



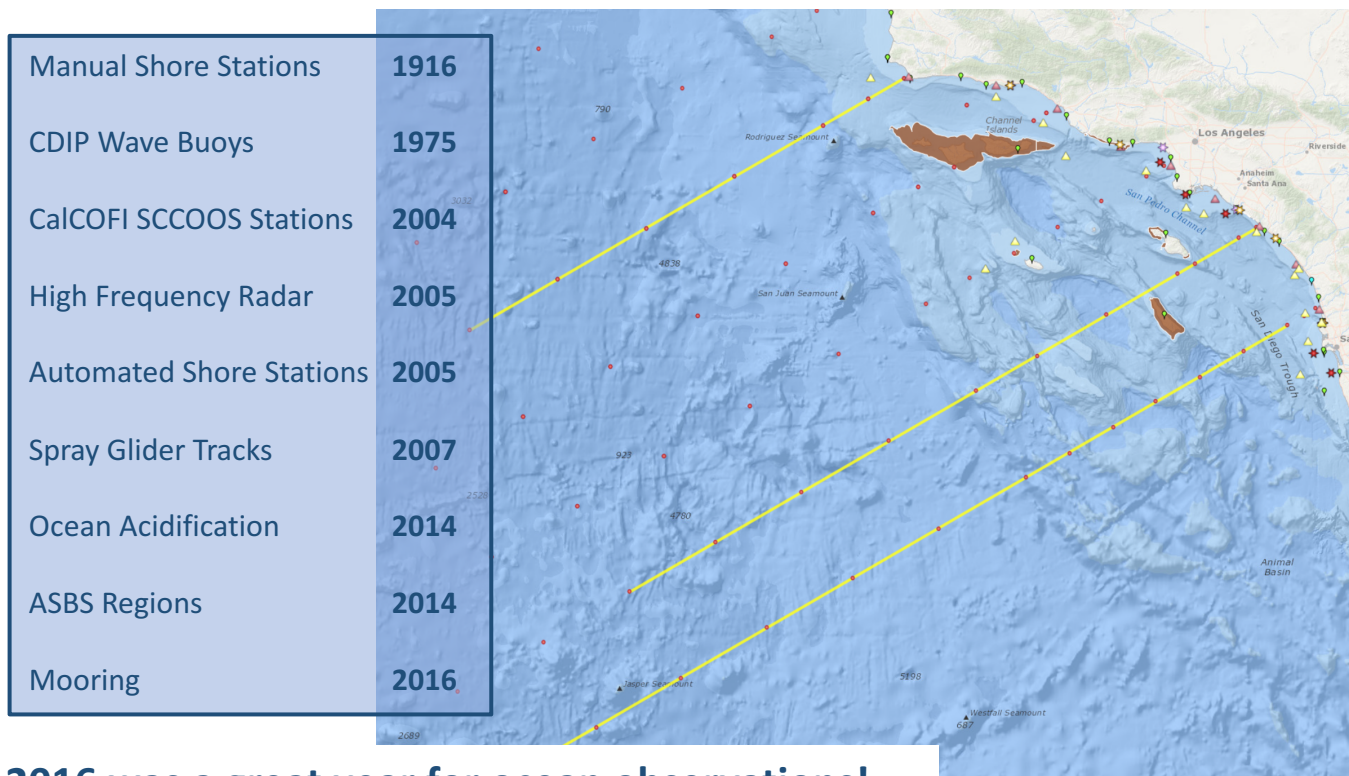
SCCOOS: A Year in Review

The IOOS Regional Association Serving Southern California

www.sccoos.org (858) 534-9808 info@sccoos.org



Our Collaborative Network of Ocean Observations



2016 was a great year for ocean observations!

- Manual Shore Stations celebrate [100 years](#) of data collection at the Scripps Pier!
- 2016 SCCOOS seabird and mammal report is now [online](#), and are an integral part of the National Marine Fisheries Service Juvenile Rockfish surveys.
- CalCOFI [releases](#) their 2016-2016 State of the California Current.
- [HF Radar](#) teams are in the final phases of using drones to calibrate radar stations, an innovative and more economic alternative to current practices.
- SCCOOS [automated shore station](#) datasets are now nationally archived at NCEI.
- Gliders provided to be a valuable [El Niño](#) dataset. Tracking warm water temperatures revealed subsurface effects of the 2015-2016 event.
- SCCOOS displays the Carlsbad Aquafarm Burk-o-Lator, that monitors ocean acidification-related parameters, on the [IPACOA](#) website.
- UC San Diego monitors water quality in La Jolla using the SCCOOS [Areas of Special Biological Significance](#) web portal.
- In collaboration NOAA Southwest Fisheries, SCCOOS added a [Del Mar Mooring](#) to its list of assets. It's location is nearby a glider path and CalCOFI stations that allow for valuable comparisons.

A Note From Julie Thomas as She Retires and Transitions into SCCOOS Ex-Officio Advisor

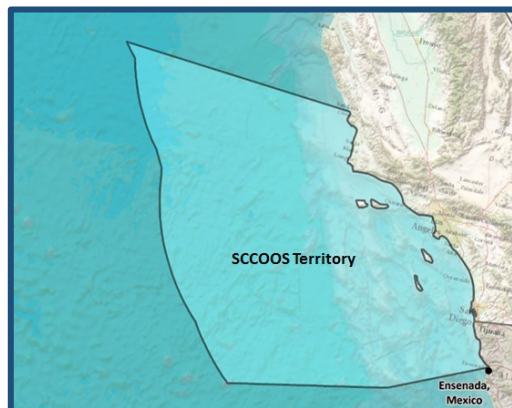
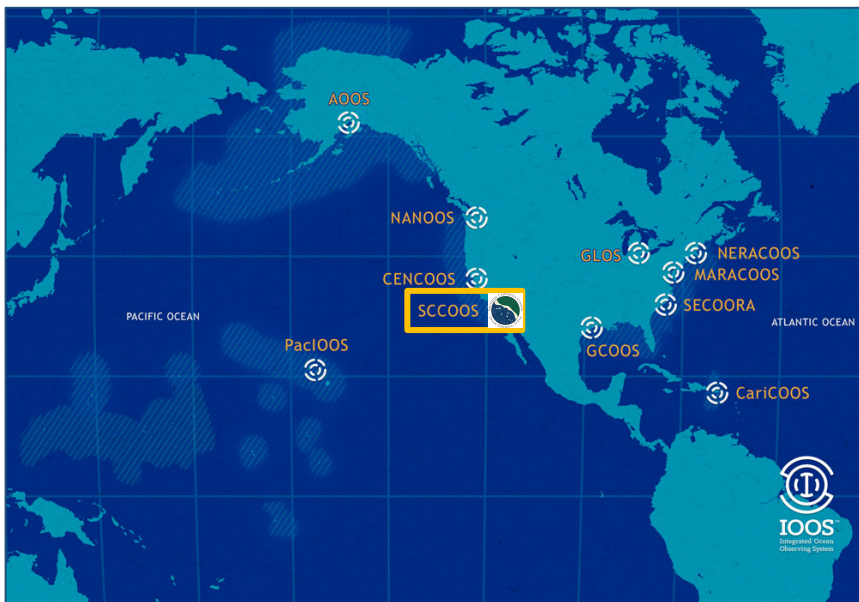
Wow! How these last eight years as SCCOOS Executive Director have flown by! It has been such an honor and privilege to hold this position. I want to especially thank the Board of Directors, Executive Steering Committee, the Joint Strategic Advisory Committee, administrative and data management staff and the multitude of partners for all their support. This has truly been a fun and rewarding position for me. I've loved the technical outreach component and having the opportunity to meet so many people in the course of this work.



How fortunate we are to have Clarissa Anderson as the next Executive Director. She is a perfect for this position! I know she will be engaged and committed to SCCOOS. As many of you know, I will be staying on part time with the University. I am looking forward to working with Clarissa, the SCCOOS team and its partners in the future. Happy New Year and all the best for 2017.

SCCOOS Welcomes A New Executive Director, Dr. Clarissa Anderson

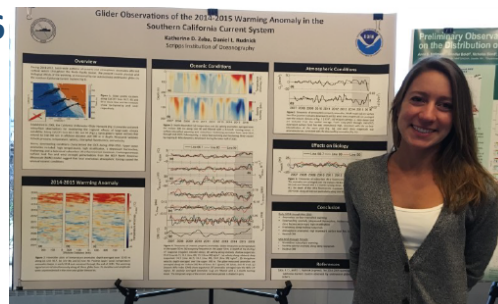
I am grateful for this opportunity to TRY to fill Julie's shoes. Over the last three months as deputy director, I have shadowed Julie and witnessed first-hand her dedication to SCCOOS, her impressive ability to tackle a multitude of disparate tasks with pragmatism and grace, and importantly, her deep appreciation and care for members of the SCCOOS/CDIP family. I look forward to working with you all to expand the SCCOOS vision to address emerging issues in the Southern California Bight while also sustaining our core programs.



SCCOOS integrates ocean and coastal observations and delivers data for improved decision making agencies and stakeholders at both local, state and national levels.

The Second Pacific Anomalies Workshop held Jan. 2016

The Pacific Anomalies Workshop was designed to understand the timing and scale of anomalous oceanographic conditions in the North Pacific, with the intent of maximizing our global and coastal ocean observing systems to deliver information to meet societal needs. The second meeting was hosted by [NANOOS](#) at the University of Washington in Seattle, and the participants articulated what is known about the mechanisms that drove the 2014-2015 anomalous conditions, and how this event interacted with the coastal ecosystems.

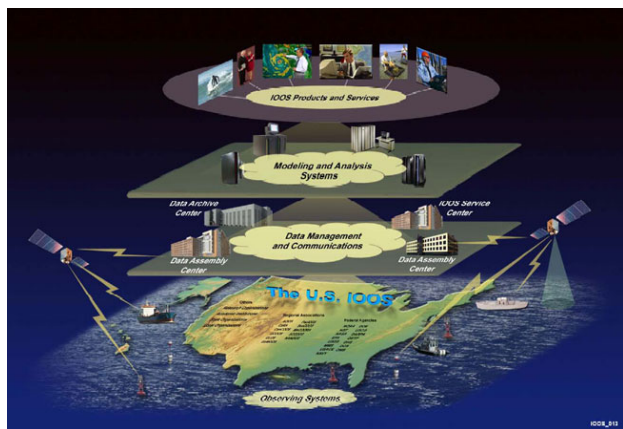


Katherine Zaba, Dan Rudnick's Graduate Student at Scripps Institution of Oceanography, highlighted her physical oceanography work with Spray Gliders to understand how climate variability affects our coastal ocean.

The participants worked to identify needs to increase our ability to predict and react to ocean temperature anomalies.

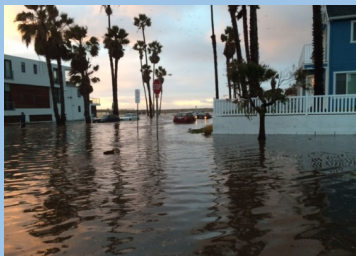
Feb. 2016: U.S. IOOS Releases, “The Ocean Enterprise: A Study of US Business Activity in Ocean Measurement, Observation and Forecasting.”

The objective of this [publication](#) was to raise visibility and awareness of an important industry cluster, and to better understand its linkages with the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Integrated Ocean Observing System (IOOS®) program.



The major findings of this study were;

- More than 400 firms in the US were identified as operating in the sphere of Ocean Enterprise. This includes businesses inland, but not previously captured by regional studies.
- The Ocean Enterprise generates \$7 Billion (USD) in revenue annually.
- 86% of businesses have been operating 5 or more years in the Ocean Enterprise. More than 54% of them expect growth in their business in the next year.



2016 San Diego Area El Niño Related Flooding and Infrastructure Damage



Julie Thomas Presents at Birch Aquarium's March 2016 Perspectives on Ocean Science Public Outreach Event

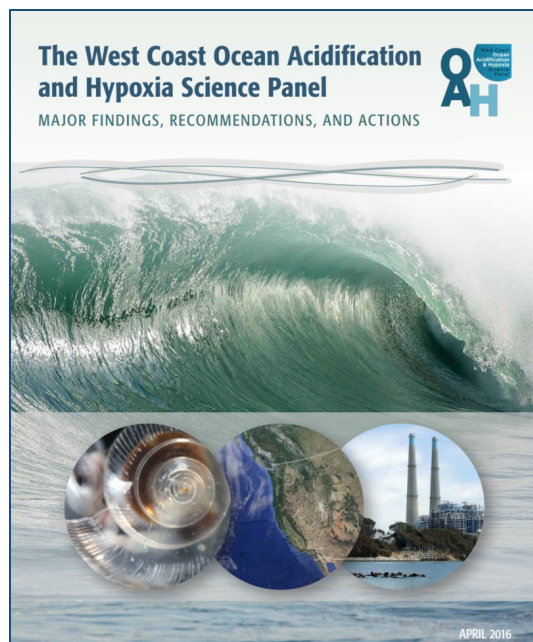
Once a month Birch Aquarium hosts a [lecture](#) on research conducted worldwide by scientists from Scripps Institution of Oceanography (SIO) at UC San Diego. On March 14 Julie Thomas (SCCOOS Executive Director—see picture right) and Dr. [Sarah Giddings](#) (Assistant Professor at SIO) spoke to large audience about El Niño and our Urban ocean.

Don't worry, if you missed this valuable and informative talk—all of them are recorded by UCSD TV—and Birch Aquarium posts them [here](#). SCCOOS HIGHLY recommends that you check out all their information rich lectures!

April 2016: State of California Releases Their Findings, Recommendations and Action Items to Address Ocean Acidification and Hypoxia

The West Coast Ocean Acidification and Hypoxia Science Panel ([The Panel](#)) works in partnership with the California Ocean Science Trust at the request of the California Ocean Protection Council. The Panel has concluded that global carbon dioxide (CO₂) emissions are triggering changes to ocean chemistry along the US West Coast that require immediate, decisive action to combat. Including development of a coordinated regional management strategy.

The Panel's report titled, "[Major Findings, Recommendations and Actions](#)," summarizes the state of the science around Ocean Acidification and Hypoxia (OAH) and outlines a series of potential management actions that California, Oregon, Washington and British Columbia governments can immediately implement to offset and mitigate the economic and ecological impacts.



Researchers estimate that blooms of harmful algae cost the United States at least **\$80 million per year**. Economic Damage from HABs arise from: **Wildlife Mortality, Fishery Closures, Reduction in Seafood Sales, Monitoring Cost and Reduction in Tourism.**

SCCOOS and National Weather Service San Diego Forecasting Office Share El Niño Perspectives

On May 25th, Alex Tardy from NOAA National Weather Service San Diego forecasting office and Julie Thomas—SCCOOS Executive Director (pictured right), presented at the San Diego Harbor Safety Committee.

Alex (pictured right) gave a recap of El Niño observations and explained the details of how the warm ocean temperatures that occurred were quite typical of our strong El Niño, but our atmospheric conditions were atypical (hence the lack of storms in the Southern California). In addition, Julie highlighted that the El Niño season did produce significant swell events, which resulted in some of the largest waves we've seen in 15 years.



CeNCOOS and SCCOOS Host Their Joint Strategic Advisory Committee (JSAC) Meeting at Scripps Institution of Oceanography

On June 28th CeNCOOS and SCCOOS held their annual JSAC meeting in La Jolla, California. The JSAC was created to, 1) identify needs and advise on priorities with a focus on data and products, 2) develop and support collaborations between our organizations and look outward to expand our network and 3) assist in joint efforts within our network to identify emerging needs and funding opportunities.

The meeting started with updates from the Director of SIO, Margret Leinen, IOOS Association Executive Director, Josie Quintrell (pictured middle with Susan Zaleski of [BOEM](#)) and IOOS West Coast Regional Coordinator, Jen Rhoades. Then the California OOSes gave updates on recent projects, future opportunities and statewide collaborative projects. JSAC members in attendance each gave 10 minute presentations about their organizations, which lead to active discussion that tapped into the wealth of stakeholder expertise that comprises this committee.



Program Profile: Shore Stations and Their 100 year Temperature and Salinity Records



The story goes that on August 22, 1916 Scripps Institution of Oceanography (SIO) had finished their 1000 ft. pier, and later on that day scientists walked to the end and took the sea surface temperature (19.5 C/ 67.1 F). The very next day they decided to add salinity to their measurements too.

Then, in July 1926 ocean temperatures near the seafloor were added as well. Now here we are 100 years later, and [these consistent measurements](#) have become one of the oldest ocean temperatures and salinity records in the world! In 2005, complementing the [manual shore station](#) program, SCCOOS started their [automated shore station](#) program that consists of a suite of sensors attached to piers along the Southern California Coast. Also our California Ocean Observing partner, CeNCOOS, have [automated shore stations](#) along the Central and Northern California coast (shore stations locations pictured right). These growing databases provide an opportunity to parse out the anthropogenic changes from the natural variability, and can be accessed throughout the year.



SCCOOS Shares Insight on Collecting, Managing and Disseminating Large Oceanographic Data Sets

IOOS participated in the Maritime Alliance's BlueTech week, and their theme was; "Case Studies of Collaboration,.". The focus was on international partnerships. Specifically bringing together academics, government representatives, and industry members to discuss best practices, latest innovations, and growth opportunities for maritime industries locally, regionally, nationally, and globally.



IOOS was a co-sponsor of several events and shared booth space with NOAA during the Tech Expo. Julie Thomas, the Executive Director of SCCOOS (pictured left) presented on a panel that discussed big data, data analytics, maritime cyber and OceanGIS on Nov. 7. Carl Gouldman moderated and presented the Gathering Data panel alongside the Deputy Director SCCOOS, Clarissa Anderson (pictured above) on Nov. 8th.

This week brought together leaders in policy, academia and the military with the express goal of increasing awareness around the Blue Economy aka an ocean economy.



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Thanks for a great year!

