

THE ROLE OF COASTAL OBSERVATIONS IN CALIFORNIA WATERS FOR OIL SPILL PLANNING & RESPONSE

While impacts to the environment are inevitable in oil spill events, activities related to the planning, response, and assessment of oil spills are greatly aided by timely and accurate observations of the ocean. For example:

- Real-time surface currents and trajectories allow the tracking of spills to aid clean up efforts.
- Real-time wind and wave fields assist oil spill response personnel in deploying and managing operational assets (booms, spill response vessels, etc.)
- Accurate observations of ocean circulation and water column biota provide the necessary data to accurately estimate natural resource damage assessment on a per spill basis.
- Data constrained model forecasts provide accurate predictions of where oil will be transported.
- Statistical descriptions of circulation, wind, and wave fields can be used for assessing risk to existing and future sites where spills have a high probability of occurring.

In California, the Office of Spill Prevention and Response (OSPR) is tasked with minimizing these impacts to California's natural resources. Besides the traditional response methods deployed during oil spill events, California also established "pre-approval" zones for dispersant applications. Established in 2003, these large areas off the California coastline are targeted for dispersant applications that may reduce the impacts to certain types of wildlife (e.g. seabirds, sea otters) and shoreline habitats. However, oil spills will still impact water column organisms. Oil-spill fate and transport modeling is being used by OSPR to determine the appropriate time and space scales and equipment needs for a formal Dispersed Oil Monitoring Plan (DOMP) to

document hydrocarbon water column concentrations, potentially exposed organisms (zooplankton), and the impacts of oil spills with and without dispersant use. These measurements are essential to the evaluation of the environmental trade-offs of using dispersant applications. The growing capabilities of the coastal observatories designed for the coastal waters bordering the State are serving the critical function of providing these much needed measurements. Recent tests tracking simulated dispersed oil using aircraft, shipboard measurements, drifters, and surface current mapping HF radar are definitively showing the need for a continuously operating coastal monitoring system. Without these data, Natural Resource Damage Assessment (NRDA) efforts will lack critical quantitative and qualitative information.

In 2002, California voters approved two propositions (40 and 50) which direct resources toward solving water quality problems. One component of these bond packages was \$21M directed toward the infrastructure to establish a state-wide Coastal Ocean Currents Monitoring Program (COCMP). Sponsored by the State Water Resources Control Board and the California State Coastal Conservancy, the two California Regional Associations, Central and Northern California Ocean Observing System (CeNCOOS) and Southern California Coastal Ocean Observing System (SCCOOS) are implementing this statewide system using HF radar surface current mapping systems, autonomous underwater vehicles, drifters, and data assimilating models. The two Regional Associations are complementing these efforts through NOAA Coastal Ocean Technology System (COTS) grants to support data management and biological sampling efforts, and to maintain multidisciplinary oceanographic moorings.

