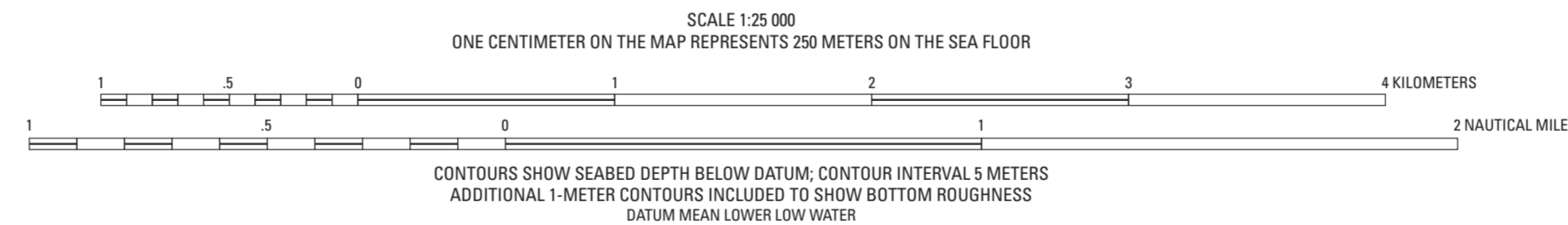


Mercator projection  
Geodetic Reference System 1980; North American Datum of 1983  
Longitude of central meridian 70°19' W; latitude of true scale 41°39' N  
False easting 0 m; false northing 0 m  
This map is not intended for navigational purposes



**DESCRIPTION OF MAP UNITS**

[Sediment mobility is based on the presence of sand ripples observed in video and photographic imagery. Substrates are mapped as irregular-sided polygons if the density of data allows for their extent to be mapped with some confidence. Substrates are mapped as straight-sided polygons if transitions between substrates are ambiguous because data are sparse. 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 (2024b)]

**Mobile sediment**—Rippled sand; equivalent to substrates A1, A3, H, and K

**Mobile and immobile sediment**—Rippled sand partial veneer on immobile pebble, cobble and boulder gravel (equivalent to substrates B and J), and rippled sand partial veneer on immobile semiconsolidated mud (equivalent to substrate W)

**Immobile sediment**—Sand (equivalent to substrate I), muddy sand (equivalent to substrates L, N, O, and P), sandy mud (equivalent to substrate R), mud (equivalent to substrate S), muddy sand partial veneer on gravel (equivalent to substrates M, Q, and T), sandy mud partial veneer on gravel (equivalent to substrate V), and gravel pavement (equivalent to substrate U)

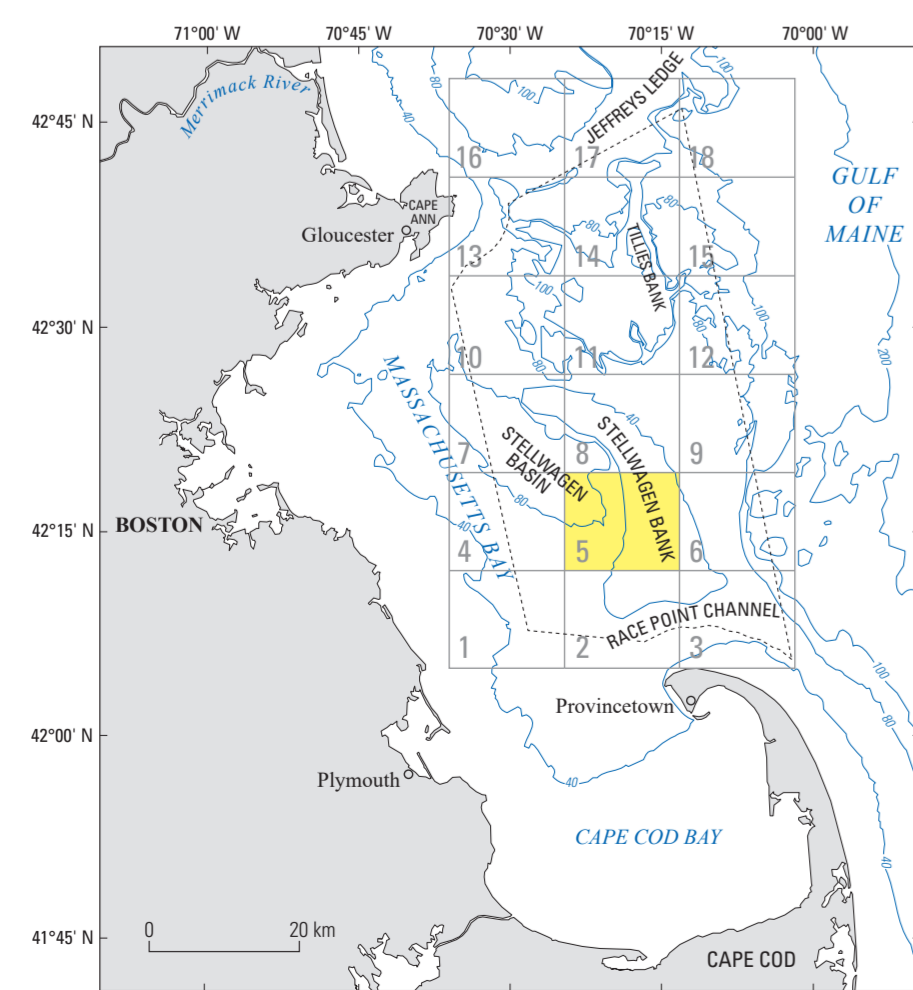
**Boulder ridges <1 m in height**—Equivalent to substrate C

**Boulder ridges ≥1 m in height**—Equivalent to substrate C

**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 5 (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. Base from Valentine and Gallego (2015).

**Map E.—Sediment Mobility**

**Seabed Maps Showing Topography, Ruggedness, Backscatter Intensity, Sediment Mobility, and the Distribution of Geologic Substrates in Quadrangle 5 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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For sale by U.S. Geological Survey, Box 25286, Denver Federal Center, Denver, CO 80225; <https://www.usgs.gov>; 1-888-ASK-USGS (1-888-275-4747)  
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