



The National Office for Integrated and Sustained Ocean Observations

OCEAN VIEWS

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The Southern California Coastal Ocean Observing System (SCCOOS) is a regional observing system that incorporates existing observational programs, adds new infrastructure and tools, and provides these observations in synthesized products available to a broad spectrum of users. The system is establishing long-term coastal observations to provide information necessary to address issues in climate change, coastal water quality, marine life resources, coastal hazards, maritime operations, ecosystem management, and national security.

As a science-based decision support system, SCCOOS works interactively with local, state and federal agencies, resource managers, policy makers, educators, industry, scientists and the general public to provide data, models, and products that advance our delivery and understanding of coastal observations and improve the management of the California coastal ocean environment.

SCCOOS was established through a Memorandum of Understanding (MOU) in 2003 as a consortium of eleven institutions from Southern California and northern Baja, Mexico. SCCOOS serves the Southern California Bight, from Point Conception in the north to just past San Diego in the south, and extending offshore to the Channel Islands.

SCCOOS is overseen by a Board of Governors, formed in 2004 and comprised of senior representatives of the eleven signatories to the MOU. A significant mark of SCCOOS's development is the unanimous approval of Bylaws by the Board of Governors in February 2006. As a project-based organization operating under a system of contracts and grants, the Bylaws define the functional relationships of structural components of the SCCOOS Regional Association.

The Board of Governors established a Senior Advisory Committee in February 2006, representing another important milestone in SCCOOS's maturity. The Senior Advisory Committee comprises representatives of eighteen local, state and federal agencies and industry, and provides guidance and comments to SCCOOS operations, participates in strategic planning, and serves as an outside source of information and reference that links SCCOOS with the broad stakeholder interests, priorities, and knowledge within the region. SCCOOS's efficient governance structure has been developed to foster cohesion of regional stakeholder needs and promote a unified

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Washington, DC

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November 2
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Washington, DC

system at both the regional and national levels.

SCCOOS employs technologies that include HFR radar, meteorological stations, automated and manual shore stations, moorings, boat based sampling, gliders, and numerical modeling. Through a joint program with Central and Northern California Ocean Observing System (CeN-COOS) funded by the state of California's Coastal Ocean Currents Monitoring Program (COCMP), SCCOOS is installing HF radar arrays to map ocean currents. The monitoring of ocean currents is an identified priority for the state because currents conditions are central to many management and safety issues, including beach and water quality, oil spill and search and rescue operations, harmful algal blooms, and biological connectivity.

Subsurface observations are collected from an array of three ocean moorings and NOAA/COTS and COCMP gliders. The moorings constitute a sustained real-time monitoring system for physical and biogeochemical variability at selected coastal ocean locations, and are a prototype of a multidisciplinary long-term mooring for shallow water with a surface buoy and a suite of sensors in the water column below. The moorings measure meteorological variables, temperature, salinity, oxygen and chlorophyll concentrations, and currents. Data are telemetered to shore every hour. Underwater gliders and AUVs continuously monitor coastal velocity, temperature, salinity, and phytoplankton.

In-shore biological measurements to aid fisheries management are conducted by California Cooperative Oceanic Fisheries Investigations (CalCOFI), supported through the COTS program at SCCOOS. The SCCOOS component contributes to

the development of systematic coastal ecosystem monitoring with observations of near-shore species and processes, regular description of the water column habitat, and products to describe parameters relevant to Southern California Bight fisheries.

To respond to the significant challenge of combining sparse and inhomogeneous data into a coherent and useful picture of the Southern California Bight, SCCOOS is supporting the development of a real-time, operational regional data assimilation model to be operated at Jet Propulsion Laboratory. The model will produce nowcasts and forecasts for the region. Work is focused on the U.S. West Coast version of ROMS to bring together observations from the distributed SCCOOS array in a dynamically consistent way, and regularly produce time-dependent three-dimensional maps of velocity, temperature, salinity and basic ecosystem state.

In bringing an integrated coastal ocean observing system to Southern California, it was recognized that a sustainable ocean observing system had to rest on partnerships between those who collect the data and those that use it. SCCOOS has invested in building the infrastructure and developing those partnerships, bringing together research teams, data managers, and end users.

One partnership is SCCOOS's work with National Pollutant Discharge Elimination System (NPDES) permitted agencies. At least 75% of the funds traditionally spent on ocean observations have come from NPDES permitted agencies. Southern California spends an estimated \$31 million a year in monitoring costs to maintain ocean NPDES permits. SCCOOS is working with the four major



publicly operated treatment facilities in the region to provide integration and data access tools for the boat-based sampling data that is collected in support of their NPDES permits. To obtain a region-wide picture of the condition of the coastal ocean, the agencies have organized a coordinated sampling scheme that includes timed quarterly cruises. When integrated with other observations, the long-term data sets will provide valuable insight to climate change impacts along the coast, constrain ocean forecast models, and detail the extreme variability of coastal waters.

SCCOOS also partners with six public health agencies to integrate shoreline water quality data and make it accessible data retrieval system on the SCCOOS website. Through existing relationships at the Southern California Coastal Water Research Project (SCCWRP), these agencies have implemented a tool to rapidly forward their shoreline water quality updates to a central database operated by SCCOOS. These data are currently used by the public health agencies as indicators of public health risks in coastal waters. Achieving this major milestone sets the stage for SCCOOS to integrate these data with real-time ocean conditions to develop data products that aid management decision making.

Another important partnership is the collaborative effort between SCCOOS and the California Department of Boating and Waterways to support and maintain a historical, pier-based climate observ-



ing program, the Manual Shore Stations Program. This program ranks as one of the worlds longest ocean time series and the longest on the Pacific Rim; some stations date back to 1916. Data from this program is used by NOAA fisheries to set sardine catch limits, the only federally managed stock with an environmentally-based harvest policy.

Stephanie Peck

For more information log on to www.sccoos.org or contact Stephanie Peck at Scripps Institution of Oceanography (858-822-4097, speck@ucsd.edu).

New Report Aims to Reduce Human Impacts of Harmful Algal Blooms

A new research strategy report, *Harmful Algal Research and Response: A Human Dimensions Strategy*, proposes a detailed implementation plan for the research necessary to reduce the public health, sociocultural, and economic impacts of harmful algal blooms (HABS). The report was the result of a workshop coordinated by the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Coastal Ocean Science (NCCOS) and provides guidance for implementation of the President's Ocean Action Plan.

Harmful algal blooms are proliferations of microscopic algae that harm the environment and humans by producing toxins that accumulate in shellfish and fish, pollute drinking and swimming water and contaminate coastal air. Increases in the number, frequency and type of harmful

algal blooms have become a critical issue in near shore marine waters and freshwater environments globally. Direct economic impacts of HABS in the U.S. average \$75 million annually, including impacts on public health costs, commercial fishing closures, recreation and tourism losses, and in management and monitoring costs.

“A major goal of the President's Ocean Action Plan is to develop ocean and coastal research priorities. This report provides a coordinated national commitment to harmful algal bloom research, research that is a significant part of the NOAA mission to enhance our understanding of ecosystems and with the impact of human populations on them,” said retired Navy Vice Adm. Conrad C. Lautenbacher, Jr., Ph.D., under secretary of commerce for oceans and atmosphere and NOAA administrator.

Specific research needs identified in the report include assessing the socio-cultural and economic impacts of harmful algal blooms; developing outreach strategies that reduce public exposure; identifying susceptible populations; enhancing interagency and stakeholder coordination; and identifying strategies to reduce the impacts of algal toxins in recreational and drinking waters. The report serves as a framework for research on the human dimensions of coastal ecosystems, research that will promote resilience of coastal communities to other hazards such as pollution and hurricanes.

Human dimensions research provides a research strategy that expands on the

public health and socioeconomic impacts critically needed to reduce environmental and human impacts of harmful algal blooms. The report is available on the NOAA website at: www.coastalscience.noaa.gov/stressors/extremeevents/hab/HDstrategy.pdf

The human health impacts of harmful algal blooms are profound. Exposure to certain toxins by inhaling sea spray, consuming contaminated fish or shellfish, or swimming in contaminated waters can cause rashes, respiratory distress, other illnesses, and death in susceptible individuals.

Closure of beaches and fisheries can result in significant lost revenue for coastal and linked economies dependent on seafood harvest or tourism. Sociocultural impacts include disruption of subsistence activities, loss of community identity tied to coastal resource use, and disruption of social relationships and cultural practices.

The report was developed by NOAA and the U.S. Centers for Disease Control and Prevention, in association with researchers from Washington State Department of Fish and Wildlife, University of Texas at San Antonio, Yuxi Teachers College (China), Woods Hole Oceanographic Institution, East Carolina University, Bowdoin College, Mote Marine Laboratory, the University of New Hampshire, Cornell University, University of Maryland, Central Washington University, and the Chesapeake Research Consortium.

Draft Report on Long-term Health of California's 1,100 Mile Coastline

A draft report on the long-term health of California's 1,100 mile coastline and ocean was released earlier this month at the 'California and the World Ocean '06 Conference'. The document, *The California Coastal Sediment Master Plan Status Report*, was made available for public review and comment by the Coastal Sediment Management Workgroup.

"Our beaches, ports, and other coastal resources provide critical goods and services for California and the nation," said Secretary for Resources Mike Chrisman. "Equally important is the fact that our citizens have access to ocean for recreation and enjoyment." Chrisman said. He added, "This report shows that the state, federal and local governments are serious about addressing problems of coastal sediment management in a comprehensive and long-term program."

The report, which has far reaching implications for coastal health, documents the completed, on-going, and future activities of the workgroup. The workgroup is working to compile the California Coastal Sediment Master Plan. This plan, when completed will provide scientists and resources managers the ability to more effectively manage sediment on a regional basis along the entire California coastline. Issues including coastal erosion, beach nourishment, harbor dredging, wetlands restoration and habitat for numerous coastal species are addressed in the report.

The Coastal Sediment Management Workgroup is a collaborative of federal, state, and local agencies and non-governmental organizations working together to

find solutions to California's coastal sediment management needs on a regional, system-wide basis. The workgroup is co-chaired by the California Resources Agency and the U.S. Army Corps of Engineers.

"In order to protect and maintain these economic interests and resources, it is essential that we work collaboratively with our federal and local partners in addressing the problems that affect our coast," Chrisman said.

Funding for the Master Plan program was initiated by a \$1,200,000 grant from the National Oceanic and Atmospheric Administration's Coastal Impact Assistance Program administered by the Resources Agency of California. Subsequent funding has been provided by the U.S. Army Corps of Engineers (\$795,000) California Department of Boating and Waterways (\$580,000), and the California State Coastal Conservancy (\$20,000).

To download the report and to receive instructions on submitting public comments, log on to: <http://www.dbw.ca.gov/CSMW/csmwhome.htm>

MACOORA Annual Meeting

The Mid-Atlantic Coastal Ocean Observing Regional Association (MACOORA) will hold its Annual Meeting on October 30-31, 2006 at the Sheraton Inner Harbor Hotel in Baltimore, Maryland.

MACOORA's mission is protecting lives, livelihood and quality of life through an understanding of marine and coastal environments. The meeting hopes to further develop MACOORA's Business Plan, seek consensus on a regional ocean



observing pilot project, engage a broader spectrum of stakeholders and members, and elect or re-elect four Directors of the Board.

The meeting will be held at the Sheraton Inner Harbor Hotel Baltimore (<http://www.starwoodhotels.com/sheraton/property/overview/index.html?propertyID=197>). A block of rooms has been reserved at a group rate at the Sheraton Inner Harbor Hotel. To obtain the group rate, you must make your reservations by October 6. To do so, call the hotel directly at (410) 962-8300 extension Reservations or the Toll Free Starwood Reservation Hot Line (800) 325-3535 and identify the 'MACOORA Group' to ensure that you receive the group rate.

Limited support is available to assist with the cost of the hotel rooms at the Sheraton Inner Harbor Hotel (\$150 per night for a maximum of 2 nights).

Please register by October 23, 2006. If you have any questions email Dave Chapman at dchapman@udel.edu.



Workshop for Prospective Participants in ORION/OOI Cyberinfrastructure

October 3rd & 4th, Arlington, Va.

<http://vsto.hao.ucar.edu/ceo/logistics.html>

The National Science Foundation is sponsoring a workshop intended for ocean scientists who: (a) are considering participating in proposals responding to the recent ORION/ OOI RFP for a Cyberinfrastructure Implementing Organization, or (b) have an interest in the potential directions for cyberinfrastructure development in the ocean sciences. Scientists from areas outside ocean science who have led the development of advanced cyberinfrastructure capabilities to support research in their disciplines, together with computer scientists who have been instrumental in the design and implementation of such cyberinfrastructure, will be on hand to illustrate the potential contribution of cyberinfrastructure to ocean science in general and to the OOI in particular. They will also share lessons learned and highlight some of the challenges involved in implementing an advanced cyberinfrastructure.

The workshop format will be a series of topical breakout group discussions on different aspects of cyberinfrastructure, interlaced with plenary talks illustrating different large cyberinfrastructure projects. Participants are encouraged to bring practical questions about the role cyberinfrastructure can play in advancing research in ocean science and strategies for designing such cyberinfrastructure.

Three Pacific Coast Governors Announce Historic Partnership for Ocean Action

The Governors of California, Oregon, and Washington announced an historic partnership and action plan for ocean and coastal resource protection along the Pacific Coast earlier this month.

The joint effort to protect the ocean and coast was announced in Long Beach, California to more than

1,000 attendees of ‘California and the World Ocean 2006’ by California Governor Arnold Schwarzenegger. Schwarzenegger was joined by his fellow governors, Oregon’s Ted Kulongoski and Washington’s Chris Gregoire, via live satellite from Portland.

The regional agreement will forge a long-term partnership to tap world-class experts in each state and tackle challenges facing the ocean and coast including:

- o Ensuring clean coastal waters and beaches for citizens of the region;
- o Protecting and restoring healthy ocean and coastal habitats;
- o Promoting effective ecosystem-based management of ocean and coastal resources;
- o Reducing adverse impacts from offshore development;
- o Expanding ocean and coastal scientific information, research, and monitoring;
- o Increasing ocean awareness and literacy among tri-state residents; and
- o Fostering sustainable economic development in coastal communities.

“Just as our western states have started to work together to fight global warming and protect our air, we now join forces to make sure we are doing everything in our power to maintain clean water and beaches along our coast,” said Schwarzenegger in making the announcement with his fellow governors.

As he made the announcement, he was flanked by Oregon Gov. Kulongoski and Washington Gov. Gregoire, who appeared on two giant television screens behind him.

The governors said they expect to announce initial recommendations and initiatives for regional action by early 2007.



Under the collaborative agreement, the three states intend to work together to:

1. Create mechanisms for sharing lessons learned from local, urban, county, and state-wide conservation and restoration programs.
2. Expand cooperative scientific and educational efforts on issues of regional significance.
3. Coordinate management strategies and approaches for coastal and marine resources of regional significance.
4. Engage Congress and the White House on regional ocean and coastal issues that are of national significance, such as offshore oil and gas drilling.

The governors recognized that Washington, Oregon, and California “share a rich and diverse bounty of ocean and coastal resources that provide enormous economic, environmental, and social benefits for our states. Yet our citizens’ continued use and enjoyment of coastal and ocean resources is at risk.”

“Polluted waters, declining populations of fish and other marine life, degraded nearshore habitats, risks of severe storms and tsunamis and climate disruption are but a few examples of serious threats to the continued vitality of our ocean-dependent states,” the agreement states.

These are also issues called out in recent years by two national ocean commissions, both of which have called for immediate, meaningful action at all levels to restore and maintain the health of the oceans.

Each of the three states has developed world class expertise in ocean sciences and academics, and established a track record of innovation and leadership on ocean and coastal issues domestically and internationally, the tri-state agreement notes.

Examples of state leadership on these issues include Washington’s Puget Sound Partnership and Ocean Policy Working Group, Oregon’s Ocean Policy Advisory Council, and California’s Ocean Protection Council – all forums for important discussions about ocean issues.

The governors have directed their respective agencies and staffs to work throughout this fall with representatives of business, environmental, governmental, educational, and academic communities to develop recommendations for this historic regional partnership.

Ocean.US Website

Due to a technical problem that occurred this month we lost a significant amount of content and information from the Ocean.US website.

Please be patient while we work to bring back all of this content.

If you have any questions please email Kristine Stump at k.stump@ocean.us.

Thank you.

For comments or questions about *Ocean Views* please contact Gregg Schmidt at g.schmidt@ocean.us.

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