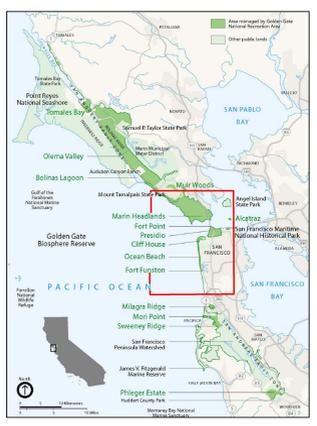


Map compiled by Charlie Endino, H. Gary Greene, Bryan Dieter, and Erik Nivens, with contributions from Patrick Raimond and Elyse Phillips, 2010
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 US Geological Survey, Menlo Park, CA

Golden Gate National Recreation Area
 Seabed Classification Map Series
 Map 1 of 5:
 Sun-Illuminated (315° azimuth) Bathymetry

The seafloor of San Francisco Bay, and the offshore coast of Marin, San Francisco, and San Mateo counties contains a myriad of sedimentary bedforms, erosional scars, and rocky outcrops. Tremendous quantities of sediment have been deposited here, from the heavy sediment bedload of the Sacramento River. Following the Gold Rush of the mid to late 1800s, hydraulic, anthropogenically generated materials substantially increased this bedload. Over time, the sea has accumulated in the form of dynamic sediment waves, similar to terrestrial sand dunes, some as large as 6 meters (20 feet) in height and 100 meters (330 feet) in wavelength. These sedimentary features are shaped and modified on a daily basis by the swift tidal currents flowing in and out of the bay. Large rock outcrops punctuate the floor of the central bay, many of which have been dynamited to make the bay safer to navigate for large deep-draft vessels. Other man-made features such as dredge scars, outflow pipes, and shipwrecks are also visible in the imagery.

The datasets used to create the map were gathered using shipboard instrumentation known as multibeam echosounders (MBES). Millions of depth soundings are recorded and subsequently corrected for ship movement and tides, and are accurate to roughly ten centimeters. Data processing yields a bathymetric grid, a marine version of the digital elevation model (DEM) used for terrestrial areas, with a resolution of two meters outside the bay and one meter inside the bay. Post-processing of the depth grid using GIS software yields the shaded relief imagery shown here. This imagery forms the base layer upon which other datasets may be superimposed and used for seafloor interpretation.



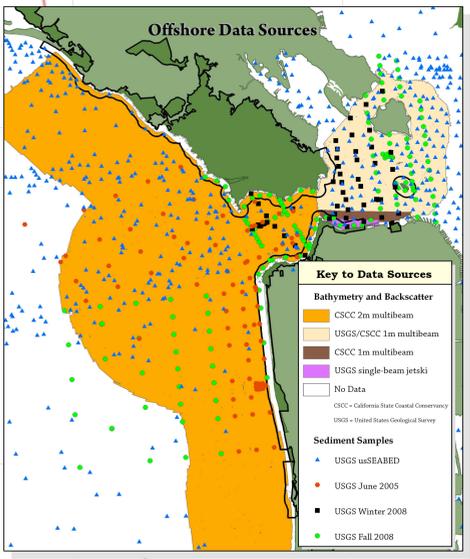
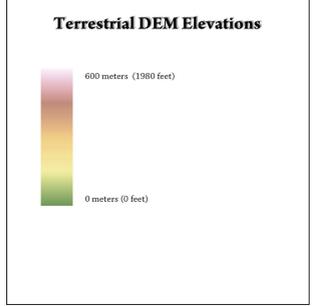
Map Information

Map Scale - 1:24,000

Datum - WGS 1984
 Projection - UTM Zone 10

Key to Map Features

- 2m Sun-illuminated (315°) multibeam bathymetry
- GGNRA boundary (includes both onshore and offshore areas)
- Monterey Bay and Gulf of the Farallons National Marine Sanctuary boundaries
- Roadways: Red = highways Gray = Surface streets
- Terrestrial waterways: Blue Lines = Streams Blue Polygons = Lakes
- 10m Digital Elevation Model (DEM) within terrestrial park boundary
- 10m DEM outside terrestrial park boundary



See 'Area of Interest Maps' detailing Mori Point and Devil's Slide located to the South

Map produced at the Center for Habitat Studies, Moss Landing Marine Laboratories, in conjunction with the U.S. Geological Survey (USGS) and the National Park Service

Golden Gate
 National Recreation Area