Seafloor Mapping as a Foundation for Resource Conservation at the Cordell Bank National Marine Sanctuary

Dale Roberts
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NOAA’s National Marine Sanctuaries

- Olympic Coast
- Cordell Bank
- Gulf of the Farallones
- Monterey Bay
- Channel Islands
- Flower Garden Banks
- Thunder Bay
- Stellwagen Bank
- Gray’s Reef
- Atlantic Ocean
- Florida Keys
- Gulf of Mexico

- Northwestern Hawaiian Islands
- Hawaiian Islands
- Fagatule Bay, American Samoa (U.S.)

- 30° N
- Equator
- 150° W
- 120° W
- 90° W

- Existing Locations
- Proposed

Scale varies in this perspective. Adopted from National Geographic Maps.
“The National Marine Sanctuary Program’s mission is to serve as the trustee for the nation’s system of marine protected areas to conserve, protect and enhance the biodiversity, ecological integrity and cultural legacy of these ecosystems.”

“The mission of the California Ocean Protection Council is to ensure that California maintains healthy, resilient and productive ocean and coastal ecosystems for the benefit of current and future generations.”
Complementary Mapping Goals

Marine Sanctuary System Wide Monitoring Plan

System question No. 5:
“What is the distribution of major habitat types and how is it changing?”

California Ocean Protection Council 5 Year Plan

Objective 2 of the research and monitoring theme:
“Monitor and map the ocean environment to provide data about condition and trends.”

Action 2d of the Research and Monitoring Goal
“Pursue funding and partnerships to complete sea floor maps of all state waters.”
What’s Down There?
Delta Submersible

.. *in situ* counts of fish and habitat
Habitat Typing

Dive

Distance (M)

BOULDER
COBBLE
HIGH RELIEF ROCK
MUD
ROCK
SAND
Fish/Habitat Affinity
Substratum types

Rocks & Mud banks

Rocks & Mud

Gulley

boulders
cobbles
sand
mud

High Relief
Pinnacles
Sand wave
habitats

Boulder
fields
and
fields

Deep Mud slope
Top of Bank – *Diverse inverts*
Top of Bank / Rocks & Boulders

Blue Rockfish
Quillback Rockfish
Yellowtail Rockfish
Young of Year Rockfish
Rosy Rockfish
Kelp Greenling
Juv. Yelloweye Rockfish
Squarespot Rockfish
Lower Bank / Rocks & Boulders

- Pygmy Rockfish
- Yelloweye Rockfish
- Bocaccio
- Flag Rockfish
- Vermilion Rockfish
- Greenspotted Rockfish
- Lingcod
Lower east-side - Sand waves
Lower east-side Sand

Skate

Sanddab
Continental slope - Mud
Mud Slope

Hagfish Grotto

Longspined combfish

Spotted Ratfish

Poachers

English Sole

Splitnosed Rockfish

Stripetail Rockfish

Slender Sole
CSUMB Seafloor Mapping Lab

Field Team
• Kendra Wong
• Mary Young
• Saori Zurita
• Kate Thomas

R/V VenTresca
Multibeam Bathymetry
Multibeam Bathymetry
Multibeam Bathymetry
CCOWS Flythrough
CCOWS Flythrough
CCOWS Flythrough
CCOWS Flythrough
WHY MAP CORDELL BANK?

- Plan surveys
- Inventory physical characteristics
- Predict biota
- Explain oceanographic processes
- Interpret region for general public
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