Golden Gate National Recreation Area

Seabed Classification Map Series

Map 2 of 5:
Color-coded Bathymetry w/ contours

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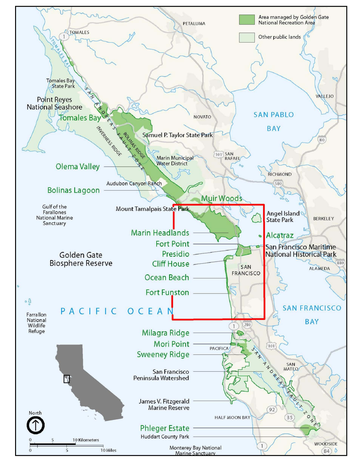
The seafloor of San Francisco Bay, and the offshore coast of Marin, San Francisco, and San Mateo counties contains a myriad of sedimentary bedforms, erosional scours, and rocky outcrops. Tremendous quantities of sediment have been deposited here, from the heavy sediment bedload of the Sacramento River. Following the Gold Rush of the mid to late 1800's, hydraulic, anthropogenically generated materials substantially increased this bedload. Over time, the sand 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 scours, 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 less than a meter. 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, which forms the base layer of the marine areas of this map. Overlying a transparency of the original depth grid, color-coded for different depth values, reveals the relative depths and varied morphology of all the marine areas shown in the map. GIS analysis also yields the contour lines connecting points of absolute depths in ten meter intervals.



Map Information

Map Scale - 1:24,000

Datum - WGS 1984
Projection - UTM Zone 10

N
W E
S

0 0.5 1 2 Kilometers
0 0.5 1 1.5 Miles

Contour Interval - 10 meters

Key to Map Features

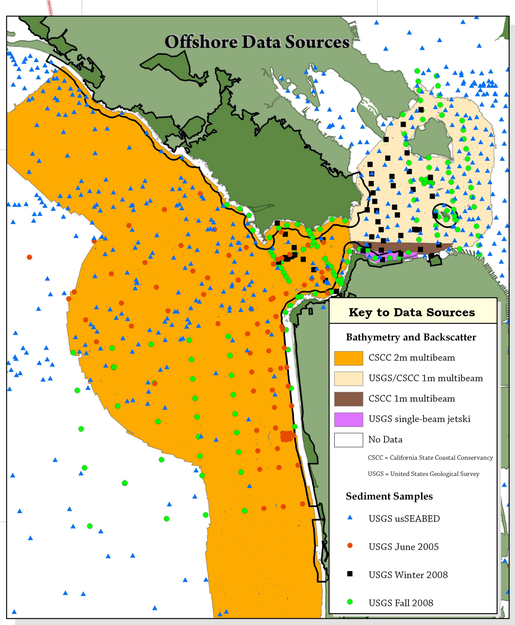
- Bathymetric contours over color-coded bathymetry — Contour Interval = 10 meters
- GGNRA boundary (includes both onshore and 1/4 mile offshore areas)
- Montery Bay and Gulf of the Farallons National Marine Sanctuary boundaries
- Roadways: Red = highways Gray = Surface streets
- Terrestrial waterways: Blue Lines = Streams, Blue Polygons = Lakes
- 10m Digital Elevation Model (DEM) within terrestrial park boundary
- 10m DEM outside terrestrial park boundary

Bathymetric DEM Depths

0 meters (0 feet)
115 meters (380 feet)

Terrestrial DEM Elevations

600 meters (1980 feet)
0 meters (0 feet)



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

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