

EXECUTIVE SUMMARY

A monitoring survey was conducted in September and October 2011 at the Morris Cove Borrow Pit (MCBP) in New Haven Harbor, Connecticut as part of the U.S. Army Corps of Engineers New England District's Disposal Area Monitoring System (DAMOS) Program. The 200 x 750 m pit was created in the 1950's by the removal of approximately 765,000 m³ of material for use as road base. The excavation left an irregularly shaped depression up to 7 m deeper than the uniform bottom of the surrounding cove. The protected nature of Morris Cove and New Haven Harbor resulted in the preservation of the pit with little change over six decades. A previous study indicated the potential for the deeper, less flushed waters within the borrow pit to become anoxic during the late summer months.

The MCBP was investigated because the man-made depression has been considered for potential dredged material placement and coupled habitat restoration through elimination of the deeper, potentially stagnant zone. The 2011 investigation consisted of bathymetric and sediment-profile imaging (SPI) surveys designed to characterize the seafloor topography of the borrow pit and characterize benthic habitat conditions.

The multibeam bathymetric survey was performed over a 300 x 800 m area that encompassed the entire borrow pit site. Ambient seafloor depths averaged 2 m on the eastern side of the pit and 3.5 m to the west. The maximum depth observed was approximately 9.5 m in the southeastern portion of the borrow pit. The general features of the borrow pit remained consistent with previous surveys (e.g., isolated deep depressions, steeply sloped walls, and a 4 m rise in the middle of the pit) with no significant changes in its overall configuration since the last survey in 2002.

The 2011 sediment-profile imaging survey was performed along 5 transects perpendicular to the long axis of the borrow pit and extending onto ambient bottom on each side. The stations on the west side of the borrow pit were typically fine grained sand over silt and clay, with advanced Stage 3 biological communities present at every station. The SPI stations on the eastern side of the borrow pit consisted of coarse sand and shell covered substratum with low to moderate penetration and generally indeterminate aRPD depths. Within the pit, the sediments were typically soft and unconsolidated in nature with methane gas present at many stations. The stations within the borrow pit indicated both deposition and a stressed biological community.

EXECUTIVE SUMMARY (continued)

A limited amount of dredged material was placed into the borrow pit in 2002 as part of a pilot study of larger scale dredged material disposal. This material was still visible in the 2011 survey as well as evidence of deposition of 6-10 cm of organic rich sediment over much of the borrow pit. There was also a visual signature in the sediment of episodic anoxic events. The results of the 2011 survey indicate that the degraded biological conditions within the borrow pit will likely persist for the foreseeable future and that there is opportunity for approximately 43 acres of habitat restoration if the pit were filled in and returned to its pre-excavation contours eliminating the potential for site specific anoxic conditions. Restoration of the borrow pit area would increase available shellfish habitat and potentially provide additional winter flounder spawning and nursery grounds.