

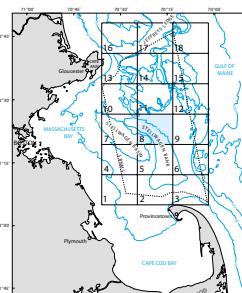
## DISCUSSION

## Introduction

The Stellwagen Bank National Marine Sanctuary Mapping Project is a cooperative effort between the National Oceanic and Atmospheric Administration and the U.S. Geological Survey and the National Oceanic and Atmospheric Administration's National Ocean Service and the Canadian Hydrographic Service. The multibeam sonar survey was conducted on four cruises over a two-year period from fall of 1994 to fall of 1996. This report shows one of a series of 18 quadrilaterals (see location map) in which sea floor depth measurements were taken at 150-m intervals over a 1350-m by 1350-m, with 125-m contour interval overlaid in the image. The image shown was run a cuneiform angle of 45 degrees above the horizon from an altitude of 350 m. The bathymetry is shown as a grayscale image, with the white areas being those enhanced by having the angle of the sea floor from a position 100 meters to the west of the point where the sea floor is smooth, and the black areas those where the sea floor is smooth, and they include small highs and lows and underwater looking features and patterns that are oriented parallel or perpendicular to the bathymetry. The bathymetry is shown as a grayscale image, and an arrow indicates the direction of the bathymetric contour lines, and an arrow indicates the direction of survey and topographic data-projected bathymetric contour map by Valentine and others (1997). Topographic contour maps of 18 quadrilaterals in the map series are available at <http://www.ngdc.noaa.gov/mgg/epic/> in EPIC, PC, PDF, and TIF formats.

especially smooth floor of Stellwagen Bank ranges in depth from 70 to 105 m; it is covered with muddy sand below the bank escarpment and with mud farther west. The southern margin of the basin here is bounded by a spur of Stellwagen Bank and a small adjacent bank that have a relief of 15 to 25 m and are covered with sand and gravel, including boulders (see adjacent Quadrangle 5 map; Valentine and others, 1996a). On the southern margin of the basin, the sand and gravel, including the boulders, almost float in mud that is interspersed by shallow depressions. The depressions are low mounds that bear similar features in Quadrangle 7 to the west (Valentine and others, 1996a). These features range up to several hundred meters in length, and observations have shown the mounds, in some places, to be patches of gravel, including boulders, that are frequently by groundtruth. Boulders and smaller gravel have been observed in the bottom of pits in the mud in which fish are present. These depressions are interpreted to have been formed by the scouring actions of groundtruth.

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Location map outlining the 18 quadrangles in this series. Quadrangle 8 shown in blue. Stellwagen Bank National Marine Sanctuary (SBNMS) boundary indicated by dashed line. Bathymetric contours in meters.

# SUN-ILLUMINATED SEA FLOOR TOPOGRAPHY OF QUADRANGLE 8 IN THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY OFF BOSTON, MASSACHUSETTS

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