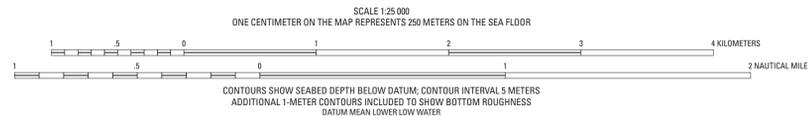


Mercator projection  
Geodetic Reference System 1983; North American Datum of 1983  
Longitude of central meridian 70°19' W; latitude of true scale 41°39' N  
False easting 0 m; false northing 0 m  
This map is not intended for navigational purposes



**DESCRIPTION OF MAP UNITS**

[Unlayered substrates and the upper layer of layered substrates are grouped by the mean weight percent of their fine- and coarse-grained sand contents. For textural characteristics of individual substrates, see the section "Description of Map Units (Substrates)" (in pamphlet), tables 6 and 7 (in pamphlet), and Valentine and Cross (2024d). The southeastern corner of the map area was not mapped because multibeam sonar data were not collected there.]

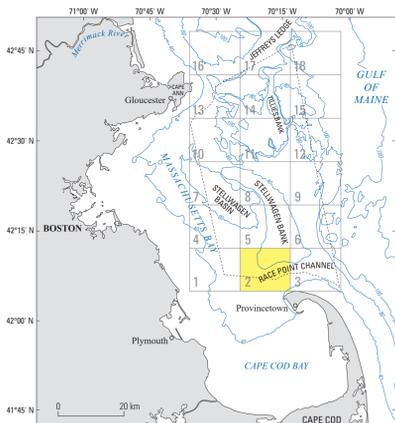
**Substrate dominated by fine-grained sand in the sand fraction**—Fine-grained sand, muddy fine-grained sand, and fine-grained sandy mud in which fine-grained sand (3 and 4 phi combined) constitutes the largest portion of the sand fraction; equivalent to substrates H, L, P, R, X, AB, and AF on map D

**Substrate dominated by coarse-grained sand in the sand fraction**—Coarse-grained sand in which coarse-grained sand (0, 1, and 2 phi combined) constitutes the largest portion of the sand fraction; equivalent to substrates A1, A3, K, Y, Z, AA, AC, AD, AE, AG, and AH on map D

**Boulder ridge  $\geq 1$  m in height**—Equivalent to substrate C on map D

**EXPLANATION OF MAP SYMBOLS**

- Stellwagen Bank crestline
- Leading edge of sand sheet formed by episodic sediment transport



**Location Map.** Map showing the location of quadrangle 2 (highlighted in yellow) of the Stellwagen Bank National Marine Sanctuary region offshore of Boston, Massachusetts. The numbered grid indicates the quadrangles of the U.S. Geological Survey multibeam sonar substrate-mapping project. The dashed line represents the Stellwagen Bank National Marine Sanctuary boundary. Bathymetric contours are labeled in meters and the contour interval is variable. Figure modified from Valentine and Cross (2024c).

**Map F.—Distribution of Fine- and Coarse-Grained Sand and Boulder Ridges**

Seabed Maps Showing Topography, Ruggedness, Backscatter Intensity, Sediment Mobility, and the Distribution of Geologic Substrates in Quadrangle 2 of the Stellwagen Bank National Marine Sanctuary Region Offshore of Boston, Massachusetts

By  
**Page C. Valentine and VeeAnn A. Cross**  
2024

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