



**Ocean Observing along California's Central Coast in a Changing Climate
California Polytechnic State University, San Luis Obispo
Tuesday, July 1, 2014**

Welcome and introductions

The Provost of California Polytechnic University, Kathleen Enz-Finken, opened the meeting and welcomed the attendees (a full attendee list can be found in Appendix 1). She emphasized the importance our oceans and coasts have to our nation's economy. She thanked both SCCOOS and CeNCOOS for the role their collaborative research with the University plays in enriching Cal Poly students and their importance to our collective future.

CeNCOOS Director Leslie Rosenfeld welcomed the assembled group and gave a brief overview of the California Ocean Observing Systems' activities and how they fit into the national and global observing networks.

SCCOOS Director Julie Thomas also welcomed the group and gave a brief presentation on the importance of the monitoring done by the Ocean Observing Systems (OOSes). She specifically emphasized the importance of long-term measurements to the monitoring of climate change, the evaluation of trends (including the monitoring and forecasting of El Niño's), and the quantification of resiliency.

Panel 1: Tracking Change in the Marine Environment

Panelists:

- Andrew DeVogelaere, Research Coordinator, Monterey Bay National Marine Sanctuary
- Lesley Ewing, Coastal Engineer, California Coastal Commission
- John Steinbeck, Vice President/Principal Scientist, Tenera Environmental
- Liz Whiteman, Program Director, California Ocean Science Trust

Moderator: Raphael Kudela, Professor of Ocean Science, UC Santa Cruz

Summary:

The panelists made opening remarks and responded to a number of questions from the moderator and the audience. The questions covered topics such as: the importance of *in situ* measurements, the effects of a changing climate on the Central Coast, the observations that should be invested in for adaptation to climate change, and how the Ocean Observing Systems can continue to assist in the management of protected ocean areas.

The panelists stated their support for *in situ* measurements as part of the Ocean Observing Systems. It was said that these measurements are vital to modelling efforts, collecting site specific data, and evaluating biological processes. The panel stressed the importance of long-term measurements in the ocean, saying that they are integral to establishing baselines, determining change, and decision making at various levels of resource management and policy making.

Ocean acidification and sea-level rise were identified as having a potentially large impact on the Central Coast. The panelists felt that the Ocean Observing Systems have a large role to play in monitoring the effects of climate change and assisting in the management of protected ocean areas (California's network of MPAs and the NOAA Marine Sanctuaries). Specifically, OOSes can provide long-term data; contextual information for biological observations; and information regarding the connectivity between oceanic changes, human disturbances, and management activities.

Additionally, several of the panelists mentioned the OOSes as a platform for federal, state, and private sector collaboration; that there is an opportunity to collaboratively build holistic strategies to address regional environmental issues and to provide guidance to resource managers.

Panel 2: Federal and State Ocean Policy and Management

Panelists:

- Lois Capps, Congresswoman, California District 24
- Sam Farr, Congressman, California District 20
- Cat Kuhlman, California Ocean Protection Council Executive Director/Deputy Secretary for Oceans and Coastal Matters, California Natural Resources Agency

Moderator: Skyli McAfee, Executive Director of the California Ocean Science Trust

Summary:

Libe Washburn, SCOOS Executive Board Chair, introduced the panel. Dr. Washburn specifically recognized the longstanding support Representatives Capps and Farr have shown for Ocean Observing and the Coastal Data Information Program (CDIP). Following the Introduction, each panelist gave opening remarks, then as a group they addressed several questions from the moderator and the audience. The responses of each panelist are summarized below.

Representative Lois Capps stressed the importance of the marine environment, calling it a national asset with vast economic and intrinsic value. She believes that oceanic data collected and served by the OOSes is critical to providing policy makers and resource managers with the information needed to properly protect the health and economic value of these areas. She stated how effective the IOOS program (created under the ICOOS Act) has been in bringing all the regional systems together, allowing the program to collect and serve more information; saying specifically that IOOS provides real world

results for both the economy and the environment. Rep. Capps feels that education, particularly of younger children, is essential to building public support for better ocean stewardship.

Representative Sam Farr discussed the political hurdles we face in seeing meaningful legislation on ocean health and climate change, specifically citing a pervasive pessimism in Congress. He called the National Ocean Policy the “third leg” to the Clean Air and Clean Water Acts, and mentioned the importance of the FORAM ocean acidification bill that he is leading. Rep. Farr believes that the scientific and management community needs to become more political and work to demonstrate the economic value of a healthy ocean. He stated that we must build more public support for political action on ocean issues, including incentivizing good behavior and streamlining the permitting process to alleviate distrust of new legislation. He feels that California has the opportunity to serve as a national example of how to recover from a serious economic recession and balance a budget without sacrificing environmental health.

Deputy Secretary Cat Kuhlman believes that California defines itself by the ocean. She says that OOS data is vital to California, particularly when it comes to monitoring our network of marine protected areas and monitoring and adapting to climate change. She said that the OOSes have helped to provide the information necessary to make best management decisions in the face of uncertainty. With the economic recession, she has seen the importance of partnerships and collaborations rise exponentially; she cited the Ocean Acidification and Hypoxia Panel, the Coastal Management Program, and the California Network of Marine Protected Areas as examples of the State’s partnership approach to ocean management issues. Deputy Secretary Kuhlman believes that expanding citizen science programs and reaching out to more economically and ethnically diverse audiences is necessary to build public support for the sciences.

Panel 3: Informing Human Uses of the Ocean

Panelists:

- Sam Blakeslee, Founding Director, Cal Poly Institute for Advanced Technology and Public Policy
- Ray Fields, President, The Abalone Farm
- Peter Hanson, Commercial Fisherman
- Mark Jackson, Meteorologist-in-Charge, NOAA/NWS Oxnard

Moderator: Dean Wendt, interim Dean of Research & Director of the Center for Coastal and Marine Sciences, Cal Poly

Summary:

The panelists made opening remarks and responded to a number of questions from the moderator and the audience. The questions covered topics such as: the types of data that are important to industry, what ocean issues affect their businesses, how OOSes can better assist growth, and what role private data providers should play.

Overall, the panelists agreed that OOS data are important to fishing, aquaculture, and impending renewable energies. Each discussed how the data particularly impact them, explaining that it helps save lives of fishermen, increase efficiency, decrease carbon footprints, and help protect individual property. In addition to the real-time data used by many, several of the panelists voiced their support for long-term data sets that help establish baselines and identify changes over time. There was particular support for the ease with which the OOSes make the data publically available.

Ocean acidification and El Niño events that threaten either the crops or the food sources for the crops (or both) were discussed as concerns of the mariculture industry. There were some on the panel that believed further California emission reduction programs could drive large changes in the energy industry; under these circumstances, OOS data would become incredibly important for the development and assessment of renewable energy sites.

Panelists stated that the OOSes could provide further assistance to industry by better helping to analyze the data they were collecting. However, the panel agreed that there is a role for private companies to play in taking data provided by the OOSes and creating value added products that individuals/businesses would be willing to purchase.

Appendix 1: Attendee List

Kristin Anderson	Scripps Institution of Oceanography
Alec Arago	Congressman Sam Farr's Office
Debbie Aseltine-Neilson	California Department of Fish and Wildlife
Aric Bickel	CeNCOOS
Sam Blakeslee	Cal Poly, San Luis Obispo
Carol Blanchette	UC, Santa Barbara
Congresswoman Lois Capps	CA District 24
Chris Cohen	SCCOOS/Coastal Data and Information Program
Kristin Davis	UC, Irvine
Andrew DeVogelaere	Monterey Bay National Marine Sanctuary
Lynne deWitt	Pacific Fisheries Environmental Laboratory/SWFSC/NMFS/NOAA
Linda Dugay	USC Sea Grant
Jim Eckman	California Sea Grant
Lesley Ewing	California Coastal Commission
Congressman Sam Farr	CA District 20
Ray Fields	The Abalone Farm Inc.
Toby Garfield	Southwest Fisheries Science Center/NMFS/NOAA
Peter Hansen	Commercial Fisherman
Barbara Hibino	Anthropocene Institute
Mark Jackson	National Weather Service Oxnard
Sam Johnson	U.S. Geological Survey
Krista Kramer	Cal State Council on Ocean Affairs, Science and Technology
Raphael Kudela	UC, Santa Cruz
Deputy Secretary Cat Kuhlman	Oceans and Coastal Matters, California Natural Resources Agency /Director of the California Ocean Protection Council
John Largier	UC Davis
Laura Lilly	California Sea Grant
Skyli McAfee	California Ocean Science Trust
Mary Miller	San Francisco Exploratorium

Chris Mobley	Channel Islands National Marine Sanctuary
Karina Nielsen	Sonoma State University
Jennifer Patterson	CeNCOOS
Chris Raleigh	San Francisco University
Jenifer Rhoades	U.S. Integrated Ocean Observing System
George Robertson	Orange County Sanitation District
Leslie Rosenfeld	CeNCOOS
Rebecca Smyth	NOAA Coastal Services Center
John Steinbeck	Tenera Environmental
Julie Thomas	SCCOOS
Libe Washburn	SCCOOS/ UC, Santa Barbara
Dean Wendt	Cal Poly, San Luis Obispo
Johanna Weston	State Water Resource Control Board
Liz Whiteman	California Ocean Science Trust
Danielle Williams	SCCOOS
Karen Worcester	Central Coast Regional Water Control Board
Thomas Zambrano	Ocean Lab