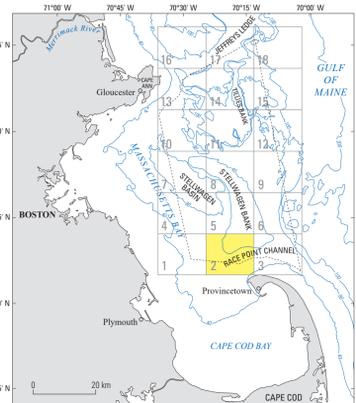
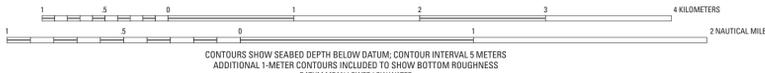


Mercator projection
Geodetic Reference System 1980; North American Datum of 1983
Longitude of central meridian 70°19' W; latitude of true scale 41°39' N
False easting 0 m; false northing 0 m
This map is not intended for navigational purposes

SCALE 1:25 000
ONE CENTIMETER ON THE MAP REPRESENTS 250 METERS ON THE SEA FLOOR



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).

DESCRIPTION OF MAP UNITS

[Grain-size categories are given in mean weight percents. 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 differences between substrates and an explanation of characters used in their names, see the section "Description of Map Units (Substrates)" and table 3 (in pamphlet). For more information on the sediment textural properties of all identified substrates, see 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.]

- A1_r_cgS** Rippled, coarse-grained sand—Water depth range of the mapped substrate: 19 to 55 m. Grain-size categories: mud, <1; sand, 97 (fgS, 2; egS, 95); gravel, 3 (G₁, 3; G₂, <1)
- Ci_cbG** Immobile, cobble, boulder gravel—Substrate C is a boulder ridge whose gravelly margin is partially veneered by rippled, coarse-grained sand. Water depth range of the mapped substrate: 55 to <60 m. Upper layer grain-size categories: mud, 1; sand, 88 (fgS, 15; egS, 73); gravel, 10 (G₁, 10; G₂, 0)
- Xi_fgS** Rippled, fine-grained sand—Water depth range of the mapped substrate: 37 to 42 m. Grain-size categories: mud, 1; sand, 99 (fgS, 89; egS, 10); gravel, 0 (G₁, 0; G₂, 0)
- Kr_cgS** Rippled, coarse-grained sand—Water depth range of the mapped substrate: 40 to 58 m. Grain-size categories: mud, 1; sand, 99 (fgS, 19; egS, 80); gravel, 0 (G₁, 0; G₂, 0)
- Pi_mfgS** Immobile, muddy, fine-grained sand—Water depth range of the mapped substrate: 49 to 58 m. Grain-size categories: mud, 9; sand, 90 (fgS, 75; egS, 15); gravel, 0 (G₁, 0; G₂, 0)
- Pi_mfgS** Immobile, muddy, fine-grained sand—Water depth range of the mapped substrate: 51 to 68 m. Grain-size categories: mud, 23; sand, 76 (fgS, 68; egS, 8); gravel, <1 (G₁, <1; G₂, 0)

- Ri_fgS** Immobile, fine-grained sandy mud—Water depth range of the mapped substrate: 60 to 64 m. Grain-size categories: mud, 68; sand, 32 (fgS, 29; egS, 3); gravel, <1 (G₁, <1; G₂, 0)
- Xi_fgS** Immobile, fine-grained sand—Water depth range of the mapped substrate: 44 to 55 m. Grain-size categories: mud, 5; sand, 95 (fgS, 82; egS, 13); gravel, <1 (G₁, <1; G₂, 0)
- Yr_cgS** Rippled, coarse-grained sand—Water depth range of the mapped substrate: 54 to 64 m. Grain-size categories: mud, 4; sand, 95 (fgS, 36; egS, 59); gravel, 1 (G₁, 1; G₂, 0)
- Zr_cgS** Rippled, coarse-grained sand—Water depth range of the mapped substrate: 50 to 60 m. Grain-size categories: mud, 2; sand, 98 (fgS, 9; egS, 89); gravel, 1 (G₁, 1; G₂, <1)
- AA_r_gcS/i_pcG** Rippled, gravelly, coarse-grained sand; partial veneer on immobile, pebble, cobble gravel—Water depth range of the mapped substrate: 27 to 35 m. Upper layer grain-size categories: mud, <1; sand, 55 (fgS, 6; egS, 49); gravel, 45 (G₁, 16; G₂, 29)
- AB_r_fgS** Rippled, fine-grained sand—Water depth range of the mapped substrate: 44 to 63 m. Grain-size categories: mud, 4; sand, 96 (fgS, 71; egS, 25); gravel, <1 (G₁, <1; G₂, 0)
- AC_r_cgS** Rippled, coarse-grained sand—Water depth range of the mapped substrate: ~60 m. No sediment samples of substrate AC were collected in quadrangle 2; the single grain-size analysis from this substrate is from a sample collected in quadrangle 3 to the east. Grain-size categories: mud, 2; sand, 98 (fgS, 12; egS, 86); gravel, <1 (G₁, <1; G₂, 0)

- AG_r_cgS** Rippled, coarse-grained sand—Water depth range of the mapped substrate: ~55 to ~60 m. Grain-size categories: mud, <1; sand, 100 (fgS, 5; egS, 95); gravel, 0 (G₁, 0; G₂, 0)

EXPLANATION OF MAP SYMBOLS
[Magenta circle and magenta square symbols show the locations of sample stations where sediment samples were collected or the locations of ends of video drifts if no sediment was collected]

- Stellwagen Bank crestline
- Leading edge of sand sheet formed by episodic sediment transport
- Video transect—Line shows the ship's drift path during videography of the seabed. Still photographs were collected during some video drifts. Some drifts are too short to be shown at this scale
- Station location of mapped substrate—Data from these stations were used to map the extents of substrates. See Valentine and Cross (2024d) for data on these stations
- Station location of unmapped substrate—Data from these stations represent substrates A1, A3, AD, AE, AF, and AH that occur as scattered deposits within other mapped substrates and could not be mapped as coherent units. See Valentine and Cross (2024d) for data on these stations
- 1 Numbered boxes around clusters of stations—Boxes 1 to 10 are drawn to surround clusters of stations which are too closely spaced to be labeled at this scale. See Valentine and Cross (2024d) for data on these stations

Sheet 1.—Seabed geology and station data types
Map D.—Distribution of Geologic Substrates

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
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2024

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