

## EXECUTIVE SUMMARY

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In support of the Disposal Area Monitoring System (DAMOS), Science Applications International Corporation (SAIC) conducted a series of environmental monitoring surveys at the Massachusetts Bay Rock Reef Site (MBRRS). The reef site is located approximately 1 km northeast of the current Massachusetts Bay Disposal Site (MBDS) boundary, within the confines of the historic dredged material disposal site known as Interim MBDS, or Foul Area Disposal Site (FADS). The summer 2002 field effort consisted of collecting precision bathymetric, side scan sonar, and drop video data over areas of seafloor along the western margin of Stellwagen Bank subjected to the deposition of excavated rock between 1992 and 1993. The objectives of the survey were to document the presence and relative abundance of rock colonizing sessile organisms, numbers of motile fish and invertebrates, and presence of fishing gear at the reef.

Blasted rock emanating from the Third Harbor Tunnel Project in Boston and an additional dredging project in Weymouth Fore River was deposited at the MBRRS between 1992 and 1993. The intention of placing rock within an area of homogenous silty sand substrate was to promote habitat diversity and serve as a beneficial use of dredged material. Prior to the summer 2002 survey, limited monitoring consisting of a laser line scan survey was performed at MBRRS in April 1993. Occurring approximately ten years postdisposal, the summer 2002 survey was the first monitoring effort performed under the DAMOS program to determine the spatial limits of the rock, evaluate seafloor topography, and assess benthic recolonization within MBRRS.

Bathymetry and side scan sonar results indicated that the rock material placed within MBRRS appeared to be concentrated near the center of the site and consisted of numerous elongated and overlapping deposits adjacent to areas of sandy, coarse-grained sediment. Depth difference comparisons based upon bathymetric data collected over the Interim MBDS in November 1988 indicated the majority of the reef structure offered approximately 2 to 3 m of vertical relief over the ambient bottom with a maximum height of 5 m near the center of the feature. Drop video data agreed well with the bathymetric and side scan sonar results and indicated the seafloor within the MBRRS consisted primarily of sandy, coarse-grained sediment overlain by cobbles, boulders, and gravel. The seafloor within the area of concentrated rock placement (center of MBRRS) consisted of hard substrate dominated by cobble and boulders.

Approximately ten years following disposal activities, the benthic recolonization over the surface of the deposit appeared to be progressing slowly. Various types of sponges, bryozoans, and tunicates composed the sessile community encrusting the rocky substrate, while mud anemones were established in the softer sediments surrounding the rock deposits.

## EXECUTIVE SUMMARY (continued)

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Footage from the drop video survey indicated the density of encrusting organisms ranged from 5 to 25 percent cover in the cobble areas and 1 to 5 percent in the boulder areas. These densities are considered low relative to other areas of hard substrate at equivalent water depths along the coast of New England. The recolonization process may be progressing more slowly than anticipated due to the presence of a sediment drape on many of the rock surfaces that accumulates between ocean storm events and may have been acting to smother thin encrusting forms or interfering with settlement cues of invertebrate larvae.

Geo-tactile fish and invertebrates such as lobsters, crabs, bivalves, and sea stars appeared to inhabit the reef. In addition, active and abandoned fixed fish harvesting gear (lobster pots) were present. These findings suggest this area of seafloor has likely developed into a relatively productive fishing area over the past ten years.