Southern California Coastal Ocean Observing System (SCCOOS) and the Leveraged Products Made Available For The Maritime Community

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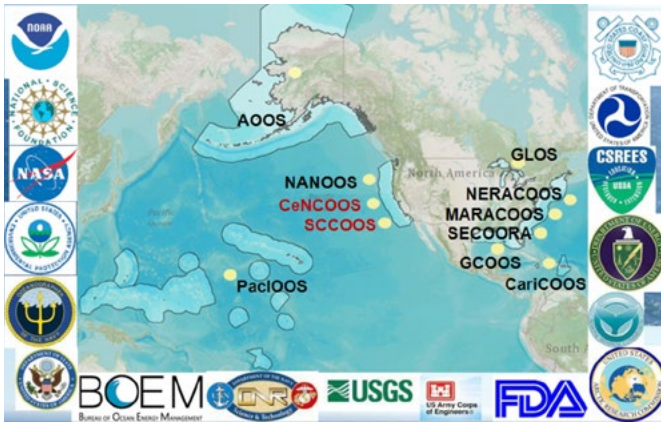
The U.S. Integrated Ocean Observing System® (IOOS®) delivers the coastal data and information needed to improve safety, enhance the economy, and protect the environment as the U.S. contribution to Global Ocean Observing System® (GOOS). The coastal component includes 17 federal agencies, 11 regional associations, and other consortia. At this time, the primary funding agency is the National Oceanic Atmospheric Administration.

Regional

California has two ocean observing systems, SCCOOS® (Southern California Coastal Ocean Observing System: www.sccoos.org) and CeNCOOS® (Central and Northern Coastal Ocean Observing System - www.cencoos.org). SCCOOS and CeNCOOS bring together coastal observations to provide information necessary to address issues in climate change, ecosystem preservation and management, water quality, marine operations, coastal hazards and national security.



IOOS's partnership provides data and information to improve our understanding and management of our oceans, coasts, and Great Lakes.

SCCOOS Leveraged Assets

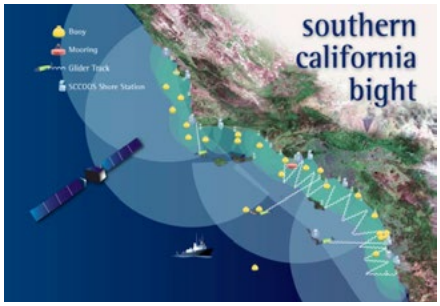
Surface currents, waves, and wind data are observed and forecasted on the SCCOOS website. These integrated data products combining location, surface currents, wave height, wave speed, and wind speed assist in a variety of marine operations.

High Frequency Radar (HFR) Derived Surface Currents

There's a nationwide network of HFR stations managed by the Coastal Observing Research and Development Center (www.cordc.ucsd.edu). California's 54 land-based stations track past and near-real time movement of our coastal waters. The transmitted energy is comparable to a household light bulb.

Waves

Recent and historical coastal conditions, wave models, and forecasts data are managed by the Coastal Data and Information Program - CDIP (www.cdip.uscd.edu), and serves as a powerful tool for addressing safe and efficient maritime operations since 1975. The latest measurements are distributed to thousands of users every hour to promote public safety and the responsible use and enjoyments of our coastal resources. The majority of the funding for the CDIP is provided by the United States Army Corps of Engineers and the California Department of Boating and Waterways.



The Southern California Bight (SCB), SCCOOS's observational area.

Winds

Weather Research & Forecasting model (WRF) wind forecasts are provided by UCLA Department of Atmospheric & Oceanic Sciences, Climate Sensitivity Lounge and displayed on the SCCOOS website. 48 hour forecasts of wind direction and speed are available in 3 hour increments.

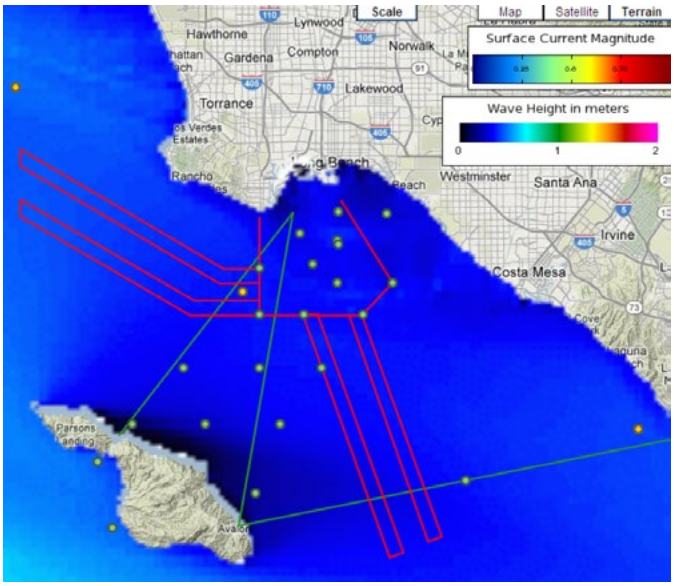
How You Can Access This Information

SCCOOS is dedicated to managing data as an "end-to-end" coastal ocean observing system so it can be archived and available for dissemination for a variety of ways in a variety of formats. Our goals are to include interoperability, open access, discovery, sustained operations, and effective user feedback.

Maritime Trades and Commerce

SCCOOS hosts a customized website was designed for Long Beach/Los

Angeles (LB/LA) Harbor entrances to provide critical marine conditions necessary for the safe passage inbound and outbound. The site is used for either near real-time decisions, or for planning purposes.



The SCCOOS harbors product integrates wave data; HFR derived surface currents, winds, meteorological data, sea surface temperature, tides, nautical charts, and shipping/ferry routes. www.sccoos.org/data/harbors/lalb

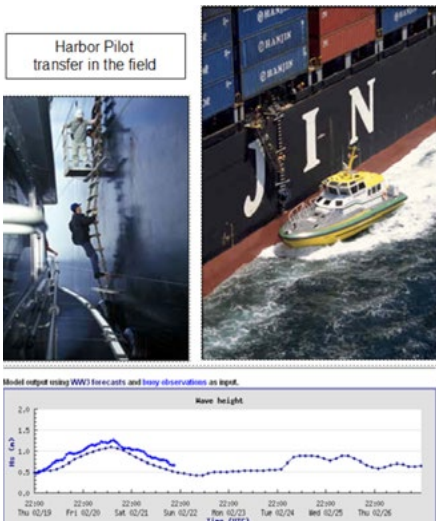
Maritime transportation plays a major role in California's economy and national defense program. When combined, the Port of Long Beach (LB) and the Port of Los Angeles (LA) are the 5th busiest ports in the world. Together these ports have the competitive edge with the record setting cargo operations, serving as the world's leading gateway for US-Asia trade. The largest challenge for the ports are to assure that all commercial traffic, including cargo, fishing, harbor pilots, and recreational boaters transit to and from the harbor safely.

The cost to hold off a vessel offshore is approximately $200,000 per day; therefore SCCOOS sends automated messages to Long Beach pilots when conditions may prove hazardous. A 3-day forecast is sent to LA/LB pilots when the wave period is greater than 12 seconds. This is important for supertankers as they will start to pitch in longer period swells. Under keel clearance is a concern for these deep draft vessels.

Oil Spill Response and Recovery

Oil spills and ocean pollutants can have negative impact on wildlife, public health, and the local economy. Tracking pollution along the ocean's surface is essential to managing and protecting coastal waters.

As oil tankers increase in size and draft it has become impossible to go into port to offload. Therefore, smaller oil tankers with the appropriate draft clearance will meet the ships and transfer oil (i.e. lightering).



Above: *Present day lightering operations*
Left: *An example of SCCOOS automated messages sent to Jacobsen pilots, a company that specializes in pilot transfers.*

HFR derived surface current data are used in the Office of Spill Preventions and Response (OSPR)/NOAA spill response training exercises, the General NOAA Oil Modeling Environment (GNOME) software for oil spill response.

Search and Rescue Operations

The U.S. Coast Guard, Navy, and Marines require updated information on sea conditions for coastal flights, target recovery and presentation, small boat transfer, and Search and Rescue (SAR) mitigation. HFR derived surface current data are used in USCG Search and Rescue Optimal Planning System (SAROPS).

May 9, 2013 USCG rescues a sailboat after it allided with San Clemente Island; the arrows are the surface current direction.

Summary

Technologies and observations combined with online data delivery are transforming management of our coastal and ocean resources to ensure a safe and healthy environment for current and future generations. These efforts illustrate the functional application of integrating regional assets, and the value of leveraging existing observations, models, and data management to develop useful products that contribute to maritime transport and commerce. The regional component if IOOS is supported by linking observations, data management, and modeling to provide needed data and information to regional stakeholders. ☆