



# COAST2012

## ANNUAL REPORT

Covering Activities from  
July 1, 2011 - June 30, 2012

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**CSU**

**The California State University**

COUNCIL ON OCEAN AFFAIRS, SCIENCE & TECHNOLOGY



# 2011-12 Highlights

In February 2012 the California State University (CSU) Council on Ocean Affairs, Science and Technology (COAST) completed its fourth year of operations, and we have a number of successes to share with you. As the umbrella organization for marine and coastal related activities within the CSU, COAST integrates system-wide resources and promotes interdisciplinary multi-campus collaborations to advance our knowledge of California's natural coastal and marine resources and the processes that affect them. We support marine and coastal research and education throughout the CSU and provide a platform to disseminate this information to the public for the development of responsible policy statewide.

## OUR ACCOMPLISHMENTS FOR 2011-12 INCLUDE

- Supporting 21 individual faculty members at 12 different campuses.
- Supporting 84 individual students at 15 different campuses.
- Launching a new undergraduate summer research program.
- Expanding the successful Summer Student Internship Program.
- Convening the Second Annual Faculty-Student Research Poster Reception in concert with WRPI.
- Hosting two Network meetings.
- Engaging in State and national outreach.
- Expanding our membership.

Our programs and outreach efforts have increased the visibility of the CSU and COAST at both the State and national levels. Demonstrating that the CSU's investment in COAST has been sound and produced significant faculty and student achievement has allowed the organization to weather the current State fiscal crisis with an intact budget. In the coming year we will look to leverage other sources of funds to continue to grow and develop our various initiatives while maintaining level funding. Visit us online at [www.calstate.edu/coast](http://www.calstate.edu/coast) to learn more and to become a part of COAST!



Krista Kamer, Ph.D.  
Director

## Our Mission

To provide vision, leadership, and support throughout the CSU system for education, policy and research related to California's marine, estuarine, and coastal regions, and to promote the public dissemination of knowledge gained to foster stewardship and sustainable use of California's coast.

## Our Vision

COAST will be a leader in coastal and marine-related research and education throughout California, and will promote environmental literacy leading to a significant increase in public awareness and stewardship of our coastal and marine resources.



# Increasing Extramural Grant Activity

The COAST Faculty Research Incentive Program aims to increase extramural grant activity through assigned time funding

awards to CSU tenured/tenure-track faculty members to develop and submit full proposals to external funding agencies and organizations for marine and coastal research and educational projects. Now in its fourth year, the program continues to be a successful initiative that generates a positive return on investment. To date, CSU faculty members have requested over \$15.0 M in extramural funding and secured \$2.37 M.

**In the last year, two extramural grants were awarded to CSU faculty members bringing the total return on investment to date for this program to 7.4:1:**

- Dr. Carlos Robles (CSU Los Angeles), Dr. Patricia Halpin (UC Los Angeles) and Dr. Corey Garza (CSU Monterey Bay). National Science Foundation: *RUI Collaborative Research: Spatial realism in the mussel bed disturbance paradigm, \$677,630.*
- Dr. Ana Pitchon (CSU Dominguez Hills) and Dr. Steven Hackett (Humboldt State University). California Sea Grant: *Sustaining fishing communities by enhancing value in a landings-constrained environment, \$166,702.*

**In AY 2011-12 COAST provided assigned time funding to 12 faculty members at nine campuses:**

- Dr. Donald Reed (Geology, San Jose State University): *Using COAST research to promote ocean science foundation through integrated video podcasting, research data-driven exercises and social media: curriculum development across the CSU system.*
- Dr. Anne E. Todgham (Biology, San Francisco State University) and Dr. Lars Tomanek (Biological Sciences, Cal Poly San Luis Obispo): *A global perspective on thermal tolerance limits: transcriptomic and proteomic signals of heat stress in intertidal limpets.*
- Dr. Patrick Krug (Biological Sciences, CSU Los Angeles) and Dr. Angel Valdes (Biological Sciences, Cal Poly Pomona): *RUI: ARTS: Biodiversity of herbivorous sea slugs: how algal diversity and photosynthetic ability affect rates of speciation and endemism.*
- Dr. Misgana Muleta (Civil & Environmental Engineering, Cal Poly San Luis Obispo): *Hydrologic prediction uncertainty analysis to control sedimentation of the Morro Bay Estuary.*
- Dr. Rebecca Lewison (Biology, San Diego State University) and Dr. Ellen Hines (Geography and Human Environmental Studies, San Francisco State University): *Creating a spatially explicit risk assessment of fisheries bycatch: a comparative approach.*
- Dr. Karen Crow-Sanchez (Biology, San Francisco State University): *The evolution of novel morphologies in fishes: the basal and most diverse group of vertebrates.*
- Dr. Ana Pitchon (Anthropology, CSU Dominguez Hills) and Dr. Steven Hackett (Economics, Humboldt State University): *Alternative market channels for key California fisheries in a landings constrained environment.*
- Dr. Aparna Sreenivasan (Science and Environmental Policy, CSU Monterey Bay): *Analysis of cyanobacteria presence and toxicity in freshwater environments in the Monterey Bay.*

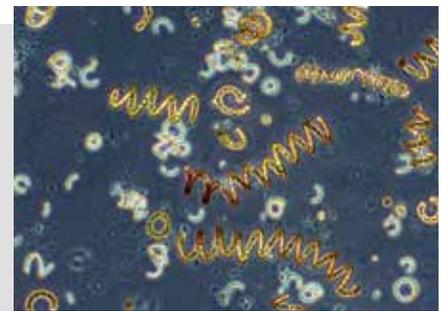
## COAST Faculty Research Incentive Program

COAST Funds Invested	\$321,242
Extramural Funds Requested	\$15.0 M
Extramural Funds Secured	\$2.37 M
Return On Investment	7.4:1



**For AY 2012-13, COAST received 13 applications requesting a total of \$111,394 in support. The budget allows funding to be provided to nine faculty members at six different campuses:**

- Dr. Nikki Adams (Biological Sciences, Cal Poly San Luis Obispo): *Protein response of sea urchin embryos to environmental stress utilizing confocal microscopy to identify proteins affected by ultraviolet radiation in sea urchin embryos.*
- Dr. Katharyn Boyer (Biology, San Francisco State University): *Getting to the bottom of it: understanding an invasive herbivore's novel role in a vulnerable seagrass system.*
- Dr. Elizabeth Dinsdale (Biology, San Diego State University): *Copper concentration as a selective pressure on genomic content of kelp forest microbes.*
- Dr. Matt Edwards (Biology, San Diego State University): *Biogeography and physiology of Rhodoliths at Catalina Island and Development of an integrated seaweed-abalone aquaculture system for sustainable resource use and bioremediation.* (With Drs. Michael Graham and Diana Steller, Moss Landing Marine Laboratories, San Jose State University-unfunded collaborators)
- Dr. Antje Lauer (Biology, CSU Bakersfield) and Dr. Sean Craig (Biological Sciences, Humboldt State University): *Diversity and function of bacteria in human influenced marine fouling communities: using Watersipora spp. and associated microbes as a model.*
- Dr. Cheryl Logan (Science and Environmental Policy, CSU Monterey Bay): *Will California's sea mussels be able to adapt to rising temperatures concomitant with climate change?*
- Dr. Jeremy Long (Biology, San Diego State University): *Sublethal consequences of pollution on chemically-mediated interactions between consumers and their prey.* (With Dr. Matthew Ferner, San Francisco State University-unfunded collaborator)
- Dr. Jonathon Stillman (Biology, San Francisco State University): *Why mummies matter: elucidating the mechanisms that produce brood-specific responses to ocean acidification in porcelain crabs.* (With Dr. Brian Tsukimura, CSU Fresno-unfunded collaborator)



*Anabaena* spp. Image courtesy of Dr. Aparna Sreenivasan, CSUMB.

# Promoting Collaborative Resource Sharing

The COAST Collaborative Resource Sharing Program, designed to foster intercampus collaboration and technology transfer by promoting resource sharing across the CSU, is now in its second year. The program allows a PI from one CSU campus to apply for funding for highly specialized analyses, services, or use of unique equipment provided by a different CSU campus. Examples include proteomic analysis, use of autonomous underwater vehicles, seafloor mapping services, and inductively coupled plasma mass spectroscopy (ICP-MS). Awards facilitate the generation of either preliminary data sets leading to the submission of full proposals to external funding agencies and organizations or the completion of ongoing research projects and subsequent submission of manuscripts for publication in peer-reviewed scientific journals.

**Two publications have resulted from the first round of awards made in 2010-11. Each of these publications includes CSU students authors:**

- Savage, Thomas J., G. Jason Smith, Amy T. Clark, Portia N. Saucedo. 2012. Condensation of the isoprenoid and amino precursors in the biosynthesis of domoic acid. *Toxicon* 59: 25–33.
- Láruson, Áki J., Sean F. Craig, Kirk J. Messer, Joshua A. Mackie. 2012. Rapid and reliable inference of mitochondrial phylogroups among *Watersipora* species, an invasive group of ship-fouling species (*Bryozoa*, *Cheilostomata*). *Conservation Genetics Resources*. DOI: 10.1007/s12686-012-9606-9

**In the spring of 2012 COAST received six proposals totaling \$59,500 and was able to support them all. These projects encompass 12 faculty members at 10 different campuses:**

- Dr. Sean Anderson (Environmental Science & Resource Management, CSU Channel Islands) and Dr. Rikk Kvitek (Science and Environmental Policy, CSU Monterey Bay): *Benthic mapping of Ventura County estuaries: a collaboration between CSUMB's Seafloor Mapping Laboratory and CSUCI's Pacific Institute for Restoration Ecology*. \$10,000
- Dr. Corey Garza (Science and Environmental Policy, CSU Monterey Bay) and Dr. Ivano Aiello (Moss Landing Marine Laboratories, San Jose State University): *Multiscale geomorphic controls over littoral communities in California*. \$9,500
- Dr. Antje Lauer (Biology, CSU Bakersfield), Dr. Sean Craig (Biological Sciences, Humboldt State University) and Dr. Lars Tomanek (Biological Sciences, Cal Poly San Luis Obispo): *Protein expression profiles in *Watersipora* spp. and selected microbial associates in response to copper stress*. \$10,000
- Dr. Rebecca Lewison (Biology, San Diego State University) and Dr. Ellen Hines (Geography and Human Environmental Studies, San Francisco State University): *Creating a spatially explicit risk assessment of fisheries by catch for coastal marine mammals*. \$10,000

- Dr. Stephanie Molloy (Biological Sciences, CSU East Bay) and Dr. Kenneth Coale (Moss Landing Marine Laboratories, San Jose State University): *Effect of heavy metals pollution on subsurface sediment bacteria communities in San Francisco Bay*. \$10,000
- Dr. Mathieu Richaud, (Earth and Environmental Sciences, CSU Fresno) and Dr. Rikk Kvitek (Science and Environmental Policy, CSU Monterey Bay): *Quantifying shoreline geomorphology and coastal erosion during ENSO and inter-ENSO periods along Morro Bay sandspit, CA, using a vessel-based LiDAR system*. \$10,000



# Supporting Student Research

**B**roadly, COAST aims to support CSU undergraduate and graduate students engaged in marine and coastal related research with CSU faculty members. Often, COAST support allows students to devote themselves fully to their research rather than splitting their time between school and an outside job. This helps them stay in school and attain their degrees more quickly. By requiring each student to work with a faculty mentor, support for students is intended to ultimately benefit faculty members as well.

## STUDENT AWARDS FOR MARINE SCIENCE RESEARCH & TRAVEL

The goals of the COAST Student Awards for Marine Science Research program are to stimulate student interest in marine-related careers, increase student participation in faculty-mentored research, and provide students with the opportunity to obtain the skills necessary to join a highly skilled, technologically advanced workforce. In AY 2011-12, COAST provided \$114,000 to a total of 43 students at 12 campuses through this program (Appendix A, Page 14-15). Ten undergraduate students each received \$1500 and 33 graduate students each received \$3000.

The COAST Student Travel Award program supports undergraduate and graduate student travel to marine, estuarine and coastal-themed scientific meetings and conferences or special thematic sessions of more general scientific meetings to present the results of their research. The goals of the

program are to enable students to participate in what is often a transformative experience and to highlight CSU research at a national level. COAST provided \$26,965 in travel support to 2 undergraduate and 42 graduate students from 11 different campuses to make either oral or poster presentations at regional, national and international meetings (Appendix B, Page 16-17).



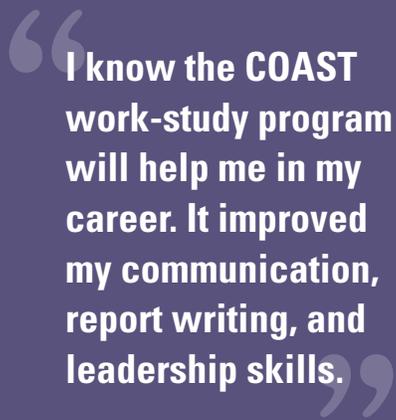
Sonoma State University graduate student Jill Stokes at her field site. Image courtesy of Dr. Karina Nielsen, SSU.

## FEDERAL WORK-STUDY PILOT PROGRAM

The COAST federal work-study pilot program continued during AY 2011-12 at CSU Los Angeles and Humboldt State University. The goal of the program is to increase the number of federally funded work-study students participating in coastal and marine research. COAST provided \$5,000 to each campus as the required 25% institutional contribution that was paired with \$15,000 in federal work-study funds.

“The COAST grant is the first grant I’ve ever received and it gave me inspiration that I can pursue a career in science.”

*John LaBreque, Biology major,  
San Francisco State University*



**I know the COAST work-study program will help me in my career. It improved my communication, report writing, and leadership skills.**

*San Yu Aung,  
Civil Engineering graduate student,  
CSU Los Angeles*

Three CSU Los Angeles graduate students and one undergraduate student participated in the program. Dr. Rupa Purasinghe in Civil Engineering advised San Aung, a MS student, who modeled the structural vulnerability of a pipeline subjected to instantaneous loading, such as earthquake loading, at a fault crossings in marine and terrestrial environments. Dr. Gustavo Menezes, also in Civil Engineering, advised undergraduate student Yola Wong in her study of the transport of fertilizer-derived chemicals through soils in coastal watersheds. Yola and her collaborator presented a poster on this work in June 2012 at the CSU Los Angeles Annual Engineering Senior Design Expo. Dr. Krishna Foster in Chemistry and Biochemistry mentored Chemistry graduate student Dero Hovanes who is working on new analytical techniques for the detection of oxygenated PAHs in the marine environment. Without this support, Dero would not have been able to pursue his thesis with Dr. Foster. Master's biology student Mark LeBlanc worked with Dr. Elizabeth Torres in Biology and discovered a new ostracod (crustacean) species from the Caribbean.

At Humboldt State University, six undergraduate students participated in the program. Three Marine Biology students worked with Dr. Sean Craig on the globally invasive bryozoan *Watersipora* spp. The students raised the organisms in the lab, conducted competition experiments and collected genetic sequence data to identify different groups within the microbial complex. Dr. Jeff Abell advised an Oceanography student on a study of ocean acidification in northern California, and Dr. Matthew Hurst advised one Chemistry student and one Environmental Resources Engineering student on water quality studies in Humboldt Bay.

Both CSU Los Angeles and Humboldt State University will continue to participate in the work-study program in AY 2012-13 and three additional campuses will join: CSU Dominguez Hills, CSU East Bay, and CSU Fullerton.

#### **COAST SUMMER STUDENT INTERNSHIP PROGRAM**

In 2011 COAST launched a highly successful summer student internship program that allows CSU students to further their educational and professional development by gaining valuable work experience and learning technical skills that complement their CSU education. The initial intern host organization in 2011 was the California Department of Fish & Game (DFG; [www.dfg.ca.gov/](http://www.dfg.ca.gov/)), a state agency charged with managing California's diverse native fish, wildlife, and plant species, and the habitats upon which they depend. As a result of the program, two students were hired as entry-level DFG employees.

The Summer Student Internship Program was expanded for 2012 to offer a greater diversity of internship hosts and experiences. A \$10,000 award from California Sea Grant made this expansion possible. New host organizations are Pacific Coast Environmental Conservancy (PCEC; [www.pceconservancy.org/](http://www.pceconservancy.org/)), a small non-profit organization in Long Beach dedicated to the protection and sustainability of the Pacific coast environments, and PRBO Conservation Science (PRBO; [www.prbo.org/](http://www.prbo.org/)), a well-known non-profit organization in Petaluma dedicated to bird, wildlife and ecosystem conservation worldwide.

Host Organization	Internship (Location within CA)	CSU Student, Home Campus
<b>California Department of Fish and Game (DFG)</b>	Abalone Research (Bodega Marine Lab, Bodega Bay)	Kevin Bierlich, Sonoma Trevor Manger, Sonoma
	Coastal Salmonid Habitat (Ft. Bragg)	Christopher Borg, Humboldt August Delforge, Monterey Bay
	Fort Bragg Fisheries Data (Ft. Bragg)	Courtney Collins, Channel Islands
	Marine Recreational Fisheries Survey Design (Belmont/Monterey)	Mucho Pefok, Monterey Bay
	Southern California Sport Fisheries (Los Alamitos)	Kelley Voss, Long Beach
<b>Pacific Coast Environmental Conservancy (PCEC)</b>	Environmental Toxicology (Long Beach)	Stephanie King, Long Beach Anne Nash, Humboldt
<b>PRBO Conservation Science (PRBO)</b>	Seabird Diet Research (Petaluma)	Stephanie Parreira, Sonoma
	Zooplankton Research (Petaluma)	Jazmyne Gill, Long Beach

Some of the internships involve significant fieldwork and are physically intensive while others are office-based to allow students with physical disabilities or limitations the chance to participate. Participation in this program helps prepare CSU undergraduate and graduate students to join a highly skilled, technical workforce. Additionally, this experience helps students make decisions about STEM related employment or advanced degrees they may wish to pursue.

California Sea Grant intends to continue to support this program, and COAST is committed to finding additional sources of external support in order to add additional host organizations and

increase the diversity of opportunities available to students.

**COAST-UROC UNDERGRADUATE STUDENT SUMMER RESEARCH PROGRAM**

COAST and the CSU Monterey Bay (CSUMB) Undergraduate Research Opportunities Center (UROC) developed a new undergraduate student summer research program for Summer 2012. CSUMB undergraduate STEM students were placed with COAST faculty mentors at other CSU campuses for a 10-week paid summer research experience. The students had the opportunity engage in hands-on research of sea slug behavior, green sea turtle movement, MPA



Humboldt State University undergraduate student intern Anne Nash bleeding a rockfish. Image courtesy of PCEC.

monitoring and porcelain crab genetics with leaders in each of these fields. The faculty hosts each had a highly motivated and skilled undergraduate student working in their lab at no cost to them. To complete their research experiences, the students are expected to present the results of their research at scientific meetings with the next 12 months and may be included in any resulting publications in peer-reviewed scientific journals.

COAST plans to continue this successful program with CSUMB in 2012-13 and will look to expand the program by partnering with other CSU campuses with DOEd HSI STEM and Articulation Program grants or similarly focused programs.

“Overall, this internship has been the best experience I’ve had in my undergraduate career and I feel like I’m closer to accomplishing my goal of becoming a professional biologist.”

*Stephanie King,  
Marine Biology major,  
CSU Long Beach*

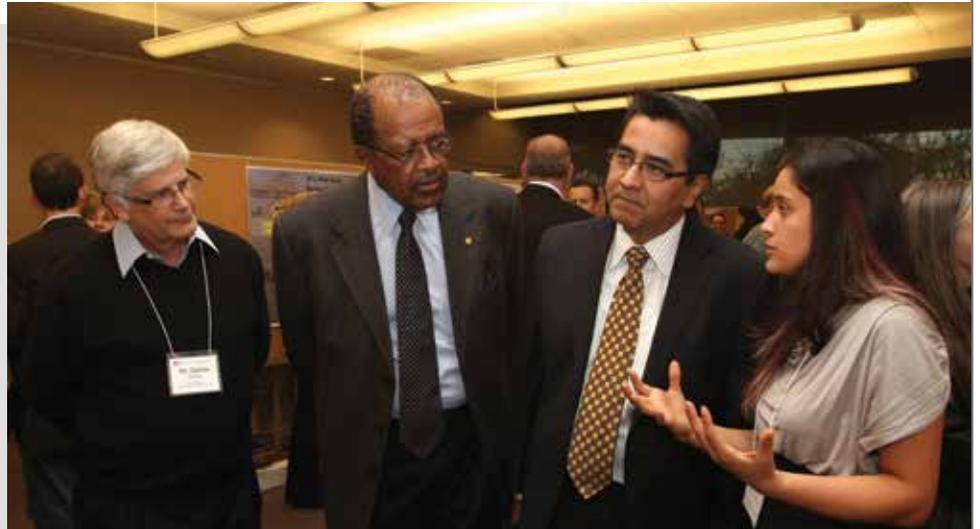
CSUMB Undergraduate Student	Faculty Host	Project
<b>Mark Callaghan</b>	<b>James Murray</b> CSU East Bay	<i>Say, can you see a sea slug sleep if a sea slug could show sleep?</i>
<b>April Makukhov</b>	<b>Rebecca Lewison</b> San Diego State University	<i>Hot tub time machine: influence of temperature on habitat use of East Pacific green sea turtles (<i>Chelonia mydas</i>) in San Diego Bay</i>
<b>Lauren Tobosa</b>	<b>Dean Wendt</b> Cal Poly San Luis Obispo	<i>Fishing and Sticking: the impact of MPAs on nearshore rockfish and the development of environmentally benign marine coatings</i>
<b>Carley Turner</b>	<b>Jonathon Stillman</b> San Francisco State University	<i>The expression of temperature responsive genes across fine-scale habitat variation in the porcelain crab, <i>Petrolisthes cinctipes</i></i>

# Reaching Out & Building Communities

Throughout the year COAST engages in activities throughout California to engage CSU faculty and students and external stakeholders. The ultimate goals of these efforts are to raise the profile of the CSU in the scientific research community and to establish the CSU as a primary source for reliable, unbiased scientific information for informed decision-making and policy development at regional, State and national levels.

## SECOND ANNUAL COAST FACULTY-STUDENT RESEARCH POSTER RECEPTION

COAST hosted its second annual faculty-student poster reception at the Chancellor's Office on January 24 2012, following the first day of a Board of Trustees meeting. The CSU Water Resources and Policy Initiatives (WRPI) co-sponsored and participated in the event. Thirty faculty-student research posters were exhibited and between COAST and WRPI, each of the 23 campuses and marine consortia was represented. The presenting students and their advisors had the opportunity to interact directly with campus Presidents, CSU Trustees and Chancellor's Office staff. The event was also attended by the directors of California Sea Grant and USC Sea Grant, both of which provide funding for marine research in California. The directors had a chance to speak with individual faculty members and students about their research and get a sense first hand of the breadth and depth of marine and coastal related research conducted by the CSU.



CSU Los Angeles graduate student Jeniffer Aleman-Zometa (right) with (from left) Dr. Carlos Robles and President James Rosser, CSU Los Angeles, and Trustee Henry Mendoza. Image courtesy of Tony Kawashima.

This event has proven valuable to the faculty and student presenters as well as the CSU leadership. COAST will try to continue to host the event annually but to reduce costs may partner with other CSU STEM affinity groups. Additionally, we are exploring convening the event in Sacramento to make it more accessible to the Legislature, state agencies and the public.

## NETWORK MEETINGS

In early 2012 two COAST networks each hosted their first workshop. The Geospatial Research, Education and Technology (GREAT) Network led a two-day workshop on the use of geospatial research techniques in the coastal environment at CSU Monterey Bay in January. Over 20 individuals from 13 different campuses attended. They learned to use GIS software and got hands-on demonstrations of a number of different pieces of equipment used to collect mapping data in coastal areas. Currently GREAT is seeking extramural funding to convene a follow-on workshop in January 2013.

In February, the Environmental Effects on Coastal Organisms (EECO) Network (formerly Environmental Effects on Marine Life) hosted a members' meeting at CSU Long Beach. Over 20 individuals from eight different campuses met to discuss the group's strengths, areas for collaboration and external funding opportunities. As a follow-up activity, Dr. Lars Tomanek (Cal Poly San Luis Obispo) has secured over \$35,000 in extramural support to host a five-day environmental proteomics workshop in which participants from around the country will learn step-by-step proteomic analysis procedures and generate data from their own samples. The workshop is scheduled for December 2012.

## OCEAN DAY

On March 26 2012, COAST hosted the Ocean Day luncheon in Sacramento. Ocean Day focuses on ocean health and marine conservation and provides a forum for California's ocean advocacy community to interact with State leaders.

The luncheon provided an opportunity to brief a large and diverse audience on contaminants of emerging concern (CECs) in the marine environment. Melissa Locke, JD (Cal Poly San Luis Obispo) moderated the event, which featured presentations by Dr. Kevin Kelley (CSU Long Beach) and Dr. Keith Maruya (Southern California Coastal Water Research Project). An in-depth presentation on the effects of CECs on marine and coastal organisms was followed by a discussion of ways the State is addressing this threat.

COAST is preparing to host the Ocean Day 2013 luncheon. It's a significant way to connect CSU scientists working on cutting-edge topics with an interested and activated audience.

#### **ANNUAL MEETING**

The fifth annual COAST system-wide meeting was held on April 25 2012 at the Chancellor's Office. Each of the 23 campuses was represented among the 60 participants and the agenda focused on the integration of undergraduate research into curriculum. Invited speakers included Dr. Mitch Malachowski (University of San Diego), Dr. Christopher Kitts (Cal Poly San Luis Obispo) and Dr. William Head (Undergraduate Research Opportunities Center, CSU Monterey Bay). This was a timely discussion that provided tangible examples of ways research has been incorporated into undergraduate curriculum that can serve as models for broader adaptation and implementation.

The 2012 annual meeting will be held on April 25 2012 at the Chancellor's Office in Long Beach—save the date!

#### **COAST IN D.C.**

COAST made a national presence this year by sponsoring Capitol Hill Ocean Week (CHOW) hosted by the National Marine Sanctuary Foundation in Washington D.C. in June 2012. Two COAST Executive Committee members (Dr. James Lindholm, CSU Monterey Bay, and Dr. Dean Wendt, Cal Poly San Luis Obispo) and two COAST staff members (Dr. Krista Kamer and Beth Pardieck) spent the week in D.C. attending CHOW events and meeting with legislators such as Representative Lois Capps and Representative Sam Farr. Attendance at this event allowed COAST to begin building a reputation as a resource for marine and coastal research and expertise at the national level.

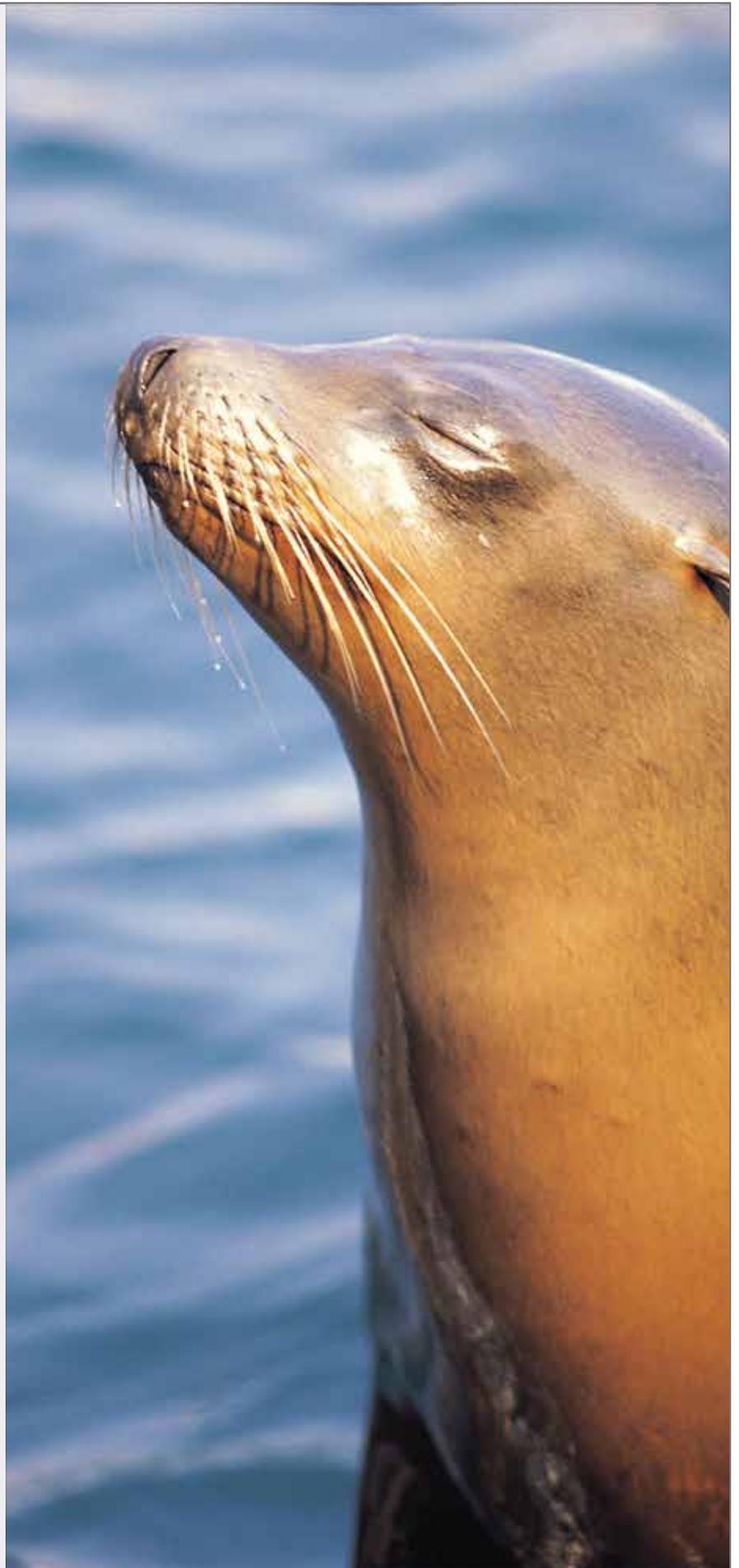


We plan to return to D.C. next June during CHOW to meet with many members of the California Delegation again as well as staff of policy committees. Using CHOW as a backdrop for legislative visits provides convenient context for our message.

# Looking Ahead

## Over the next 12 months COAST will

- Launch a new program to support faculty research through broader allowable uses of funds.
- Provide support for faculty members preparing proposals to external funding agencies.
- Provide support to undergraduate and graduate students engaged in marine and coastal research.
- Expand the federal work-study programs to three additional campuses: Dominguez Hills, East Bay and Fullerton.
- Add additional partners to our programs that provide summer research and training experiences for students.
- Support the Networks in planning meetings and workshops to engage their members and further their goals.
- Support development of a new COAST Network, the focus of which will be determined by the COAST community.
- Coordinate with other marine and coastal organizations (e.g., Ocean Science Trust) to effectively engage stakeholders.





# Appendices

## Appendix A 2011-12 Student Research Awards

Campus	Student	Advisor	Project Title
East Bay	Shuang Huang	Dr. Monika Sommerhalter	Purification and characterization of Glutathione-S-Transferase (GST) enzymes from the marine gastropod <i>Tritonia diomedea</i>
	Kelsey Logas	Dr. James Murray	The role of melatonin in modulating the photosensitive cyclical activity of <i>Tritonia diomedea</i>
	Amber Lyon-Colbert*	Dr. Stephanie Molloy	Resuspension of <i>Staphylococcus aureus</i> from benthic sediment as a contamination input to California coastal waters
	Hy Tran	Dr. Stephanie Molloy	Statistical analysis of molecular profiling data for San Francisco Bay microbial communities subject to heavy metals pollution
Fresno	Elizabeth Braschayko	Dr. Larry Riley	The effect of chronic cortisol treatment on growth in Mozambique tilapia ( <i>Oreochromis mossambicus</i> )
	Temperance Rowell*	Dr. Larry Riley	Investigate the effects of a Se-enriched meal on growth performance and endocrine control of growth and metabolism in tilapia ( <i>Oreochromis mossambicus</i> )
Humboldt	Jeffrey Abrams	Dr. David Hankin	The effect of historical fishing pressure on the age structure of fishes associated with rocky habitats along California's north coast
	Kathleen Elder*	Dr. Sean Craig	Invasion and copper resistance in marine bryozoans along the California coast
Long Beach	Deborah Frantz	Dr. Kelly Young	The effects of a dietary exposure of Aroclor 1254(PCB) on the reproduction of male round stingrays, <i>Urobatis halleri</i>
	Cody Larsen	Dr. Kevin Kelley	Proteomic characterization of testicular protein expression in male hornyhead turbot exhibiting high plasma estrogen levels
Monterey Bay	Jennifer Bigman	Dr. David A. Ebert (MLML)	Food habits of the spiny dogfish, <i>Squalus suckleyi</i> (Girard, 1854) in central California waters
	Michael Fox	Dr. Michael Graham (MLML)	Effects of oceanographic climate on growth rate and resource physiology of giant kelp, <i>Macrocystis pyrifera</i> , in a central California kelp forest
	Megan Kelly	Dr. James Lindholm	Distribution and habitat utilization of lingcod ( <i>Ophiodon elongatus</i> ) off central California: implications for conservation and management
	Justin Peglow	Dr. Ivano Aiello (MLML)	The interactions between geomorphology and environmental stress in shaping community structure: a quantitative analysis of upper rocky intertidal communities using terrestrial laser scanning
Northridge	Ehsan Mohammadebrahim	Dr. Gerry Simila	High-resolution earthquake fault kinematics of the San Pedro Basin fault, California Continental Borderland
Sacramento	Gena Lasko	Dr. Ron Coleman	Straying of late-fall-run Chinook salmon from the Coleman National Fish Hatchery into the lower American River, California
	Phoenix Le*	Dr. Thomas Savage	Isolating a domoic acid biosynthetic gene candidate
San Diego	Max Castorani	Dr. Kevin Hovel	Assessing the cumulative impacts of multiple invaders on eelgrass resilience
	Ryan Jenkinson	Dr. Kevin Hovel	Predator-prey interactions on temperate reefs: can trait mediated indirect effects lead to changes in kelp forest community structure?
	Monika Larson*	Dr. Kevin Hovel	Spatial variability in predator-urchin interactions: implications for California marine protected areas on southern California temperate reefs
	Christopher Millow	Dr. Rebecca Lewison	Black skimmers ( <i>Rynchops niger</i> ) In an urban landscape: contaminant and diet influences on reproductive output in San Diego Bay

\* denotes undergraduate student

## Appendix A 2011-12 Student Research Awards

Campus	Student	Advisor	Project Title
San Diego	Laura Porturas*	Dr. Jeremy Long	Investigating effects of <i>Haliopsis spartina</i> and soil salinity on <i>Spartina foliosa</i> populations
	Lee Reeve	Dr. Kevin Hovel	Eelgrass as a nursery habitat for juvenile California halibut ( <i>Paralichthys californicus</i> )
	Chelsea Rochman	Dr. Brian Hentschel	Toxicological implications of plastic pollution in coastal marine ecosystems
	Elizabeth Travis*	Dr. Chun-Ta Lai	Feeding ecology of the California spiny lobster, <i>Panulirus interruptus</i> : insight from stable isotope analysis
San Francisco	Evyvan Borgnis	Dr. Katharyn Boyer	Predicting impacts of global climate change on native and invasive submerged aquatic vegetation in the San Francisco Estuary
	Hayley Carter	Dr. Jonathon Stillman	Impact of ocean acidification on development and energetics of intertidal porcelain crab early life history stages
	Benson Chow	Dr. Sarah Cohen	Juvenile performance variation in marine invertebrates: effects of source and local environment
	Rachel Dorfman	Dr. Jonathon Stillman	Long term effects of ocean acidification on gene expression in the calcifying marine phytoplankton <i>Emiliana huxleyi</i>
	Rita duMais	Dr. Wim Kimmerer	Is <i>Microcystis aeruginosa</i> affecting the species composition of zooplankton in the San Francisco Estuary by favoring smaller-bodied copepods?
	Christopher Ikeda	Dr. William Cochlan	Synergistic effects of salinity and elevated CO <sub>2</sub> on the growth and toxicity of the fish-killing phytoflagellate, <i>Heterosigma akashiwo</i>
	Karen Kayfetz	Dr. Wim Kimmerer	An analysis of copepod feeding using FlowCAM
	John LaBrecque*	Dr. Karen Crow	Multiple paternity as a reproductive strategy in the live-bearing surperches (Embiotocidae)
	Jennifer McGowan	Dr. Ellen Hines	Intersections at sea: seabird hot spots in central California's National Marine Sanctuaries and their implications for oil spill response preparedness and marine spatial planning
	Christina Pasparakis	Dr. Anne Todgham	Effects of repeated high temperature events and recovery period on thermal tolerance of the limpet, <i>Lottia digitalis</i>
	Robert Vogt	Dr. Wim Kimmerer	Developing improved techniques to measure zooplankton feeding
San Jose	Marilyn Cruickshank	Dr. James Harvey	Characterizing genetic structure in California populations of Rhinoceros Auklets ( <i>Cerorhinca monocerata</i> ) and determining effects of oil spills and seeps
	Scott Gabara	Dr. Diana Steller	Filling a gap in coastal California ecology: determining diversity and nursery role of novel benthic rhodolith habitat at Catalina
	Emily Golson	Dr. James Harvey	Predicting southern sea otter ( <i>Enhydra lutris nereis</i> ) movements
	Emily Kelsey	Dr. Scott Shaffer	The effect of a warming climate on seabird habitat restoration
	Stacy Moskal	Dr. Scott Shaffer	Wintering and migrating shorebird responses to enhancement efforts and water level manipulations at pond SF2
San Luis Obispo	Andrea DeBrish*	Dr. Nikki L. Adams	Effects of long-term solar exposure of adult purple sea urchins, <i>Strongylocentrotus purpuratus</i> , on fitness and embryo resistance to ultraviolet radiation
Sonoma	Colin Donlevy*	Dr. Karina Nielsen	Reduction of calcium carbonate in articulated coralline algae increases palatability to herbivores

\* denotes undergraduate student

## Appendix B 2011-12 Student Travel Awards

Campus	Student	Faculty Mentor	Conference	Conference Location	Amount
Fresno	Steven Gong	Dr. Brian Tsukimura	Society for Integrative and Comparative Biology 2012	Charleston, SC	\$750
Fullerton	Andres Carrillo	Dr. Kathryn Dickson	Western Society of Naturalists	Vancouver, WA	\$482
	Laura Elsberry	Dr. Jennifer Burnaford	Western Society of Naturalists	Vancouver, WA	\$479
	Ben Higgins	Dr. Michael H. Horn	Society for Integrative and Comparative Biology 2012	Charleston, SC	\$741
	Scott Holtz	Dr. Kathryn Dickson	Western Society of Naturalists	Vancouver, WA	\$457
	Alyssa Stephenson	Dr. Michael H. Horn	2012 Pacific Seabird Group Annual Meeting	Turtle Bay, HI	\$356
Humboldt	Allison Fuller	Dr. P. Dawn Goley	20th Biennial Conference on the Biology of Marine Mammals	Tampa Bay, FL	\$750
	Carrie Hudson	Dr. P. Dawn Goley	19th Biennial Conference on the Biology of Marine Mammals	Tampa Bay, FL	\$750
Monterey Bay	Alexandra Davis*	Dr. Rikk Kvitek	American Geophysical Union (AGU)	San Francisco, CA	\$269
	Scott Toews	Dr. Corey Garza	Western Society of Naturalists	Vancouver, WA	\$500
Northridge	Jenny Gowan	Dr. Robert Carpenter	Western Society of Naturalists	Vancouver, WA	\$500
	Jesse Tootell	Dr. Mark Steele	Western Society of Naturalists	Vancouver, WA	\$500
Pomona	Jessica Goodheart	Dr. Angel Valdes	4th International Workshop on Opisthobranchs (IWO)	Santa Cruz, CA	\$500
San Diego	Renee Dolecal	Dr. Jeremy Long	Western Society of Naturalists	Vancouver, WA	\$500
	Katharine Goodenough	Dr. Rebecca Lewison	Waterbird Society Meeting	Annapolis, MD	\$750
	Emily Jones	Dr. Jeremy Long	Western Society of Naturalists	Vancouver, WA	\$500
	John Matthews	Dr. Brian T. Hentschel	Western Society of Naturalists	Vancouver, WA	\$500
	Christopher Millow	Dr. Rebecca Lewison	2012 Pacific Seabird Group Annual Meeting	Turtle Bay, HI	\$750
	Sarah Wheeler	Dr. Todd Anderson	Western Society of Naturalists	Vancouver, WA	\$240
San Francisco	Brittany Bjelde	Dr. Anne Todgham	Society for Integrative and Comparative Biology 2012	Charleston, SC	\$695
	Sarah Blaser	Dr. Frances Wilkerson	Coastal and Estuarine Research Federation (CERF)	Daytona Beach, FL	\$750
	Sara Boles	Dr. Anne Todgham	Society for Integrative and Comparative Biology 2012	Charleston, SC	\$749
	Christina Buck	Dr. Frances Wilkerson	Coastal and Estuarine Research Federation (CERF)	Daytona Beach, FL	\$750

\* denotes undergraduate student

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Campus	Student	Faculty Mentor	Conference	Conference Location	Amount
San Francisco	Hayley Carter	Dr. Jonathon Stillman	Society for Integrative and Comparative Biology 2012	Charleston, SC	\$750
	Lina Ceballos	Dr. Jonathon Stillman	Society for Integrative and Comparative Biology 2012	Charleston, SC	\$750
	Benson Chow	Dr. Sarah Cohen	Society for Integrative and Comparative Biology 2012	Charleston, SC	\$750
	Autumn Cleave	Dr. Kathy Boyer	Coastal and Estuarine Research Federation (CERF)	Daytona Beach, FL	\$750
	Rachel Dorfman	Dr. Jonathon Stillman	2012 Ocean Sciences Meeting	Salt Lake City, UT	\$750
	Vanessa Guerra	Dr. Sarah Cohen	VIII Taller de Genética para la Conservación: nuevas herramientas y nuevos conceptos (VII Workshop of Genetics for the Conservation: new tools and new concepts)	Chillan, Chile	\$750
	Andrew Kalmbach	Dr. Ed Carpenter	ALSO Ocean Sciences 2012	Salt Lake City, UT	\$750
	Erica Kress	Dr. Frances Wilkerson	Coastal and Estuarine Research Federation (CERF)	Daytona Beach, FL	\$751
	Jennifer McGowan	Dr. Ellen Hines	38th Meeting of the Pacific Seabird Group	Turtle Bay, HI	\$750
	Genevieve Munsey	Dr. Kathleen McAfee	Association of American Geographers (AAG)	New York, NY	\$750
	Kristine Okimura	Dr. Ed Carpenter	2012 Ocean Sciences Meeting	Salt Lake City, UT	\$500
	Elizabeth Sheets	Dr. Sarah Cohen	Western Society of Naturalists	Vancouver, WA	\$499
	Martha Velez	Dr. Frank Cipriano	19th Biennial Conference on the Biology of Marine Mammals	Tampa Bay, FL	\$745
San Jose	Stephanie Hughes	Dr. James Harvey	19th Biennial Conference on the Biology of Marine Mammals	Tampa Bay, FL	\$750
	Elizabeth McHuron	Dr. James Harvey	19th Biennial Conference on the Biology of Marine Mammals	Tampa Bay, FL	\$750
	Sonya Sankaran	Dr. Michael Graham	Western Society of Naturalists	Vancouver, WA	\$500
San Luis Obispo	David Hernandez*	Dr. Lars Tomanek	Society of Integrative and Comparative Biology Annual Meeting 2012	Charleston, SC	\$500
	James Koman	Dr. Lars Tomanek	Society of Integrative and Comparative Biology Annual Meeting 2012	Charleston, SC	\$500
Sonoma	Preston Malm	Dr. Karina Nielsen	Western Society of Naturalists	Vancouver, WA	\$500
	Adele Paquin	Dr. Karina Nielsen	Western Society of Naturalists	Vancouver, WA	\$500
	Jill Stokes	Dr. Karina Nielsen	Western Society of Naturalists	Vancouver, WA	\$501

\* denotes undergraduate student

**CSU** **The California State University**  
COUNCIL ON OCEAN AFFAIRS, SCIENCE & TECHNOLOGY

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