

COAST

2018 ANNUAL REPORT



Covering activities from July 1, 2017 - June 30, 2018

www.calstate.edu/coast

THE CSU COUNCIL ON OCEAN AFFAIRS, SCIENCE & TECHNOLOGY (COAST)

is the umbrella organization for marine, coastal and coastal watershed related activities within the CSU. COAST integrates systemwide expertise and resources to promote marine and coastal research and education throughout the CSU and the state of California. The scope of COAST includes:

- The open and coastal ocean.
- Coastal zones (bays, estuaries, beaches).
- Coastal watersheds where there are clear and direct linkages between the organism, material or process in the watershed and the coast or ocean (e.g., anadromous fish, surface and groundwater flow, water quality).

COAST's long-term goals are to:

- Advance our knowledge of coastal and marine resources and the processes that affect them.
- Develop innovative solutions to the economic, sociological, ecological and technological challenges that our coastal zone faces.
- Promote environmental literacy to foster stewardship and sustainable use of our coast.

To achieve these goals, COAST has several strategic priorities:

- Provide funding and opportunities to advance coastal, marine, and coastal watershed research and education.
- Serve as a primary resource for informed decision-making in government, industry and local communities.
- Train students to successfully join a highly skilled, technologically sophisticated workforce and ensure the success of students from all backgrounds.
- Communicate the activities, successes and impacts of COAST members to stakeholders and the public.

Visit us online at www.calstate.edu/coast to learn more and to become a part of COAST!

OUR MISSION

COAST's mission is to help the state of California maintain a healthy ocean and sustainable use of coastal resources. COAST coordinates and promotes research and education across the 23 campuses of the CSU to advance our knowledge of marine resources and provide solutions to local, state and national issues. COAST promotes workforce development in STEM and other marine-related disciplines and communicates with California's governments, industries and communities to support informed decision-making and responsible policy development.

OUR VISION

COAST envisions a California that actively and sustainably manages its coast and ocean through the application of scientific knowledge by a well-educated, diverse and environmentally literate workforce and citizenry.



10th ANNIVERSARY MILESTONES

COAST was established in 2008 to integrate systemwide expertise and resources to promote marine and coastal research and education throughout the CSU and the state of California. Over the last 10 years, COAST has grown significantly in size, scope and activities. COAST has become an active and robust CSU-wide network of hundreds of faculty members, research scientists and students from diverse disciplines actively working to address critical marine and coastal issues. COAST is recognized by the CSU as the umbrella organization for marine, coastal and coastal watershed related activities within the system, and by stakeholders, decision-makers and the public as an unbiased resource for informed decision-making.

As we celebrate our 10th anniversary, we recognize COAST's history, growth and achievements. Over the past 10 years, COAST has:

- Expanded its membership to over 600 faculty members, research scientists and administrators throughout the CSU.
- Grown the annual budget from \$284,000 in 2008-09 to over \$800,000 annually.
- Established nine award programs for CSU faculty members and students and awarded over \$3 million.
 - COAST has made 163 awards to 181 individual faculty members at 23 campuses. The return on investment from these awards has been over \$13 million in extramural funding awarded to the CSU.
 - COAST has made 1,079 awards to 863 individual students at 23 campuses. These programs incentivize and support student engagement in research and career development opportunities.
- Convened 13 briefings in Sacramento for legislative and agency staff and the public on current critical marine and coastal issues. Briefings have featured CSU experts along with other scientists, stakeholders and decision-makers.
- Increased public awareness of the challenges facing our coast and increased stewardship of our resources through regular posting of content on the COAST website and social media.
- Supported networking opportunities to promote relationship building and collaboration among faculty members and research scientists through the annual systemwide meeting and other events.

	NUMBER OF AWARDS	TOTAL AWARD AMOUNT
Faculty Members	163	\$1,486,999
Graduate Students	591	\$1,161,265
Undergraduate Students	488	\$604,059
TOTAL	1,242	\$3,252,322



AY 2017-18 SNAPSHOT

In AY 2017-18 COAST made significant investments in faculty and student research, thereby supporting scientific research and enhancing CSU student education. This year COAST:

- Provided \$441,174 directly to CSU faculty members and students.
 - Support for students and faculty members totaled over half of COAST's expenditures for 2017-18.
- Supported 40 faculty members and 174 students across the entire system.
 - Awards were made to faculty members and/or students at 22 campuses.
- Added three new hosts to the Summer Internship Program.
- Hosted our 11th Annual Systemwide Meeting with representatives from 22 campuses and several government agencies.

Additionally, over \$800,000 in extramural funding was secured by faculty members as a result of prior COAST support.

REVENUE AY 2017-18

	AMOUNT	PERCENT OF TOTAL
Chancellor's Office Contribution	\$588,808	64.6%
Campus Contributions	\$212,500	23.3%
Balance Forward from Previous Year	\$41,916	4.6%
Return of Unspent Awards	\$23,023	2.5%
Extramural Funding	\$44,781	4.9%
TOTAL	\$911,028	100%

EXPENDITURES AY 2017-18

	AMOUNT	PERCENT OF TOTAL
Student Support	\$257,362	29.5%
Faculty Research Incentives	\$183,812	21.1%
Program and Strategic Development	\$30,986	3.6%
Outreach and Communications	\$28,543	3.3%
Personnel	\$307,579	35.3%
Program Operations	\$17,706	2.0%
Administrative Fees	\$45,252	5.2%
TOTAL	\$871,240	100%

FACULTY AWARDS

COAST has developed a suite of programs to support CSU faculty members' research, pursuit of extramural funding and professional development. Over the years, we have refined these programs and created new ones in order to best serve the faculty and advance the CSU at both state and national levels. The collective goals of these programs are to increase 1) the total amount of extramural funding for marine, coastal and coastal watershed related research and education in the CSU, 2) the number of externally funded CSU marine and coastal related principal investigators, and 3) the overall research capacity of the CSU.

The following table provides a summary of COAST awards made to CSU faculty members in AY 2017-18.

FACULTY AWARD PROGRAM	NUMBER OF AWARDS	NUMBER OF FACULTY MEMBERS SUPPORTED	NUMBER OF PARTICIPATING CAMPUSES	FUNDING AMOUNT
Grant Development Program	8	13	8	\$139,531
Rapid Response Funding Program	4	7	4	\$29,601
Seminar Speaker Series Program	7	18	11	\$4,680
Short Course, Workshop and Symposia Funding Program	1	2	1	\$10,000
TOTAL	20	40		\$183,812



GRANT DEVELOPMENT PROGRAM

The Grant Development Program (GDP) is designed to stimulate CSU faculty members and research associates to develop and submit full proposals to external funding agencies and organizations for marine, coastal and coastal watershed related research and educational projects. Awards can be used to fund faculty members' time as well as activities deemed necessary to maximize subsequent success in obtaining external funding such as data collection, sample analysis and data analysis, and student support. Awards range from \$5,000 to \$20,000.

COAST provided \$139,531 in support to faculty members through the GDP in AY 2017-18.

AWARD RECIPIENTS	PROJECT TITLE
Dr. Thomas Connolly Moss Landing Marine Laboratories, San José	Remote forcing of seasonal currents in the California Current System
Dr. Eric Crandall Natural Sciences, Monterey Bay	UCEs for CSUs: a metazoan target-capture panel of ultraconserved elements for use in seascape genetics
Dr. Darren Johnson Biological Sciences, Long Beach	Evaluating genetic responses to fishery selection in two Southern California fishes
Dr. Patrick J. Krug Biological Sciences, Los Angeles	Preliminary data for an NSF-DEB collaborative proposal: using phylogenomics to resolve the evolutionary origin of air-breathing molluscs
Dr. Ángel Valdés Biological Sciences, Pomona	
Dr. Douglas J. Eernisse Biological Science, Fullerton	
Dr. Mingheng Li Chemical and Materials Engineering, Pomona	Development of novel polymer-based processes for water separation and energy recovery
Dr. Justin P. Miller-Schulze Chemistry, Sacramento	Chemical tracers of human activities and ecological associations in California vernal pools
Dr. Jamie Kneitel Biological Sciences, Sacramento	
Dr. Monica C. So Chemistry and Biochemistry, Chico	Contaminant-selective sponges for removal of ocean toxins
Dr. Yangyang Liu Chemistry and Biochemistry, Los Angeles	
Dr. Kathleen Sullivan Anthropology, Los Angeles	Mapping social modifications to the natural estuarine environment in Alamitos Bay, Southern California
Dr. Christine Whitcraft Biological Sciences, Long Beach	

Recently, COAST announced the AY 2018-19 GDP awards totaling \$135,000.

AWARD RECIPIENTS	PROJECT TITLE
<p>Dr. Paul Bourdeau Biological Sciences, Humboldt</p> <p>Dr. Brian Tissot Biological Sciences, Humboldt</p> <p>Dr. Eric Bjorkstedt Fisheries Biology, Humboldt</p>	<p>Effects of ocean warming and acidification on the interaction between purple urchins and bull kelp</p>
<p>Dr. Elizabeth Dinsdale Biology, San Diego</p>	<p>Microbiome warfare: the ability of microbes from invasive <i>Sargassum horneri</i> to interfere with kelp recruitment</p>
<p>Dr. Priya Ganguli Geological Sciences, Northridge</p> <p>Dr. Erin Bray Geography and Environmental Studies, Northridge</p> <p>Ms. Danielle Bram Center for Geographical Studies, Northridge</p> <p>Dr. Tyler Hughes Political Science, Northridge</p>	<p>Developing an interdisciplinary approach to assess mercury cycling in coastal lagoon systems: Malibu Lagoon, Southern California</p>
<p>Dr. Kevin Hovel Biology, San Diego</p> <p>Dr. Katharyn Boyer Biology, San Francisco</p>	<p>Climate change and marine communities: effects of ocean acidification on ecological interactions in eelgrass habitat</p>
<p>Dr. Alexis Pasulka Biological Sciences, San Luis Obispo</p> <p>Dr. Emily Bockmon Chemistry and Biochemistry, San Luis Obispo</p>	<p>Investigating the impacts of ocean acidification on natural microbial communities in a nearshore coastal upwelling ecosystem</p>
<p>Dr. Sean Place Biology, Sonoma</p>	<p>Profiling the methylation landscape of <i>Mytilus californianus</i> genomes</p>
<p>Dr. Alison Stimpert Moss Landing Marine Laboratories, San José</p> <p>Dr. Jim Harvey Moss Landing Marine Laboratories, San José</p>	<p>Assessing coastal ocean acoustic health using the metric of humpback whale non-song sounds</p>

RAPID RESPONSE FUNDING PROGRAM

The Rapid Response Funding Program provides funding for unanticipated, urgent projects that require a response outside of the existing annual COAST funding opportunities. Projects may include investigation of unexpected or sudden events, those that have a short window of opportunity or incidents that require immediate attention. Awards range from \$2,500 to \$7,500.

In AY 2017-18 COAST made four Rapid Response Awards totaling \$29,601. This program enabled COAST members to investigate the impacts of unexpected events with a short window of opportunity.



AWARD RECIPIENTS	PROJECT TITLE
Dr. Larry Allen Biology, Northridge	Verification of the vocalizations in giant sea bass, <i>Stereolepis gigas</i>
Drs. Richard J. Behl and Robert D. Francis Geological Sciences, Long Beach	Emergency rescue, digitization and dissemination of the Peter Fischer Marine Geophysical Data Collection
Dr. Alicia Kinoshita Civil, Construction, and Environmental Engineering, San Diego	Post-wildfire vegetation recovery and sediment change of a coastal California watershed
Dr. Joshua Reece Biology, Fresno Dr. Beth Weinman Earth & Environmental Sciences, Fresno Dr. Katherine Waselkov Biology, Fresno	The ecological impact of dredging Morro Bay

SEMINAR SPEAKER SERIES PROGRAM

The Seminar Speaker Series Program provides funding to departments to host seminar speakers from other CSU campuses. This program is intended to increase the exchange of ideas among campuses and ultimately lead to increased collaboration across campuses. Awards are for actual expenses up to \$700 (or up to \$1,000 for travel to or from Humboldt State).

In AY 2017-18, the Seminar Speaker Series Program provided awards ranging from \$300-1,000 to help 13 departments at 11 different campuses host speakers from other CSU campuses.

HOST	SPEAKER	SEMINAR TITLE
Dr. Joseph Carlin Geological Sciences, Fullerton	Dr. Amy Wagner Geology, Sacramento	Linking tropical and deep-sea coral paleoceanography
Dr. Ronald Coleman Biological Sciences, Sacramento	Dr. Erika Holland Biological Sciences, Long Beach	Ecotoxicology
Dr. Karen Crow Biology, San Francisco	Dr. Christopher Lowe Biological Sciences, Long Beach	White shark nurseries of the Northeast Pacific
Dr. Kevin Hovel Biology, San Diego	Dr. Katharyn Boyer Biology, San Francisco	Trophic surprises and positive interactions inform seagrass restoration in San Francisco Bay
Dr. Nathaniel Jue Natural Sciences, Monterey Bay	Dr. Karen Crow Biology, San Francisco	How the devil ray got its horns: body plan evolution in cartilaginous fishes
Dr. James Lindholm Natural Sciences, Monterey Bay	Dr. Christopher Lowe Biological Sciences, Long Beach	Year of the white shark
Dr. Alex Parker Sciences and Mathematics, Maritime	Dr. Erin (Misty) Paig-Tran Biological Sciences, Fullerton	Bioinspiration from the sea: from armors to new world filters
Dr. Benjamin Ruttenberg Biology, San Luis Obispo	Dr. Christopher Lowe Biological Sciences, Long Beach	Recovery of the white sharks: a symbol of hope for coastal marine ecosystem recovery
Dr. Alison Stimpert Moss Landing Marine Laboratories, San José	Dr. Rafael Cuevas Uribe Fisheries Biology, Humboldt	Aquaponics research at Humboldt State University

SHORT COURSE, WORKSHOP AND SYMPOSIA FUNDING PROGRAM

In AY 2017-18, COAST made its second Short Course, Workshop and Symposia Funding Program award totaling \$10,000 to San Francisco State faculty members Dr. Ellen Hines, Geography & Environment, and Dr. Karina Nielsen, Biology and Executive Director of the Estuary & Ocean Science Center. With the funding, Drs. Hines and Nielsen hosted a Science Communication Training for CSU faculty facilitated by COMPASS in October 2018.

EXTRAMURAL FUNDING

In AY 2017-18, faculty members secured \$804,600 in extramural funding as a result of prior COAST support over the last four years.

CAMPUS	PRINCIPAL INVESTIGATOR	DEPARTMENT	FUNDING AGENCY	PRIOR COAST SUPPORT	AMOUNT TO CSU
Northridge	Dr. Peter Edmunds	Biology	National Science Foundation	2016-17 Rapid Response Funding Program Award	\$432,516
San Francisco	Dr. Katharyn Boyer	Biology	State Coastal Conservancy	2015-16 Grant Development Program Award	\$200,000
San José	Drs. Scott Hamilton and Michael Graham	Moss Landing Marine Laboratories	Department of Commerce	2014-15 Strategic Investment Program Award	\$132,084
San José	Drs. Michael Graham and Scott Hamilton	Moss Landing Marine Laboratories	Anthropocene Institute	2014-15 Strategic Investment Program Award	\$40,000
TOTAL					\$804,600



CONTRIBUTION TO OVERALL CSU RESEARCH AND DEVELOPMENT FUNDING

This year COAST initiated an effort to inventory the grant and contract activity of its members across the system with the goal of demonstrating the collective impact of faculty members involved in marine, coastal and coastal watershed related research. Data were collected for 2015-16 and 2016-17 for faculty members associated with COAST at each campus. Filtering the data to include only research and development (R&D) awards for marine, coastal and coastal watershed related projects demonstrates that these activities constitute the bulk of COAST members' external funding. Furthermore, the R&D external funding secured by COAST members accounts for about 10% of the CSU's overall R&D external funding (~\$300 million annually).

AWARDS TO COAST FACULTY	2015-16		2016-17	
	NUMBER OF AWARDS	AWARD AMOUNT	NUMBER OF AWARDS	AWARD AMOUNT
All Awards (Coastal and Non-Coastal, R&D and non-R&D)	409	\$33,656,556	427	\$38,698,734
Coastal R&D only	255	\$28,565,517	281	\$29,493,170



SUPPORTING STUDENT RESEARCH

COAST supports CSU undergraduate and graduate students engaged in marine, coastal and coastal watershed related research with CSU faculty members through research awards, travel grants and internships. COAST support often allows students to devote themselves more fully to their academic work and research projects than they would be able to otherwise. This helps them to remain enrolled, persist in STEM majors and programs and attain their degrees more quickly. Because each student works with a CSU faculty mentor, support for students ultimately benefits faculty members as well.

In AY 2017-18, COAST provided \$257,362 in support to students throughout the system. Twenty-two campuses benefited from COAST student support programs.



STUDENT AWARD PROGRAM	NUMBER OF STUDENTS SUPPORTED	NUMBER OF PARTICIPATING CAMPUSES	FUNDING AMOUNT
Graduate Student Research Award Program	30	10	\$90,000
Undergraduate Student Research Support Program	85	21	\$53,872
Student Travel Award Program	39	11	\$28,251
Summer Internship Program	15	10	\$75,000*
Scholars-In-Training Pilot Program	5	2	\$7,626
General Student Support			\$2,613
TOTAL	174		\$257,362

*Includes host match

The goals of the COAST student programs are to 1) stimulate student interest in marine-related careers, 2) increase student participation in faculty-mentored research, and 3) provide students with the opportunity to obtain the skills necessary to join a highly skilled, technologically advanced workforce. Three of the programs (Undergraduate Student Research Support, Summer Internships and Scholars-In-Training) utilize the high impact practices (HIPs) of undergraduate research and internships to promote STEM major retention and student success.

“This award didn’t just give me money to complete my research, it also gave me the confidence to go out and apply for a job in my field.”

*–Alexis Barrera,
Fullerton,
Graduate Student Research Awardee*

“I am very grateful for receiving this research opportunity. It has served as one of the most positive and memorable experiences of my undergraduate years.

*–Royal Sandhu,
Stanislaus,
Undergraduate Student Research
Support Program Awardee*

“The support from COAST helped show me that I could do bigger and better things than I originally set out thinking, and the confidence that came with receiving the award pushed me to apply to the schools I really wanted to go to, including the University of Iowa.

*–Kathleen Moorman,
San Marcos,
Student Travel Awardee and current
PhD student at University of Iowa*

GRADUATE STUDENT RESEARCH AWARD PROGRAM

In AY 2017-18, 30 graduate students were supported through the Graduate Student Research Award Program (Appendix). Applicants are able to request the \$3,000 award be provided directly to them through their campus financial aid office for their personal use (e.g., living expenses, tuition and fees, childcare), be made available to them through their department for the purchase of materials and supplies, services or travel in support of their research, or any combination of the two. Applicants construct their own budgets and obtain departmental approval as part of the application process. This enables students to conduct their work and complete their theses efficiently and effectively.

UNDERGRADUATE RESEARCH SUPPORT PROGRAM

The Undergraduate Research Support Program provides \$2,500 to each campus to support undergraduate students involved in marine, coastal, and coastal watershed related research. Campus representatives are responsible for implementing this program and awarding the funds on their respective campuses. In the fourth year of this program, 21 campuses successfully allocated their funding and supported a total of 85 students (Appendix). Four campuses provided matching funds totaling \$2,492 that augmented students’ projects.

STUDENT TRAVEL AWARD PROGRAM

The Student Travel Award Program supports continuing CSU undergraduate and graduate students to attend and present the results of their original marine, coastal, and coastal watershed related research at scientific meetings and conferences. 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 \$28,251 in travel support to four undergraduate and 35 graduate students from 11 different campuses (Appendix). Students presented their research throughout the U.S. as well as in Switzerland, Bolivia and Brazil.

SUMMER INTERNSHIP PROGRAM

Through the Summer Internship Program, CSU students work side by side with professionals involved in marine and coastal research, management and policy. COAST interns gain valuable work experience and learn professional and technical skills that complement their education and provide significant employment opportunities. Additionally, they are better able to make informed decisions about STEM related fields and advanced degrees they may wish to pursue. Since the program began in 2011, 96 interns have been placed with state and federal agencies, nonprofits and private companies. Many COAST interns have been hired on by their hosts following their internship, demonstrating that the program is a valuable pipeline for both employers and CSU students.

In Summer 2017, 15 students from seven campuses were placed with 13 different hosts (Appendix). Ten of these students were undergraduates. New hosts for 2017 included the California Department of Fish and Wildlife Office of Spill Prevention and Response in Sacramento, The Bay Institute in San Francisco and the National Marine Protected Areas Center in Monterey. Interns worked on a variety of projects including ocean and coastal policy, fisheries stock assessment, invasive species management and marine engineering.

In Summer 2018, 13 students from seven campuses were placed with 12 different hosts (Appendix). Nine of these students were undergraduates. New hosts for 2018 included the California Department of Fish and Wildlife Marine Region Santa Barbara Office, California Ocean Science Trust in Oakland and Tijuana River National Estuarine Research Reserve in San Diego. New projects included work on fisheries management, climate change and ocean acidification, and estuary ecosystem health.



“This experience was one of the most valuable aspects of my education as a CSU student.”

*—Ryan Schoenbaum,
Monterey Bay,
Summer Intern*

“Monica did a fantastic job and produced work that will directly influence how we implement and enforce our new regulations.”

*—Chris Scianni, Senior Environmental Scientist,
Marine Invasive Species Program,
California State Lands Commission,
Internship Supervisor*

SCHOLARS-IN-TRAINING PILOT PROGRAM

Through generous funding from the U.S. Department of Education Hispanic-Serving Institutions — Science, Technology, Engineering, or Mathematics (HSI STEM) and Articulation Programs as part of a FY 2016 award to CSU Monterey Bay (CSUMB), COAST launched a new program this year to increase undergraduate student participation in marine, coastal and coastal watershed based research. The Scholars-In-Training Pilot Program pairs first and second year CSUMB undergraduate students with Moss Landing Marine Laboratories (MLML) graduate student mentors during the academic year. Undergraduate students assist graduate students with their thesis research and gain valuable hands-on experience during a critical time in their undergraduate careers. Financial support is provided to both undergraduate students and graduate student mentors to facilitate participation by historically underrepresented minority, first-generation and low-income students.

The initial year of the pilot program was successful: three CSUMB undergraduate students worked with two MLML students during Spring 2018.

UNDERGRADUATE RESEARCHER	YEAR	PROGRAM/MAJOR	PROJECT TITLE	GRADUATE MENTOR
Kylie Foley	first	Molecular Biology	Cryptic seaweed: distribution, photobiology and lifecycle of <i>Pyropia nereocystis</i>	Daniel Gossard
Marina (Mina) Hernandez	second	Marine Science	Saving up: resource storage in stalked kelp (<i>Pterygophora californica</i>)	Lindsay Cooper
Silvia Vasquez	first	Marine Science, Mathematics		

The impact of the program on the undergraduate students is clear from their testimonials:

“I feel more prepared to finish my degree and explore all the options that my field of study has to offer. I definitely am more knowledgeable in scientific research because I have been able to develop new research skills that I did not know I would need before... I am extremely glad that I was chosen to conduct research with my mentor because it has led me to explore new paths I could take in science.”

-Kylie Foley,
First year molecular biology student

“This experience changed my educational and career goal because I wish to work with coral reefs... I even added a biology minor to my degree.”

-Silvia Vasquez,
First year marine science and mathematics student

Undergraduate students who successfully participate in the program will be eligible to receive additional COAST funds to conduct their own independent research during their third or fourth year. As independent researchers, they will also have the opportunity to mentor first and second year students as well. Anticipated outcomes of the program include increased likelihood of retention in a STEM program, timely graduation and increased competitiveness to pursue an advanced degree or successfully enter the job market.

OUTREACH AND STAKEHOLDER ENGAGEMENT

CALIFORNIA OCEAN DAY

COAST hosted a luncheon and conducted a series of very successful legislative visits as part of California Ocean Day on February 20, 2018. The luncheon briefing, entitled *The Future of Fish: Trade-offs Associated with California's Seafood*, was attended by over 120 ocean and coastal policy professionals from across the state. COAST Policy and Communications Consultant Amy Vierra welcomed everyone to the event, and California Natural Resources Secretary John Laird moderated the panel, which included Dr. James Lindholm, Rote Distinguished Professor of Marine Science and Policy at CSU Monterey Bay, who presented his research on the impact of bottom trawls on the seafloor near Morro and Monterey Bays. Dr. Lindholm explained that impacts to selected seafloor habitats can be much lower than previously thought when using modified trawl gear in unconsolidated soft sediments in certain depth zones, thus raising questions on whether certain areas of CA's continental shelf should be reopened to trawling.

Dr. Michael Graham of Moss Landing Marine Laboratories then discussed aquaculture as a source of seafood to meet growing demand. Dr. Graham talked about some of the challenges and opportunities and about his own experience as a seaweed farm owner and operator. Dr. Dale Squires, adjunct faculty with UC San Diego then discussed foreign sources of seafood and how certain types of unilateral regulation can inadvertently result in increased mortality of the species the regulation is meant to protect. A robust discussion followed where audience members discussed the trade-offs associated with wild-caught, aquaculture and foreign seafood sources.

Also in conjunction with California Ocean Day, COAST met with several state legislators to discuss 1) the benefits COAST provides to the CSU system, 2) the benefits COAST and CSU provide to the state, and 3) the professional development provided to students who participate in COAST-sponsored internships or COAST-funded research. COAST staff were joined by two graduate students, Dulce Cortez and Michaela Miller, who described how COAST-funded research opened up opportunities that they previously did not know were available to them. Both Ms. Cortez and Ms. Miller attended CSU campuses as undergraduates and are presently pursuing graduate degrees within the CSU system as well.





“It was an exceptional networking and learning opportunity, especially for a new faculty member.”

*—Dr. Priya Ganguli,
Assistant Professor,
Geological Sciences,
Northridge*

ANNUAL SYSTEMWIDE MEETING

On April 19, 2018, COAST hosted its 11th annual systemwide meeting. COAST members from 22 campuses met at the Chancellor’s Office in Long Beach to discuss CSU climate change research and the interface with state policy. Chancellor Timothy White and CSU Monterey Bay President Eduardo Ochoa welcomed the group, and morning panels set the stage for robust afternoon discussions and networking related to specific climate change research topics.

The first panel featured speakers from the executive and legislative branches of California state government as well as a representative from the Chancellor’s Office. Panelists were asked to talk about state funding for climate change related research, including the recently reauthorized Greenhouse Gas Cap-and-Trade Program. Following that, the second panel comprised four CSU faculty members who have participated in various aspects of policy development at local and state levels. They were asked to talk about their individual experiences translating science to policy including time commitments, benefits to professional development and suggestions for how other faculty members interested in this type of activity can get involved.

PANEL I: STATE PERSPECTIVES ON CLIMATE CHANGE

Ms. Marlene De La O
Deputy Director, CA Strategic Growth Council

Ms. Marie Liu
Principal Consultant, Assembly Speaker Rendon’s Office

Dr. Ganesh Raman
Assistant Vice Chancellor for Research, CSU Chancellor’s Office

PANEL II: CONNECTING SCIENCE AND POLICY IN THE CSU: FACULTY ENGAGEMENT

Dr. Kevin Hovel
Associate Professor of Biology, San Diego

Dr. Christopher Lowe
Professor of Marine Biology, Long Beach

Dr. Kerry Nickols
Assistant Professor of Biology, Northridge

Dr. Karina Nielsen
Professor of Biology, San Francisco

Following lunch, COAST members participated in concurrent breakout sessions. The topics for the sessions were selected by COAST members from a longer list of 10 topics that was developed by COAST staff and the Executive Committee. These working sessions gave COAST members the opportunity to learn about research their colleagues across the system are conducting and explore new ideas they can collectively address.

BREAKOUT SESSIONS I

Species distribution and biogeography

Sea level rise, coastal geomorphology and living shorelines

Ocean acidification and hypoxia

BREAKOUT SESSIONS II

Ecophysiology

Oceanography (temperature, climate, circulation, upwelling)

Living resources, fisheries impacts and socio-economic impacts

LEGISLATIVE BRIEFING

In June 2018, COAST convened a legislative briefing on artificial reefs featuring Dr. Mark Steele (Northridge) and Dr. Jeremy Claisse (Pomona) and moderated by Dr. James Lindholm (Monterey Bay). Dr. Steele discussed his work monitoring the Wheeler North Reef, which was established as mitigation for Units 2 and 3 of the San Onofre Nuclear Generating Station and is presently the largest artificial reef in the state. Dr. Claisse discussed his research associated with a forthcoming artificial reef off the Palos Verdes peninsula near Los Angeles that is intended to restore lost habitat. Other panelists included Dr. Milton Love (UC Santa Barbara), who spoke about oil platform decommissioning and the practice of leaving sub-surface structures in place, and Ms. Becky Ota (California Department of Fish and Wildlife), who discussed the state's artificial reef program and related policies. Attendance at the briefing filled the room's capacity and included staff of both Assembly and Senate leadership.

The briefing was organized in response to interest in the topic from legislative staff and is part of COAST's larger effort to establish the CSU as a primary source of unbiased information for California's policymakers and managers. The California legislature and state agencies recently considered changes to the state's Rigs-to-Reef program and other artificial reef issues.

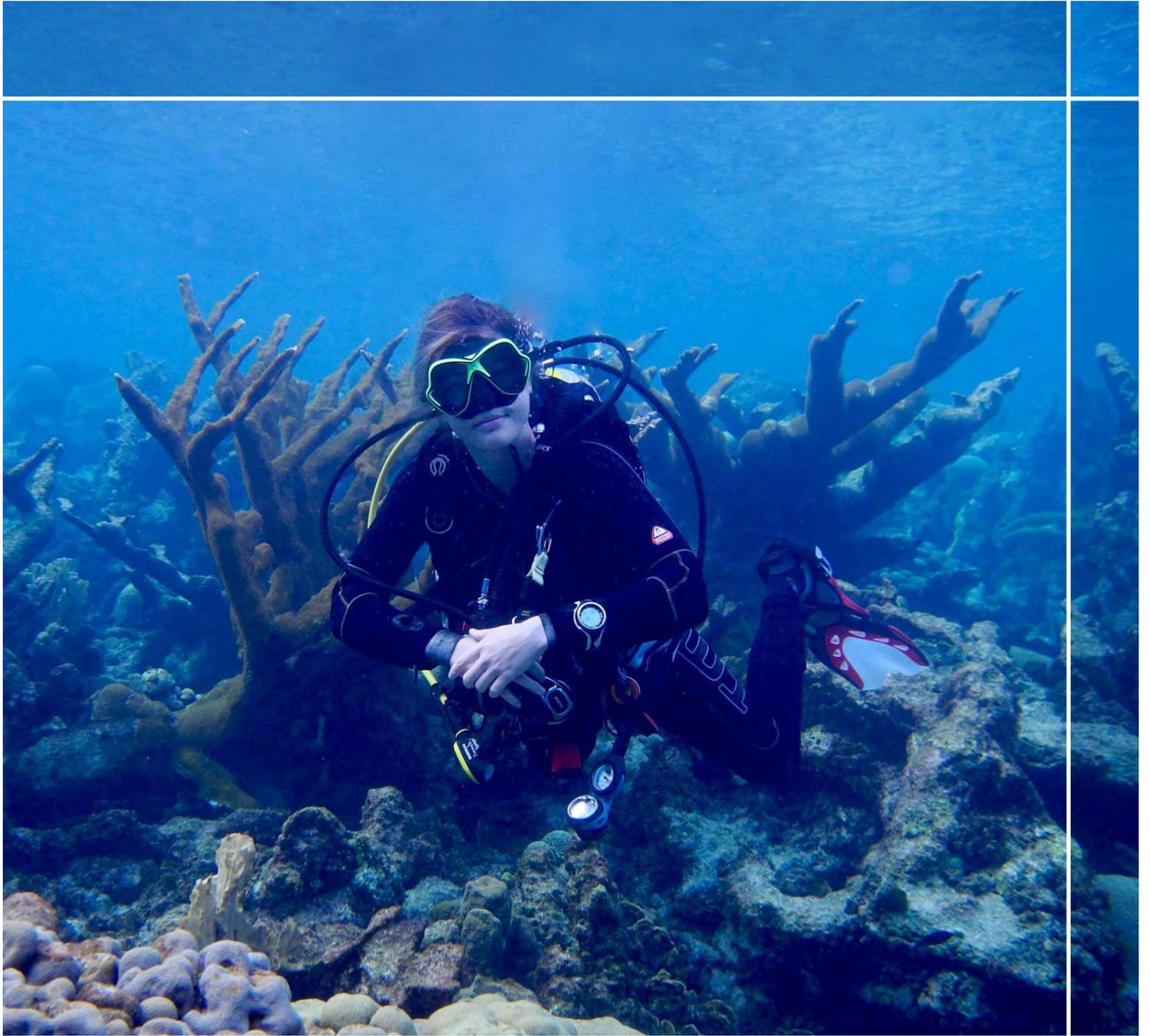


LOOKING AHEAD

Over the next 12 months COAST will:

- Promote the advancement of CSU marine, coastal and coastal watershed research and education by
 - Providing funding and opportunities to CSU faculty members and students.
 - Raising awareness of the CSU's research capacity with stakeholders and elected officials.
 - Host the 2019 California Ocean Day luncheon in Sacramento.
- Train students to successfully join a highly skilled, technologically sophisticated workforce and ensure the success of students from all backgrounds.
 - Increase the number of graduate student mentor-undergraduate student researcher pairings in the Scholars-In-Training Pilot Program.
- Visit campuses to meet with administrators and faculty members and host luncheons for students to increase student participation in COAST.
- Serve as a primary resource for informed decision-making in government, industry and local communities.
- Communicate the activities, successes and impacts of COAST to stakeholders and the public.
- Position COAST and its members to leverage state and federal funding opportunities and secure additional resources to support program activities.





APPENDIX

STUDENT AWARDS AND SUPPORT

GRADUATE STUDENT RESEARCH AWARDS

Each award is \$3,000.

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE
Fullerton	Alexis Barrera	Biological Science	Dr. Jennifer Burnaford	Does temperature affect aggressive behavior in aggregating anemones?
Humboldt	Georgia Bennett	Biological Sciences	Dr. Brian Tissot	Factors affecting size of benthic macroinvertebrates and degree of fish associations in Cordell Bank National Marine Sanctuary
	Grace Ghrist	Fisheries Biology	Dr. Darren Ward	Freshwater and marine survival of coho salmon (<i>Oncorhynchus kisutch</i>) as a function of juvenile life history
	Lara Jansen	Environmental Science & Management	Dr. Alison Purcell O'Dowd	Impacts on ecosystem productivity due to dam diversions on the Upper Mainstem Eel River
	Timothy McClure	Biological Sciences	Dr. Paul Bourdeau	Ecological consequences of sea star wasting disease: effects on trait-mediated indirect interactions from <i>Pisaster ochraceus</i>
	Johnny Roche	Biological Sciences	Dr. Paul Bourdeau	Potential mitigation of ocean acidification effects by eelgrass (<i>Zostera marina</i>) on the development of native (<i>Ostrea lurida</i>) and non-native (<i>Magallana (Crassostrea) gigas</i>) oysters
	Monique Silva Crossman	Environmental Science and Management	Dr. Alison Purcell O'Dowd	Effects of manual and mechanical <i>Ammophila arenaria</i> removal techniques on coastal dune plant communities and dune morphology
Long Beach	Alyssa Clevestine	Biological Sciences	Dr. Christopher Lowe	Spawning related movements of giant sea bass (<i>Stereolepis gigas</i>) at Catalina Island, California
	Rebecca Hernandez	Biological Sciences	Dr. Jesse Dillon	Comparison of multiple antibiotic resistance in coliforms at Southern California beaches with differing wave action during dry and wet weather
	Marjorie Howard	Biological Sciences	Dr. Christine Whitcraft	Impacts of paired Olympia oyster (<i>Ostrea lurida</i>) and eelgrass (<i>Zostera marina</i>) restoration on fish and invertebrate communities in Newport Bay, California

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE
Monterey Bay	Rachel Brooks	Marine Science	Dr. Scott Hamilton (MLML)	Geographic and habitat-based variation in demography and life-history of canary rockfish (<i>Sebastes pinniger</i>) along the U.S. West Coast
	Amanda Heidt	Marine Science	Dr. Jonathan Geller (MLML)	Effects of beach structure and sediment characterization on meiofaunal diversity along the California coast
	Michaela Miller	Applied Marine and Watershed Science	Dr. Corey Garza	Building a predictive spatial model of marine debris on the northern Channel Islands
	June Shrestha	Marine Science	Dr. Scott Hamilton (MLML)	Fish pee: a hidden source of limiting nutrients in kelp forests
Pomona	Benjamin Grime	Biological Sciences	Dr. Jeremy Claisse	Optimizing temperature in green abalone culture methods to increase resilience in the California aquaculture industry and restore wild populations
	Nicole Tronske	Biological Sciences	Dr. Jayson Smith	<i>Silvetia compressa</i> restoration: effects of transplant density on fitness and subcanopy recruitment and diversity
San Diego	Billie Beckley	Biology	Dr. Matthew Edwards	The mechanisms leading to competitive dominance of the alga, <i>Desmarestia ligulata</i> , following storm-related disturbances
	Tracy Grimes	Biology	Dr. Rebecca Lewison	Assessing the effects of Southern sea otter predation on Dungeness crab in California estuaries
	Leilani Konrad	Geography	Dr. Arielle Levine	Exploring values and conflict surrounding human-seal interactions in California and Hawaii
	Lauren Mathews	Civil, Construction, and Environmental Engineering	Dr. Alicia Kinoshita	Coupling post-wildfire vegetation and volumetric sediment regimes in a coastal watershed

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE
San Francisco	Max Czapanskiy	Geography & Environment	Dr. Ellen Hines	Modeling habitat accessibility for seabirds in dynamic windscapes
	Lauren Finkelstein	Earth and Climate Sciences	Dr. Jason Gurdak	Implications of the water-energy-food nexus on coastal groundwater management and policy in Pajaro Valley, CA
	Haruchika (Lawrence) Fujiwara	Earth and Climate Sciences	Dr. Jason Gurdak	Evaluating the role of low impact development for sustainable groundwater resources in costal California
	Suzanne Goldstein	Earth and Climate Sciences	Dr. Jason Gurdak	Modeling climate change impacts on flooding and community vulnerability, Novato, CA
	Alexandria Lagos	Earth and Climate Sciences	Dr. Petra Dekens	Reconstructing sea surface conditions in the Bay of Bengal during the Mid-Pleistocene Transition
San José	Jennifer Johnson	Marine Science	Dr. Birgitte McDonald (MLML)	Examining effects of maternal foraging strategy on wean mass of northern elephant seals (<i>Mirounga angustirostris</i>) using stable isotopes analysis
San Luis Obispo	Hannah Rempel	Biological Sciences	Dr. Benjamin Ruttenberg	Quantifying the effect of a series of hurricanes on the impacts of parrotfish corallivory on ESA listed corals within and outside of a marine reserve
Sonoma	Samuel Bogan	Biology	Dr. Sean Place	Regulation of a lost inducible heat shock response in Antarctic fishes
	Kristen Hosek	Biology	Dr. Mackenzie Zippay	Under pressure: the physiological response of <i>Mytilus edulis</i> to multiple stressors

UNDERGRADUATE STUDENT RESEARCH SUPPORT PROGRAM AWARDS

Campuses marked with an * provided match funding (shown in italics).

CAMPUS	STUDENT	PROGRAM/ MAJOR	ADVISOR	PROJECT TITLE	AWARD AMOUNT
Bakersfield	Jeffrey Buehler	Geology	Dr. David Miller	Location of the marine-nonmarine transition in Cenozoic coarse clastic sediments and evolution of Miocene coastal watersheds in the southern San Joaquin Valley	\$625
	Samuel McKinney	Geology	Dr. David Miller	Location of the marine-nonmarine transition in Cenozoic coarse clastic sediments and evolution of Miocene coastal watersheds in the southern San Joaquin Valley	\$625
	Jazmine Mejia Muñoz	Biology	Dr. Antje Lauer	Are pinnipeds breeding on the California Coast in danger of contracting coccidioidomycosis?	\$1,250
Channel Islands*	Joanna Fogarty	Biology, Environmental Science and Resource Management	Dr. Mary Woo	Analysis of raptor pellets reveals rodenticide in prey items at Revolon Slough	\$1,000
	Chad Tapie	Biology, Environmental Science and Resource Management	Dr. Sean Anderson	Sea lion deterrence methods	\$500
	Matt Wells	Environmental Science and Resource Management	Dr. Kiersten Patsch	Monitoring sea cliff retreat with drones	\$500 <i>(\$300)</i>
	Dakota-Rose Whearley	Environmental Science and Resource Management	Dr. Sean Anderson	Microplastic and organic material distribution along Santa Barbara coastal watersheds post-Thomas Fire	\$500 <i>(\$200)</i>
Chico	Karissa Cunningham	Biology	Dr. Amanda Banet	Effect of temperature fluctuation on fall-run Chinook salmon (<i>Oncorhynchus tshawytscha</i>) embryonic development	\$1,250
	Gavin Monges	Biology	Dr. Cawa Tran	Light variation in the marine environment and its effect on cnidarians and their algal symbionts	\$1,250

CAMPUS	STUDENT	PROGRAM/ MAJOR	ADVISOR	PROJECT TITLE	AWARD AMOUNT
Dominguez Hills	Michelle Garcia	Biology	Dr. Kathryn Theiss	Elucidating the evolutionary relationships of coralline algae in Southern California	\$2,500
East Bay	Coleman Emery	Biology	Dr. James Murray	Examining the interaction between <i>Ptilosarcus gurneyi</i> and <i>Tritonia diomedea</i> acetylcholinesterase	\$2,500
Fresno	Jocelyn Boe	Biology	Dr. David Lent	A cross-species comparison of the lateral pallium in Muraenidae and Anguillae as an indication of evolution of spatial cognition	\$417
	Christian Cunningham	Biology	Dr. Tricia Van Laar	Characterization of the internal microbiota of <i>Octopus bimaculoides</i>	\$417
	Dalia Dull	Biology	Dr. Steve Blumenshine	Thermal variation in juvenile Chinook habitats in their Pacific range	\$417
	Claire Evangelho	Health and Human Services	Dr. Joshua Reece	Vulnerability assessment of climate change, sea-level rise and human land-use change in coastal Georgia	\$417
	Shelby Moshier	Biology	Dr. Joshua Reece	Harbor dredging affects Morro Bay beach biodiversity and sediment chemistry	\$417
	Gabriela Vang	Biology	Dr. Steve Blumenshine	Stable isotope analysis and growth of juvenile Chinook salmon in controlled conditions	\$417
Fullerton*	Jessica Ballard	Biology	Dr. Jennifer Burnaford	Feeding preferences for <i>Littorina scutulata</i> and <i>Chlorostoma funebris</i> and the effects of low tide exposure on rockweed (<i>Silvetia compressa</i>)	\$250
	Jamie Hayward	Geological Science	Dr. Joseph Carlin	Linking marine and terrestrial processes to the evolution of a mid-shelf mudbelt: an investigation of the Salinas River Mudbelt, Central California, USA	\$495
	Kiarra Lyons	Biology	Dr. Danielle Zacherl	Avian use of restored eelgrass meadows and oyster beds as part of a living shorelines project	\$525 (\$197)

CAMPUS	STUDENT	PROGRAM/ MAJOR	ADVISOR	PROJECT TITLE	AWARD AMOUNT
Fullerton*	Victoria Severin	Geological Science	Dr. Joseph Carlin	Interpreting recent stratigraphic changes for the northern Monterey Bay continental shelf	\$495
	Travis Stone	Geological Science	Dr. Nicole Bonuso	Examining reef mound construction to understand how reefs recovered after mass extinction	\$735
Humboldt*	Lucas Allen-Custidio	Zoology	Dr. Sean Craig	Invasive bryzoan -- <i>Watersipora</i> research	\$500
	Ian Brown	Biology	Dr. Paul Bourdeau	Comparing and contrasting domoic acid levels between Dungeness crab (<i>Cancer magister</i>) and red rock crab (<i>Cancer productus</i>)	\$250 (\$195)
	Josh Cahill	Fisheries Biology	Dr. Rafael Uribe	Lionfish sex chromosome system	\$250 (\$250)
	Jessica Gravelle	Biology	Dr. Paul Bourdeau	Structural micro-analysis of <i>Mytilus californianus</i> shells	\$500
	Jack Hawley	Oceanography	Dr. Christine Cass	A comparative study of microplastics throughout the water column, benthic environments, and bivalves in Humboldt Bay, northern California	\$250 (\$100)
	Bryan Lester	Fisheries Biology	Dr. Rafael Uribe	Aquaponic research off-grid in a maritime climate	\$250 (\$250)
Long Beach	Emily McCann	Chemistry	Dr. Matthew Hurst	The use of spectrophotometric and fluorescence detection for the determination of iron and zinc in Humboldt Bay water using injection analysis instrumentation	\$500
	Ismael Acedo	Microbiology	Dr. Jesse Dillon	Assessing degree of resistance of antibiotic resistant coliforms isolated during dry and wet weather at beaches with differing wave action	\$625
	Catherine Lachnit	Marine Biology	Dr. Bengt Allen	Selective grazing and the potential for resource complementarity among grazers on the rocky shore	\$625

CAMPUS	STUDENT	PROGRAM/ MAJOR	ADVISOR	PROJECT TITLE	AWARD AMOUNT
Long Beach	Janelle Paz	Marine Biology	Dr. Darren Johnson	Estimating growth and mortality rates of black perch within southern California	\$625
	Favian Tong	Marine Biology	Dr. Darren Johnson	A new approach to estimating standard metabolic rates of fishes: an example in kelp bass (<i>Paralabrax clathratus</i>)	\$625
Los Angeles	Jermaine Bishop	Biology	Dr. Patrick Krug	Molecular phylogenetic and morphological analyses reveal two new species of sea slugs in the genus <i>Placida</i> (<i>Heterobranchia: Sacoglossa</i>), including one from California	\$850
	Cindy Zhang	Geology	Dr. Mohammad Rezaie-Boroon	Monitoring water quality in Ballona Creek Lagoon: nitrate level fluctuation in low and high tide conditions	\$1,650
Maritime	Darlene Conolly	Mechanical Engineering	Dr. William Tsai	Modernizing the dissolved inorganic carbon analyzer	\$2,500
Monterey Bay	Micaela Colmenarez	Biology	Dr. Nathaniel Jue	Patterns of gene expression associated with the evolution of hermaphroditism in fishes	\$500
	David Deering	Biology	Dr. Cheryl Logan	Species specific identification of rockfish using DNA barcoding	\$500
	Emma Haines	Environmental Science, Technology and Policy	Dr. John Olson	Creating an index on the dryness of a river	\$479
	Winifred Igbokwe	Biology	Dr. Nathaniel Jue	Estimating chiton genome size using real-time PCR	\$250
	Annalyn Roberts	Marine Science	Dr. Eric Crandall	Gene flow of <i>Pisaster ochraceous</i> along California's Pacific coast	\$450
	Dominique Scott	Biology	Dr. Nathaniel Jue	Estimating chiton genome size using real-time PCR	\$250

CAMPUS	STUDENT	PROGRAM/ MAJOR	ADVISOR	PROJECT TITLE	AWARD AMOUNT
Northridge*	Nellie Manoukian	Biology	Dr. Maria Elena de Bellard	The development of dermal denticles in sharks and skates	\$500 (\$250)
	Ingrid Morales	Sociology	Dr. Steve Dudgeon	Life cycle regulation in <i>Mastocarpus stellatus</i> and <i>M. papillatus</i>	\$500 (\$250)
	Dalia Rodriguez	Environmental and Occupational Health	Dr. Gretchen Boria Perez	Identification and characterization of <i>Vibrio cholerae</i> in copepods and seawater from Mother's Beach in Marina del Rey, California	\$500
	Lindsey Stockton	Biology	Dr. Mark Steele	Evaluating the effects of predation risk on prey reproduction in a temperate reef fish	\$500 (\$250)
	Adam Wiryadimejo	Biology	Dr. Robert Carpenter	The effects of ocean acidification on the respiration rates and acclimitization capacity of the tropical bivalve, <i>Lithophaga laevigata</i>	\$500 (\$250)
Pomona	Stephanie Franck	Biological Sciences	Dr. Jeremy Claisse	Gonadal development and seasonal spawning patterns of the garibaldi, <i>Hypsypops rubicundus</i>	\$625
	Karine Moreno	Biological Sciences	Dr. Ángel Valdés	The invasion of the red slugs <i>Vayssierea felis</i> (Collingwood 1881) in the Northeastern Pacific	\$625
	Sierra Sutton	Biological Sciences	Dr. Jayson Smith	Investigating the influence of thallus size on conceptacle density of the rockweed, <i>Silvetia compressa</i>	\$625
	Lauren Tucker	Biological Sciences	Dr. Frank Ewers	Comparison of coastal and inland California black walnut trees in their capacity to absorb water from fog and to regenerate following severe drought condition	\$625
Sacramento	Lizvette Ayala-Valdez	Biological Sciences	Dr. Lani Gleason	Repeated tissue sampling to correlate gene expression and heat stress survival in the intertidal marine snail <i>Chlorostoma funebris</i>	\$500
	Amanda Bedolla	Biological Sciences	Dr. Lani Gleason	Repeated tissue sampling to correlate gene expression and heat stress survival in the intertidal marine snail <i>Chlorostoma funebris</i>	\$500

CAMPUS	STUDENT	PROGRAM/ MAJOR	ADVISOR	PROJECT TITLE	AWARD AMOUNT
Sacramento	Laura Givens	Biological Sciences	Dr. Ron Coleman	Influence of temperature on coral symbiotic zooxanthellae	\$500
	Christine Hughes	Geology	Dr. Amy Wagner	Implications of land use practices on aquatic ecosystems as determined via geochemical properties in corals of Salt River Bay, St. Croix, U.S. Virgin Islands	\$500
	Ethan Roberts	Biological Sciences	Dr. Timothy Davidson	Investigating the effects of burrow microhabitats created by a non-native isopod on the survivorship of marine invertebrate species in the rocky intertidal	\$500
San Diego	Gabriel Greenberg-Pines	Biology	Dr. Jeremy Long	The effect of competition for aboveground resources on salt marsh plants	\$504
	Eric Surratt	Geology	Dr. Jillian Maloney	Reconstructing coastal events recorded in ancient San Diego River delta deposits	\$935
	Wendi White	Biology	Dr. Jeremy Long	Competition between two dominant plants impacts salt marsh soils	\$504
San José	Lindsey Huffman	Geology	Dr. Ryan Portner	Volcanic glass sediment characterization from the East Pacific Rise	\$1,000
	Maria-Luisa Ponce De Leon	Biological Sciences	Dr. Luke Miller	The effects of low tide heat exposure on the internal body temperatures of California mussels (<i>Mytilus californianus</i>) in an artificial mussel bed	\$1,500
San Luis Obispo	Erick Balde	Biochemistry	Dr. Elena Keeling	Investigation of blood cell populations in the development and regeneration of <i>Botrylloides vidaceus</i>	\$500
	Kasey Cordova	Biological Sciences	Dr. Sean Lema	The insulin-like growth factor (IGF) system as an indicator of growth rate in juvenile copper rockfish	\$165
	Robert (Frank) Fabela	Biological Sciences	Dr. Lars Tomanek	Ciliary response in the mussel, <i>Mytilus californianus</i> , to food availability and sirtuin inhibition	\$280

CAMPUS	STUDENT	PROGRAM/ MAJOR	ADVISOR	PROJECT TITLE	AWARD AMOUNT
San Luis Obispo	Silvano Gonzalez	Psychology	Dr. Lars Tomanek	Changes in the clearance rate of <i>Mytilus californius</i> in relation to food availability and heat stress	\$390
	Zachary Kucinski	Agricultural Business	Dr. Dean Wendt	A potential new source of groundfish age and growth data	\$90
	Olivia Lewis	Biological Sciences	Dr. Sean Lema	Sequencing of the northern anchovy mitogenome	\$165
	Edwin Rainville	Mechanical Engineering	Dr. Ryan Walter	The influence of a rocky reef and giant kelp on the cross-shelf propagation of nearshore internal bores	\$500
	Chandler Skinner-Horne	Environmental Management and Protection	Dr. Dean Wendt	A potential new source of groundfish age and length data: a pilot study of pre- and post-fillet length from commercial passenger fishing vessels	\$90
	Zachary Taylor	Biological Sciences	Dr. Christopher Kitts	Microbiome of microbial fuel cells	\$500
San Marcos	Amanda Bauer	Biology	Dr. Diego Sustaita	A comparison of swimming performance between the salt marsh harvest mouse and coexisting rodents in the Suisun Marsh, California	\$625
	Brooke Harrington	Biology	Dr. Diego Sustaita	Comparison of climbing performance of salt marsh harvest mice and coexisting wetland rodent species in the Suisun Marsh, CA	\$625
	Kathleen Moorman	Chemistry	Dr. Jacqueline Trischman	Antimycobacterial compounds from marine bacterium found on the surface of <i>Ulva californica</i> collected off the coast of San Diego, CA	\$625
	Karneshia Taylor	Arts and Technology	Dr. Lucy Solomon	Mother nature and her data	\$625
Sonoma	Jordan Ashby	Biology	Dr. Daniel Crocker	Immune responses in breeding adult male elephant seals	\$1,000
	Mitchell Bomben	Biology	Dr. Mackenzie Zippay	Gradients in metabolic performance across the intertidal zone: a comparative analysis of mussels and barnacles	\$1,000

CAMPUS	STUDENT	PROGRAM/ MAJOR	ADVISOR	PROJECT TITLE	AWARD AMOUNT
Sonoma	Yelba Ortiz	Biology	Dr. Sean Place	Expression of antioxidant genes in the heart muscle of thermally stressed fish	\$500
Stanislaus	Andre Davis	Geology	Dr. Horacio Ferriz	Nitrate in groundwater in Stanislaus County	\$400
	Larissa Harter	Geology	Dr. Horacio Ferriz	C2VSim modeling of the groundwater and surface water influxes into the San Joaquin estuary	\$525
	Chris Kightlinger	Geology	Dr. Horacio Ferriz	Nitrate in groundwater in San Joaquin County	\$500
	Loyd McKern	Geology	Dr. Horacio Ferriz	Nitrate in the San Joaquin, Stanislaus, Mokelumne, Cosumnes, and Sacramento Rivers	\$675
	Kimberly Munguia	Organismal Biology	Dr. Ritin Bhaduri	Impact of acanthocephalan parasitism on the fecundity of the Pacific mole crab, <i>Emerita analoga</i>	\$740
	Joseph Sada	Biological Sciences	Dr. Ritin Bhaduri	Impact of acanthocephalan parasitism on the fecundity of the Pacific mole crab, <i>Emerita analoga</i>	\$370
	Royal Sandhu	Biological Sciences	Dr. Ritin Bhaduri	Impact of acanthocephalan parasitism on the fecundity of the Pacific mole crab, <i>Emerita analoga</i>	\$740
	Taiga Yamaguchi	Biological Sciences	Dr. Ritin Bhaduri	Impact of acanthocephalan parasitism on the fecundity of the Pacific mole crab, <i>Emerita analoga</i>	\$370

STUDENT TRAVEL AWARDS

*Undergraduate student

CAMPUS	STUDENT	FACULTY MENTOR	CONFERENCE	CONFERENCE LOCATION	AWARD AMOUNT
Fresno	Elianna Rosenthal	Dr. Steve Blumenshine	American Fisheries Society Western Division	Anchorage, AK	\$1,000
Fullerton	Shannon Chou*	Dr. Jennifer Burnaford	Society for Advancement of Chicanos/Hispanics and Native Americans in Science	Salt Lake City, UT	\$783
	Sarah Dickson	Dr. Joseph Carlin	Coastal and Estuarine Research Federation Conference	Providence, RI	\$350
	Alejandra Garcia*	Dr. Ryan Walter	Society for Advancement of Chicanos/Hispanics and Native Americans in Science	Salt Lake City, UT	\$602
	Jacob Javier*	Dr. Danielle Zacherl	Society for Advancement of Chicanos/Hispanics and Native Americans in Science	Salt Lake City, UT	\$753
	Sean Zueleta*	Dr. Kristy Forsgren	Society for Advancement of Chicanos/Hispanics and Native Americans in Science	Salt Lake City, UT	\$730
	Humboldt	Lara Jansen	Dr. Alison Purcell O'Dowd	Society of Freshwater Science	Detroit, MI
Ian Kelmartin		Dr. Timothy Mulligan	Ecological Society of America	Portland, OR	\$675
Monique Silva Crossman		Dr. Alison Purcell O'Dowd	California Native Plant Society Conservation Conference	Los Angeles, CA	\$750
Long Beach	Arthur Barraza	Dr. Christopher Lowe	Joint Meeting of Ichthyologists and Herpetologists	Austin, TX	\$500
	Eugenia Bey	Dr. Lily House-Peters	Association of American Geographers	New Orleans, LA	\$1,000
	Echelle Burns	Dr. Christopher Lowe	Sharks International	João Pessoa, Paraíba, Brazil	\$500
	Ryan Logan	Dr. Christopher Lowe	Joint Meeting of Ichthyologists and Herpetologists	Austin, TX	\$500

CAMPUS	STUDENT	FACULTY MENTOR	CONFERENCE	CONFERENCE LOCATION	AWARD AMOUNT
Long Beach	Laura Martinez Steele	Dr. Christopher Lowe	Sharks International	João Pessoa, Paraíba, Brazil	\$500
	Caitlin McGarigal	Dr. Christopher Lowe	Joint Meeting of Ichthyologists and Herpetologists	Austin, TX	\$500
	Emily Meese	Dr. Christopher Lowe	Joint Meeting of Ichthyologists and Herpetologists	Austin, TX	\$500
	Racine Rangel	Dr. Darren Johnson	Society for Integrative and Comparative Biology Annual Meeting	San Francisco, CA	\$578
	Alison Yee	Dr. Bruno Pernet	Society for Integrative and Comparative Biology Annual Meeting	San Francisco, CA	\$750
Monterey Bay	Tyler Barnes	Dr. Ivano Aiello	The Geologic Society of America Annual Meeting	Seattle, WA	\$750
	Jessie Doyle	Dr. John Olson	Society of Freshwater Science	Detroit, MI	\$859
Sacramento	Hiroshi (Robin) Shin	Dr. Jamie Kneitel	Ecological Society of America	Portland, OR	\$693
San Diego	Tracy Grimes	Dr. Rebecca Lewison	Society of Marine Mammalogy	Halifax, Nova Scotia	\$1,000
	Marisa Trego	Dr. Rebecca Lewison	Society of Marine Mammalogy	Halifax, Nova Scotia	\$1,000
San Francisco	Samantha Cope	Dr. Ellen Hines	Society of Marine Mammalogy	Halifax, Nova Scotia	\$500
	Julie Gonzalez	Dr. Katharyn Boyer	Ecological Society of America	Portland, OR	\$1,000
	Kayla Hall	Dr. Karen Crow	Experimental Biology	San Diego, CA	\$750
	Cecilia Hernandez	Dr. C. Sarah Cohen	Red de Genética para la Conservación- XII Taller de Genética para la Conservación	Sucre, Bolivia	\$1,000
	Kaytlin Ingman	Dr. Ellen Hines	Society of Marine Mammalogy	Halifax, Nova Scotia	\$500
	Jane Rudebusch	Dr. Ellen Hines	Society of Marine Mammalogy	Halifax, Nova Scotia	\$500

CAMPUS	STUDENT	FACULTY MENTOR	CONFERENCE	CONFERENCE LOCATION	AWARD AMOUNT
San Francisco	John Swenson	Dr. Karen Crow	Joint Meeting of Ichthyologists and Herpetologists	Austin, TX	\$1,000
	Jessica Wilson	Dr. Frances Wilkerson	Ocean Sciences Meeting	Portland, OR	\$750
San José	Mason Cole	Dr. Birgitte McDonald	Society of Marine Mammalogy	Halifax, Nova Scotia	\$996
	Melissa Nehmens	Dr. David Ebert	Sharks International	João Pessoa, Paraíba, Brazil	\$500
San Luis Obispo	Brittany Cunningham	Dr. Nikki Adams	Society for Integrative and Comparative Biology Annual Meeting	San Francisco, CA	\$750



CAMPUS	STUDENT	FACULTY MENTOR	CONFERENCE	CONFERENCE LOCATION	AWARD AMOUNT
San Luis Obispo	Nicole Hack	Dr. Sean Lema	American Fisheries Society 147th Annual Meeting	Tampa, FL	\$1,000
	Melissa Voisinet	Dr. Lars Tomanek	Society for Integrative and Comparative Biology Annual Meeting	San Francisco, CA	\$650
Sonoma	Samuel Bogan	Dr. Sean Place	POLAR 2018	Davos, Switzerland	\$750
	Christina Collins	Dr. Mackenzie Zippay	Society for Integrative and Comparative Biology Annual Meeting	San Francisco, CA	\$669
	Amanda Hooper	Dr. Daniel Crocker	Society of Marine Mammalogy	Halifax, Nova Scotia	\$663



SUMMER 2017 INTERNSHIP PROGRAM

*Undergraduate student

HOST ORGANIZATION	INTERNSHIP LOCATION (ALL WITHIN CA)	CSU STUDENT HOME CAMPUS
The Bay Institute	Ocean and Coastal Policy <i>San Francisco</i>	Daniel Hossfeld <i>San Francisco</i>
California Department of Fish and Wildlife Marine Region	Marine Invertebrate Fisheries Management <i>Bodega Bay</i>	Jessica Bray <i>Monterey Bay</i> Shiho Koike* <i>San Luis Obispo</i>
California Department of Fish and Wildlife Office of Spill Prevention and Response	Natural Resource Damage Assessment <i>Sacramento</i>	Simon Marks* <i>San Luis Obispo</i>
California State Lands Commission	Ballast Water <i>Sacramento</i> Vessel Biofouling Management <i>Long Beach</i>	Julia Maddox* <i>Humboldt</i> Xander Taylor* <i>Pomona</i>
Channel Islands National Marine Sanctuary	Ocean Exploration <i>Santa Barbara</i>	Marguerite McCann <i>Monterey Bay</i>
Cordell Bank National Marine Sanctuary	Benthic Science <i>Point Reyes</i>	Emily Sperou* <i>Sonoma</i>
Marine Applied Research and Exploration	Marine Biology <i>Eureka</i> Marine Engineering <i>Richmond</i>	Greta Goshorn* <i>Humboldt</i> Lorenzo Pagano* <i>Humboldt</i>
National Marine Fisheries Service Protected Resources Division	Whale Entanglement <i>Long Beach</i>	Marianne Rogers* <i>San Luis Obispo</i>
National Marine Fisheries Service Sustainable Fisheries Division	Sustainable Fisheries <i>Long Beach</i>	Leita Conklin* <i>Long Beach</i>
National Marine Protected Areas Center	Marine Protected Area Inventory <i>Monterey</i>	Nicole Alvarado <i>Monterey Bay</i>
National Marine Sanctuaries West Coast Regional Office	Deep-Sea Coral Initiative <i>Monterey</i>	Marguerite McCann <i>Monterey Bay</i>
Remote Sensing Solutions, Inc.	Coastal Flood Modeling and Prediction <i>Monrovia</i>	Drew Faherty <i>Pomona</i>
Seatrec, Inc.	Thermal Energy Generator <i>Monrovia</i>	Huy Nguyen* <i>San Luis Obispo</i>

SUMMER 2018 INTERNSHIP PROGRAM

*Undergraduate student

HOST ORGANIZATION	INTERNSHIP LOCATION (ALL WITHIN CA)	CSU STUDENT HOME CAMPUS
California Department of Fish and Wildlife Marine Region	California Spiny Lobster Fisheries Management <i>Santa Barbara</i>	Ryan Schoenbaum <i>Monterey Bay</i>
	Marine Invertebrate Fisheries Management <i>Bodega Bay</i>	Emma Barton* <i>San Luis Obispo</i> Hannah Brown* <i>San Luis Obispo</i>
California Ocean Science Trust	Climate Change and Ocean Acidification <i>Oakland</i>	Melissa Abderrahim <i>Monterey Bay</i>
California State Lands Commission Marine Invasive Species Program	Northern California Vessel Biofouling Management <i>Sacramento</i>	Danielle Nestler* <i>Sacramento</i>
	Southern California Vessel Biofouling Management <i>Long Beach</i>	Monica Ford* <i>Maritime</i>
Channel Islands National Marine Sanctuary	Ocean Exploration <i>Santa Barbara</i>	Jolene Bertetto <i>San Francisco</i>
	Ocean Research Operations <i>Santa Barbara</i>	Shaun Teter* <i>Maritime</i>
National Marine Fisheries Service Protected Resources Division	Abalone Conservation <i>Long Beach</i>	Catherine Lachnit* <i>Long Beach</i>
National Marine Fisheries Service Sustainable Fisheries Division	Dolphin-Safe Tuna Tracking <i>Long Beach</i>	Deena Strunk* <i>San Luis Obispo</i>
Office of the National Marine Sanctuaries West Coast Region	Land-Sea Connections <i>Monterey</i>	June Shrestha <i>Monterey Bay</i>
Seatrec, Inc.	Thermal Energy Generator <i>Monrovia</i>	Delaney Malta* <i>San Luis Obispo</i>
Tijuana River National Estuarine Research Reserve	Bioindicator Trends and Analysis <i>Imperial Beach</i>	Melissa Belen-Gonzalez* <i>San Diego</i>

