

Science Needs Assessment

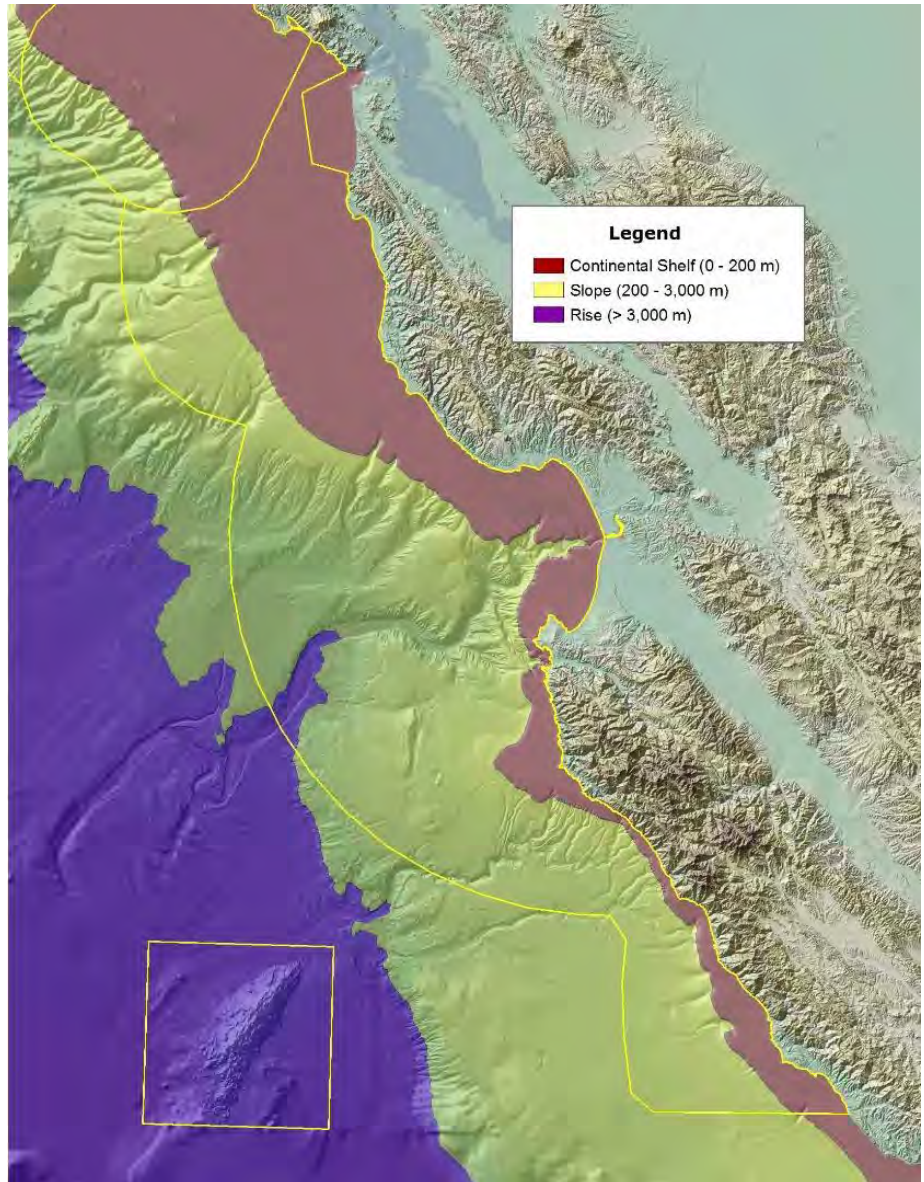
Habitat Characterization of the Continental Shelf

Conservation Issue

Seafloor characterization is necessary to ground truth habitat maps and inform management decisions at Monterey Bay National Marine Sanctuary (MBNMS).

Description

Seafloor habitats on the continental shelf, ranging from 30 to 200 meters in depth, comprise one-third of MBNMS. Yet, they are poorly characterized and not systematically monitored. Digital images and video captured using towed camera sleds, remotely operated vehicles (ROVs), and autonomous underwater vehicles (AUVs) facilitate rapid, qualitative assessments of specific locations where human activities are planned or have occurred (e.g., laying cables, marine reserves). These images and videos can also be used for more detailed quantitative assessments through time to monitor natural changes and recovery from human disturbances. Web-based GIS applications can provide easy access to geolocated images, facilitating the use of this information by educators and managers.



The continental shelf is wider in northern MBNMS and narrows significantly south of Monterey Bay. Image: NOAA

Data and Analysis Needs

1. Distribution and abundance of organisms and habitats on the continental shelf
2. Areas of high species diversity associated with soft-bottom habitats in MBNMS
3. Changes in benthic organisms over time in specific areas of interest (e.g., marine reserves)

Potential Products

- Ground-truthed topographic and geologic habitat features on existing maps
- Integrated map of the distribution of fishes, invertebrates, and habitats of the continental shelf seafloor
- Utilize baseline data to mitigate future environmental impacts
- Recommendations for marine protected area management processes
- Library of still images and videos

Suggested Scientific Approach and Actions

- Complete rapid, qualitative data collection with towed camera systems for areas of MBNMS that are not characterized
- Develop methods to geographically display images over the internet and educate the public about continental shelf habitats and living marine resources (in addition to SCID)
- Ground truth topographic habitat features on existing maps
- Scope areas for future comprehensive surveys using operationally expensive equipment (i.e., remotely operated vehicles, submersibles)
- Monitor areas of interest through time, including marine reserves and trawl recovery zones

Key Partners

California State University Monterey Bay, NOAA Fisheries, California Sea Grant, Monterey Bay Aquarium Research Institute, California Department of Fish and Wildlife, California Ocean Protection Council



A cowcod (*Sebastes levis*) swims over brachiopods on a low-relief ledge off Point Sur during a seafloor monitoring survey in MBNMS using the submersible *Delta*. Photo: NOAA

For more information about this assessment, contact Chad.King@noaa.gov.

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