

**Oceanography Program**  
**Department of Parks and Recreation**  
**May 5, 2022**

The Oceanography Program began in 1974 with the Coastal Data Information Program (CDIP), which measures, models, and predicts near-coastal wave conditions and resulting sand movement on beaches and near harbors. The program provides funding for study projects that help State Parks and DBW better manage and adapt to coastal challenges facing boating, waterways, recreation, safety, and access. Annual funding is about \$1.4 million from the HWRF, with supplemental funding from the General Fund when appropriated.

A wide variety of projects have been supported, including studies of: fog, wind, tides, waves, El Niño, sea level, tsunamis, cliff and beach erosion, urban flooding, harbor flushing, water resources, Delta boat traffic, wind-blown sand, anti-fouling paint, hydrocarbon pollution, harbor habitat value, beach and cliff erosion, sand nourishment, Delta levee erosion, longshore currents and pollution transport, Antarctic ice shelves, surf zone turbulence, and long-term (100-year) temperature/salinity changes.

A few of the current projects include:

1) Southern California Coastal Erosion Study

Examines the retreat rates of southern California coastal cliffs over time to investigate how erosion rates change in response to changing sea levels and provide insight into future coastal responses to continuing climate change.

2) Coastal Data Information Program (CDIP) Waves and Beaches

Continued operation and management of buoys for wave monitoring, including data on wave height and direction, wave period, sea surface temperature, and wind speed and direction for the generation of wave maps and predicative models. This study also uses buoy data to examine how waves affect beach profile changes and the fate of beach nourishment.

3) Shore Station Monitoring

Provides longest continuous record of coastal water temperature and salinity in the Pacific Ocean, which is invaluable for assessing long-term climate change along the California Coast.

4) Estuary Inlet Dynamics and Analysis

Examines how sea level rise and streamflow affect estuary inlet dynamics, to help inform how coastal infrastructure and ecosystems may be impacted by inlet closures or large erosion events.

5) Beach-Bay-Infrastructure Dynamics and Sea Level Rise Vulnerability

Develops high-resolution hydrodynamic sea level rise models for low-lying, economically, and ecologically vulnerable beach-estuarine systems.