

CONSERVATION SCIENCE PROGRAMS & RESEARCH NEEDS CORDELL BANK NATIONAL MARINE SANCTUARY



NOAA/Cornelia Oedekoven



CBNMS/Tristan McKee



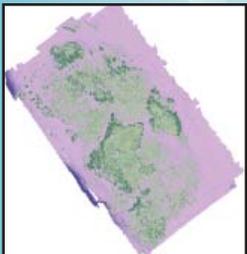
CBNMS/Jodi Pirtle



CBNMS



Kip Evans



Data: CSUMB/Rikk Kvitek & Mary Young
Image: CBNMS/Lisa Etherington

CORDELL BANK NATIONAL MARINE SANCTUARY (CBNMS) CURRENT RESEARCH PROGRAMS

Cordell Bank Ocean Monitoring Program (CBOMP)

CBOMP was initiated in 2004 to gather baseline information on the spatial and temporal variability in the oceanographic system of the Cordell Bank region. Physical and biological characteristics of the pelagic system are measured using CTD, TSG, and EK60 echo sounder, while marine birds and mammals are recorded by observers along transects. Monitoring is conducted on a monthly basis.

Cordell Bank Oceanographic Buoy

CBNMS is in the process of building an oceanographic buoy that will be located in the central region of Cordell Bank. Data collected will include surface temperature, salinity, fluorescence, turbidity, currents, and wind. Data will be displayed on web sites in near-real time and will be linked with regional coastal ocean observing systems. (*Partner: Bodega Marine Laboratory*)

Benthic Habitat and Community Characterization and Monitoring

Since 2002, CBNMS has been conducting a long term study to classify habitats and monitor fishes and invertebrates on and around Cordell Bank. Underwater surveys of macrofauna and habitats are conducted using direct observation and video transects from an occupied submersible (Delta). Similar surveys are done in soft bottom habitats using camera sled transects. (*Partners: USGS, NMFS, CDFG*)

Marine Debris Impacts and Removal Techniques

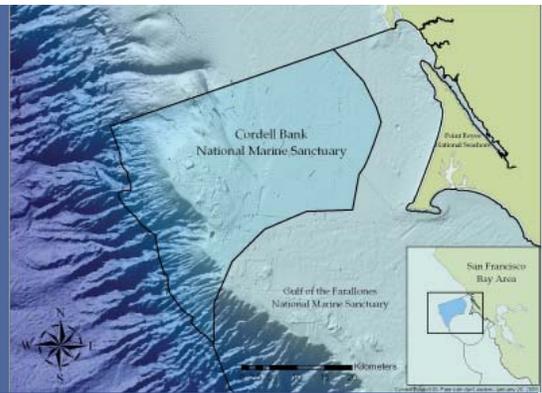
Significant amounts of derelict fishing gear have been documented on the rocky habitats of Cordell Bank, entangled on the seafloor and extending into the water column. In 2006, a new effort was initiated to document the extent and habitat associations of derelict gear on Cordell Bank, and to test methods of removing it from deep water environments, using ROVs and submersibles. In addition, abundance and type of floating marine debris is assessed as part of CBOMP. (*Partners: SeaDoc Society, UC-Davis*).

Benthic Habitat Mapping

High resolution backscatter and bathymetry data have been collected on Cordell Bank and surrounding soft bottom areas and are being used to develop a benthic habitat map. Habitat characteristics such as slope, rugosity, depth, and substrate type are being used to understand benthic community composition. (*Partners: CA State University-Monterey Bay, USGS*)

CORDELL BANK NATIONAL MARINE SANCTUARY

CBNMS protects an area of 397 square nautical miles (526 square miles) off the northern California coast. The sanctuary is an area of special significance due to its unique geological and oceanic features that create conditions that support extraordinarily diverse and abundant marine life. CBNMS is located in one of the world's four major coastal upwelling systems. The combination of oceanic conditions and undersea topography provides for a highly productive environment in a discrete, well-defined area. The main feature of the sanctuary is Cordell Bank, an offshore granite bank located on the edge of the continental shelf. The vertical relief and hard substrate of the Bank provide benthic habitat with near-shore characteristics in an open ocean environment, 20 nautical miles from shore.



TO GET INVOLVED

Scientific monitoring and research are essential, ongoing activities within the conservation science program at CBNMS. Through partnerships with state and federal agencies, and academic and research institutions, CBNMS seeks out the broader scientific community to assure that the most effective and rigorous science can be attained. Our goal is to create sound scientific information available for resource management, monitoring, interpretation, education, planning and policy needs. We encourage projects by university faculty and students and scientists at research institutions. The Sanctuary may provide coordination and logistical support, vessel support, and limited funding for research projects addressing priority needs.

For more information, contact CBNMS Research Coordinator, Lisa Etherington at 415-663-1443 or Lisa.Etherington@noaa.gov



CORDELL BANK NATIONAL MARINE SANCTUARY (CBNMS) RESEARCH NEEDS

As part of the Joint Management Plan Review (JMPR) process, an action plan for Conservation Science was developed jointly with a variety of stakeholders and partners and includes, but is not limited to, the following components:

- Prepare an oceanographic climatology report. To fully characterize the sanctuary, a complete and detailed understanding of the oceanographic and atmospheric conditions in and around the sanctuary is needed.
- Map and characterize CBNMS' habitats. A habitat map will provide important baseline information for management.
- Characterize the soft-bottom epifaunal and infaunal communities of CBNMS.
- Collect, inventory, and catalog new and previously unsorted Cordell Bank benthic invertebrate specimens.
- Survey available museum collections, data archives, and literature indexing services for Cordell Bank specimens, data, and publications.
- Better understand the function and variability of pelagic ecosystems.
- Continue monitoring fish and invertebrate assemblages in relation to the fine-scale habitat on and adjacent to the Bank portion of CBNMS. Identify locations and quantity of anthropogenic impacts, including derelict gear and other marine debris.
- Manage and store data in easily accessible and secure formats and locations.



NOAA/Holly Fearnbach



CBNMS/Jamie Hall



CBNMS/Rick Starr

For more information on the Joint Management Plan Review, please visit our website at: <http://sanctuaries.noaa.gov/jointplan>.