Acoustic Backscatter, Offshore of Refugio Beach Map Area, California

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The acoustic backscatter map of the offshore of Refugio Beach map area was created from backscatter data collected by the U.S. Geological Survey (USGS) in 2008 and refined in 2012. The map shows the seafloor texture and sediment type as measured by acoustic backscatter, which is a complex interaction between the acoustic pulse and the seafloor, as well as characteristics within the seafloor. The intensity of backscatter represents the reflectivity of the seafloor and can indicate the presence of rocks, hard substrates, or organic material.

Bathymetric contours were created using USGS software that normalizes for time-varying signal loss and beam-directivity differences. The raw 16-bit backscatter data were gain-normalized to enhance contrast and produce a high-precision vessel-attitude packet. This packet was transmitted to the acquisition software in real time and combined with instantaneous sound-velocity measurements at the transducer head before each ping. The returned samples were projected to the seafloor using a ray-tracing algorithm that works with previously measured sound-velocity profiles. Statistical filters were applied to discriminate seafloor returns (soundings). The map was printed on an electronic plotter directly from digital files.

Digital files are available at http://pubs.usgs.gov/sim/3319/ and are also available through the USGS online data store at http://dx.doi.org/10.3133/sim3319. The map is also available as a web viewer at http://viewer.usgs.gov/viewer.html (last accessed November 2012). The map was produced as part of the USGS California Seafloor Mapping Program and is intended for informational purposes only. The map was printed on an electronic plotter directly from digital files. Dimensional calibration may vary between electronic plotters.