CALIFORNIA OCEAN
PROTECTION COUNCIL

Staff Recommendation
October 25th, 2007

CALIFORNIA SEAFLOOR MAPPING PROGRAM

Developed By: Sheila Semans

RECOMMENDED ACTION: Consideration and possible: authorization for the Secretary to the Council to take actions needed to provide up to $15,000,000 for planning or implementation of the California Seafloor Mapping Program, involving data acquisition for nearshore and offshore substrate and marine habitat mapping; authorization to expend up to $7,500,000 for the Program from the 2007-08 fiscal year appropriation to the State Coastal Conservancy from Proposition 84 for the purposes of the Ocean Protection Council; and authorization for the Secretary to place on the Council consent calendar an item for authorization to expend the balance of up to $7,500,000 for the program if additional Proposition 84 funding is appropriated for purposes of the Ocean Protection Council in a subsequent year.

LOCATION: *Statewide*

STRATEGIC PLAN OBJECTIVE: Research and Monitoring

EXHIBITS

Exhibit 1: Statewide map showing mapped and unmapped coastal waters

Exhibit 2: Statewide Marine Mapping Planning Workshop Report, 2005

Exhibit 3: Example 1:24,000 scale folio map set (draft)

Exhibit 4: Letters of Support

RESOLUTION

Staff recommends that the Ocean Protection Council adopt the following resolution pursuant to Sections 35500 *et seq.* of the Public Resources Code:

"The Ocean Protection Council (Council) hereby authorizes the Secretary to the Council (Secretary) to take actions needed to provide up to $15,000,000 for the planning or implementation of the California Seafloor Mapping Program (Program). To initiate development and implementation of the Program, the Council hereby authorizes the disbursement of an amount of up to $7,500,000 appropriated to the State Coastal Conservancy in fiscal year 2007-08 from the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Proposition 84), for the purposes of the Ocean Protection Council,

pursuant to Public Resources Code Section 75060(g). The Council further authorizes its Secretary to place on a future Council consent calendar an item for Council authorization to expend up to an additional $7,500,000 for the Program, if additional Proposition 84 funds are appropriated in a subsequent fiscal year by the Legislature pursuant to Section 75060(g). Prior to disbursement of any funds, any public agency or contractor retained to carry out Program work shall submit for the review and approval of the Secretary to the Council:

1. A work plan, including schedule and budget.

2. The names of any subcontractors to be retained.

3. Evidence that all permits and approvals necessary to undertake the Program work have been obtained."

Staff further recommends that the Council adopt the following findings:

"Based on the accompanying staff report and attached exhibits, the Council hereby finds that:

1. The proposed project is consistent with the purposes of Division 26.5 of the Public Resources Code, the Ocean Protection Act.
2. The proposed project is consistent with the Ocean Protection Council's project selection guidelines.
3. The Foundation of California State University Monterey Bay is a nonprofit organization existing under the provision of U.S. Internal Revenue Code section 501(c)(3), whose purposes are consistent with Division 26.5 of the Public Resources Code".

PROJECT SUMMARY

Staff recommends that the Ocean Protection Council (OPC) authorize the OPC's secretary to provide up to $15,000,000 for the planning and implementation of the California Seafloor Mapping Program (CSMP). Pursuant to this authorization, the Secretary to the Council expects to enter into agreements with 1) the National Oceanic and Atmospheric Administration (NOAA) Center for seafloor mapping data collection, data archiving and survey vessel support; 2) the Foundation of California State University Monterey Bay (FCSUMB) for data collection, data management, and product development; and 3) the United States Geological Survey (USGS), Coastal and Marine Geology Program, for data collection, ground-truthing, and sub-bottom profiling, not to exceed a total of $7,500,000 in the 2007/2008 fiscal year. As indicated in the proposed resolution, if and when the legislature appropriates additional Proposition 84 funds for purposes of the OPC in a subsequent fiscal year, the Secretary would place on the OPC consent calendar a proposal for expenditure of an additional $7,500,000.

California's state waters are among the most productive in the world. Accurate statewide mapping of seafloor substrates, marine habitat types, and bathymetry (underwater topography) of California's coastal and nearshore waters is a crucial component necessary to guide multiple ocean management decisions. Designating and monitoring marine reserves, understanding sediment transport and sand delivery, ensuring shipping safety, identifying dredging and dumping sites, helping identify fault dynamics, helping describe tsunami potential, regulating

offshore coastal development, and illuminating the dynamics of fisheries and other marine species, are just a few of the applications that would benefit from coastal and marine mapping data and products. Detailed bathymetric maps are also critical in the development of an ocean circulation model that will allow better prediction of potential ocean responses to environmental and anthropogenic changes. Although small sections of the coast, including some federal waters, have been mapped to varying extents and resolutions, a comprehensive and seamless map of the state's nearshore and offshore benthic and marine resources does not currently exist.

The objective of the CSMP is to create a comprehensive coastal/marine geologic and habitat base map series for all state waters (mean high water out to 3 nautical miles) in support of the Marine Life Protection Act (MLPA) Initiative. About 33% of the coast has been mapped with enough detail to support the MLPA process and other resource management needs critical to the state. The CSMP aims to complete the remaining 67%, which will include the following basic components:

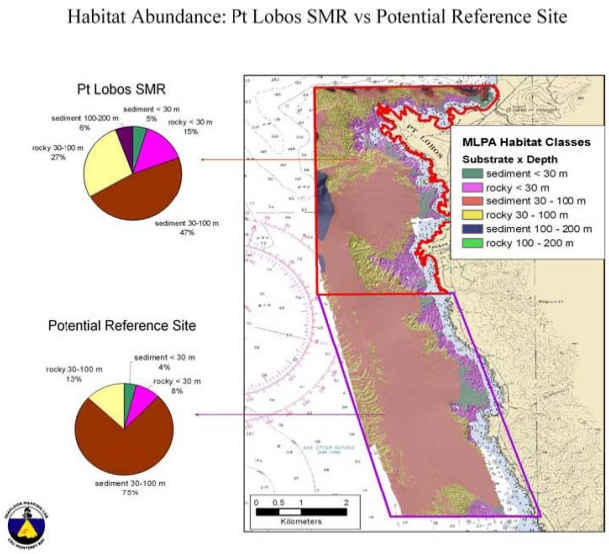
1. Data Collection—ship-based, high-resolution sonar data collection for all parts of the coast currently unmapped (excluding the surfzone), and where appropriate and feasible, light detection and ranging (LiDAR) surveys in the nearshore.
2. Data ground-truthing—video or physical sampling of the seafloor, and where appropriate sub-bottom profiling to determine the thickness of sediment layers. This is necessary for the creation of reliable map products.
3. Map Production—creation of multi-sheet folio map sets (1:24,000 scale) which will include bathymetry, geologic and habitat interpretation maps spanning the entire California land/sea margin.
4. Data Management and Dissemination—creation of an online data repository for the public dissemination of all digital data and map products covering the California state waters (ftp with links, http download sites, website images of data that link to data sources, internet GIS map servers, etc.).

Due to limited timing and funding, the proposed project includes only a portion of the tasks described above. However, it is critical to view this as one complete project to adequately anticipate the mapping needs of the future MLPA study areas. The total of $15,000,000 in this staff recommendation will be sufficient to collect all the remaining seafloor data in the state (excluding the surfzone; Exhibit 1), begin ground-truthing and sub-bottom data collection, create up to tier 2.5 products for the newly collected data (see product description below), continue tier 3 product development, and set up and test an initial data storage and sharing system. Staff will continue to work diligently to leverage OPC funds with funding from outside sources to complete the CSMP through the product development and information dissemination stages.

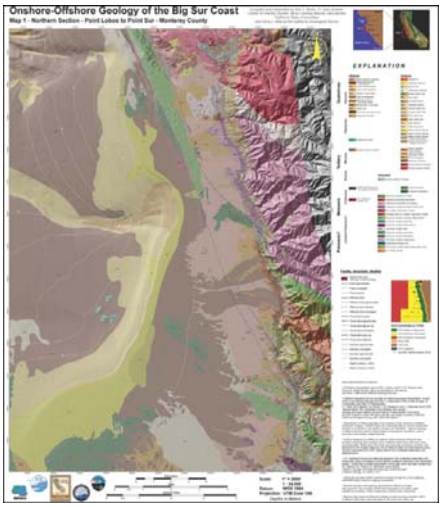
Mapping Products: There is a broad consensus in the mapping community that the CSMP should include four levels of basic mapping products:

- Tier 1 - cleaned bathymetric soundings and backscatter data
- Tier 2 - GIS –ready imagery and data layers (slope, aspect, rugosity, contours, relief, etc.) and map products that can be efficiently derived through automated GIS processes from the raw data. These products can be produced quickly after data collection.

- Tier 2.5 -. Tier 2.5 data products require ground-truthing, and video-supervised numerical classification of the raw data in a GIS format. These maps products are considered the basic product for the MLPA process and are often of high value to management agencies because many of the patterns they reveal (e.g. rocky versus soft bottom habitats, bed forms, and depth zones) are easily discernable at this intermediate level of data analysis.
- Tier 3 – fully interpreted, classified and attributed geologic and habitat maps, derived from preceding Tiers. This includes integration of the newly collected data set with other data sources of varying scales and so represents considerable "value added" products. However, these maps require careful "manual" work of highly experienced geologists and biologists who interpret and apply complex classification schemes to the second tier products.



Tier 2.5 map: auto-classified benthic habitat map created with high-resolution multibeam sonar data that was created to help the MPA monitoring design.



Tier 3 maps: Fully interpreted and attributed onshore-offshore geological map of the Big Sur Coast.

This approach would produce a series of 1:24,000 scale quadrangle maps spanning the land/sea interface, integrating existing terrestrial habitat and geology data with new marine geology data acquired during the CSMP. Although a draft at this time, exhibit 3 illustrates what one map series would look like in Half Moon Bay. Staff has submitted a grant application to the Resources Agency to include CSMP as part of the state's Coastal Impact Assistance Plan. If accepted, the CIAP grant will be devoted to tier 3 map production.

Project Description: The CSMP is an ambitious undertaking, and will require participation and collaboration with many other organizations to be successful. For the portion of the program to be funded with the $15,000,000 under this proposal, there are three components: 1) seafloor mapping data collection (high-resolution bathymetry and acoustic backscatter) in collaboration with NOAA, including entering into an agreement with CSC to contract out data collection to the

private sector; 2) continued data collection, data management, and product development by the CSU Monterey Bay Seafloor Mapping Lab through an agreement with the Foundation of California State University Monterey Bay (FCSUMB); and 3) continued data collection, ground-truthing and sub-bottom profiling through an agreement with the USGS. Staff recommends authorization to expend up to $7,500,000 from the 2007/2008 appropriation of Proposition 84 in this fiscal year, and the utilization of $7,500,000 from a subsequent fiscal year (expected to be the next fiscal year), pending appropriation by the Legislature and subsequent confirmation of approval by the OPC.

NOAA Collaboration and Contracting Support

Three programs within NOAA have expressed their support for the goals and objectives of the CSMP; the National Ocean Service's Office of Coast Survey (OCS), National Marine Sanctuary Program (NMSP), and Coastal Services Center (CSC). OCS has been surveying the coastal waters of the U.S. and producing navigational charts for our nation's ports and waterways for two centuries. The bathymetric data collection requirements for navigational charting and habitat mapping are essentially the same. Therefore, OCS has a requirement for hydrographic data (including bathymetry) collected in navigationally "critical areas" of California's inshore, nearshore and offshore waters. Critical areas are defined in *NOAA Hydrographic Survey Priorities, 2007 Edition*; http://nauticalcharts.noaa.gov, and include large portions of San Francisco Bay and Humboldt Bay, not previously included in this phase of the CSMP. As some of the bathymetry on NOAA nautical charts along California's coast includes data acquired in the late 1800's, NOAA has a responsibility to update the soundings on these well-used charts. Updating these charts will prove to be an asset to the state and to navigational interests that, absent the CSMP, would not likely happen for decades.

The majority of survey data will be collected by industry contractors, who are uniquely qualified to undertake a project of this size. OCS contracts out approximately half of its hydrographic survey work to private industry. OCS currently has five hydrographic service firms under contract. Each firm has unique capabilities and capacities which are considered in advance of determining the firm with which the government will negotiate. The award of a task order to conduct a specific survey is dependant on the successful completion of negotiations between the Government and the industry contractor. The advantages of developing a partnership with NOAA and potentially using the NOAA contracts are:

- NOAA could provide contracting services at no cost to the CSMP.
- NOAA could provide technical oversight and quality control of the data collection.
- NOAA management of industry contracts could relieve OPC staff of an enormous amount of administrative work.
- Pre-qualified firms and contracts are already in place, so mapping can start quickly.
- Data could be archived in the National Geophysical Data Center.
- The establishment of a strong joint state-federal mapping effort as envisioned above could be mirrored by Oregon and Washington, as supported by the West Coast Governors' Agreement.

It is recommended that $11,500,000 of the $15,000,000 be designated for disbursement to private industry for seafloor mapping data collection, potentially using NOAA contracts.

Lastly, NOAA NMSP has once again indicated an interest in employing its research vessels in support of the CSMP. Ship time is one of the most expensive elements of survey work and finding the right vessel is critical to assuring data quality. NMSP has contributed ship time to previous mapping efforts and has been a valuable partner to the CSMP. OPC and NMSP staff are working together to try to leverage resources to continue mapping the four California national marine sanctuaries outside of state waters.

California State University Monterey Bay, Seafloor Mapping Lab (SFML)

The SFML has been the CSMP program lead for the past 2 years and is very familiar with all aspect of the program. This component of the proposed project would authorize the Secretary to the Council to enter into an agreement with the Foundation of California State University Monterey Bay for up to $2,500,000 for further offshore substrate and marine habitat mapping, including data storage and management. With this funding, the SFML would purchase new high resolution survey equipment and collect data in two priority MLPA areas as soon as weather permits: all currently designated central coast MPAs that have not yet been mapped as well as their associated reference sites; and the 20m-6m nearshore strip of coast in the current MLPA study area that was not funded in the last CSMP authorization. This mapping data will be valuable to both the designation of new MPAs and the monitoring of existing MPAs. The SFML will also be responsible for creating tier 2 and 2.5 map products for *all data* collected by the CSMP.

The CSMP will produce vast amounts of data, and data management, storage and delivery issues still need to be fully assessed. Although data will be compiled and interpreted by a variety of sources, all cleaned raw data will be stored in the NGDC, and meet NGDC metadata standards. Data will be non-proprietary and available to the public. The method of data delivery will depend on the target audience, as there is a difference in presentation if the audiences are scientists, policy makers, or the general public.

In previous mapping efforts, the SFML has evaluated ways to clean and process large amounts of raw data, and get information efficiently out to the other members of the mapping team. The proposed SFML funding would allow for the purchase and further testing of data management software that would be used internally to handle the challenging data dissemination needs of the mapping team. If this software proves to be robust enough, it will be used to serve mapping data to the general public. Discussions with potential industry participants (such as Google, HP, Microsoft, Yahoo, and Amazon) are underway and may also provide options for effective data dissemination to the public.

The FCSUMB is a 501(c)(3) non-profit organization, a recognized auxiliary to the California State University, and the fiscal agent for CSUMB's Seafloor Mapping Lab. The mission of the FCSUMB is to use its: fiscal flexibility to provide resources and services not supported by the State General Fund; operational expertise to implement and manage commercial enterprises and activities; and entrepreneurial acumen to generate revenue in support of the University's strategic initiatives. The CSUMB Seafloor Mapping Lab operated by Dr. Rikk Kvitek is one of the major seafloor data acquisition institutions in California, with significant experience in seafloor mapping.

United States Geologic Survey

The USGS has been a valuable asset in all phases of the CSMP, participating in mapping, ground-truthing and tier 2.5 and 3 map production (exhibit 3). Continuing and strengthening this collaboration is fundamental for the CSMP to support the MPLA Initiative as well as create applications for improved sediment management, to reveal onshore and offshore fault dynamics, and to help understand tsunami potential off our coast. By continuing to pledge in-kind support to the program, the USGS has allowed the CSMP to accomplish far more in this phase of work. The proposed project will authorize a grant of up to $1,000,000 to the USGS to collect mapping data, begin ground-truthing data collected by industry and SFML, and collect sub-bottom profiles where appropriate. With the potential CIAP funding, the USGS will also collaborate with the Moss Landing Marine Lab and the California Geologic Survey to create final tier 3 interpreted geologic and habitat maps.

USGS Coastal and Marine Geology Program already performs collaborative seafloor mapping work in California and along the west coast focused on habitat characterization, coastal processes and erosion, and geologic hazards. Recent mapping efforts along the Santa Barbara Channel are now yielding products helpful to the City of Carpinteria, BEACON (Beach Erosion Authority for Clean Oceans and Nourishment), and the Minerals Management Service.

SITE DESCRIPTION

Project location includes all unmapped state waters (exhibit 1) from the mean high tide line out three nautical miles. Hydrographic data collection in this phase of the program will focus on data collection from 10 meters water depth (the depth of safe vessel navigation) to the state 3-mile limit.

PROJECT HISTORY

The OPC initiated the California Seafloor Mapping Program in 2005 with the intention of supporting the MLPA Initiative by funding a strategic planning workshop to set mapping priorities for the state. The Statewide Marine Mapping Planning Workshop Report (exhibit 2; see also, http://seafloor.csumb.edu/StrategicMappingWorkshop.htm for additional materials) addressed the following issues:

- Collection, management, and storage of both existing and newly acquired data;
- Standards and protocols for data collection, post-processing, and data interpretation;
- Selection of mapping products appropriate for resource management applications (e.g., hard copy maps, interactive GIS-based online maps), and
- Dissemination of products and information to end-users and the public.

Since that workshop, over $4 million in state funding has been committed by the OPC for seafloor mapping in the Central Coast and North Central Coast MLPA areas (from Ano Nuevo to Point Arena), including: the California Coastal and Marine Mapping Initiative and Augmentation - January 2005 OPC meeting, February 2005 and November 2006 SCC meetings; and the Santa Barbara Channel Marine Mapping - April 2006 SCC meeting, June 2006 OPC meeting.

Additional federal support has been contributed by the National Marine Sanctuary Program (NMSP) and the USGS. The CSMP is being undertaken by a university-industry-agency collaboration**,** including:

- California State University Monterey Bay Seafloor Mapping Lab
- Fugro Pelagos, Inc.
- United States Geological Survey, Coastal and Marine Geology Program
- Moss Landing Marine Laboratories, Center for Habitat Studies
- California Geological Survey
- National Marine Sanctuary Program
- State Department of Fish and Game
- State Coastal Conservancy

This collaboration has been very effective and previous funding has given the seafloor mapping team a unique opportunity to test and refine standards and protocols that will be applied to the much larger project now proposed.

Creating seafloor maps for all California waters was identified as an early goal of the OPC and was written into its 5-Year Strategic Plan as a high priority (see consistency section below). Furthermore, seafloor mapping was specifically identified for funding in the recently approved proposition 84. Chapter 7 of the bond act specifies that OPC shall give priority to projects that result in the development of scientific data needed to adaptively manage the state's marine resources and reserves, including the development of marine habitat maps. With this mandate, staff has been working with several organizations over the past year to determine the most efficient and cost-effective way to implement the CSMP. Extensive discussions with NOAA have resulted in the identification of several prospective opportunities for leveraging both state and federal resources in order to meet mutual ocean and coastal mapping objectives. The National Ocean Service's Office of Coast Survey has been surveying the coastal waters of the U.S. and producing navigational charts for our nation's ports and waterways for two centuries. The bathymetric data collection requirements for navigational charting and habitat mapping are essentially the same. Collaboration will also continue with NMSP NOAA Coastal Services Center, and the USGS.

PROJECT FINANCING

Possible Funding Sources:	
Ocean Protection Council (Coastal Conservancy)	$15,000,000
USGS In-kind Contribution	
Data Collection	$350,000
Ground-truthing	$500,000
NOAA	
Office of Coast Survey	$9,000,000
National Marine Sanctuary In-kind Contribution	TBD
Resources Agency-Coastal Impact Assistance Plan (*pending*)	$1,300,000
Total Project Cost	**$26,150,000**

The anticipated source of OPC funds for the proposed project is from the "Safe Drinking Waters, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006" (Proposition 84). Proposition 84 generally authorizes the use of these funds for the protection of coastal waters. The specific appropriation, pursuant to Public Resources Code Section 75060(g), allows for the expenditure of funds on projects consistent with Public Resources Code Section 35650, establishing the California Ocean Protection Trust Fund. Under Section 35650, Ocean Protection Trust Fund monies may be expended for projects authorized by the OPC that are consistent with Chapter 3 of the Ocean Protection Act (Public Resources Code Sections 35600 *et seq.*). As discussed in the section below, the project is consistent with the Ocean Protection Act. In addition, under section Ocean Protection Trust Fund monies may be expended for grants or direct expenditures on "projects or activities that provide monitoring and scientific data to improve state efforts to protect and conserve ocean resources". That is the exact objective of the proposed Program.

Finally, under Section 75060(g), priority for Proposition 84 funding is to be given to projects, which, like the proposed project, contribute to the development of scientific data needed to adaptively manage the state's marine resources and reserves, including the development of marine habitat maps.

CONSISTENCY WITH CALIFORNIA OCEAN PROTECTION ACT

Under the Ocean Protection Act (Public Resources Code Sections 35500 *et seq.)*, the OPC is charged with coordination of activities of state agencies related to the protection and conservation of coastal waters and ocean ecosystems, to improve the effectiveness of state efforts to protect ocean resources within existing fiscal limitations, consistent with Sections 35510 and 35515 and, in particular to coordinate the collection and sharing of scientific data related to coast and ocean resources (Public Resources Codes section 35615(a). Section 35510 identifies one major objective of these activities: improve monitoring and data gathering, and advance scientific understanding, to continually improve efforts to protect, conserve, restore, and manage coastal waters and ocean ecosystems.

The proposed project will squarely satisfy these objectives. It is specifically designed to provide

and enhance data related to ocean and marine ecosystems and marine resources, that will serve the OPC in it is coordination and policy setting role, as detailed further below.

CONSISTENCY WITH OPC'S STRATEGIC PLAN GOAL(S) & OBJECTIVE(S)

The CSMP supports the OPC's Five-year Strategic Plan by furthering Section B, Research and Monitoring, Objective 2: Monitor and map the ocean environment to provide data about conditions and trends. Part d of this objective specifically states that OPC staff shall "pursue funding and partnerships to complete sea floor maps of all state waters. Ensure the distribution of marine habitat and substrate maps to promote effective management of fisheries, design of marine protected areas, and other management efforts." The CSMP has been designed explicitly to meet this objective.

CONSISTENCY WITH OPC'S PROJECT SELECTION CRITERIA & GUIDELINES

The proposed project is consistent with the OPC's Project Funding Guidelines adopted June 14, 2007, in the following respects:

The proposed project directly relates to California's ocean and coast, is supported by the public (see exhibit 4), and is of interest statewide, because understanding ocean habitats will lead to more informed and sustainable management of coastal and marine resources. Marine substrate and habitat mapping will support a variety of needs: marine protected areas management, fisheries management, offshore development regulation, protection of rare and endangered species, and improved navigation.

The project also satisfies the following funding criteria guidelines:

1. **Enhance the capacity of government programs to meet the goals of COPA**: The California Ocean Protection Act (Public Resources Code Sections 35500 *et seq.*) and subsequent adopted documents of the Ocean Protection Council emphasize that it is state policy to implement ecosystem-based approaches to manage coastal and marine resources using sound science. Implementation of ecosystem-based management (EBM) strategies requires consideration of interactions between species, their habitats, and human activities. Many of these interactions are not well understood, and significant data and information gaps hinder achievement of effective EBM. Statewide, California's resource managers and scientists must often make decisions based on a patchy picture of the habitats that lie offshore. Accurate statewide mapping of seafloor substrate, marine habitat types, and bathymetry (underwater topography) of California's coastal and nearshore waters is a crucial component necessary to guide multiple ocean management decisions. Designating marine reserves, understanding sediment transport systems, locating shipping lanes, identifying dredging and dumping sites, regulation of offshore coastal development, and illuminating the dynamics of fisheries and other marine species, are just a few of the applications that would benefit from coastal and marine mapping data and products.
2. **Develop practical approaches to implementing ecosystem-based management**: see number 1 above.
3. **Improve the scientific understanding of our ocean resources**: The data that will be produced from the CSMP will, for the first time, allow scientists and managers to understand subsurface geomorphology and identify habitats and fault dynamics off our coast. This is a foundational data set that will contribute to the understanding of many physical and

biological processes in the coastal ocean. Seafloor habitat mapping will improve our ability to design and monitor effective MPAs, and as well as the dynamics of fisheries and other marine species in general. Detailed geologic maps will identify the extension of terrestrial fault into the marine environments, helping to clarify tsunami potential. Bathymetric maps and sub-bottom profiles will increase our understanding of sediment dynamics and help make more effective beach nourishment and dredging disposal decisions. This data can also be coupled with ocean current measurements to more effectively describe flow dynamics and pollutant transport.

5. **Improve the quantity and quality of ocean and coastal habita**t: Although habitat maps will not directly improve coastal habitat, the detail that they provide to management about where valuable habitat exists will help in both preservation and restoration activities. The CSMP provides the only opportunity to do this on a statewide scale.
6. **Increase healthy ocean and coastal wildlife populations and communities**: As the Department of Fish and Game continues to implement the MLPA and the Marine Life Management Act, a better understanding of the marine habitats in state coastal waters will allow us to more effectively place and manage MPAs. Successful implementation of these mandates will result in more resilient marine resources, and more effective management of our living marine resources.

Additional Criteria

7. **Resolution of more than one issue**: Marine substrate and habitat mapping will support a variety of needs, including marine protected areas management, fisheries management, offshore development regulation, protection of rare and endangered species, and improved navigation.
8. **Leverage**: See the "Project Financing" section above.
9. **Timeliness or Urgency**: There is general scientific consensus that statewide seafloor mapping is one of the foundational data sets needed for improved ocean management. Specifically, seafloor mapping data are needed now for implementation of the MLPA Initiative. Cooperation with NOAA leverages funds that would be spent elsewhere absent the CSMP.
10. **Innovation**: The proposed project will promote technologically innovative seafloor mapping techniques, and help develop efficient ways to get data very large data sets out to the public.
11. **Coordination**: The proposed project will involve the cooperation of numerous state and federal agencies, academic institutions, and researchers. The CSMP mapping team collectively has been involved with mapping virtually all California State waters covered to date.

COMPLIANCE WITH CEQA

The proposed project is categorically exempt from review under the California Environmental Quality Act (CEQA), pursuant to 14 Cal. Code of Regulations, Section 15306 (data collection, research and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource). The proposed project will not result in disturbance to the marine environment or its wildlife. Staff will file a Notice of Exemption upon approval.