



I. CeNCOOS Receives \$1.6 Million for Fiscal Year 2009 from NOAA

The NOAA Integrated Ocean Observing System (IOOS) awarded the 2009 competitive grant funding to support CeNCOOS. The grant will be used for long-term monitoring of the environment in support of protecting marine life and habitats. The funding will also help maintain and enhance ocean observations in the region by providing easier access to regional real-time data. CeNCOOS is one recipient in a series of nationwide IOOS grant projects, totaling \$21 million. "This award represents NOAA's commitment to implementing the Integrated Coastal and Ocean Observation Act of 2009 which recognizes the IOOS regional systems as key components of the national effort," said Zdenka Willis, NOAA IOOS program director. "These projects are crafted to meet local customer needs while also contributing to the success of the national effort."

II. Big Step for Harmful Algal Bloom Research at the Santa Cruz Wharf!



On October 22, 2009, the Monterey Bay Aquarium Research Institute (MBARI) deployed an [Environmental Sample Processor \(ESP\)](#) on the Santa Cruz Wharf. Complemented by sensor technologies operated by UC Santa Cruz, the Santa Cruz Wharf now exemplifies an ideal pier-based station for enhanced ecosystem research and resource management with an emphasis on harmful algal blooms (HABs) and red tides. The station will aid in understanding the presence, distribution, abundance, and population dynamics of algal species that produce blooms. UCSC research provides [HAB-related weather and water quality information](#),

including chlorophyll fluorescence. The ESP allows for real-time detections of organisms in-situ through application of molecular probes. This application was not possible before and is essential for detecting, tracking and predicting events which will ultimately impact human health, wildlife and fisheries. This prototype represents new emergent technologies that allow for the integration of targeted monitoring of specific harmful species with molecular probes and the coupling of this information with environmental measurements. Data integration, management, distribution and web access will be provided by CeNCOOS in partnership with UCSC and MBARI scientists.

III. Summer Interns Shine at CeNCOOS

For the second time we participated in the MBARI summer internship program and once again both interns were exceptional! Megan Kelso and Taryn Takahashi made great strides for CeNCOOS and MBARI with their summer projects.

Intern Project: A San Francisco Bay Needs Report compiled for CeNCOOS



Megan Kelso met with over a dozen organizations in SF Bay to identify sensor and data product needs related to ocean observing. Her results include a written report (to be released soon), a synthesis map of sensor locations requested by each organization, and advise on responding to these data gaps. [View the map \(Word doc\)](#).

Intern Project: CeNCOOS Harmful Algal Bloom Education



Taryn Takahashi worked with science teachers from around the nation to create webpages on the CeNCOOS website for students to learn about algal blooms and their potential impacts (http://www.cencoos.org/sections/classroom/algal_blooms.shtml).

The material is written for middle and high school level students and includes descriptions of how and why blooms form, and activities to understand how researchers study and predict blooms using historical and near real-time data.

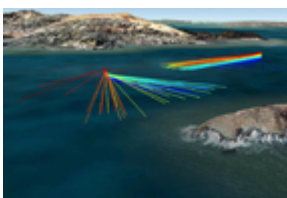
IV. CeNCOOS Data in Action

a. Solving the Mystery of Seabird Deaths in Monterey Bay



Meetings of a group of local researchers from several disciplines were organized by CeNCOOS to try to understand the causes of widespread bird deaths in Monterey Bay during November 2007. A large algal bloom occurred at that time, dominated by the dinoflagellate, *Akashiwo sanguinea*. The group determined that a foam layer on the ocean caused by the algae bloom likely caused the birds to lose waterproofing and freeze in the cold waters. This event and the CeNCOOS response are summarized in our new [Success Story: Solving the Mystery Spill in Monterey Bay](#). Also, check out the 2009 [publication on this bloom event](#) from some of the scientists brought together by CeNCOOS at the PLOS One online journal. Results from this project proved invaluable in diagnosing the wildlife impact of a similar - but larger - [red tide now occurring in Washington State!](#)

b. San Francisco Bayweb



The [Bayweb I](#) project was completed from May 1-10, 2009 to measure currents below the surface of SF Bay and attempt to send data to the internet at real-time speed. Although the real-time transmission was not successful, useful information on the current patterns in main shipping channel of SF Bay was gathered. A follow-up project ([Bayweb II](#)) was conducted during July 24 - August 6, 2009. This time we planned to obtain data from a narrow strait in the Bay and to make the data available online in real-time. These two goals were partially realized as good information on currents in the strait was recorded. However, the real-time networking was again unsuccessful. This project is summarized in our new [Factsheet: San Francisco Bay Web – an Ocean Observing Experiment in San Francisco Bay](#).

C. Exploratorium

CeNCOOS is working with NOAA Environmental Research Division to provide real-time data and images to the Outdoor Exhibit Team of the San Francisco Exploratorium. A great outdoor exhibit exists at Fort Mason in San Francisco and will eventually exist at Piers 15 and 17 along the Embarcadero. We are excited to be part of the partnership, resulting from a Memorandum of Agreement between NOAA and the Exploratorium.

V. CeNCOOS in the Classroom



CeNCOOS participated in the EARTH Workshop (MBARI June 24-26th) for the third straight year. With a focus on Ocean Observing Systems (OOS), our goal was to introduce teachers to real-time data and applications for the classroom, provided by OOS. Our involvement included a presentation on CENCOOS projects and goals for education. Former CeNCOOS intern Matt Binder demonstrated the [educational tools](#) he created for our website in 2008. We also conducted a CeNCOOS

website scavenger hunt for the teachers, with questions that could be answered through our webpages. This activity helped them learn about our website and gave us more insight into the way teachers view and utilize our website. Lastly, Heather Kerkerling gave a presentation to the teachers on the value of using ocean observing data to study the collapse of Chinook salmon stocks in northern and central California in recent years.

VI. Data Management and Communications (DMAC) Update

One of the main projects funded by the IOOS grant (currently in the second year) is the DMAC component. Science Applications International Corporation (SAIC) was hired to construct a ‘one-stop shop’ site for data from various sensors in compliance with national data standards. These data will be made available to users via the web and will increase CeNCOOS staffs ability to integrate different types of data for creating web products. They have begun with four Data Assembly Centers (DACs) which make available data such as water quality from shore stations and moorings. This year we will continue to develop the DACs and make this information available on the CeNCOOS website.

VII. CeNCOOS and SCCOOS Collaborations

Development of the Joint Strategic Advisory Committee

The Executive Committees of both CeNCOOS and the Southern California Coastal Ocean Observing System (SCCOOS) recently created a state-wide Joint Strategic Advisory Committee (JSAC). The JSAC consists of the SCCOOS Strategic Advisory Committee, the CeNCOOS Executive Committee and representatives from state-wide agencies and organizations that use, help shape, or contribute to ocean observing systems. The first meeting of the JSAC was held on October 20, 2009 in Oakland. The meeting was quite a success! The JSAC will meet twice a year. Notes and outcomes from the meeting will be provided shortly.

VIII. CeNCOOS Website Updates

If you were not aware, CeNCOOS launched a completely redesigned website on April 30th, 2009 (<http://www.cencoos.org>). The site includes many new features, some recent additions include:

- [Satellite SST and chlorophyll maps](#)
- [AIS Ship tracking](#)
- [Expanded coastal winds page](#)
- [CeNCOOS activities page](#)
- [Algal blooms page](#)
- [MBARI moorings page](#)
- [Factsheet: Ocean Observing Systems for Marine Spatial Planning](#)
- [CeNCOOS shore stations data download page](#)

Please let us know what you think of the new website and these recently added pages!

IX. CeNCOOS Staff Grows



Already celebrating his first anniversary with CeNCOOS, Fred Bahr joined our team in October 2008 as a part-time products developer. Fred has been involved with creating many of the great new products available on our website.



In July 2009, Luke Beatman was hired to work with CeNCOOS and the Monterey Bay Aquarium Research Institute (MBARI). Luke will maintain the CeNCOOS water quality and meteorology station in Moss Landing, as well as analyzing data from various oceanographic instruments in the region. He will also help develop future data collection protocols and data products.

X. Updates in the IOOS World

- On March 30th, President Obama signed the landmark Omnibus Public Lands Management Act of 2009 into law, formally authorizing the Integrated Ocean Observing System (IOOS) as a part of NOAA!
- IOOS had a great representation at the [OceanObs '09](#) meeting in Venice, Italy, “Ocean information for society: sustaining the benefits, realizing the potential.” September 2009.
- The National Federation of Regional Association’s Executive Committee is meeting with members of the Council on Environmental Quality and members of the Interagency Ocean

Policy Task Force on October 15, 2009 to offer perspectives on Coastal and Marine Spatial Planning.

d. IOOS will host a town hall meeting and run a session with OOI, “Ocean Observing for the Nation,” at the upcoming MTS/IEEE Oceans 09 meeting in Biloxi, Mississippi.

e. Find more IOOS updates (<http://ioos.gov/>) including the latest news on the [Z-grams](#).

XI. Where has CeNCOOS been?

a. Conferences

- Capitol Hill Oceans Week (June 9-11, Washington DC)

b. Workshops

- National Marine Educators Associations (June 29-July 3, Monterey, CA)

- California Ocean Uses Atlas Project (July, Monterey, CA)

- West Coast Governors Agreement on Ocean Health: Marine Spatial Planning for Renewable Ocean Energy Siting (Oct. 6-7, 2009 in Portland, OR)

c. Meetings

- [Annual IOOS Regional Coordination Workshop](#). (Aug. 24-27, 2009 in Seattle, WA).

- [CeNCOOS Modeling Workshop](#) (August 6-7th in Moss Landing, CA)

- CeNCOOS Council Meeting (April 14th in Moss Landing, CA)

- CA Ocean Protection Council Meetings (various dates)

- Harbor Safety Committee Meetings in SF Bay (various dates)

d. Task Force Meetings

- [Obama Administration Ocean Policy Task Force Meeting](#) (Sept 17th in San Francisco)

XII. Upcoming Events

- IOOS is hosting a town hall meeting and session at the [Oceans 09 Conference](#) in Biloxi, Mississippi (Oct. 26-29): Marine Technology for our Future: Global and Local Challenges. IOOS has over 40 papers accepted and is coordinating with OOI for a dedicated track titled, “Ocean Observing for the Nation.”

- [5th Symposium on Harmful Algae in the U.S.](#) (Nov. 15-19, 2009 in Ocean Shores, WA)

- [AGU Ocean Sciences](#) (February 22-26, 2010 in Portland, OR)