

## Seafloor Mapping

Accurate mapping of the seafloor is one of the most vital pieces of information needed for the sustainable management of California's highly productive marine resources. The California Coastal Mapping Program (CCMP) is now collecting seafloor data for all state waters (shoreline out to three nautical miles). These data are being converted into comprehensive GIS map series, already being used by resource managers. Bathymetric maps

are helping coastal communities prepare for inundation from storms, floods and sea level rise; improving our understanding of sediment transport and sand delivery to starved beaches; updating and modernizing nautical charts; and helping to evaluate the potential for offshore renewable energy. Seafloor data are also being turned into benthic habitat maps critical for designing and monitoring marine protected areas, and for helping to restore failing fish populations. Marine geologic maps are also assessing marine fault dynamics and tsunami potential. Ultimately, seafloor mapping data will be combined with shoreline data to create seamless onshore-offshore maps of California's coastline.



Photos: Steve Lonhart, SIMoN NOAA and Phillip Colla (oceanlight.com)

### CALIFORNIA SEAFLOOR MAPPING PROGRAM ACCOMPLISHMENTS

- Nearly all of California's state waters are now mapped (10m offshore to 3 nautical miles)
- All data is publicly available ([seafloor.csuumb.edu/csmp/csmp.html](http://seafloor.csuumb.edu/csmp/csmp.html))
- Benthic habitat maps have been provided to all MLPA study areas

### NEXT STEPS

- Nearshore data collection (shoreline to 10m water depth)
- Data collection in San Francisco Bay
- Integration of benthic habitat maps with biological information

CCMP's unique partnership with government, academia and industry has changed the way our country approaches offshore mapping. Leveraging over \$30M from all partners, CCMP has been successful by finding a way to address multiple agency missions through one ambitious program.

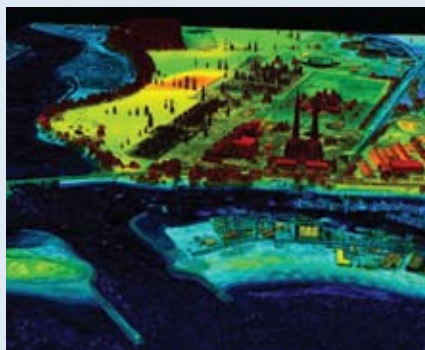
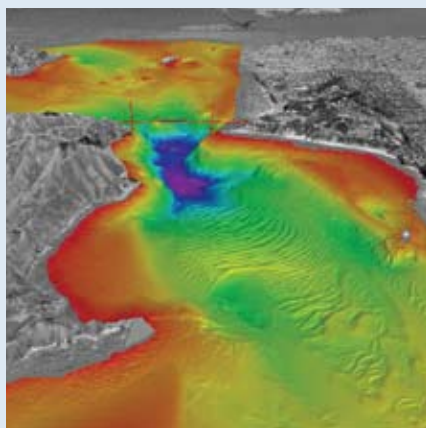
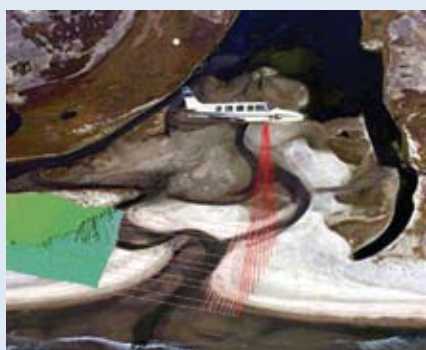




## Shoreline Mapping

Rising sea levels of up to 1.4 m by 2100 will have significant impacts on California's coastline. While bays and estuaries are expected to experience the most dramatic modifications in the coming century, changes will be felt far inland from the immediate shoreline zone. Elevation of the land surface is a critical data set needed to help estimate the magnitude of sea level rise impacts. The California Coastal Mapping Program will create a modern elevation map of the state's coastline (shore to 10 meters in elevation) to help coastal communities understand and prepare for sea level rise and severe storms. By integrating newly collected seafloor mapping data, California will soon be able to create a seamless, onshore-offshore high-resolution elevation map of the state's 1,100-mile coastal zone from Oregon to Mexico.

- **INNOVATION** This project will produce the most detailed map of the California coastline ever created, combining state-of-the-art remote sensing technologies such as LiDAR (Light Detecting and Ranging) and very high resolution digital orthophotos to produce a detailed 3-dimensional picture of the coast
- **USES** Baseline information to measure everything from the impact of climate-related rising oceans, to beach erosion, to flooding risks from large winter storms
- **PARTNERSHIPS** Furthering the partnerships of the Seafloor Mapping Program, this highly collaborative project is another excellent example of state and federal agencies working together to provide cost-effective, useful, science-based information to aid in important decision making



### SHORELINE MAPPING PROGRAM NEXT STEPS

- Complete data collection in 2010, and data processing in 2011
- Efficiently provide data to all resource agencies and other users
- Work with local, state, and federal partners to improve sea level rise and inundation models
- Integrate data with seafloor mapping data to create seamless maps

The Ocean Protection Council is focused on bringing agencies together through collaboration, and using science to inform how we manage our ocean and coastal resources in the most cost effective way possible.

