# CALIFORNIA OCEAN AND COASTAL INFORMATION, RESEARCH, AND OUTREACH DRAFT STRATEGY

## I. INTRODUCTION

Science should be the foundation of ocean and coastal management and policy; however, poor communication often leads to a lack of sufficient information available to decision-makers. In many cases, the information needed by decision-makers exists, but is not easily accessible. Better dissemination of information is needed to improve the management of California's ocean and coastal resources. New research initiatives are necessary when information is not available. Science-based management and policy is critical to making informed decisions that balance human needs with the protection of ocean and coastal resources.

California's ocean action plan, *Protecting our Ocean: California's Action Strategy*, calls on the California Ocean Protection Council to develop a state-wide ocean and coastal information, research, and outreach strategy (Action 4). This strategy will help the council fulfill the mandate of the California Ocean Protection Act (COPA). COPA directs the state to improve monitoring and data gathering and advance scientific understanding to continually improve efforts to protect, conserve, restore, and manage coastal waters and ocean ecosystems. Specifically, COPA requires the council to establish policies to coordinate the collection and sharing of scientific data related to coastal and ocean resources.

The strategy will help the council address the guiding principles and requirements established in COPA including: sustainability, ecosystem health, precaution, recognition of the interconnectedness between land and ocean, decisions informed by good science and improved understanding of coastal and ocean ecosystems, and public participation in decision-making.

## II. STRATEGY GOAL AND OBJECTIVES

The goal of this strategy is to encourage and support information, research, monitoring, and outreach programs that are of clear benefit to the people of the state of California and that address key ocean and coastal resource management, policy, science, and engineering issues that face the state. This goal shall be achieved by the state of California by pursuing the following objectives:

- **Information.** Provide improved access to available information necessary to support ocean and coastal protection and management.

- **Research and Monitoring.** Identify the most critical ocean and coastal research needs for the state of California and pursue the most efficient and effective

methods to increase research funding and data accessibility. Continue California's leadership in ocean and coastal monitoring programs established over the past 50 years and seek to improve, sustain, and expand these programs.

- **Outreach.** Coordinate outreach efforts with federal, state, and local agencies, academia, industry, and the non-governmental community to engage all Californians in the protection of California's ocean and coast.

This strategy provides a framework for the council to achieve the stated goal and objectives by recommending initial actions for the council (Section III), establishing a policy for state funded research (Section IV), and identifying ocean and coastal information, research, and outreach needs (Sections V and VI).

## III. Recommendations For Council Action

### Recommendation 1. Refine ocean and coastal information, research, and outreach priorities.

Council staff partnered with the California Sea Grant College and Extension Programs, the University of California Marine Council (UCMC), the California Ocean Science Trust (CalOST), and the Resources Agency to co-sponsor a workshop to identify California's ocean and coastal information, research, and outreach needs. Over 60 participants from academia, government agencies, non-governmental organizations, and industry attended. A suggested set of information, research, and outreach priorities, based in part on this workshop, is presented for consideration in this draft strategy. These priorities will be further refined with the assistance of CalOST and other partners. CalOST was established pursuant to the California Ocean Resources Stewardship Act of 2002 with the goal of improving the application of science to California's pressing coastal and ocean management challenges. This entity, which includes members from industry, academia, government agencies, and non-governmental organizations, has offered their services as an advisory group to the council and is well suited to help the council refine these priorities.

- ***Suggested council action.*** *The council should work with the California Ocean Science Trust to help coordinate a review of this draft information, research, and outreach strategy. This review will focus on refining the information, research and outreach priorities and determining the best ways to implement them. Key components of the review would be seeking the views and expertise of all the Trustees and requesting the Trust to seek public comment on the draft strategy at their upcoming meeting in July.*

**Recommendation 2. Make California's ocean observation system a national model.**

California began making systematic offshore observations as part of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) over 50 years ago. A high priority of the Governor's ocean action plan is to develop a strategic plan for the full operation of an integrated ocean observation system for California (Action 8). California has provided an unprecedented investment of $21 million to develop a coastal currents monitoring system, which is an important step in creating an integrated ocean observation system. California is now working to better coordinate the efforts of existing systems, address critical gaps, and improve operations and the delivery of information to users. These systems, when fully operational, will be used to support oil spill cleanup operations, fisheries and water pollution analyses, and search and rescue operations.

- ***Suggested council action.*** *The council should urge the National Oceanic and Atmospheric Administration to fund California's integrated ocean observation system as the first national pilot program in ocean observations.*

**Recommendation 3. Seek federal involvement and assistance.**

Both the U.S. Commission on Ocean Policy and the Pew Oceans Commission have called for the development of a national strategy for increasing scientific knowledge of coastal and ocean resources. Coastal states need improved ways to access information that currently resides within federal agencies, influence the research and monitoring sponsored by these agencies, and facilitate dissemination of this information. The U.S. Ocean Action Plan calls on the Joint Subcommittee on Ocean Science and Technology under the President's new Committee on Ocean Policy to develop a national ocean research priorities plan and implementation strategy. California, and other coastal states, need to ensure that their information and research needs are included in this national plan.

- ***Suggested council action.*** *The council should write the Chairs of the President's Committee on Ocean Policy and Joint Subcommittee on Ocean Science and Technology to determine how California and other coastal states can provide input into the development of this national plan, and obtain improved access to federal funding and assistance. In addition, California should continue to advocate for the U.S. Commission on Ocean Policy's recommendation to double the national ocean and coastal research budget.*

**Recommendation 4. Make research part of the council's funding strategy.**

The council will receive funds from a variety of sources to meet the requirements of the California Ocean Protection Act. Some of these funding sources, such as bond funds, will not be eligible to support research and monitoring activities because bond funds can only be used to support infrastructure. However, other sources of funding such as the

Environmental License Plate Fund, State Tidelands Revenues, the General Fund, or support from non-profit groups and philanthropic interests could provide funds applicable to research and monitoring activities.

- ***Suggested council action.*** *The council should establish a firm commitment to fund research and monitoring activities that support management. The council should also seek to identify partnerships for these investments to maximize matching funds and to obtain in-kind services to maximize any investments made in research initiatives.*

**Recommendation 5. Launch a California ocean and coastal web information portal.**

California needs an up-to-date center for all information on the state's ocean and coastal resources. The Resources Agency currently hosts the California Ocean and Coastal Environmental Access Network (CalOcean). However, this system has become outdated, and the Governor's ocean action plan calls for this system to be revitalized (Action 9). Outside funding is currently being sought to begin this process; however, additional funding from the council will be necessary to complete this project. The revitalized CalOcean will provide a primary tool for identifying data sources, research, management, and regulatory programs, and other programs to support the management and protection of California's ocean and coastal resources.

- ***Suggested council action.*** *The council should partner with other organizations providing ocean and coastal web information centers in California and commit funding to revitalize the California Ocean and Coastal Environmental Access Network (CalOcean).*

**Recommendation 6. Incorporate ocean and coastal education into K-12 curriculum.**

Teaching children about the ocean and coast and the fundamentals of science is critical to fostering good stewards of our ocean and coastal resources. Incorporating these principles into K-12 curriculum is essential to connecting with the next generation of ocean stewards. The Governor's ocean action plan calls on the council to ensure that ocean and coastal education is included in the environmental principles and concepts being developed pursuant to the implementation of the Education and the Environmental Initiative (Pavley, Chapter 665, Statutes of 2003, AB 1548). The council will be briefed on the progress of the Education and the Environment Initiative at their June 10, 2005 meeting.

- ***Suggested council action****. The council should continue to actively participate in the Education and the Environment Initiative process to ensure that the important principles and concepts of ocean and coastal science are included in the K-12 environmental education model curriculum.*

**Recommendation 7. Build a joint public outreach strategy in cooperation with National Oceanic and Atmospheric Administration (NOAA), the Consortium for Oceanographic Research and Education (CORE), Sea Grant Extension, and others.**

The state of California and NOAA's National Marine Sanctuary Program have assembled an alliance of California ocean communicators, a network of professionals with expertise in communicating ocean and coastal issues. The Ocean Communicators Alliance will work with government agencies, academia, industry, and non-government organizations to launch an ocean and coastal stewardship media campaign.

The Consortium for Oceanographic Research and Education and the Aquarium of the Pacific are convening a group of scientists to develop a portfolio of information that every citizen should know to be considered "ocean literate." This effort will take advantage of the work that has been done for K-12 teachers and students by the Centers for Ocean Sciences Education Excellence and the National Marine Educators Association.

The Sea Grant Extension Program has a unique network of Marine Advisors and Specialists throughout the state. The Marine Advisors and Specialists conduct applied research and deliver science-based education to coastal residents and resource managers. They use a variety of extension education models including individual consultations, issue focused workshops, and larger conferences to disseminate information and create educational opportunities.

***Suggested council actions***

- *The council should work with NOAA's National Marine Sanctuary Program and the Ocean Communicators Alliance to launch an ocean and coastal stewardship media campaign at the next California and the World Ocean Conference being planned for September 2006.*

- *The council should partner with the Consortium for Oceanographic Research and Education and the Aquarium of the Pacific to extend their ocean literacy effort throughout California.*

- *The council should use California Sea Grant Extension Program's statewide network of Advisors and Specialists to help facilitate information sharing to apply the best available science to the development of sound policy and resource management.*

## IV. POLICY FOR STATE FUNDED RESEARCH PROJECTS

The state of California should establish funding guidelines for ocean and coastal research initiatives so that all research funded by the state meets California's ocean and coastal management needs. The following policy should be used in all decisions to use state funds for ocean and coastal research.

**Policy:** The state of California will support the acquisition of information or the initiation of new research that addresses or substantially contributes to management, protection, conservation, or restoration of the state's coastal and ocean resources. These endeavors must support the mandatory provisions of the California Ocean Protection Act and be consistent with the actions contained within Governor Schwarzenegger's ocean action plan.

Research projects funded by the state must:

- Provide a clear research objective, demonstrate the use of sound scientific methods and experimental design, and specify the anticipated product.

- Demonstrate how the project can assist, complement, or augment the work of government agencies or private sector interests in their efforts to manage, protect, conserve, or restore coastal or ocean resources.

- Be supported by, prepared in cooperation with, or of expressed interest to a public or private agency or association involved with the management, protection, conservation, or restoration of coastal or ocean resources.

- Promote or be of discernible benefit to current or future generations.

## V. INFORMATION AND RESEARCH NEEDS

There are many ways to organize California's information and research needs. After consultation with the various partners in this effort, the ocean and coastal information and research needs have been organized into the following five broad categories. The priority information and research needs in each of these categories are identified in their respective sections below.

- Fisheries and Aquaculture
- Ecosystems and Habitats
- Coastal Hazards and Shoreline Processes
- Water and Sediment Quality
- Invasive Species

Several cross-cutting information and research needs can be applied to several or all of these topic areas. These cross-cutting needs are ocean observations, monitoring, seafloor mapping, and socio-economics.

**Fisheries and Aquaculture**

Information and research in the following areas are needed to help managers address the declines in many of California's fisheries, to preserve marine biodiversity, and to promote sustainable and efficient aquaculture practices.

- Implement ecosystem-based fisheries management.
- Gather more information on single species.
- Develop networks of marine protected areas.
- Develop sustainable aquaculture practices.
- Improve communication, collaboration, and conflict resolution among user groups.

**Ecosystems and Habitats**

Information and research in the following areas is needed to protect and restore ocean and coastal ecosystems and habitats.

- Improve understanding of ecosystem structure and function.
- Identify, protect, and restore critical habitats.
- Improve understanding of human behavior and decision-making.
- Study the impacts of sound on marine life.

**Coastal Hazards and Shoreline Processes**

The following information and research is needed to better identify, predict, and respond to coastal hazards and improve the management of California's shoreline.

- Study sediment changes and impacts.
- Improve coastal hazard identification and forecasting.
- Conduct legal and public policy analyses.
- Develop coastal hazard response strategies.
- Study the threat of tsunamis.

**Water and sediment quality**

Information and research in the following areas are needed to improve water and sediment quality in California and reduce risks to human health.

- Determine the impacts of non-point source and storm water pollution.

- Develop baseline health indicators.
- Identify sources of pollutants.
- Conduct risk assessment for emerging contaminants.
- Develop strategies to improve sediment management.
- Improve non-point source and storm water pollution control technologies, remediation, and mitigation.

**Invasive Species**

Information and research on invasive species is needed to prevent introductions, detect new invaders, eradicate successful invaders, and control established non-native species.

- Expand prevention strategies for invasive species.
- Develop a state-wide invasive species detection protocol.
- Develop a more science-based eradication approach.
- Support research and development to control the spread of invasive species.

**Cross-cutting needs**

The following information and research priorities are needed in several to all of the above categories.

- Develop an integrated ocean observation system.
- Improve, sustain, and expand monitoring programs.
- Complete seafloor mapping of high-priority areas in state waters.
- Gather and utilize socio-economic data.

## VI. OUTREACH NEEDS

Outreach efforts in the following areas are needed to engage all Californians in the protection of California's ocean and coastal resources.

- Improve communication between scientists, managers, stakeholders, and policy-makers.
- Incorporate ocean and coastal education and science literacy into K-12 curriculum.
- Support informal educational opportunities to connect with underserved groups.
- Promote ocean and coastal stewardship.
- Support web-based information centers.
- Support programs that promote future ocean leaders and their professional development.