



## CALIFORNIA OCEAN PROTECTION COUNCIL

Lester Snow, Secretary for Natural Resources  
John Chiang, State Controller, State Lands Commission Chair  
Linda Adams, Secretary for Environmental Protection  
Susan Golding, Public Member  
Geraldine Knatz, Public Member  
Fran Pavley, State Senator  
Pedro Nava, State Assemblymember

### MEMORANDUM

TO: Ocean Protection Council

FROM: Sheila Semans, Project Specialist

DATE: March 3, 2010

RE: California's Ocean Observing Program

ATTACHMENTS: [Proposed Resolution](#)

---

### REQUESTED ACTION:

Staff recommends the Ocean Protection Council (OPC) adopt the attached resolution to continue to support development, implementation and maintenance of a responsive and integrated observing system in California through strong national leadership and innovative collaboration with the federal government. This is timely because state funding for implementation of a critical coastal observation system will run out this year and operational funding has not yet been identified.

### BACKGROUND:

Californians have been monitoring the oceans for decades. Whether they are fishermen out on the water every day, surfers tracking water quality and swells, local community members organizing beach patrols, or scientists trying to answer the unknown, it was long ago understood that healthy oceans are vital to our way of life. However, a rapidly changing climate and growing coastal populations have resulted in increasingly difficult decisions about management of the oceans, coastal waters, and fresh water resources. Now, more than ever, it is clear that enhancing our understanding of the coastal ocean environment is vital to conserving and protecting living marine resources and improving the lives of all Californians. The creation of a robust and comprehensive system of ocean observing will greatly advance these objectives.

In the face of rising seas and damaging storms, frequent harmful algal blooms, diminishing fish stocks and spreading dead zones, there is no single, coherent monitoring network in place to assess the ocean, track changes over time, or determine the success of management efforts. National investments in a comprehensive weather forecasting and warning network began 150 years ago and today we can't imagine living without updated weather reports. The same commitment is now needed for the ocean. A robust observing system in California and the U.S. will provide invaluable economic, societal, and environmental benefits, through improved warnings of coastal and health hazards, more efficient use of living and nonliving resources, safer marine operations, and a better understanding of climate change.

*Integrated Ocean Observing System*

Unlike the history of weather observations that have always been centralized in one federal agency, ocean observing systems have been initiated and maintained by many different agencies, universities, private marine science institutes, and industries. Consequently, the process for establishing an integrated ocean observing system can be compared to assembling a patchwork quilt. Some pieces of the quilt already are in place, others are ready to be installed, and others have yet to be designed or imagined. Most existing observing systems operate independently, and will rely on strong state-federal collaboration to form an interconnected coastal and global network. A robust ocean observing system has been identified as a high priority by the Joint Ocean Commission, endorsed in the OPC strategic plan as well as the West Coast Governors Agreement on Ocean Health, and is widely supported by coastal states.

Nationally, the U.S. has organized its ocean observing efforts under the Integrated Ocean Observing System (IOOS; [www.ioos.gov](http://www.ioos.gov)), which is a collaboration among State and federal agencies, industry, non-governmental organizations, and academia. The coastal component of IOOS is implemented through a federation of regional observing systems nested in a federally supported “national backbone” of observations. Eleven Regional Associations (RAs) operate around the country, including two in California; the [Southern California Coastal Ocean Observing System](#) (SCCOOS) and the [Central and Northern California Coastal Ocean Observing System](#) (CeNCOOS).

Last year Congress passed the [Integrated Coastal and Ocean Observation Act](#) of 2009, which formally established IOOS as a program within NOAA and recognized the eleven regional systems. Realistic appropriations are now needed to fully implement IOOS.

### *IOOS Appropriations*

Recognizing the enormous national benefits that have accrued from the weather observing network, it is time to invest in a similar observational and forecasting capability for the oceans. While the U.S. Commission on Ocean Policy report recommended an IOOS funding level of \$500 million by 2010, today’s appropriations are still hovering around \$30 million, and are inadequate to fulfill the IOOS mission. As a result, established monitoring infrastructure that is vital to improved management is now being lost due to funding shortfalls. The National Oceanographic Partnership Program has articulated that a critical action for IOOS will be to stabilize and integrate existing ocean observation programs. California and other coastal states must continue to push for a stronger federal commitment to IOOS.

### *The National Surface Current Mapping Plan*

Monitoring ocean surface currents is a core component of IOOS, and the availability and maturity of High-Frequency radar (HFR) technology has made the design and initial implementation of a national surface current mapping network possible. In October of last year the IOOS program office released the [National Surface Current Mapping Plan](#) (SCM Plan). This plan lays out a 5-year strategy for integration and implementation of a national surface current mapping network. Due to experience implementing the most ambitious HFR system to date (COCMP, described below), OPC staff and members of California’s two RAs contributed heavily to the creation of this plan. California has collaborated with NOAA over the past 5 years to develop a model for HFR deployment and integration nationally, and is creating useful products that can be replicated throughout the country. Recognizing the investments made by state governments, the SCM Plan emphasizes that a critical action for IOOS is to first stabilize and integrate existing surface current mapping programs.

The SCM Plan indicates that \$10 million dollars is needed as a baseline budget to operate existing infrastructure, and recommends that this eventually be doubled to complete the national system. NOAA has not yet included funding for the SCM Plan in their annual budget requests.

#### *Coastal Ocean Current Monitoring Program (COCMP)*

Reflecting an understanding that ocean managers need better scientific information to make informed decisions about coastal resources, the State Coastal Conservancy, together with the State Water Resources Control Board allocated \$21 million dollars to implement the [Coastal Ocean Currents Monitoring Program](#) (COCMP). This unprecedented program has developed a partnership of academic and government institutions working with industry and non-government organizations to design a real time monitoring system of ocean currents along the state's 1100 miles of coastline. Through COCMP, California has made the largest commitment to coastal ocean observations of any state, and has taken a leadership role on the national level. COCMP is implemented by the oceanographic research community through the State's two RAs.

This 55-station, land-based system is now nearly complete, and provides comprehensive, real-time coverage of California's coastal waters up to 150 km offshore, regardless of weather, visibility or time of day. Because it is weather and daylight independent COCMP greatly improves emergency response capability by allowing managers to track surface currents via the Internet—including at night, in fog, or when conditions don't allow for direct observation. Some recent applications of COCMP data include:

- **Oil Spills:** The US Coast Guard asserts SF Bay alone averages 6 bridge strikes a year, sometimes with devastating consequences (e.g. Cosco Busan). COCMP information improves the timing and precision of response efforts; the program has developed a well-received plume trajectory tool to forecast movement of contaminants.
- **Maritime Safety:** California is home to three of the five busiest ports in the country; COCMP data, combined with wave data has provide critical safety information at San Francisco Bay and the Los Angeles/Long Beach port entrances.
- **Ocean Energy:** An increasing need for renewable energy has focused recent attention on California's ocean energy potential. HF Radar is a critical tool for siting wave energy buoys and assessing the efficacy of alternative technologies.
- **Search and Rescue:** The U.S. Coast Guard estimates that access to continuous surface current data in all U.S. coastal waters would save an additional 26 to 45 more lives annually and reduces the \$30 million per year currently spent on rescue flights. Recently COCMP data was used to assist in the attempted rescue of a person lost at sea near Point Reyes.

Together with the RAs, California has worked collaboratively with IOOS to assure integration of COCMP into a larger national network. **However state funding for implementation will run out this year and operational funding has not yet been identified.** As stated before, although articulated as a priority in the SCM Plan, funding to operate existing surface current systems has not been requested by NOAA. COCMP stands as an example of infrastructure that could be lost if operational funding isn't identified in the near-term. California must continue to work with Congress and NOAA to substantially increase IOOS funding for regional observations and to specifically support ongoing operation of COCMP.

#### **CONSISTENCY WITH THE CALIFORNIA OCEAN PROTECTION ACT:**

The proposed action is consistent with the Ocean Protection Act (Division 26.5 of the Public Resources Code). Public Resources Code Section 35615(a)(1) specifically directs the OPC to coordinate activities of state agencies to improve the effectiveness of state efforts to protect ocean resources, establish policies to

coordinate the collection of scientific data related to the ocean, and recommend needed changes in state and federal law. This proposed resolution strives to formalize a commitment to continue to build an effective ocean observing system in California, for the express purpose of providing sound science to make good management decisions. By design, strong joint action is required to achieve this goal effectively. By continuing to devote resources, including staff time and funds, as available, and by continuing to cultivate collaborations with federal, state and regional government agencies and educational and research institutions that maintain and develop ocean monitoring capabilities, California will help maintain healthy, resilient, and productive ocean and coastal ecosystems for the benefit of current and future generations.

The proposed resolution does not recommend any change in state law but rather recommends a more aggressive implementation of IOOS, through increased federal appropriations to NOAA. Specifically, implementation of the SCM Plan would provide operational support for the ongoing operation of California's HF Radar Network, a critical asset to the state and nation.

Consistent with Public Resources Code Section 35615(a)(2), the proposed action also strives to establish policies to coordinate the collection, evaluation, and sharing of scientific data related to coastal and ocean resources among agencies. An integrated and sustained ocean observing program is designed to meet the needs of a broad constituency, including decision-makers, advisory bodies, managers, and the public.

#### **CONSISTENCY WITH THE OPC'S STRATEGIC PLAN GOAL(S) & OBJECTIVE(S):**

The project is consistent with the OPC's Five-Year Strategic Plan in the following respects:

**Goal A (Governance), Objective 2:** "Maximize the effectiveness of state agency efforts to protect and conserve ocean and coastal resources." The proposed resolution is designed to bolster state efforts to help develop an effective ocean observing system in California. Understanding the changing ocean environment and how coastal ecosystems respond to such changes is vital for swift, confident, and effective management. Implementation of IOOS will require a substantial sustained investment in research, infrastructure, evolving data products, system enhancements, and operational support of real-time information, carried out through a strong state-federal collaboration.

**Goal A (Governance), Objective 5:** "Engage federal government support for California priorities." Through both the OPC strategic plan and work on the West Coast Governor's Ocean Action Plan, California has supported the need for sustained monitoring of our oceans. Recognizing the investments made by state governments, the SCM Plan states that a critical action for IOOS is to first stabilize and integrate existing surface current mapping programs. This request supports the findings within this plan and advocated for initial funding for its implementation. Monitoring systems like COCMP will never become fully operational without a sustained IOOS program.