May 2023

California State University
Council on Ocean Affairs, Science & Technology (COAST)
State Science Information Needs Program

COAST supports ocean and coastal research, education, and workforce development across the 23 CSU campuses. With funding from a one-time $3 million appropriation in the FY 19-20 state budget, COAST launched the State Science Information Needs Program (SSINP) in early 2020.

SSINP focuses directly and exclusively on supporting the state of California's highest priority ocean and coastal-related needs for scientific information. We worked with state agencies to ensure that their needs for scientific information were incorporated into calls for proposals. State agency representatives participated in our rigorous evaluation process that evaluated proposals for both their scientific merit and relevance to state needs.

SSINP Goal:
To provide the science needed for informed policy development and evidence-based decision making in California in a timely and actionable manner.

Facts at a Glance			
Research funded	CSU campuses involved	Faculty members supported	Students trained
$3.2M	10	24	>66

FUNDED PROJECTS

Sea-level Rise

Sustaining beaches and social equity under higher sea levels: an interdisciplinary case study of the Santa Barbara littoral cell

$486,659, CSU Channel Islands, San Francisco State and UC Santa Barbara

This project investigates how historically excluded communities use (or don't use) beaches in Santa Barbara and Ventura counties and how that access is expected to change with rising sea-levels. More information can be found at https://www.bsa-camp.org/.

State agency contact: Marina Cazorla, State Parks, Marina.Cazorla@parks.ca.gov, 916-956-8939

Impact of sea-level rise on groundwater pollution vulnerability in shallow coastal aquifers

$210,755, Cal State Long Beach and Cal State Northridge

This project is identifying areas in California where rising groundwater tables are expected to threaten safe drinking water through the dispersal of contaminants from hazardous waste sites.

State agency contact: Justine Kimball, Ocean Protection Council, justine.kimball@resources.ca.gov, 916-653-0539

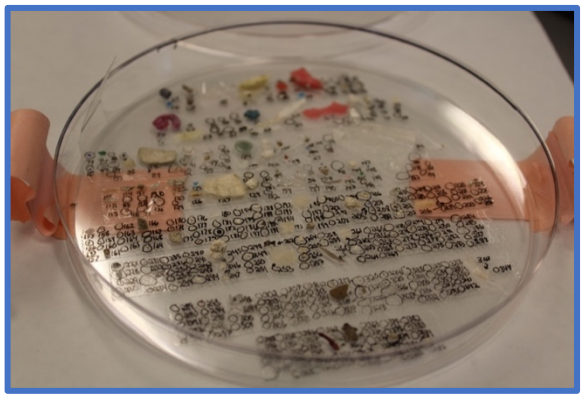
CSU Long Beach students (C. Whitcraft)

Development of cost-effective metrics for monitoring living shorelines

$390,165, Cal State Fullerton, San Diego State, Cal State Long Beach and Orange County Coastkeeper

This project assesses whether a particular type of wetland restoration, known as a living shoreline, will help protect adjacent shorelines from erosion due to sea-level rise.

State Agency Contact: Mary Small, State Coastal Conservancy, Mary.Small@scc.ca.gov, 510-286-1015



Microplastics (C. Rochman)

Microplastics and Microfibers

Assessing fate and toxicity of microplastics under coastal environment conditions

$399,406, San Diego State and University of Toronto

Two of the most prevalent types of microplastics—tire wear particles and textile microfibers—are being assessed for their toxicity to marine organisms.

State agency contact: Scott Coffin, State Water Resources Control Board (SWRCB), Scott.Coffin@waterboards.ca.gov, 916-323-0375

Micro and nanoplastic identification in aqueous samples using Nano-IR

$395,490, CSU San Marcos

New techniques are being developed to identify microplastics and nanoplastics (the latter being smaller than the diameter of a human hair). Nanoplastics are of particular concern for human health because they are believed to be able to move from an organism's digestive systems into their tissues.

State agency contact: Scott Coffin, SWRCB, Scott.Coffin@waterboards.ca.gov, 916-323-0375

> *"We commend COAST for their research leadership on a global marine pollution issue: microplastics. These research efforts will help the Ocean Protection Council and the state of California implement the recently released comprehensive microplastics strategy."*
>
> Mark Gold
> Executive Director
> California Ocean Protection Council

Compensatory mitigation and associated restoration

Assessing current biological and physical status of California's artificial reefs with comparisons to natural reefs to improve compensatory mitigation outcomes

$345,255, Cal Poly Pomona and Occidental College

Physical and biological information will be collected from 10 artificial reefs (ARs) covering 32 acres off the Southern California coast. This information will support the Department of Fish and Wildlife (DFW) in the development of the AR management plan.

State agency contact: Brian Owens, DFW, Brian.Owens@wildlife.ca.gov, 562-370-4770

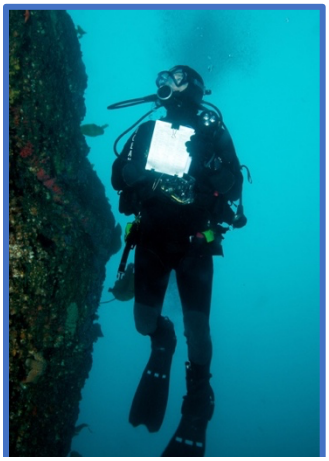


Photo courtesy of Alena Pribyl.

Understanding production and attraction on artificial reefs to improve the science of mitigation

$220,279, CSU Northridge and Oregon State University

Data from an artificial reef (AR) established to compensate for damages associated with the San Onofre Nuclear Generating Station will be assessed to answer an important scientific question regarding whether ARs attract fish from other areas or "produce" fish by virtue of providing additional habitat.

State agency contact: Cassidy Teufel, Coastal Commission, Cassidy.Teufel@coastal.ca.gov

Improved mitigation frameworks

$295,351 CSU Channel Islands and UCLA

Expert working groups will create guidance to assist state agencies in the development of scientifically-sound compensatory mitigation requirements. Specific guidance will be developed for communities of particular concern such as kelp and oyster beds, salt marshes, and sandy beaches.

State agency contact: Michael Esgro, OPC, Michael.Esgro@resources.ca.gov, 916-902-6366

In addition to the projects listed above, COAST is providing the required non-federal match for five projects awarded funding through California Sea Grant's New Faculty Funding Program. Researchers from San Jose and Humboldt will be investigating issues such as sea-level rise, aquaculture, and fisheries management. COAST's contribution of $150,000 resulted in projects totaling $440,000.

INFORMING DECISION-MAKING

SSINP provides the science needed for informed policy development and evidence-based decision-making in a timely and actionable manner. The state agency representatives who helped craft the proposals work with the principal investigators (PIs) throughout the life of the project to ensure that the results can be readily incorporated into improved management and decision-making. These iterative interactions will strengthen the relationship between CSU researchers and the state of California. Beginning in 2023, PIs will present their results to the Legislature and state agencies through briefings, hearings and one-on-one meetings.

> *"Thanks so much for including us and your careful approach to try to make sure that the research is both high quality and responsive to agency needs in managing rising sea level and the SF Bay and coast."*
>
> Steve Goldbeck
> Chief Deputy Director
> San Francisco Bay Conservation and Development Commission

COAST is the CSU's systemwide affinity group for ocean and coastal research, education and workforce development. COAST integrates systemwide resources and promotes interdisciplinary and multi-campus collaborations to advance our knowledge of ocean and coastal systems. The scope of COAST includes the ocean, coast, and coastal watersheds.