. There was no evidence of low dissolved oxygen in the overlying water or subsurface methane generation at any of the sampled locations. All stations in the disposal site and reference areas showed evidence of mature infaunal successional communities with deposit-feeding Stage 3 taxa present. The sediments throughout the site showed deep biological reworking. The results of bioequivalence testing showed the mean RPD values within the disposal site to be no different than those on the ambient seafloor.

There was no evidence of long-term impacts from past dredged material disposal at

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MuBDS, no discernible difference among stations at the disposal site and those in the reference areas in terms of sediment type, depth of the apparent RPD, or infaunal successional stage was identified. The sediments within MuBDS are a classic example of complete benthic ecosystem recovery given sufficient time following a disturbance and it is anticipated that the sediments and benthic community at MuBDS will recover from any future disposal event in the area.