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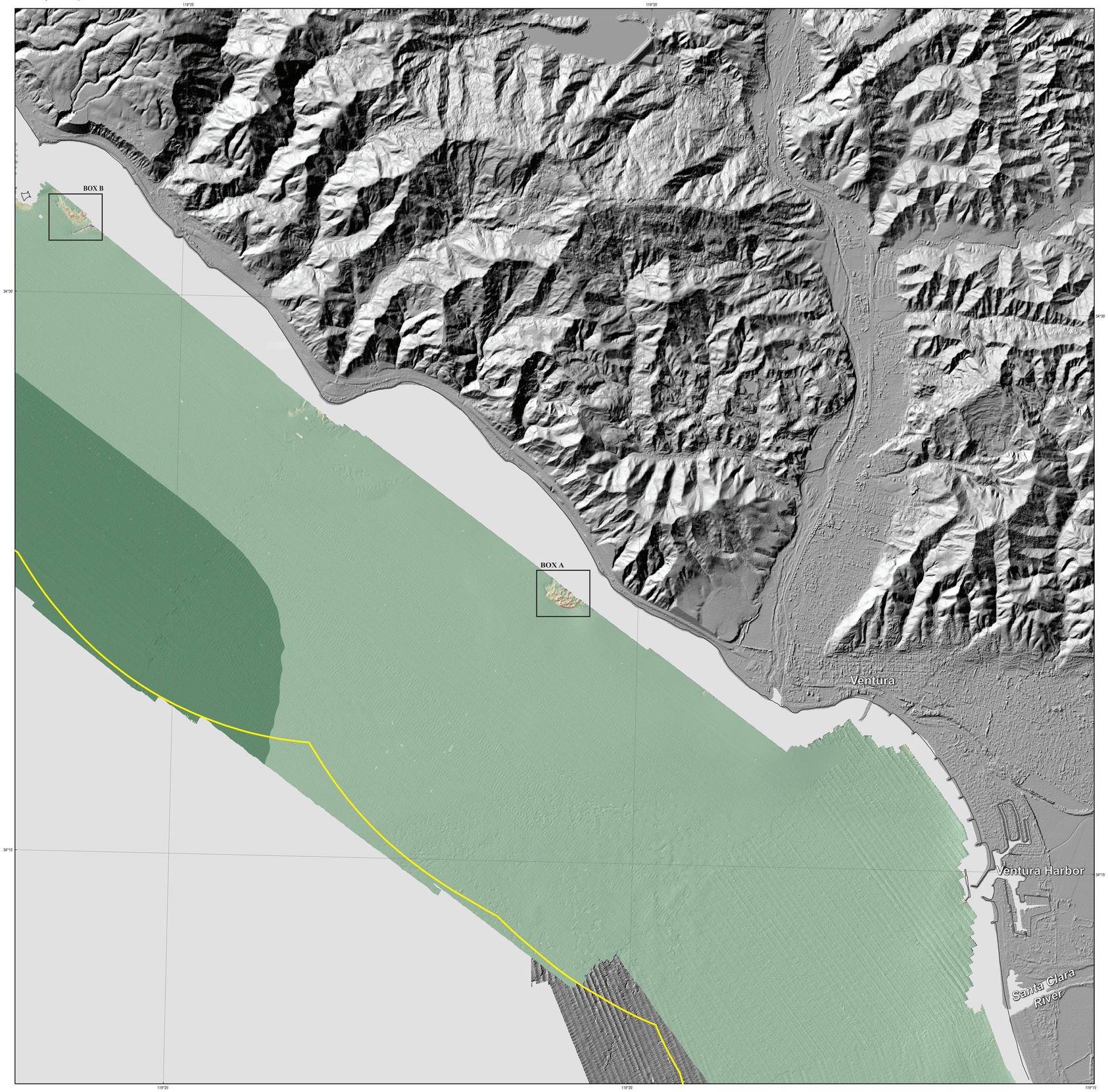
Scientific Investigations Map 3254
Sheet 5 of 11
Pamphlet accompanies map



Onshore elevation data from NOAA Coastal Services Center (data collected by EarthData International in 2002-2003). Offshore shaded-relief bathymetry from map on sheet 2, this report. California's State Waters limit from NOAA Office of Coast Survey

Universal Transverse Mercator projection, Zone 11N

NOT INTENDED FOR NAVIGATIONAL USE

APPROXIMATE MEAN DECLINATION, 2013

SCALE 1:24 000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
ONE MILE = 0.869 NAUTICAL MILES

MAP LOCATION

Seafloor character mapped by Eleyne L. Phillips and Guy R. Cochrane, 2011

GIS database and digital cartography by Eleyne L. Phillips, Mercedes D. Erdey, and Florence L. Wong

Edited by Taryn A. Lindquist

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Seafloor Character, Offshore of Ventura Map Area, California

By

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2013

DESCRIPTION OF MAP UNITS

DEPTH ZONE 2—INTERTIDAL TO 30 METERS WATER DEPTH

SLOPE CLASS 1—0 TO 5 DEGREES

Fine- to medium-grained smooth sediment—Low backscatter, low rugosity; typically mud to medium-grained sand; often rippled and (or) burrowed

Mixed smooth sediment and rock—Moderate to very high backscatter, low rugosity; typically coarse-grained sand, gravel, cobbles, and bedrock

Rock and boulder, rugose—High backscatter, high rugosity; typically boulders and rugose bedrock

Hard anthropogenic material—High backscatter, high rugosity; related to development by humans

DEPTH ZONE 3—30 TO 100 METERS WATER DEPTH

SLOPE CLASS 1—0 TO 5 DEGREES

Fine- to medium-grained smooth sediment—Low backscatter, low rugosity; typically mud to medium-grained sand; often rippled and (or) burrowed

Mixed smooth sediment and rock—Moderate to very high backscatter, low rugosity; typically coarse-grained sand, gravel, cobbles, and bedrock

EXPLANATION OF MAP SYMBOLS

Area of "no data"—Areas near shoreline not mapped owing to insufficient high-resolution seafloor mapping data; areas beyond 3-nautical-mile limit of California's State Waters were not mapped as part of California Seafloor Mapping Program

3-nautical-mile limit of California's State Waters

DISCUSSION

This seafloor-character map of the Offshore of Ventura map area in southern California was produced using video-supervised, maximum-likelihood classification of the bathymetry and backscatter (intensity of return) signals from sonar systems (a summary of the video data collected for the purpose of supervising the classification is shown on sheet 6). Rugosity (a GIS-derived characterization of roughness) and backscatter intensity were used as variants in the classification. The interpreted classifications were then draped over shaded-relief bathymetry (see sheet 2). Note that no interpreted classifications were made in an area at the south edge of the map owing to insufficient data.

The substrate classes mapped in this area have been divided into the following California Marine Life Protection Act depth zones: Depth Zone 2 (intertidal to 30 m), and Depth Zone 3 (30 to 100 m). In addition, the following slope class is represented on this map (Coastal and Marine Ecological Classification Standard slope zone is shown in parentheses): Slope Class 1, 0° to 5° (flat). Depth Zone 1 (intertidal), Depth Zones 4 and 5 (greater than 100 m), and Slope Classes 2 to 4, greater than 5° (sloping to vertical) are not present in this map area.

Fine- to medium-grained smooth sediment (sand and mud) makes up 99.6 percent of the map area (100.1 km^2): 84.8 km^2 is in Depth Zone 2, and 15.3 km^2 is in Depth Zone 3. Mixed smooth sediment (sand and gravel) and rock (sediment typically forming a veneer over bedrock, or rock outcrops having little to no relief) make up 0.3 percent of the map area (0.3 km^2). 0.3 km^2 is in Depth Zone 2, and less than 0.1 km^2 is in Depth Zone 3. Rock and boulder, rugose (rock and boulder outcrops having high surficial complexity), which makes up less than 0.1 percent (<0.1 km^2) of the map area, is present only in Depth Zone 2. Anthropogenic material (a pipe or sewer and surrounding hard debris), which makes up less than 0.1 percent (<0.1 km^2) of the map area, is present only in Depth Zone 2 (table 1).

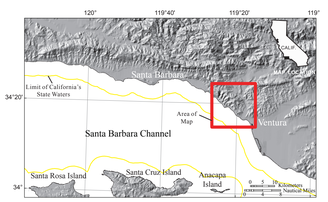

Table 1. Coverage of classified seafloor, in square kilometers (sq km) and percent of total area, broken into California Marine Life Protection Act Depth Zones 2 and 3.

	Total		Zone 2 (water depth 0–30 m)		Zone 3 (water depth 30–100 m)	
	percent	sq km	percent of total	sq km	percent of total	sq km
Fine- to medium-grained smooth sediment	99.6	100.1	84.4	84.8	15.2	15.3
Mixed smooth sediment and rock	0.3	0.3	0.3	0.3	<0.1	<0.1
Rock and boulder, rugose	<0.1	<0.1	<0.1	<0.1	0.0	0.0
Anthropogenic material (pipe)	<0.1	<0.1	<0.1	<0.1	0.0	0.0

BOX A

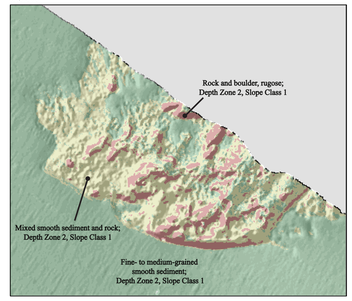

Figure 1. Detailed view of substrate classes mapped in area between Ventura and Pitas Point (see Box A, on map, for location): Depth Zone 2 (intertidal to 30 m), and Slope Class 1 (0°–5°). Fine- to medium-grained smooth sediment is shown in shades of green; mixed smooth sediment and rock is shown in shades of tan; and rock is shown in shades of pink.

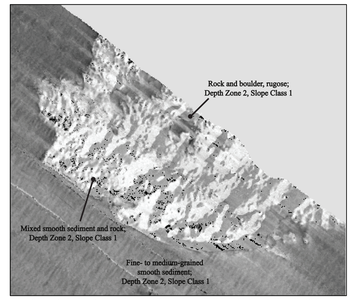

Figure 2. Acoustic-backscatter image (see sheet 3) draped over shaded-relief bathymetry (see sheet 2) for same area as figure 1 (Box A on map). Brighter areas indicate coarse-grained, rough, or hard seafloor; darker areas indicate unconsolidated (loosely packed) sediment; small black areas are data-processing artifacts. Interpreted substrate classes from figure 1 included for comparison.

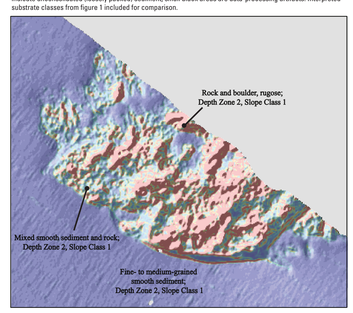

Figure 3. Rugosity (characterization of roughness derived from bathymetry) draped over shaded-relief bathymetry (see sheet 2) for same area as figure 1 (Box A on map). Rugosity values are displayed in muted "rainbow" color spectrum that ranges from purple (low rugosity) through green (medium rugosity) to red (high rugosity). Areas of high slope are indicated by high-rugosity values (red); areas of low slope, by medium- to low-rugosity values (green to purple). Interpreted substrate classes from figure 1 included for comparison.

BOX B

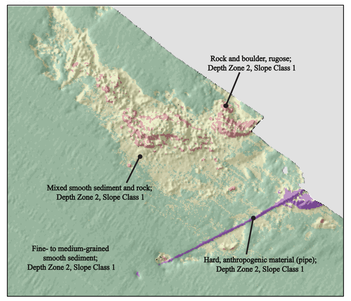

Figure 4. Detailed view of substrate classes mapped in area offshore of Punta Gorda, northwest of Ventura (see Box B, on map, for location): Depth Zone 2 (intertidal to 30 m), and Slope Class 1 (0°–5°). Fine- to medium-grained smooth sediment is shown in shades of green; mixed smooth sediment and rock is shown in shades of tan; rock is shown in shades of pink; and hard anthropogenic material (pipe) is shown in shades of purple.

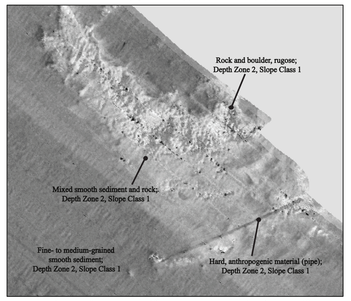

Figure 5. Acoustic-backscatter image (see sheet 3) draped over shaded-relief bathymetry (see sheet 2) for same area as figure 4 (Box B on map). Brighter areas indicate coarse-grained, rough, or hard seafloor; darker areas indicate unconsolidated (loosely packed) sediment; small black areas are data-processing artifacts. Interpreted substrate classes from figure 4 included for comparison.

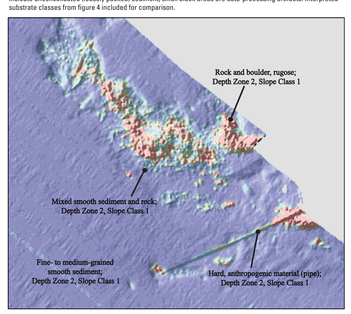

Figure 6. Rugosity (characterization of roughness derived from bathymetry) draped over shaded-relief bathymetry (see sheet 2) for same area as figure 4 (Box B on map). Rugosity values are displayed in muted "rainbow" color spectrum that ranges from purple (low rugosity) through green (medium rugosity) to red (high rugosity). Areas of high slope are indicated by high-rugosity values (red); areas of low slope, by medium- to low-rugosity values (green to purple). Interpreted substrate classes from figure 4 included for comparison.

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