EXECUTIVE SUMMARY

Monitoring surveys were conducted at the Douglas Island Disposal Site (DIDS) as part of the Disposal Area Monitoring System (DAMOS). DIDS is an infrequently used dredged material disposal site located in the waters of eastern Maine off the coast of Milbridge, ME, just northwest of Pond Island. DIDS was last used in 2004 for the disposal of approximately 77,000 m^3 (100,712 cy^3) of material from the Narraguagus River Federal Navigation Project at Milbridge, Maine. The 2003 pre-disposal and the April 2004 post-disposal bathymetric surveys were conducted to monitor sea-floor morphology. The September 2005 field effort consisted of a Sediment-Profile Imaging (SPI) survey designed to assess the status of the benthic community structure relative to ambient sediment conditions.

DIDS is situated in the center of Douglas Island Harbor, approximately 1.5 km (1 mile) north of Douglas Island. [The NAD83 coordinates for DIDS are: Center: -67.8511, 44.4659; NW: -67.8538, 44.4708; SW: -67.8574, 44.4633; SE: -67.8471, 44.4631; NE: -67.8458, 44.4660.] The harbor is located in the southwestern area of Narraguagus Bay in an area sheltered by the Milbridge and Pigeon Hill peninsulas to the west and a series of islands to the south and east. The pre and post-disposal bathymetric surveys were initiated in April 2003 and April 2004 respectively. Water depths at DIDS ranged from 11.25 meters (36.9 feet) to 7.5 meters (24.6 feet) at the disposal mound. Only one disposal mound was evident at DIDS. The deepest portion of the DIDS was located in the northeast area of the site and approximately 300 meters (984.3 feet) south of this area was the shallowest point.

Additional areas of the Narraguagus River Federal Navigation Project at Milbridge, Maine are scheduled for maintenance dredging during the winter of fiscal year 2007. The September 2005 field operations mark the first monitoring surveys conducted at DIDS under the DAMOS program. This survey provides a characterization of existing conditions at the disposal site that can serve as a point of reference against which future impacts can be assessed. Pre and post disposal bathymetric surveys were performed to map the seafloor and to record the creation of any disposal mounds.

The objective of the SPI survey was to assess the benthic community status within the site relative to reference conditions. The sediment-profile imaging survey was completed on 10 September 2005 aboard the *F/V Shanna Rose*. Surface sediments at most of the disposal site stations were composed of sandy silts (poorly-sorted muds with varying degrees of fine sand) and the grain-size major mode within the disposal site was $\geq 4\ \Phi$ at most stations. Four stations (4, 6, 7, and 17) had sediments that were mainly very fine sand. Average prism penetration at the site was 13.2 cm with the shallowest values found at stations with highest sand fractions. The average site small-scale surface boundary roughness was 1.5 cm and the majority of topographical roughness elements were due to biogenic feeding pits and mounds.

There was no evidence of low dissolved oxygen in the overlying water or subsurface methane generation at any of the sampled locations.

Bioequivalence or interval testing was used to compare both successional stage rank and mean RPD values from the reference areas with those from the disposal site. The test results showed that mean RPD values between these two areas were equivalent within our definition of "ecologically meaningful", while the successional stage rank values from the reference areas and disposal mounds were inequivalent.

Most stations in the disposal site and all reference areas showed evidence of mature infaunal successional communities with deposit-feeding Stage 3 taxa (head-down, deposit-feeding invertebrates) present. DIDS only had two stations that did not have a well-developed community of Stage 3 taxa. The site had an average mean apparent RPD value of 1.7 cm.

The apparent RPD values for the Douglas Island reference sites were not as deep as those found at other reference sites for disposal areas because of periodic physical disturbance due to sediment transport and deposition in the areas.