

# COAST

## 2019 ANNUAL REPORT



Covering activities from July 1, 2018 - June 30, 2019

[www.calstate.edu/coast](http://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 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 is a clear and direct linkage 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.

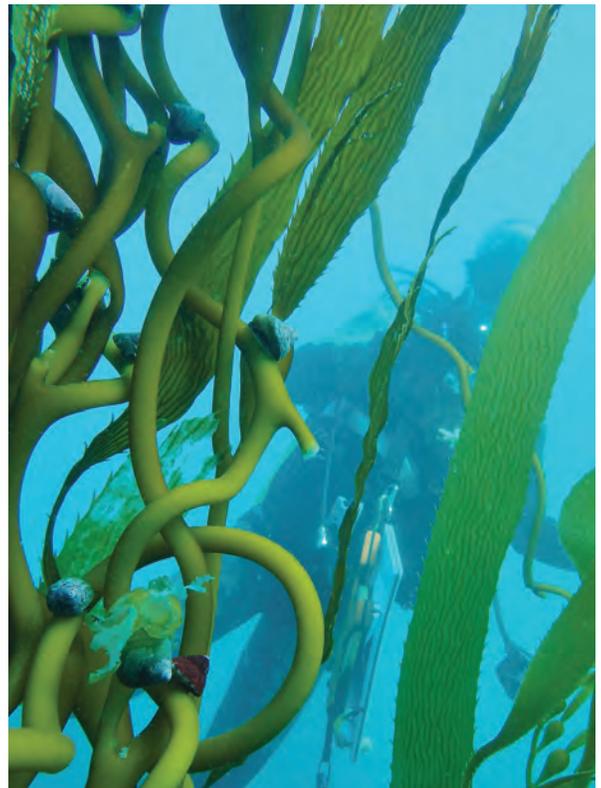
**Visit us online at [www.calstate.edu/coast](http://www.calstate.edu/coast) to learn more and to become a part of COAST!**

## 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.**



# AY 2018-19 SNAPSHOT

In AY 2018-19, COAST made significant investments in faculty and student research that support scientific research and enhance CSU student education. This year, COAST:

- Provided \$578,443 directly to CSU faculty members and students.
  - Support for students and faculty members totaled over 55 percent of COAST’s expenditures for AY 2018-19.
- Supported 38 faculty members and 172 students across the entire CSU.
  - Awards were made to faculty members and/or students at 22 campuses.
- Received a one-time appropriation of \$3M in the FY 2019-20 state budget.
  - These funds will be used to create a new program that will serve the state’s science information needs.

Additionally, \$2,078,604 in extramural funding was secured by faculty members as a result of prior COAST support.

REVENUE AY 2018-19	AMOUNT	PERCENT OF TOTAL
Chancellor’s Office Contribution	\$588,808	64.4%
Campus Contributions	\$212,500	23.2%
Balance Forward from Previous Year	\$28,959	3.2%
Miscellaneous Revenue	\$12,219	1.3%
Extramural Funding	\$72,149	7.9%
<b>TOTAL</b>	<b>\$914,635</b>	<b>100%</b>

EXPENDITURES AY 2018-19	AMOUNT	PERCENT OF TOTAL
Student Support	\$288,086	27.6%
Faculty Research and Professional Development*	\$290,357	27.8%
Program and Strategic Development	\$37,854	3.6%
Outreach and Communications	\$30,580	2.9%
Personnel	\$325,933	31.2%
Program Operations	\$27,119	2.6%
Administrative Fees	\$44,454	4.3%
<b>TOTAL</b>	<b>\$1,044,383</b>	<b>100%</b>

\*Includes awards that began July 1, 2018, with funds from AY 2017-18

# 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 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 2018-19.

FACULTY AWARD PROGRAM	AWARDS	FACULTY MEMBERS SUPPORTED	PARTICIPATING CAMPUSES	AMOUNT
Grant Development Round I	7	15	7	\$135,000
Grant Development Round II	7	13	7	\$131,243
Rapid Response Funding	2	3	2	\$10,000
Short Course, Workshop and Symposium Funding	2	7	5	\$14,114
<b>TOTAL</b>	<b>18</b>	<b>38</b>		<b>\$290,357</b>



## GRANT DEVELOPMENT PROGRAM

The Grant Development Program (GDP) is designed to help CSU faculty members and research associates 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 reassigned time and activities deemed necessary to maximize subsequent success in obtaining external funding, such as data collection, sample and data analyses and student support. Awards range from \$5,000 to \$20,000.

COAST provided \$266,243 in support to faculty members through the GDP in AY 2018-19 through two rounds of funding. Round I projects, beginning July 1, 2018, were funded from the AY 2017-18 budget.

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



Round II projects beginning May 1, 2019, were funded from the AY 2018-19 budget.

ROUND II AWARD RECIPIENTS	PROJECT TITLE
<p><b>Dr. Andres Aguilar</b> Biological Sciences, Los Angeles</p>	<p>Genomic diversification and speciation along ecological gradients in a marine species flock</p>
<p><b>Dr. Jason Gurdak</b> Earth and Climate Sciences, San Francisco</p>	<p>Can a water-energy-food nexus approach mitigate seawater intrusion in California's coastal aquifer system?</p>
<p><b>Dr. Scott Hamilton</b> Moss Landing Marine Laboratories, San José</p> <p><b>Dr. Thomas Connolly</b> Moss Landing Marine Laboratories, San José</p> <p><b>Dr. Cheryl Logan</b> Natural Sciences, Monterey Bay</p>	<p>Effects of hypoxia on nursery function for fishes in coastal estuaries: investigating mechanisms and developing indicators</p>
<p><b>Dr. Piero Mazzini</b> Earth and Climate Sciences, San Francisco</p>	<p>Exchange processes between river plumes and the continental shelf waters</p>
<p><b>Dr. Casey Mueller</b> Biological Sciences, San Marcos</p>	<p>Exploring metabolic compensation in response to temperature in the intertidal copepod, <i>Tigriopus californicus</i></p>
<p><b>Dr. Alexander Parker</b> Sciences and Mathematics, Maritime Academy</p> <p><b>Dr. Kaylan Randolph</b> Sciences and Mathematics, Maritime Academy</p> <p><b>Dr. Alejandro Cifuentes-Lorenzen</b> Sciences and Mathematics, Maritime Academy</p> <p><b>Dr. Nick Welschmeyer</b> Moss Landing Marine Laboratories, San José</p>	<p>Acquisition of oceanographic instrumentation for a shipboard ocean observing system to support novel, long-term oceanographic research and education in the California State University</p>
<p><b>Dr. Diego Sustaita</b> Biological Sciences, San Marcos</p> <p><b>Dr. R. Brandon Pratt</b> Biology, Bakersfield</p>	<p>Locomotor and feeding morphology and performance of the salt marsh harvest mouse and coexisting wetland rodents</p>

## RAPID RESPONSE FUNDING PROGRAM

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

In AY 2018-19, COAST made two Rapid Response awards totaling \$10,000.

AWARD RECIPIENTS	PROJECT TITLE
<b>Dr. E. Misty Paig-Tran</b> Biological Science, Fullerton	Pacific Sardines: are microplastics impacting fishery recovery?
<b>Dr. Kari Sant</b> Public Health, San Diego <b>Dr. Richard Gersberg</b> Public Health, San Diego	Water quality impact of the "Migrant Caravan" temporary settlement on the adjacent Tijuana River and Estuary





## SHORT COURSE, WORKSHOP AND SYMPOSIUM FUNDING PROGRAM

In AY 2018-19, COAST made two Short Course, Workshop and Symposium Funding Program awards totaling \$14,114.

AWARD RECIPIENTS	PROJECT TITLE
<p><b>Dr. Steve Blumenshine</b> Biology, Fresno</p>	<p>Workshop for the development and application of regionally-specific salmonid bioenergetics models and implications for water management</p>
<p><b>Dr. Erika Holland</b> Biological Science, Long Beach</p> <p><b>Dr. Sean Anderson</b> Environmental Science and Resource Management, Channel Islands</p> <p><b>Dr. Andrea Bonisoli-Alquati</b> Biological Sciences, Pomona</p> <p><b>Dr. E. Misty Paig-Tran</b> Biological Sciences, Fullerton</p> <p><b>Dr. Clare Steele</b> Environmental Science and Resource Management, Channel Islands</p> <p><b>Dr. Mary Woo</b> Environmental Science and Resource Management, Channel Islands</p>	<p>Microplastic sampling, processing and detection workshop</p>

## EXTRAMURAL FUNDING

In AY 2018-19, faculty members secured \$2,078,604 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
<b>Long Beach</b>	Bruno Pernet	Biological Sciences	National Science Foundation	2015-16 Graduate Student Research Award to David Lizarraga	\$347,639
<b>San Diego</b>	Kevin Hovel	Biology	Ocean Protection Council	2015-16 Graduate Student Research Award to Robert Dunn	\$249,169
<b>San Diego</b>	Alicia Kinoshita	Civil, Construction, and Environmental Engineering	National Science Foundation	2017-18 Rapid Response Funding Program Award	\$571,796
<b>San Diego</b>	Alicia Kinoshita	Civil, Construction, and Environmental Engineering	San Diego River Conservancy	2017-18 Rapid Response Funding Program Award	\$910,000
<b>Total</b>					<b>\$2,078,604</b>

## CONTRIBUTION TO OVERALL CSU RESEARCH AND DEVELOPMENT FUNDING

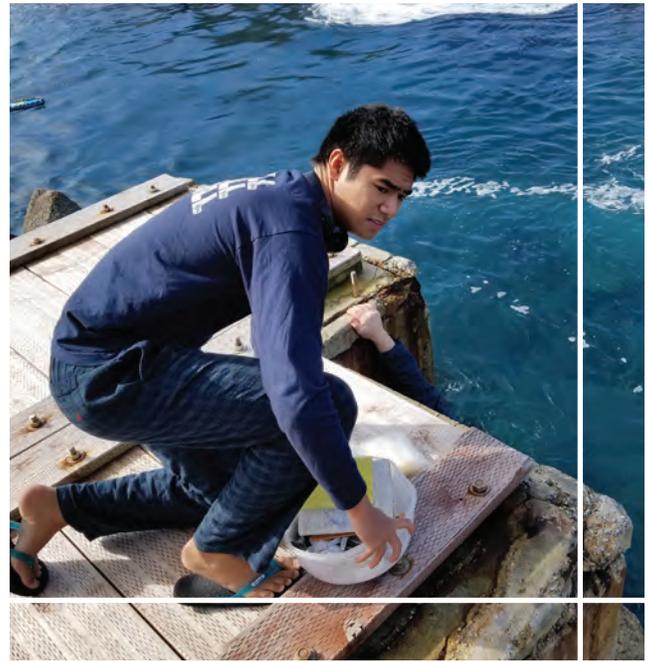
COAST annually inventories the grant and contract activity of its members across the CSU with the goal of demonstrating the collective impact of faculty members involved in marine, coastal and coastal watershed related research. AY 2017-18 expenditure data were collected for all grants and contracts 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 in AY 2017-18 accounted for 8.32% of the CSU's overall R&D external funding for the year (\$250,988,000).

AWARDS TO COAST-AFFILIATED FACULTY MEMBERS	NUMBER OF AWARDS	AWARD AMOUNT
All Awards (Coastal and Non-Coastal, R&D and non-R&D)	563	\$35,302,390
Coastal R&D only	331	\$20,870,032

# 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 helps students meet their financial obligations and devote more time to their academic work and research projects than would be possible 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 because it advances their research.

In AY 2018-19, COAST made 181 awards totaling \$288,086 to 172 students throughout the CSU. Twenty-two campuses benefited from COAST student support programs.



STUDENT SUPPORT PROGRAM	AWARDS	PARTICIPATING CAMPUSES	AMOUNT
Graduate Student Research Awards	31	11	\$93,000
Undergraduate Student Research Support	84	22	\$60,183
Student Travel Awards	37	12	\$28,871
Summer Internships	13	7	\$63,000*
Scholars-In-Training	16	2	\$40,649
General Student Support			\$2,383
<b>TOTAL</b>	<b>181</b>		<b>\$288,086</b>

\*Includes host match

The goals of the COAST student programs are to 1) foster 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.



*The funding allowed me to utilize instrumentation at state-of-the-art laboratory facilities, helped me to afford my tuition, and will allow me to network with potential advisors for my Ph.D. in Geobiology/Astrobiology.”*

*–Harpreet Batther, Chico,  
Graduate Student Research Awardee*



*After participating in this undergraduate research, I believe that I am able to accomplish anything I put myself through.”*

*–Angelica Cortez, Los Angeles,  
Undergraduate Student Research  
Support Awardee*



*Your generous support gave me the confidence and means to network with researchers, experience amazing innovations and gain more experience presenting an independent research project.”*

*–Jacob Javier, Fullerton,  
Undergraduate Student Travel Awardee*

## GRADUATE STUDENT RESEARCH AWARD PROGRAM

In AY 2018-19, 31 graduate students from 11 campuses 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, child care), 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. These awards enable students to conduct their work and complete their theses efficiently and effectively.

## UNDERGRADUATE STUDENT RESEARCH SUPPORT PROGRAM

The Undergraduate Student 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. This year, 22 campuses successfully allocated their funding and supported a total of 84 students (Appendix). Ten campuses provided matching funds totaling \$3,584 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 transformative experiences and to highlight CSU research at a national level. COAST provided \$28,871 in travel support to 11 undergraduate and 26 graduate students from 12 campuses (Appendix). Students presented their research throughout the U.S. and in Canada.

## 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, these students 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, 107 interns have been placed with state and federal agencies, nonprofits and private companies. Many COAST interns have been hired by their hosts following their internship, demonstrating that the program is a valuable pipeline for both employers and CSU students.

In summer 2018, 13 students, including nine undergraduates, from seven campuses were placed with nine different hosts (Appendix). 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, ocean acidification and estuary ecosystem health. Interns worked on a variety of projects including ocean and coastal policy, fisheries stock assessment, invasive species management and marine engineering.

In summer 2019, 11 students, including nine undergraduates, from six campuses were placed with eight different hosts (Appendix). New hosts for 2019 included the California Department of Fish and Wildlife Marine Region San Diego Office and NOAA's National Marine Fisheries Service Sustainable Fisheries Division Seattle Office. The latter was COAST's first out-of-state host. Interns worked on fisheries management, ocean acidification, ecosystem health and whale entanglements.



“  
*I feel as though this internship  
gave me a whole new outlook on  
my education and future career.”*

*—Catherine Lachnit, Long Beach,  
Summer Intern*

## 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 2016 award to Monterey Bay (CSUMB), COAST launched a new program in AY 2017-18 to increase undergraduate student participation in marine, coastal and coastal watershed 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 program expanded significantly in AY 2018-19, its second year. A total of 10 CSUMB undergraduate students worked with six MLML students during Spring 2019.

UNDERGRADUATE RESEARCHER	YEAR	PROGRAM/ MAJOR	PROJECT TITLE	GRADUATE MENTOR
Mina Hernandez*	Third	Marine Science	Saving up: resource storage in stalked kelp ( <i>Pterygophora californica</i> )	Lindsay Cooper
Silvia Vasquez*	Second	Marine Science		
Rose Schirmer	First	Marine Science	Spiny lobsters inside and outside of marine protected areas	Taylor Eddy
Kaiku Kaholoaa	Second	Marine Science	Cryptic seaweed: distribution, photobiology and lifecycle of <i>Pyropia nereocystis</i>	Daniel Gossard
Ethan Switzer	First	Marine Science		
Carol Chen	Second	Marine Science	Can algae be used to create clean energy?	Katie Graves
Dionisia Ruiz	Second	Environmental Science, Technology and Policy		
Charlotte Brenner	Second	Environmental Science	What do catsharks eat? (Hint: not micesharks!)	Matthew Jew
Jennifer Grossman	Second	Marine Science		
Mariah Windmon	Second	Marine Science	Effects of ocean acidification and low dissolved oxygen on larval rockfish	Kristin Saksa

\*Participating for a second year in a row

Two of the 10 students participated in the program for a second year in a row in order to allow them to delve more deeply into the projects they began working on the year before. In AY 2019-20, those students will transition to leading their own independent research projects.

The other eight undergraduate participants were all new Scholars-In-Training Pilot Program participants. In AY 2018-19, a new criterion for eligibility was instituted: in order to participate, students had to have **no prior research experience**. The purpose of this was to attract and select students who could potentially benefit the most from the program, rather than students who had already been involved in research in some capacity. A majority of the students this year were the first in their family to attend college.

Undergraduate students who successfully complete the first phase of the program will be eligible to receive additional COAST support to conduct their own independent research during their third or fourth year. 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.



*“This experience has changed my life forever. As a first-year college student, it is a great program to kickstart my experience in marine science and apply what I am learning in the classroom to a glimpse of what a job after college will be like.”*

*-Ethan Switzer,  
First-year marine science student*

*“This experience has solidified the fact that I want to attend graduate school and work toward something that stimulates my mind and something I find interesting.”*

*-Carol Chen,  
Second-year marine science student*

*“I feel a lot more confident in my abilities as a scientist. Being mentored by someone so encouraging and supportive really helped me see that I am capable of so much more than I give myself credit for.”*

*-Jenny Grossman,  
Second-year marine science student*

*“I feel that I have grown so much and gained a lot from this experience. I learned how a lab functions, some methods of conducting experiments and what the daily life of a marine scientist is like.”*

*-Kaiku Kaholoaa,  
Second-year marine science student*

# OUTREACH AND STAKEHOLDER ENGAGEMENT

## CALIFORNIA OCEAN DAY

COAST hosted a luncheon in Sacramento as part of California Ocean Day on March 19, 2019. The luncheon briefing, “Sea-level Rise and Impacts to Vulnerable and Disadvantaged Communities” was attended by over 115 ocean and coastal policy professionals from across the state. The four-member panel included Dr. Kiersten “Kiki” Patsch, assistant professor of environmental science and resource management at Channel Islands, who presented sea-level rise projections and the science informing those estimates. Additional panelists included Dr. Juliano Calil, adjunct faculty, Middlebury Institute of International Studies at Monterey; Dr. Serge Dedina, mayor, Imperial Beach; and Jack Ainsworth, executive director, California Coastal Commission. Collectively, the panel discussed social vulnerability around sea-level rise and local and state efforts to promote environmental equity and climate resilience.

Before and after the luncheon, COAST staff members met with Assemblymembers Cristina Garcia and Mark Stone, representatives from the offices of Assemblymembers William Quirk and Monique Limon and Senator Benjamin Hueso and several key legislative committees to discuss 1) COAST’s role within the CSU, 2) the benefits COAST and the CSU provide to the state and 3) the professional development provided to students who participate in COAST-sponsored research and internships. Two former COAST student awardees attended the meetings as well: Jamie Yin (AY 2017-18 Graduate Student Research awardee) and Danielle Nestler (2018 Summer Intern and AY 2018-19 Undergraduate Student Research Support awardee). Both of these students described how COAST support alleviated their financial stress and provided them with opportunities they otherwise would not have had.

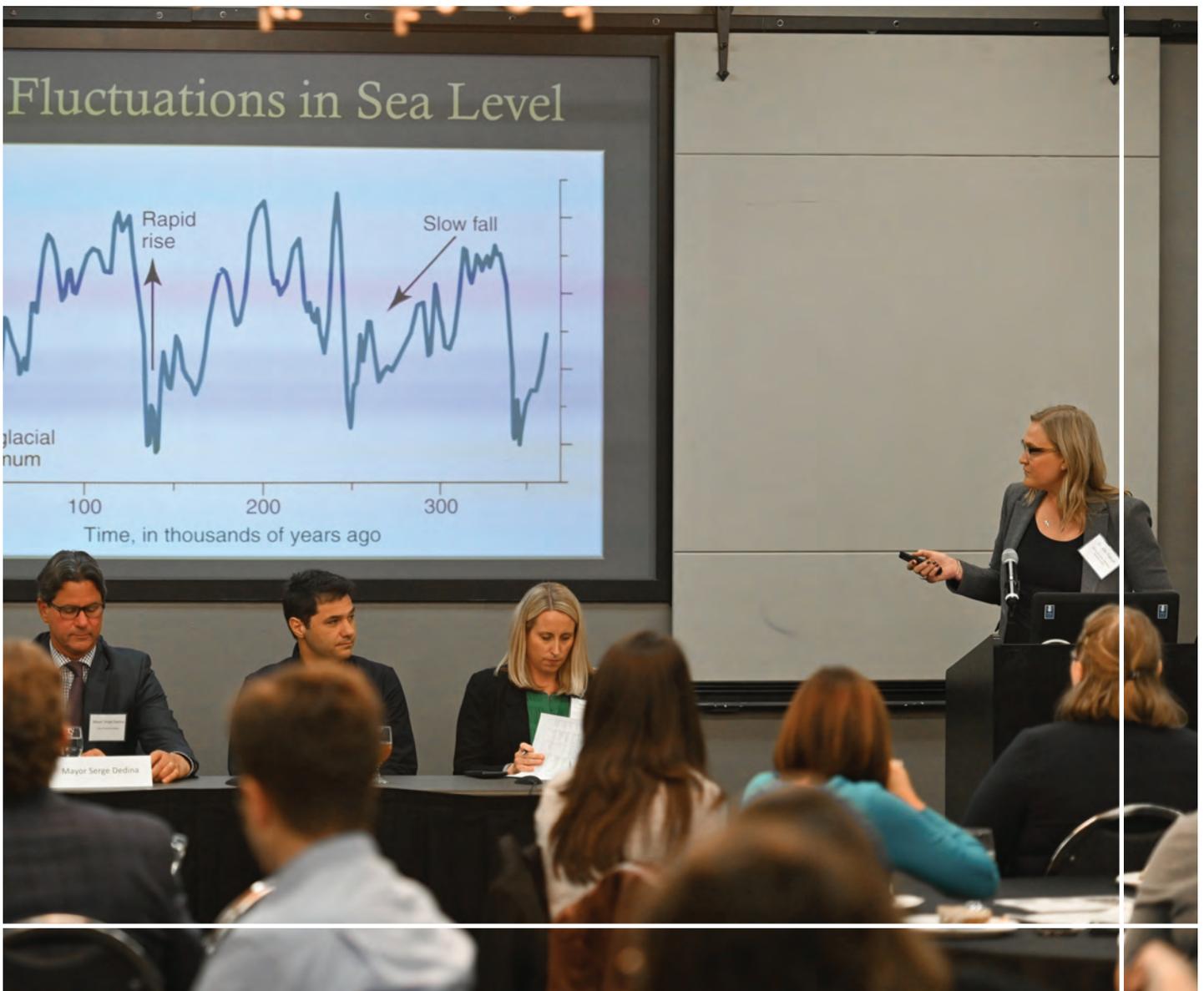
## INCREASED CSU MEMBERSHIP IN THE OCEAN PROTECTION COUNCIL SCIENCE ADVISORY TEAM

The California Ocean Protection Council (OPC) is the state’s lead agency on ocean and coastal policy issues and plays an important role in policy development. The OPC Science Advisory Team (SAT) provides scientific analysis and advice to the OPC and works to ensure that policy and funding decisions are informed by the best available science. In response to a call for nominations to the OPC SAT, COAST nominated a slate of six CSU faculty members including Dr. Eunha Hoh, professor of environmental health at San Diego, and Dr. Laurie Richmond, associate professor of environmental planning at Humboldt. Drs. Hoh and Richmond, along with Dr. Arielle Levine, professor of geography at San Diego, were among 10 new appointees to the OPC SAT in March 2019. These three COAST members join existing CSU OPC SAT members Dr. Kenneth Coale, professor of chemical oceanography at San José, Dr. Steve Murray, professor of biology at Fullerton and Dr. Karina Nielsen, executive director of the Estuary and Ocean Science Center and professor of biology at San Francisco.

## CSU EXPERT TESTIMONY BEFORE CALIFORNIA LEGISLATURE

COAST facilitated the selection of two CSU experts to formally testify before the California Legislature. On March 20, 2019, Dr. Clare Steele, assistant professor of environmental science and resource management at Channel Islands, testified before a joint hearing of the Senate Committee on Environmental Quality and the Senate Committee on Natural Resources and Water. Dr. Steele presented the results of her work on microplastics, a topic the California Legislature is trying to address through a variety of efforts.

Mark Severy, senior research engineer at Schatz Energy Center at Humboldt, testified before the Joint Committee on Fisheries and Aquaculture on May 3, 2019. The hearing focused on the impact of offshore wind production on fisheries and aquaculture. Severy spoke about the Schatz Energy Center’s in-depth study and analysis of the feasibility of offshore wind development in the Humboldt Bay region.



## ALLOCATION IN FY 2019-20 STATE BUDGET

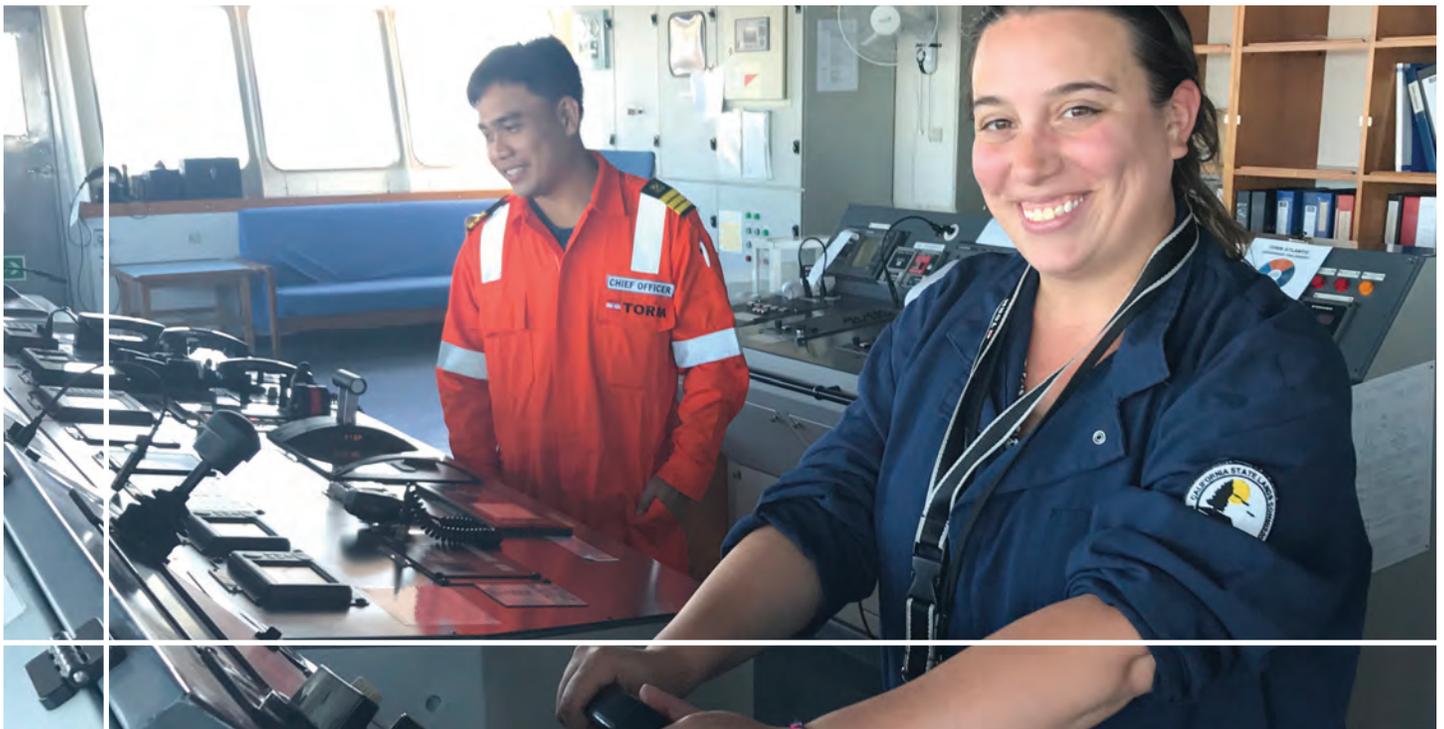
On March 14, 2019, Assemblymember Mark Stone, along with seven members of the Assembly, submitted a letter to the Assembly Budget Committee requesting a \$3M augmentation toward the CSU budget to specifically fund COAST. On April 10, 2019, State Senators Scott Wiener and Henry Stern submitted a letter to Senate President Pro Tempore Toni Atkins requesting \$35M for a variety of ocean and coastal topics, including a \$3M augmentation to the CSU budget for COAST. The state budget was approved on June 27, 2019, and contains a one-time appropriation of \$3M to COAST.

COAST will establish a new program, the State Science Information Needs Program (SSINP), which will support the state's highest priority ocean, coastal and coastal watershed related scientific information needs in a relatively short time frame (approximately two years). Results will provide the scientific basis for evidence-based decision-making and policy development for California's ocean economy, which is valued at over \$45B annually.

# LOOKING AHEAD

Over the next 12 months, COAST will:

- Launch the new SSINP to meet the state's needs for timely scientific information to support evidence-based decision-making and policy development.
- Advance 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 2020 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.
  - Seek additional funding to expand the Scholars-In-Training Pilot Program to more campuses.
- Visit campuses to meet with administrators and faculty members and host luncheons for students to increase 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
<b>Chico</b>	Harpreet Batther	Geosciences	Dr. Russell Shapiro	A hydrocarbon seep model of large bedded barite deposits in the Devonian Slaven Chert of central-north Nevada
<b>Fresno</b>	Krizma Singh	Biology	Dr. Ulrike Muller	Mechanical model to study suction feeding performance
<b>Fullerton</b>	Evelyn Bond	Biological Sciences	Dr. Kristy Forsgren	The reproductive morphology of male surfperches ( <i>Embiotocidae; Teleostei</i> )
	Angelina Zuelow	Biological Sciences	Dr. Jennifer Burnaford	Impacts of <i>Egregia menziesii</i> , a foundational alga, on intertidal communities in S. California and N. Washington
<b>Humboldt</b>	Wesley Hull	Biology	Dr. Paul Bourdeau	Changes in mussel mortality: the importance of multiple predator effect on the future of California mussels
	Nissa Kreidler	Natural Resources	Dr. Mark Henderson	Habitat suitability mapping for Southern California Bight deep sea coral and sponge species
	Lily McIntire	Biology	Dr. Paul Bourdeau	Predicting the effects of climate change on gumboot chitons ( <i>Cryptochiton stelleri</i> ) with the use of thermal performance curves and thermal regulation efficiency
	Natalie Okun	Fisheries Biology	Dr. Mark Henderson	Assessing large woody debris restoration effectiveness for increasing salmonid population survival and growth: a before-after-control-impact (BACI) experiment
	Blair Winnacott	Fisheries Biology	Dr. Eric Bjorkstedt	Assemblage structure and cross-shelf distribution of larval rockfish ( <i>Sebastes</i> ) off Northern California
<b>Long Beach</b>	Taylor Smith	Biology	Dr. Chris Lowe	Metabolic rate of the Pacific sleeper shark ( <i>Somniosus pacificus</i> ) in Alaska
	Amber Tucker	Geological Sciences	Dr. Jayne Bormann	Hazard implications of remapping the Newport-Inglewood Fault
<b>Monterey Bay</b>	Jacqueline Chisholm	Marine Science (MLML)	Dr. Thomas Connolly (MLML)	Quantifying discharge of nutrient-containing groundwater into Moro Cojo Slough
	Melissa Palmisciano	Marine Science (MLML)	Dr. Scott Hamilton (MLML)	Impacts of ocean acidification and hypoxia on the behavior and physiology of juvenile rockfishes ( <i>Sebastes</i> spp.)

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE
Monterey Bay	Marcel Peliks	Marine Science (MLML)	Dr. Ivano Aiello (MLML)	Small-scale spatial and temporal variability in sediment transport at the head of the Monterey Canyon
	Emily Pierce	Marine Science (MLML)	Dr. Jonathan Geller (MLML)	Quantifying the emanation and decay of environmental DNA from three marine molluscs
	Vivian Ton	Marine Science (MLML)	Dr. Scott Hamilton (MLML)	Effects of climate change induced ocean acidification and hypoxia on embryo development and larval physiology of the Pacific herring, <i>Clupea pallasii</i>
Northridge	Ashtyn Isaak	Biology	Dr. Robert Carpenter	Utilizing innovative 3D photogrammetry technology to determine how various stressors affect coralline algae and coral reef recovery
	Kathryn Scafidi	Biology	Dr. Mark Steele	The effects of an invasive alga, <i>Sargassum horneri</i> , on the trophic dynamics of temperate rocky reefs
San Diego	Katherine Bocskor	Ecology	Dr. Brian T. Hentschel	Prey preference of market squid ( <i>Doryteuthis opalescens</i> ) paralarvae
	Max Liebergesell	Biology	Dr. Todd Anderson	Can prey body condition influence predator preference?
	Janet Walker	Ecology	Dr. Jeremy Long	Examining geographic variation in feeding preferences of herbivorous crabs and plant palatability in California salt marshes
San Francisco	Allison Adams	Interdisciplinary Marine and Estuarine Science	Dr. Wim Kimmerer	Are microzooplankton an intermediate trophic link between cyanobacteria and copepods in the northern San Francisco Estuary?
	Meredyth Duncan	Interdisciplinary Marine and Estuarine Science	Dr. C. Sarah Cohen	Characterizing the population structure of invasive <i>Watersipora</i> spp. in rocky intertidal communities
	Carl Hendrickson	Biology	Dr. Karina Nielsen	Understanding the ecosystem services of eelgrass ( <i>Zostera marina</i> ) to enhance the outcomes of restoration projects
	Laura Hollander	Interdisciplinary Marine and Estuarine Science	Dr. Katharyn Boyer	Does sediment source influence the effectiveness of thin layer placement for enhancing marsh resilience to climate change?

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE
San José	Sean Gee	Biological Science	Dr. Scott Shaffer	Differences in foraging behavior for breeding common murrelets ( <i>Uria aalge</i> ) during the incubation and chick-rearing phases at the Southeast Farallon Island
	Emmet Haggard	Marine Science (MLML)	Dr. Jonathan Geller (MLML)	Venom evolution in the purple urchin ( <i>Strongylocentrotus purpuratus</i> )
San Luis Obispo	Ellie Brauer	Biological Sciences	Dr. Sean Lema	Assessing habitat quality using IGF1 levels in blue rockfish
	Shawn Hannah	Marine Science (MLML)	Dr. Birgitte McDonald (MLML)	Do northern elephant seals exhibit an exercise modulated dive response?
	Cole Jower	Biological Science	Dr. Scott Shaffer	Inter-annual variation in habitat use by rhinoceros auklets ( <i>Cerorhinca monocerata</i> ) from the Farallon Islands



## UNDERGRADUATE STUDENT RESEARCH SUPPORT PROGRAM AWARDS

Some awards may include unspent funds from previous years. Campuses marked with an \* provided match funding.

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE	AMOUNT (CAMPUS MATCH)
Channel Islands	Jacob Cornelson	Environmental Science & Resource Management	Dr. Sean Anderson	Testing for microplastics and glyphosate contamination levels throughout the conventional and organic brewing processes	\$350
	Avarie Hager	Environmental Science & Resource Management	Dr. Sean Anderson	Wildlife monitoring in California State University Channel Islands Regional Park: a restoration study post-wildfire destruction and succession	\$1,800
	Elisa Pearson	Environmental Science & Resource Management	Dr. Sean Anderson	Testing for microplastics and glyphosate contamination levels throughout the conventional and organic brewing processes	\$350
Chico	Brooke Hoffe	Microbiology	Dr. Cawa Tran	Establishment of symbiosis in the model sea anemone <i>Exaiptasia pallida</i> : analyzing host specificity of dinoflagellates under heat stress	\$1,250
	Cora Piper	Biological Sciences	Dr. Cawa Tran	Asexual reproduction of sea anemone <i>Exaiptasia pallida</i> under varying light conditions	\$1,250
Dominguez Hills	Eric Thai	Geography	Dr. Parveen Chhetri	Mapping erosion along Rancho Palos Verdes coast using geospatial technology	\$2,500
East Bay*	Krista Klinefelter	Environmental Science	Dr. Patty Oikawa	The influence of conductivity on methane and carbon dioxide fluxes in a California tidal wetland	\$2,500 (\$350)
Fresno	Kiana Cabasa	Biology	Dr. David Lent	Moray eel neuroanatomy and spatial cognition: cross-species examination of <i>Rhinomuraena quaesita</i> and <i>Anguilla anguilla</i>	\$313
	Miguel Estrada	Biology	Dr. Brian Tsukimura	The effects of ocean acidification on the developing larval stages of the crab, <i>Petrolisthes cinctipes</i>	\$313
	Jordyn Kamitono	Biology	Dr. Dermot Donnelly	Investigating the impact of zoo-inquiry projects for marine exhibits in introductory chemistry laboratories	\$313
	Titus Patton	Biology	Dr. Brian Tsukimura	The effect of ocean acidification on the growth and development of <i>Artemia franciscana</i>	\$313

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE	AMOUNT (CAMPUS MATCH)
Fresno	Robert Seward	Biology	Dr. Joshua Reece	Invertebrate surveys of Morro Bay	\$313
	Lillian Vang	Biology	Dr. David Lent	A cross-species comparison of the lateral pallium in <i>Gymnothorax saxicola</i> and <i>Gymnothorax undulatus</i> to determine spatial cognitive development	\$313
	Lexi Walker	Biology	Dr. Joshua Reece	The impacts of dredging on Morro Bay biodiversity	\$313
	Daisy Xiong	Biology	Dr. Joshua Reece	Western pond turtle captive breeding genetics	\$313
Fullerton	Shannon Chou	Biological Science	Drs. Ryan Walter and Jennifer Burnaford	Something in the water: environmental DNA profiling of tide pool biodiversity	\$500
	Andrew Jaramillo	Biological Science	Dr. Kristy Forsgren	3-Dimensional reconstruction of surfperch reproductive anatomy using a medical diagnostic tool	\$600
	Jacob Javier	Biological Science	Dr. E. Misty Paig-Tran	Filtration along a reticulated mesh, anatomy predicts feeding ecology in neonatal whale sharks, <i>Rhincodon typus</i>	\$600
	Radwan Muthala	Geology	Dr. Sinan Akciz	Distribution of surficial slip along the Santa Cruz Island Fault based on LIDAR measurements	\$600
	Holly Suther	Biological Science	Dr. Kristy Forsgren	Size matters: comparative morphology of rockfish urogenital papilla	\$200

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE	AMOUNT (CAMPUS MATCH)
Humboldt*	Cassidy Alves	Biology	Dr. John Steele	Heat shock proteins in <i>Tigriopus californicus</i>	\$0 (\$300)
	Kyra Anderson	Biology	Dr. Paul Bourdeau	Do <i>Tegula</i> react to different predators based on their history of exposure to those predators?	\$500
	Melanie Dominguez	Biology	Dr. Paul Bourdeau	Is the predator-avoidance response of <i>Nucella lamellosa</i> impaired while in low pH conditions?	\$0 (\$100)
	Keely Haussler	Fisheries Biology	Dr. Rafael Cuevas-Urbe	Creating a maraponics system to effectively grow <i>Salicornia pacifica</i> and remove nitrogenous wastes	\$440
	Victoria Heller	Biology	Dr. Paul Bourdeau	Presence of <i>Portunion conformis</i> in Humboldt Bay	\$0 (\$100)
	Crystal Hofer	Biology	Dr. Paul Bourdeau	Acclimation response of <i>Mytilus californianus</i> to increased air temperature	\$70 (\$30)
	Jasmine Iniguez	Fisheries Biology	Dr. Rafael Cuevas-Urbe	Use of induced spawning to determine sex chromosome in red lionfish ( <i>Pterois volitans</i> )	\$490
	Sierra Jarriel	Biology	Dr. Paul Bourdeau	Testing the mechanisms of bubble nets	\$500
	Michelle Lofus	Fisheries Biology	Dr. Rafael Cuevas-Urbe	Acute toxicity of ammonia to <i>Alitta brandti</i>	\$500

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE	AMOUNT (CAMPUS MATCH)
Long Beach	Bailey McCann	Biology	Dr. Darren Johnson	Estimating growth and mortality rates of <i>Megastrea undosa</i> in Southern California	\$500
	Mariah Meyer	Marine Biology	Dr. Chris Lowe	Tagging and identifying white sharks at Guadalupe Island	\$500
	Erin Pierce	Marine Biology	Dr. Chris Lowe	Size estimates of white sharks ( <i>Carcharodon carcharias</i> ) in Guadalupe Island, Mexico	\$500
	Joseph Porges	Marine Biology	Dr. Erika Holland	Polyaromatic hydrocarbons and their oxygenated metabolites target ion channels	\$500
	Christine Uy	Biology	Dr. Darren Johnson	Effects of microplastics on feeding rates of California grunion larvae, <i>Leuresthes tenuis</i>	\$500
Los Angeles	Angelica Cortez	Geology	Dr. M. Hassan Rezaie Boroon	Monitoring water quality in Ballona Creek Lagoon: nitrate level fluctuation in low and high tide conditions	\$1,650
	Kanique Thomas	Psychology	Dr. Pat Krug	Investigating the origins of photomutualism by differential gene expression	\$1,012
	Ryan Yang	Biology	Dr. Andres Aguilar	Rockfish population genetics using whole mitochondrial genome sequences	\$1,000
Maritime Academy*	Carson Alexander	Mechanical Engineering	Dr. Tomas Oppenheim	Collaborative effort: designing and building wave-following structures to study wave-driven turbulence in the San Francisco Bay area and Delta	\$697 (\$672)
	Ellanora Anastasi	Marine Engineering Technology	Dr. Alejandro Cifuentes-Lorenzen	Collaborative effort: designing and building wave-following structures to study wave-driven turbulence in the San Francisco Bay area and Delta	\$697 (\$265)
	Matthew Dejesus	Mechanical Engineering	Dr. William Tsai	Extraction of tidal stream energy using a tidal turbine	\$697 (\$1,267)
	Ainsley Manlapaz	Marine Engineering Technology	Dr. Ryan Storz	M/V Cub underway water quality data acquisition system	\$409

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE	AMOUNT (CAMPUS MATCH)
<b>Monterey Bay</b>	Olivia Boisen	Molecular Biology	Dr. John Goeltz	<i>In situ</i> pH measurements using self-calibrating IrOx electrodes	\$500
	Emily Chui	Environmental Science, Technology & Policy	Dr. Alison Haupt	Effects of deuteration on deep eutectic solvents	\$500
	Dakota Jackson	Molecular Biology	Dr. Nathaniel Jue	Evolution of sex change	\$500
	Casey Juliussen	Biology	Dr. John Goeltz	Effects of deuteration on deep eutectic solvents	\$500
	Lilli Krier	Biology	Dr. Eric Crandall	Is Cape Mendocino a barrier to marine larval dispersal?	\$500
<b>Northridge*</b>	Elliot Bloom	Biology	Dr. Fritz Hertel	Ecomorphology of sympatric penguins	\$500 (\$250)
	Michael Jacobs	Environmental & Occupational Health	Dr. Gretchen Boria Perez	Occurrence and prevalence of <i>Vibrio cholerae</i> in copepods and seawater from Mother's Beach in Marina del Rey, California	\$750
	Maria Martone	Biology	Dr. Kerry Nickols	Phytoplankton biodiversity and chlorophyll concentration throughout a vertical gradient within a kelp forest	\$750
	Julio Rosales	Biology	Dr. Nyssa Silbiger	Comparison of methods for measuring tide pool volume	\$500 (\$250)
<b>Pomona</b>	Sydney Ghazarian	Biology	Dr. Ángel Valdés	A molecular study of <i>Julia mishimaensis</i>	\$612
	Meghan Jeffus	Biology	Dr. Jayson Smith	The effect of human rock overturning on intertidal community composition and recovery	\$1,080
	William Tran	Biotechnology	Dr. Ángel Valdés	Phylogenetic reconstruction of <i>Doridina</i> using RNA sequencing	\$808

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE	AMOUNT (CAMPUS MATCH)
Sacramento	Rachael Dal Porto	Chemistry	Dr. Justin Miller-Schulze	Particulate phase extraction of chemicals of emerging concern from human waste in water	\$500
	Alexandra Gama	Geology	Dr. Amy Wagner	Examining past climate conditions using trends in diatom speciation	\$500
	Danielle Nestler	Biological Sciences	Dr. Lani Gleason	Assessing phenotypic effects of heat stress and starvation in the economically important red abalone, <i>Haliotis rufescens</i>	\$500
	Ethan Roberts	Biological Sciences	Dr. Tim Davidson	Keeping cool in the rocky intertidal: do burrows formed by an invasive isopod ameliorate thermal stressors for marine invertebrates?	\$500
	Carissa Romero	Biological Sciences	Dr. Lani Gleason	Assessing phenotypic effects of heat stress and starvation in the economically important red abalone, <i>Haliotis rufescens</i>	\$500
San Bernardino	Anneke-Victoria Fischle	Anthropology	Dr. Kathleen Nadeau	The demand for seafood: discharged fishing gear, the Great Pacific Garbage Patch and the reality of ghost fishing	\$805
	Sarah Handy	Biology	Dr. Tomasz Owerkowicz	Radiant heat absorption by skin with and without osteoderms in alligator	\$2,272
San Diego	Chelsea Bergman	Biology	Dr. Kevin Hovel	The impact of ocean acidification and increased temperature on eelgrass ( <i>Zostera marina</i> ) and associated fauna	\$530
	Caroline Bossert	Environmental Sciences	Dr. Arielle Levine	Exploring human perceptions and conflict surrounding human-seal use of beaches in La Jolla	\$885
	Dillon Dolinar	Biology	Dr. Matt Edwards	Respiration of purple urchins, <i>Strongylocentrotus purpuratus</i> , in kelp forests and kelp barrens	\$540
	Isabella Livingston	Biology	Dr. Liz Dinsdale	Environmental DNA dependent biodiversity survey of Chondrichthyes in Gujarat, India	\$640
	Abigail Turnlund	Biology	Dr. Liz Dinsdale	Skin microbiome: taxonomy and functional composition across sexes in Port Jackson sharks	\$689

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE	AMOUNT (CAMPUS MATCH)
San Francisco	Adedamola Adetayo	Computer Science	Dr. Tendai Chitewere	The political ecology of Richardson Bay	\$392
	Mariel Avila	Biology	Dr. Karen Crow and Dr. Katharyn Boyer	Knowing your customers: observing variation between fish assemblages and clientele of the Hawaiian cleaner wrasse	\$625
	Laura Herrera	Biology	Dr. Karen Crow	Elusive and endangered: comparing plankton abundance with the distribution of manta rays in Kaneohe Bay using eDNA	\$625
	Noelle Kassly	Biology	Drs. Karen Crow and Katharyn Boyer	Do zooplankton respond to distinct bio-acoustic soundscapes?	\$625
	Madeleine Martin	Environmental Studies	Dr. Tendai Chitewere	The political ecology of Richardson Bay	\$550
	Kaitlyn Sapkos	Biology	Dr. Sarah Cohen	A comparison of parental and larval genotypes of chimeric <i>Didemnum vexillum</i> colonies	\$1,034
	Keishae Vann	Biology	Dr. Karen Crow	Mangrove invasion is associated with reduced invertebrate diversity of assemblages in the invasive alga <i>Gracilaria salicornia</i>	\$625
San José	Laura Mosqueda	Geology	Dr. Carlie Pietsch	Middle Triassic marine recovery	\$2,500

CAMPUS	STUDENT	DEPARTMENT/ DEGREE PROGRAM	ADVISOR	PROJECT TITLE	AMOUNT (CAMPUS MATCH)
<b>San Luis Obispo</b>	Joscelyn De La Torre	Marine Sciences	Dr. Heather Liwanag	Education brochure creation for Piedras Blancas to increase public engagement with northern elephant seal research	\$500
	Mark Dizon	Microbiology	Dr. Alexis Pasulka	Assessing the applicability of bioorthogonal non-canonical amino acid tagging (BONCAT) to algal strains	\$500
	Kevin Label	Computer Science	Dr. Sean Lema	RNAseq analysis of mRNAs linked to IGF1 endocrine-signaling pathways from cabezon liver	\$500
	Laura Lodolo	Biological Sciences	Dr. Alexis Pasulka	Molecular characteristics of marine microbial communities at the Cal Poly Pier	\$500
	Gabriel Santos	Biological Sciences	Dr. Heather Liwanag	What's in a bite? Analyzing shark bite marks on northern elephant seals to provide insights into shark population dynamics	\$500
<b>San Marcos</b>	Thuy Tran	Biochemistry	Dr. Jacqueline Trischman	Structure determination of marine bacterial compounds that inhibit biofilm production in mycobacteria	\$1,250
	Bailey Young	Environmental Studies	Dr. Christina Simokat	Gap analysis of native small pollinator habitat in the San Dieguito and Carlsbad watersheds	\$700
<b>Sonoma</b>	Jessica Saavedra	Biology	Dr. Brent Hughes	Linking food webs to restoration in California estuaries	\$1,350
	Kaitlynn Wagner	Biology	Dr. Mackenzie Zippay	Characterizing the transcription and translation of hsp90 in purple sea urchin larvae	\$1,150
<b>Stanislaus</b>	Ana Ibarra Sotelo	Biological Sciences	Dr. Ritin Bhaduri	Effects of parasite infections on the fecundity of the sand crab <i>Emerita analoga</i>	\$1,865
	Sebastian Villegas	Biological Sciences	Dr. Ritin Bhaduri	Effects of parasitic infection on the fecundity of the Pacific mole crab <i>Emerita analoga</i>	\$1,865

## STUDENT TRAVEL AWARDS

\* Denotes undergraduate students.

CAMPUS	STUDENT	FACULTY MENTOR	CONFERENCE	CONFERENCE LOCATION	AMOUNT
<b>Channel Islands</b>	Kaitlyn O'Dea	Dr. Cynthia Hartley	National Conference on Undergraduate Research	Kennesaw, GA	\$1,000
<b>East Bay</b>	Jennifer Bahramian	Dr. Patty Oikawa	American Geophysical Union	Washington, D.C.	\$1,000
<b>Fullerton</b>	Alison Cover	Dr. Kristy Forsgren	American Association of Academics of Science	Washington, D.C.	\$999
	Kate Gibson	Dr. Joseph Carlin	Geologic Society of America Annual Meeting	Indianapolis, IN	\$940
	Jamie Hayward	Dr. Joseph Carlin	American Geophysical Union	Washington, D.C.	\$703
	Andrew Jaramillo	Dr. Jennifer Burnaford	Society for Integrative and Comparative Biology	Tampa, FL	\$988
	Jacob Javier	Dr. E. Misty Paig-Tran	Society for Integrative and Comparative Biology	Tampa, FL	\$988
<b>Humboldt</b>	Annette Carlson	Dr. Christine Cass	Eastern Pacific Ocean Conference	Mt. Hood, OR	\$1,000
	Wesley Hull	Dr. Paul Bourdeau	Western Society of Naturalists	Tacoma, WA	\$500
	Timothy McClure	Dr. Paul Bourdeau	Western Society of Naturalists	Tacoma, WA	\$500
	Lily McIntire	Dr. Paul Bourdeau	Western Society of Naturalists	Tacoma, WA	\$500
	Frank Mele	Dr. Rafael Uribe	World Aquaculture Society	New Orleans, LA	\$994
	Kindall Murie	Dr. Paul Bourdeau	Western Society of Naturalists	Tacoma, WA	\$500
	Nicholas Schieferecke	Dr. Christine Cass	Eastern Pacific Ocean Conference	Mt. Hood, OR	\$658
<b>Maritime Academy</b>	Wyatt Sebourn	Dr. Alex Parker	Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting	San Juan, Puerto Rico	\$1,000

CAMPUS	STUDENT	FACULTY MENTOR	CONFERENCE	CONFERENCE LOCATION	AMOUNT
<b>Monterey Bay</b>	Michaela Miller	Dr. Corey Garza	Western Society of Naturalists	Tacoma, WA	\$760
	June Shrestha	Dr. Scott Hamilton (MLML)	Western Society of Naturalists	Tacoma, WA	\$450
<b>Northridge</b>	Malek Al-Marayati	Dr. Steve Dudgeon	Phycological Society of America and International Society of Protistologists	Vancouver, BC, Canada	\$969
	Jessica Glanz	Dr. Robert Carpenter	Benthic Ecology Meeting Society	St. John's, Newfoundland, Canada	\$500
	Jamie Goodman	Dr. Gilberto Flores	American Society for Microbiology	San Francisco, CA	\$750
	Ashtyn Isaak	Dr. Robert Carpenter	Benthic Ecology Meeting Society	St. John's, Newfoundland, Canada	\$500
	George Jarvis	Dr. Mark Steele	AAUS Diving for Science Symposium	Tahoe City, CA	\$750
	Jennica Moffat	Dr. Casey terHorst	International Cassiopea Workshop	Key Largo, FL	\$1,000
	Lansing Perng	Dr. Robert Carpenter	Benthic Ecology Meeting Society	St. John's, Newfoundland, Canada	\$500
	Cameron Pujdak	Dr. Steve Dudgeon	Benthic Ecology Meeting Society	St. John's, Newfoundland, Canada	\$1,000
	Kathryn Scafidi	Dr. Mark Steele	Western Society of Naturalists	Tacoma, WA	\$698
	Jayslen Serrano	Dr. Robert Carpenter	Benthic Ecology Meeting Society	St. John's, Newfoundland, Canada	\$500
	Lindsey Stockton	Dr. Larry Allen	Benthic Ecology Meeting Society	St. John's, Newfoundland, Canada	\$750

CAMPUS	STUDENT	FACULTY MENTOR	CONFERENCE	CONFERENCE LOCATION	AMOUNT
<b>Pomona</b>	Emmons McKinney	Dr. Jeff Marshall	American Geophysical Union	Washington, D.C.	\$1,000
<b>San Diego</b>	Corey Clatterbuck	Dr. Rebecca Lewison	Waterbird Society Meeting	Vancouver, BC, Canada	\$1,000
	Margaret Stack	Dr. Eunha Hoh	American Ornithological Society Annual Meeting	Anchorage, AK	\$750
<b>San Francisco</b>	Dulce Cortez	Dr. Matt Ferner	Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting	San Juan, Puerto Rico	\$525
	Jane Rudebusch	Dr. Ellen Hines	International Wildlife Reintroduction Conference	Chicago, IL	\$402
<b>San José</b>	Daniel Gossard	Dr. Michael Graham (MLML)	Phycological Society of America and International Society of Protistologists	Vancouver, BC, Canada	\$1,000
<b>San Luis Obispo</b>	Yareli Alvarez	Dr. Nikki Adams	Society for Integrative and Comparative Biology	Tampa, FL	\$1,000
	Alexandria Marquardt	Dr. Benjamin Ruttenberg	National Shellfisheries Association	New Orleans, LA	\$1,000
	Hannah Rempel	Dr. Benjamin Ruttenberg	Western Society of Naturalists	Tacoma, WA	\$800

## SUMMER 2018 INTERNSHIP PROGRAM

\* Denotes undergraduate students.

HOST ORGANIZATION	INTERNSHIP LOCATION (ALL IN CALIFORNIA)	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 Academy</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 Academy</i>
NOAA's National Marine Fisheries Service Protected Resources Division	Abalone Conservation <i>Long Beach</i>	Catherine Lachnit* <i>Long Beach</i>
NOAA's 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>

## SUMMER 2019 INTERNSHIP PROGRAM

\* Denotes undergraduate students.

HOST ORGANIZATION	INTERNSHIP LOCATION	CSU STUDENT HOME CAMPUS
California Department of Fish and Wildlife Marine Region	California Spiny Lobster Fisheries Management <i>San Diego</i>	Lauren Zaragoza* <i>San Luis Obispo</i>
	Northern California Marine Invertebrate Fisheries Management <i>Bodega Bay</i>	Jenna Hatfield* <i>San Luis Obispo</i>
		Kylie Kuwada* <i>San Luis Obispo</i>
California Ocean Science Trust	Climate Change and Ocean Acidification <i>Oakland</i>	Bryn Power* <i>San Luis Obispo</i>
California State Lands Commission Marine Invasive Species Program	Southern California Vessel Biofouling Management <i>Long Beach</i>	Julisa Portugal <i>Los Angeles</i>
Channel Islands National Marine Sanctuary	Ocean Exploration <i>Santa Barbara</i>	Cassandra Rogers* <i>Channel Islands</i>
Marine Applied Research & Exploration	Marine GIS <i>Eureka</i>	Nissa Kreidler <i>Humboldt</i>
	Marine Engineering <i>Richmond</i>	Christopher Ewert* <i>San Luis Obispo</i>
NOAA's National Marine Fisheries Service Protected Resources Division	Abalone Conservation <i>Long Beach</i>	Anna Thomasdotter* <i>San José</i>
	Whale Entanglement <i>Seattle</i>	Sydney Wewerka* <i>San Luis Obispo</i>
Tijuana River National Estuarine Research Reserve	Bioindicator Trends and Analysis <i>Imperial Beach</i>	Ethan Roberts* <i>Sacramento</i>

