

# SBC LTER Annual Report Year 6 2017-2018

## Cover

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University of California-Santa Barbara

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Signature of Submitting Official (signature shall be submitted in accordance with agency specific instructions)

Daniel C Reed

## Accomplishments

### \* What are the major goals of the project?

The Santa Barbara Coastal LTER (SBC) seeks to develop a predictive understanding of how terrestrial and oceanic processes alter the biological structure and ecological functions of giant kelp forests under varying conditions of disturbance, climate and human use. The amounts of inorganic nutrients, organic matter, and sediments exchanged between kelp forests and the land and sea that adjoin them vary in response to changes in climate, ocean conditions and land use. Variation in the supply of these materials interacts with natural and human-caused disturbances to influence the abundance and species composition of kelp forest inhabitants, their ecological functions and the ecosystem services that they provide. Thus a general goal of SBC is to understand how coastal ecosystems at the land-sea margin are linked through the exchange of materials. Giant kelp forests are highlighted in our research because they are prominent coastal ecosystems in California and other temperate regions of the world. Site-based research focuses around the following three inter-related themes: (1) Biotic and abiotic drivers of kelp forest structure and function, (2) Material exchange at the land-ocean margin, and (3) Movement and fluxes of inorganic and organic matter in the coastal ocean.

The major objectives of each of our three research themes are:

Theme 1: To determine how variations in climate, wave disturbance and fishing influence the structure and dynamics of kelp forest communities and the patterns and fate of net primary production by giant kelp.

Theme 2: To determine how the input of dissolved and particulate nutrients from watersheds and beaches to nearshore waters vary as a function of land use, disturbance by fire, coastal erosion and storms.

Theme 3: To determine how oceanographic processes influence: (a) the dilution and dispersal of freshwater runoff plumes, (b) nitrogen recycling, consumer excretion, efflux from benthic sediments within and adjacent to kelp forests, and the utilization of recycled N by giant kelp, and (c) the fate of net primary production by phytoplankton which are an important food source to a diverse array of kelp forest consumers.

**\* What was accomplished under these goals (you must provide information for at least one of the 4 categories below)?**

Major Activities:

We continued collecting data for a core group of long-term integrated measurements in the ocean and on land with the goal of quantifying climate, disturbance, and inorganic and organic subsidies to and from giant kelp forests and their effects on kelp forest community structure, productivity and dynamics. Other major activities for each research theme follow below.

*Theme 1a. Effects of wave disturbance and climate variation on kelp forest structure and function:*

The processing and analyses of a 9-yr kelp removal experiment designed to investigate the consequences of increased wave disturbance on kelp forest communities was completed. We continued collecting and analyzing data from our ongoing 18-year kelp forest community time series at 11 reefs and used it to: (1) test the foundational role of giant kelp in structuring reef communities and (2) explore the extent to which asynchronous species and spatial dynamics across multiple hierarchical levels of organization contribute to the regional stability of the kelp forest understory. We continued processing Landsat satellite imagery to update our ongoing 35-year dataset of giant kelp biomass throughout California and Baja California, Mexico for use in our analyses of the effects of wave disturbance and climate variation on kelp forest structure and function. This required: (1) correcting kelp canopy estimates to account for changes in the spectral response functions among three different Landsat sensors (5, 7 and 8) by simulating data using hyperspectral imagery, (2) validating each sensor to our 15-y time series of diver estimated kelp biomass, and (3) developing a novel gap filling technique using spatial scales of kelp biomass synchrony to correct for missing data due to Landsat 7 scan line corrector failure.

*Theme 1b. Determining the fate of kelp NPP:*

We finalized improvements in our time series of giant kelp NPP by incorporating losses of particulate and dissolved organic matter from tissue erosion and exudation into our model of kelp NPP. These loss terms, which were previously unaccounted for in our earlier estimates of NPP were modeled from our in situ measurements of blade erosion and exudation. The improved methods and 16 years of data were published as a data paper in Ecology (Rassweiler et al. 2018). Airborne hyperspectral imagery of giant kelp coupled with in situ tissue sampling and regional estimates of canopy biomass from Landsat were used to investigate the importance of extrinsic environmental drivers vs. intrinsic demographic processes in accounting for variation in kelp physiological condition and biomass dynamics.

*Theme 1c. Effects of fishing on kelp forest structure and function:*

Quarterly sampling of community structure and NPP in experimental plots was completed at two reefs protected from fishing and three reefs unprotected from fishing. Densities of the extensively fished spiny lobster were assessed at these reefs and lobster fishing effort was measured twice per month during the fishing season.

*Theme 2A Export of nutrients from watersheds*

Measurements of nutrients, sediments and discharge during baseflow and stormflow in eight watersheds were continued. Calculation of material fluxes based our multi-year records of stream discharge and solute concentrations were used in statistical models examining the relationships between material fluxes and watershed characteristics. An analysis of nitrogen losses and retention after a wildfire was completed. An analysis of patterns in the hysteresis of concentration-discharge (C-Q) during storms for nutrients and total suspended solids was completed.

*Theme 2b. Trajectories of landscape changes in coastal watersheds:*

Analyses of land cover derived from airborne hyperspectral data were done to determine vegetation recovery following fires in local watersheds and were extended to all watersheds except those of the Ventura and Santa Clara Rivers for use in regional calculations of loading to the coastal ocean. We analyzed 117 core samples from 43 vibracores (up to 4 m in length) to document historical and prehistorical environmental changes in Carpinteria Marsh. Samples from two of the vibracores were processed for pollen

analysis and spheroidal carbonaceous particles (SCPs), which are aerially deposited markers of regional industrial activity. Pollen and SCP-based chronology in the cores were compared to an age-depth model established from <sup>210</sup>Pb and <sup>137</sup>Cs activities determined by gamma spectroscopy using a High-Purity Broad Energy Germanium Gamma Detector.

*Theme 2c. Exchanges of nutrients on beaches*

We continued measuring variation in macrophyte wrack subsidies, wrack consumers, beach conditions and birds on six beaches located near kelp forests. We used these data to examine responses of consumer populations to variation in macrophyte wrack abundance, and to variation in donor ecosystem condition estimated by kelp canopy biomass and SST. We also explored responses of consumer populations to disturbance that alters beach habitats, including upper beach zones and sand supply. We continued to investigate the potential importance of shredding by invertebrate consumers to kelp wrack nitrogen remineralization in intertidal porewater by measuring pore water DIN concentrations over time in experimental sand columns with treatments of wrack and wrack consumers.

*Theme 3a. Dilution and dispersal of freshwater runoff plumes*

Runoff modeling and calculations of loading to the coastal ocean were extended to all the watersheds along the coast of Santa Barbara Channel except those of the Ventura and Santa Clara Rivers. The results are being linked to dilution and dispersion estimates in the coastal ocean.

*Theme 3b. Nitrogen recycling and efflux from sediments*

We published a paper detailing the occurrence of urea and ammonium in coastal waters of the Santa Barbara Channel and their utilization by giant kelp and phytoplankton (Smith et al. 2018). The uptake kinetics of urea, ammonium and nitrate by kelp and phytoplankton were determined in field and laboratory experiments and will be used to develop a robust physiological model of nitrogen use by kelp. Studies of the efflux of ammonium from sediments using field samples and laboratory experiments were continued as were field and laboratory studies of the excretion rates of ammonium and urea from benthic reef invertebrates.

*Theme 3c. Transport and fate of phytoplankton NPP*

Research during this reporting period focused on characterizing nearshore flows that transport coastal phytoplankton in the Southern California Bight. We completed analyses and published papers on: (1) the effects of the relaxation of upwelling-favorable winds on fluctuations in water temperature (Aristizabal et al. 2017), (2) submesoscale variability in ephemeral coherent flow structures on the continental shelf (Dauhajre et al. 2017) and (3) environmental correlates of spatial and temporal variation in chlorophyll concentrations (Nezlin et al. 2018). We continued our analyses of UNOLS cruise data from the Santa Barbara Channel aimed at determining the physical processes and rates causing the subduction of phytoplankton (Washburn et al. in prep).

Specific Objectives:

The specific objectives of each research theme are as follows:

*Theme 1a. Effects of wave disturbance and climate variation on kelp forest structure and function*

Determine the importance of wave disturbance on kelp forest community structure, primary production and metapopulation dynamics under different climatic conditions using data from long-term experiments and core time-series measurements.

*Theme 1b. Determining the fate of kelp NPP:*

Determine the amount, rates and forms of biomass lost by giant kelp, and the factors affecting these losses.

*Theme 1c. Effects of fishing on kelp forest structure and function:*

Experimentally investigate the short and long-term effects of fishing on kelp forest structure and function, and place these effects within the context of past variability resulting from different climatic conditions.

*Theme 2a. Export of nutrients from watersheds:*

Determine climatic variation in the fluxes of dissolved and particulate nutrients, organic matter and sediments to the Santa Barbara Channel from watersheds with different fire histories and land uses. Estimate post-fire nitrogen cycling and vegetation growth in chaparral ecosystems and determine the factors controlling the amount of nitrogen exported from them to the coastal ocean.

*Theme 2b. Trajectories of landscape changes in coastal watersheds:*

Use time series of airborne hyperspectral data to develop land cover maps before and after fires for use in ecohydrological modeling, nutrient flux calculations and examination of riparian conditions along streams.

Calculate gully depths and erosion rates from Lidar data for unburned and burned catchments. Extend the time scale of our examination of landscape changes with cosmogenic radionuclide analysis of riverine sands and analyses of sediment cores taken from estuaries that border the Santa Barbara Channel.

*Theme 2c. Exchanges of nutrients on beaches*

Determine the degree to which beach ecosystems supply recycled marine nutrients to nearshore waters. Determine the effect of varying organic matter sources and processing history on the dissolved organic and inorganic carbon and nitrogen dynamics in intertidal beach sands.

*Theme 3a. Dilution and dispersal of freshwater runoff plumes*

Simulate many realizations of ROMS-modeled stormwater plumes to enable a robust statistical characterization of the dispersal and dilution of runoff in the coastal environment. Use ROMS output to quantify freshwater plume dilution fields as a function of along-and cross-shore distance from creek mouths and creek discharge rate. Assess the impacts of freshwater runoff events on ocean suspended particle and phytoplankton distributions from available satellite ocean color imagery.

*Theme 3b. Nitrogen recycling and efflux from sediments*

Determine the importance of regenerated N to the nitrogen demand of giant kelp by measuring rates of: 1) N efflux from sediments, 2) N recycling by kelp forest consumers and 3) uptake of different forms of recycled N by giant kelp.

*Theme 3c. Transport and fate of phytoplankton NPP*

Characterize coastal dispersal with respect to several environmental parameters such as season, coastal geometry, distance from the shore, and flow characteristics from high-resolution ROMS output. Analyze data from UNOLS cruises, autonomous glider missions and moor sensors to resolve cross-shelf sections of water properties and particle fields during various oceanographic conditions. Assess time/space distributions of suspended particles and phytoplankton from both glider and satellite ocean color observations and the roles of environmental variability.

Significant Results:

Results for each research theme are as follows:

*Theme 1a. Effects of wave disturbance and climate variation on kelp forest structure and function*

Results from our long-term kelp removal experiment showed the frequency rather than severity of disturbance to giant kelp had the great effect on the biomass and composition of community guilds in a manner commensurate with their dependence on physical, trophic, and habitat resources provided by kelp (Castorani et al. *in press*). These experimental results compliment those obtained from structural equation modeling of long-term community time series data that showed the most direct paths did not involve giant kelp, but were instead driven mostly by indirect effects attributed to its dominant physical structure (Miller et al. 2018). Additional analyses of these data revealed that asynchronous species dynamics stabilized the metacommunity of understory algae as a decline in the dominant species was compensated for by increases in three subdominant species, while synchronous spatial dynamics at the population and community levels acted to destabilize the metacommunity. Using the extended Landsat kelp time-series we showed that decadal trends in kelp canopy biomass were associated with a ~20-y increase in the NPGO index. More recent warming however, has led to weak or nonexistent trends over the entire 35-year time series (Bell et al. 2018).

*Theme 1b. Determining the fate of kelp NPP*

Model improvements resulted in a near doubling of our prior estimates of kelp growth and NPP. At our site with the most persistent stand of giant kelp, NPP has averaged ~5.2 kg dry mass m<sup>-2</sup>yr<sup>-1</sup> over the past 16 years and results from the rapid growth (~3.5% per d) of a relatively small standing biomass (~0.4 kg dry mass/m<sup>2</sup>) that turns over ~12 times annually. Results from analyses of remote sensing data and tissue chemistry revealed that elevated nitrate in upwelling regions enhanced physiological condition of kelp and led to increased canopy persistence over decadal timescales. At local scales, kelp condition was negatively related to canopy age and senescence determined canopy dynamics within forests, despite relatively uniform nitrate concentrations.

*Theme 1c. Effects of fishing on kelp forest structure and function*

Results from annual surveys show that lobster abundance in the two MPA sites has increased 20-fold since their establishment in 2012. Average catch has nearly doubled in the area surrounding these reserves, indicating substantial spillover of lobster from the reserves into fished areas. Analyses of community time-

series data aimed at determining whether higher densities of lobsters in reserves have cascading effects on lower trophic levels are ongoing.

#### *Theme 2a. Export of nutrients from watersheds*

Runoff from coastal catchments is the primary mechanism transporting materials from the land to the ocean in the SBC domain. We used a 14-year time series of stream discharge, nutrient concentrations ( $\text{NO}_3^-$ ,  $\text{NH}_4^+$ , DON and  $\text{PO}_4^{3-}$ ) and total suspended solids (TSS) obtained by intensive sampling during storms and baseflow to calculate fluxes of these constituents and to develop statistical relationships between them and environmental conditions in the catchments (Aguilera and Melack, 2018a). Annual fluxes for all forms of nitrogen were positively related to agricultural and impervious area. Non-linear behavior of nutrients during storms was evident in the hysteresis in concentration-discharge (C-Q) relationships (Aguilera and Melack 2018b). Hysteretic responses of nitrogen species were observed as dilution in urban sites and enrichment in undeveloped sites. Fires followed by above average rainfall resulted in the highest ammonium and TSS fluxes. An analysis of the balance between wildfire N loss, plant and soil microbial N uptake and stream N export indicated that stream N export was 1500% higher than pre-fire export during the first post-fire rain, but recovered within only three months to pre-fire levels (Goodridge et al. 2018).

#### *Theme 2b. Trajectories of landscape changes in coastal watersheds*

Analyses using a time-series of airborne hyperspectral data of vegetation recovery following fires in local watersheds were incorporated into Goodridge et al. (2018) summarized in *Theme 2a*. Results of sediment core analyses and radiocarbon dating in Carpinteria Marsh showed that a succession of atmospheric river (AR) storms in 1861-1862 produced an overwash fan comparable in scale to hurricane and tsunami overwash fans in back-barrier environments of other coastlines. The presence of overwash deposits indicate that the 1861-2 storm season was the most erosive event in the past 200 years and highlight the need to consider excessive erosion during prolonged periods of AR storms when predicting the vulnerability of coastal areas given the ongoing loss of natural barrier beaches and estuaries.

#### *Theme 2c. Exchanges of nutrients on beaches*

Monthly surveys of newly stranded kelp plants showed them to be most abundant near headlands and least abundant on narrow stretches of beach where the tides interacted with sea cliffs or seawalls. Analyses of long term-data showed strong temporal coherence between intertidal consumer populations and kelp wrack abundance at sites with upper beach zones. Consumers of beach wrack significantly increased concentrations of DIN in porewater in experimental sand columns. Kelp wrack accumulation on beaches and its consumption by intertidal consumers was associated with high concentrations of DIN in beach porewater and elevated DIN concentrations in adjacent surf zone water.

#### *Theme 3a. Dilution and dispersal of freshwater runoff plumes*

Analyses linking modeled and measured estimates of stream runoff to dilution and dispersion of terrestrial material in the coastal ocean are ongoing and results were not available at the time of this report.

#### *Theme 3b. Nitrogen recycling and efflux from sediments*

Results of kinetics experiments showed urea uptake by kelp was high relative to that reported for other seaweeds, but saturated at levels 10-fold < that measured for phytoplankton. Urea and ammonium uptake by kelp decreased 3-12% in the dark compared to the light while phytoplankton uptake decreased 66-85% suggesting that light intensity can influence competition for recycled-N between them. Regeneration experiments using recirculating sediment bioreactors indicated ammonium concentrations in kelp forest sediments are sufficient to maintain the concentrations measured in the porewaters and to sustain a substantial flux to near-bottom waters. Ongoing parallel studies that integrate excretion rates of consumers with time-series estimates of their standing biomass suggest comparable fluxes of ammonium result from excretion by benthic reef invertebrates. Water column decomposition experiments using a  $^{15}\text{NH}_4^+$ -pool dilution method revealed a microbial remineralization flux of  $0.1 - 0.15 \mu\text{M NH}_4^+ \text{ h}^{-1}$ , which would consume ~40% of the DON pool on a daily basis.

#### *Theme 3c. Transport and fate of phytoplankton NPP*

Analyses of data from 43 moorings in the Santa Barbara Channel revealed vertically advected water explained a substantial amount of the variability in temperature, and suggested the increase in vertical stratification and subsequent increase in temperature fluctuations during wind relaxation enhances nutrient supply to phytoplankton and coastal kelp forests in summer. A high-resolution ( $\Delta x = 75$  m) ROMS simulation of the Southern California Bight identified ubiquitous and ephemeral coherent flow structures (fronts, filaments, and vortices) lasting 3-5 days that increase density and velocity gradients. Both the shape of the coastline and depth of the water column influence the abundance and spatial orientation of shallow-water fronts and filaments. Closer to shore, fronts and filaments tend to be aligned parallel to isobaths, with headlands acting as sites of intense vorticity generation through bottom stress.

#### Key outcomes or Other achievements:

During the past year, SBC scientists published 22 journal articles, and an LTER children's book, *The Golden Forest*. SBC scientists currently have seven additional journal articles and one book chapter in press and four journal manuscripts in review. SBC graduate students produced five doctoral dissertations and three Masters theses. A complete list of SBC publications and presentations can be found at: <http://sbc.lternet.edu/cgi-bin/publications.cgi>. A total of 203 SBC datasets including time series and short-term studies are now in the SBC data catalog. Since Sept 2017, ~half of the ongoing time series were updated with the latest available data (collected within previous year), and 14 new datasets were added.

We are using our long-term data to follow the recovery of kelp forest and sandy beach ecosystems from an highly anomalous warming event that occurred in 2014-2015 combined with a multi-year drought of unprecedented magnitude and a strong El Nino event in 2015-2016. The warming event was characterized by high mortality of key consumers affected by disease (sea stars and sea urchins) and the El Nino was associated with a historically significant loss of sandy beach habitat and biota. Long term data collected by SBC are being used to document the ecological consequences of these changes and to better understand recovery dynamics of these linked ecosystems. Regional analyses of the resistance and recovery of giant kelp using SBC's 35-year Landsat kelp time series are ongoing by investigators Cavanaugh, Bell, Castorani and Reed and will be featured in upcoming Research Topic in *Frontiers in Marine Science* titled "Advances in understanding marine heatwaves and their impacts".

Results from SBC research figured prominently in two proposals awarded to SBC investigators in 2018 that are part of ARPA-E's MARINER (Macroalgae Research Inspiring Novel Energy Resources) program. The MARINER program seeks to develop tools that enable the United States to become a global leader in the production of marine biomass for use as fuel, animal feed and chemicals. Funding awarded to Siegel, Bell, Cavanaugh, Miller, Nidzicko and Reed aims to maximize macroalgal biomass yields by developing a Scalable Aquaculture Monitoring System (SAMS) comprised of autonomous and semi-autonomous technologies capable of monitoring biomass productivity and physiological status of giant kelp, as well as the environmental conditions that control its near-term production. The second project led by Alberto, Reed and Miller in collaboration with colleagues from the University of Southern California builds on SBC's research on the population genetics of giant kelp to develop a selective breeding program for genetic strains that consistently produce high yields under warm oligotrophic conditions of open ocean farms. The research focus of the two projects is highly compatible with SBC's ongoing research on the influence of climate variation and ocean warming on the production and dynamics of giant kelp ecosystems, and strong collaboration between SBC and these new projects is ongoing.

SBC continues to be a leading contributor to the Kelp Ecosystem Ecology Network (KEEN) <http://www.kelpecosystems.org/e>, which was founded by former SBC post doc Jarrett Byrnes. KEEN is an association of ~ 70 marine scientists from around the globe interested in assessing the impacts of global change on kelp forests. Its primary objectives are to: (1) unify past kelp forest data sets from a wide variety of sources to examine the effects of different drivers of global change, (2) coordinate parallel experiments aimed at determining how kelp systems will change in the future, and (3) develop standardized sampling protocols to create a unified global kelp forest community dataset for public use. The latter objective relies extensively on sampling protocols developed by SBC.

Other key research outcomes and achievements by SBC from the past year are listed in "Accomplishments".

## **\* What opportunities for training and professional development has the project provided?**

Education and training are tightly integrated into all aspects of SBC LTER research. During the past year (year 6 of SBC III), 6 postdoctoral fellows, 25 graduate students, 8 REU students and 127 undergraduate students participated in SBC research. REU students work closely with SBC researchers on a wide range of topics and many choose to pursue an advanced degree following their undergraduate education. UCSB undergraduates have a high propensity to get involved in sponsored research and the SBC LTER contributes substantially to this. In addition to gaining research experience, many undergraduates earn academic credit or receive monetary compensation for participating in SBC research as interns and honors students. This year 35 students participated in SBC's undergraduate research training program. Students in the program actively assist in the collection, processing and analysis of core data and develop their own independent research projects. In the first term, students read primary literature to gain a foundation in core research areas, key findings, current research objectives and methods of the SBC LTER. Next, students gain hands on laboratory and field research experience. This year Investigator Melack offered an SBC seminar class for undergraduates designed to expand their understanding of SBC research and to gain experience reading and discussing scientific papers. Post-graduation, many SBC student participants are accepted into graduate studies, begin careers in their field or obtain highly competitive internships.

The focus of SBC's mentoring and training of postdoctoral scientists is on providing them with strong interdisciplinary skills, professional development opportunities, and the experience, and support required for them to transition to career faculty positions. In addition to the specific training associated with the SBC project, postdoctoral scientists are mentored through grant proposal development and writing and the job application and interview process by SBC investigators and via access to UCSB's resources for postdoctoral scientists. SBC graduate student and postdoctoral training are coordinated with several programs on the UCSB campus to promote opportunities for interdisciplinary graduate training in ecology, physiology, geology, geography, hydrology, oceanography, and coastal policy. This enables valuable cross-training on environmental issues pertaining to coastal ecosystems, provides a common language for communicating scientific information on these issues, and contributes to the creation of a diverse scientific community of students and postdocs that fosters respect and appreciation across disciplines. SBC graduate students and postdocs were first authors on 6 journal articles and gave 8 papers at national conferences this year. This year five SBC graduate students completed their PhD degrees and three students completed their masters degrees. Seminars hosted by SBC faculty, the SBC Annual All Scientist Meeting and SBC workshops on key themes served to engage SBC graduate students in the culture and diverse research offered by SBC.

Two SBC graduate students collaborated with other UCSB students on a successful proposal to the UC Ship Funds program (Scripps Institution of Oceanography) in 2017-18 that provided support for time aboard the *R/V Sally Ride (AGOR-28)* to lead a study on microbial processes in the SBC from December 16-22, 2017. The students developed plans for over a year to interrogate daily variability in microbial and biogeochemical stocks and rates, in a study called Across the Channel: Investigating Diel Dynamics (ACIDD). Their cruise coincided with the eruption of then the largest wildfire in California history, the Thomas Fire. Consequently, the team adjusted their plans to incorporate a direct investigation of how ash-deposition from wildfires impacts microbial life in the coastal ecosystem. ACIDD was a unique opportunity for SBC graduate students to assume stronger roles in the planning and decision-making needed to execute a successful research cruise. This cruise was widely covered in regional and local media (links in next section).

The LTER student blog, "Short Stories About Long-Term Ecological Research" (SSALTER), is entering its 3<sup>rd</sup> year: <https://ssalterblog.wordpress.com>. The blog was created by LTER graduate students following a joint SBC-MCR-CCE LTER graduate student symposium and the 2015 LTER All Scientists Meeting. The blog is providing a creative outlet for students engaged in long-term ecological research to informally share their research experiences with each other and the wider world. Current moderators are Christie Yorke (SBC) and Ali Freibott (CCE).

SSALTER also has a facebook page ("ssalterblog") and a twitter feed ("ssalterblog1").

Opportunities for training in public education and student mentoring arise from SBC's partnership with UCSB's teaching aquarium, the REEF, which is also designed to provide UCSB undergraduates majoring in Aquatic Biology with training in communicating their marine ecology knowledge. The REEF features SBC LTER research and provides a wide range of training and professional development opportunities. A total of 59 undergraduate interns were trained in this rigorous and pedagogically sound program this year. The REEF also serves as a teaching

facility for UCSB courses in Earth Sciences, Ecology Evolution & Marine Biology, English and Teacher Ed programs through the Gevirtz Graduate School of Education and for area colleges including Cal Lutheran University, California State University Channel Islands, and local community colleges. One of the joint goals of the SBC LTER and the REEF programs is to provide UCSB undergraduates majoring in Aquatic Biology, with a solid foundation in marine ecology and research. REEF training provides them with the basis for communicating this knowledge in an educational format. To that end, The REEF develops its *Oceans-to-Classrooms* curriculum around a number of research programs at UCSB and SBC LTER is the most significant contributor to this endeavor. Support from the SBC Schoolyard LTER program has allowed the REEF to obtain teaching supplies and equipment for curriculum as well as provide salaries for professional staff and undergraduate internships. SBC graduate students, research staff, and post-docs also train REEF interns, which, in turn, enhances their training as laboratory and field assistants and research divers for SBC research.

### **\* How have the results been disseminated to communities of interest?**

The dissemination of SBC's results occurs by way of the following mechanisms:

#### *SBC's Schoolyard LTER (sLTER)*

SBC's sLTER program is organized around a theme of kelp forest ecology. Curriculum is developed for, and delivered through, UCSB's Marine Science Institute's Research Experience & Education Facility (REEF) and its Oceans-to-Classrooms (O<sub>2</sub>C) curricula. We focus on long-term connections with local, regional and state schools through partnerships that include both on and off campus programs. Our approach supports an integrated program that spans academic year activities, as well as summer programs, and includes undergraduate and graduate students, K-12 teachers and students, the UC Community and the general public. SBC LTER-based curriculum is rich in STEM content and meets Next Generation Science Standards (NGSS), Common Core State Standards, as well as NOAA's Climate, and Ocean, Literacy Principles. O<sub>2</sub>C and the REEF served over 23,000 visitors this past year, up by 4,000, through our on-campus programs, outreach visits to schools, and community events. This included visits by primary and secondary schools from numerous southern, and central, California counties, as well as students from Arizona, New Mexico and Colorado. Additionally, we served students from China, Taiwan and Japan. This year sLTER specific program content reached over 12,000 students in grades K-12. On-campus efforts communicated SBC research to UCSB undergraduate and graduate students (See Training and Development section). We continue to develop and adapt marine science lesson plans that engage students with learning about the local marine environment in the context of the SBC LTER. These lessons incorporate ongoing SBC research and include working with SBC data. The program is developed to build student's skills in scientific inquiry through activities that move from structured or guided investigation to open-ended inquiry and experimentation. It also includes a combination of school-based activities, field trips, and on-campus experiences that immerse students in the environment of a college campus.

This year, SBC's sLTER continued to focus on partnership programs with: (1) the American Association of University Women's (AAUW): Tech Trek Program, and (2) the Santa Barbara Unified School District (SBUSD) Ocean Science Sequence (OSS) Partnership program.

1. Tech Trek is a UCSB on-campus residential science and math summer program designed to develop interest, excitement and self-confidence in young women entering the eighth grade. Tech Trek is part of an interdisciplinary partnership involving science, technology, engineering, and math departments at UCSB through the Office of Education Partnerships (OEP). The goal of OEP is to build college-going communities that improve student learning, increase college-going rates in underrepresented populations, and provide equal access to higher education for California's diverse students. In working with Tech Trek, the SBC SLTER program engaged two groups of 80 girls each (160 TOTAL) from junior high and middle schools from San Luis Obispo, Santa Barbara, Ventura, Kern and Los Angeles counties, representing a diverse range of socioeconomic and demographic groups. During a weeklong residency at UCSB, students participated in "core" science courses. This year the program focused on solutions to three real-world challenges, Ocean Exploration and Climate Change, Sustainable Foods, and What to Do With Decommissioned Oil Rigs. Participants enrolled in a "core" class based on their interests: Physics, Math, Engineering, or Marine Science. Students also engaged in a number of place-based, hands-on, activities that promoted concept application and citizenship, including a boat trip to SBC kelp forest study sites and SBC-based Floating Lab that focused on marine ecology and ecosystem services. We are now seeing former program participants enrolling as undergraduates at UCSB.



2. SBC LTER's partnership with the SBUSD completed another very successful year in teacher professional development, as well as academic support in participant classrooms. We remain committed to equipping educators with the tools they need to teach ocean and environmental science, foster science literacy, and cultivate the next generation of ocean stewards. SBC began developing a significant relationship with the UCSB Learning Centers. To this end we hosted a Summer Teacher Professional Development workshop that focused on the importance of place-specificity, the kelp forest and we developed specifically designed curricula for students that draws from SBC research.

#### *Earth Day Festival*

SBC co-hosted a booth with MCR-LTER at the 2018 Santa Barbara Earth Day Festival, to raise public awareness about LTER research. The festival had over 37,000 visitors. The booth activities included a kelp holdfast dissection and a virtual kelp forest (VKF) tour in which SBC students and staff acted as 'dive buddies' for children who toured the forest and collected data on kelp forest biota. With help from investigator Hofmann and SBC graduate, and undergraduate, students, the VKF tour was featured at this year's World Oceans Day, hosted at the SBMNH Sea Center for an estimated 2,800 visitors.

#### *LTER Children's Book*

In the Fall of 2017, we began distributing SBC's new contribution to the LTER Children's Book Series *The Golden Forest* (Blanchette and Dugan 2017). To date, we've distributed and utilized over 300 copies, as a teaching tool for our sLTER program. We also work, in a very strategic partnership, with over 150 Junior High School girls in collaboration with the American Association of University Women *Tech Trek* summer program. A highlight this year, was the use of The Golden Forest in the summer program's Marine Ecology Core class, in conjunction with explorations of the beach and the REEF (aquarium) all of which featured SBC LTER's research results in kelp forest and beach ecology.

#### *Press releases on SBC research*

During this reporting period SBC investigators and students contributed the following stories to the press.

Marine biologists author a children's book that explores connections between diverse life in California kelp and on sandy beaches: <http://www.news.ucsb.edu/2018/018627/golden-forest>

Managing and resisting outbreaks of invasive algae in southern California:

[https://www.nsf.gov/discoveries/disc\\_summ.jsp?entn\\_id=243296&org=NSF&from=news](https://www.nsf.gov/discoveries/disc_summ.jsp?entn_id=243296&org=NSF&from=news) ;

<http://www.news.ucsb.edu/2017/018475/resisting-alien-invasions>

Female purple sea urchins prime their progeny to succeed in the face of stress:

<http://www.news.ucsb.edu/2018/018782/rapid-adaptation>

Giant kelp can use a different form of dissolved nitrogen to maintain growth:

<http://www.news.ucsb.edu/2018/019009/steady-diet>

The effects of giant kelp on groups of organisms in the underwater forest ecosystem:

<http://www.news.ucsb.edu/2018/018791/lesson-darwin>

Cultivating kelp biomass as a novel energy sources: <http://www.news.ucsb.edu/2017/018267/cultivating-marine-biomass>

The impacts of beach grooming on ecosystem biodiversity and resilience:

<https://www.hakaimagazine.com/features/groomed-to-death/>

Graduate student oceanographic expedition: <https://www.independent.com/news/2018/feb/12/thomas-fire-ash-sampled-santa-barbara-channel/> ; <https://scripps.ucsd.edu/news/field-night-shift-santa-barbara-channel> ;

<https://www.hakaimagazine.com/news/the-sky-is-falling/> ;

<https://scripps.ucsd.edu/expeditions/sallyride/2017/12/15/an-opportunistic-mission/>

<https://www.newsdeeply.com/oceans/community/2018/01/19/sampling-the-sea-during-californias-apocalyptic-wildfires>

<https://www.facebook.com/SanDiegoUnionTribune/videos/10155805909786113/>

[https://www.popsci.com/how-wildfire-impacts-ocean?con=TrueAnthem&dom=fb&lnk=TA&src=SOC&utm\\_campaign&utm\\_content=5a3415d704d30137c1128bf&utm\\_medium&utm\\_source](https://www.popsci.com/how-wildfire-impacts-ocean?con=TrueAnthem&dom=fb&lnk=TA&src=SOC&utm_campaign&utm_content=5a3415d704d30137c1128bf&utm_medium&utm_source)

[https://tos.org/pdfs/ocean\\_news\\_15.pdf](https://tos.org/pdfs/ocean_news_15.pdf)

[https://tos.org/pdfs/ocean\\_news\\_15.pdf](https://tos.org/pdfs/ocean_news_15.pdf)

[https://tos.org/pdfs/ocean\\_news\\_15.pdf](https://tos.org/pdfs/ocean_news_15.pdf)

[https://tos.org/pdfs/ocean\\_news\\_15.pdf](https://tos.org/pdfs/ocean_news_15.pdf)

**\* What do you plan to do during the next reporting period to accomplish the goals?** During the next reporting period we will complete the research and education activities of our award

during a 1-year no-cost extension.

# Products

## Books

- Blanchette, C and J. E. Dugan (2017). *The Golden Forest* Rhinehart, A. Muddy Boots. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; ISBN: 978-1-63076-180-6

## Book Chapters

- Burnette, D, A Guerrini, JE Dugan (). Invisible landscapes: perception, heritage, and coastal change in Southern California.. *Coastal Heritage and Cultural Resilience* Dickey, E., L Price and N Marchi. Springer Nature. . Status = AWAITING\_PUBLICATION; Acknowledgement of Federal Support = Yes ; Peer Reviewed = Yes

## Inventions

### Journals or Juried Conference Papers

- Aburto-Oropeza, O. et al. (2018). Harnessing cross-border resources to confront climate change.. *Environmental Science and Policy*. 87 128. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: doi.org/10.1016/j.envsci.2018.01.001
- Aguilera, R. and J. M. Melack. 2018. , 54: 407-424. (2018). Concentration-discharge responses to storm events in coastal California watersheds.. *Water Resources Research*. 54 407. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes
- Aguilera, R. and J.M. Melack. (2018). Nutrient fluxes as a function of hydrologic variability, land cover and fires in coastal California catchments.. *JGR-Biogeosciences*. . Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: doi.org/10.1029/2017JG004119
- Aristizábal, M.F., M.R. Fewings, and L. Washburn (2017). Effects of the Relaxation of Upwelling-Favorable Winds on the Diurnal and Semidiurnal Water Temperature Fluctuations in the Santa Barbara Channel, California., *J. Geophys. Res. Oceans*., 122 7958. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: https://doi.org/10.1002/2017JC013199
- Bell, T. W., J.G. Allen, K.C. Cavanaugh and D.A. Siegel (2018). Three decades of variability in California's giant kelp forests from the Landsat satellites.. *Remote Sensing of the Environment*., . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: doi.org/10.1016/j.rse.2018.06.039.
- Bell, T. W., Reed, D. C., Nelson, N. B. and Siegel, D. A. (2018). Regional patterns of physiological condition determine giant kelp net primary production dynamics.. *Limnol. Oceanogr*.. 63 472. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: doi:10.1002/lno.10753
- Caselle, J., K. Davis and L. M. Marks. 2018. 21: 43-53. (2018). Marine management affects the invasion success of a non-native species in a temperate reef system in California, USA.. *Ecology Letters*., 21 43. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes
- Castorani, M.C.N., D.C. Reed, and R.J. Miller. (). Loss of foundation species: disturbance frequency outweighs severity in structuring kelp forest communities.. *Ecology*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes
- Catlett, D., & Siegel, D. A. (2018). Phytoplankton pigment communities can be modeled using unique relationships with spectral absorption signatures in a dynamic coastal environment.. *Journal of Geophysical Research: Oceans*. 123 246. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: https://doi.org/10.1002/2017JC013195
- Dauhajre, D., McWilliams, J.C. & Uchiyama, Y. (2017). Submesoscale coherent structures on the continental shelf.. *J. Phys. Oceanogr*.. 47 2949. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes
- Dornelas, M. et al. (2018). BioTIME: A database of biodiversity time series for the Anthropocene. *Global Ecology and Biogeography*. 27 (7), 760. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: DOI: 10.1111/geb.12729.
- Goodridge, B. (). The influence of submarine groundwater discharge on nearshore marine dissolved organic carbon reactivity, concentration dynamics, and offshore export.. *Geochimica et Cosmochimica*

*Acta*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

- Goodridge, B.M., E.J. Hanan, E. Wetherley, R. Aguilera, Y.-J. Chen, C.M. D'Antonio and J.M. Melack. (). Retention of nitrogen following wildfire in a chaparral ecosystem.. *Ecosystems*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes
- Lamy, T, S Wang, D Renard, KD. Lafferty, DC Reed, RJ Miller. (). Species insurance trumps spatial insurance in stabilizing biomass of a marine macroalgal metacommunity.. *Ecology*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes
- Lamy, T., Reed, D.C., Rassweiler, A., Siegel, D.A., Kui, L., Bell, T.W., Simons, R.D., and R.D. Miller, (2018), . , 186: 217-233. <https://doi.org/10.1007/s00442-017-3994-1>. (2018). Scale-specific drivers of kelp forest communities. *Oecologia*. 186 217. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: <https://doi.org/10.1007/s00442-017-3994-1>
- Lester, S.E., J.M. Stevens, R.R. Gentry, C.V. Kappel, T.W. Bell, C.J. Costello, S.D. Gaines, D.A. Kiefer, C.C. Maue, J.E. Rensel, R.D. Simons, L. Washburn, and C. White (2018). Marine spatial planning makes room for offshore aquaculture in crowded coastal waters. *Nature Communications*. 9 945. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: <https://www.nature.com/articles/s41467-018-03249-1>
- Marks, L. M., D. C. Reed, S. J. Holbrook. (). Life history traits of the invasive seaweed, *Sargassum horneri* in its introduced range.. *Aquatic Invasions*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes
- Miller, R. J., K. Lafferty, T. Lamy, L. . Kui, A. . Rassweiler and D. C. Reed (2018). Giant kelp, *Macrocystis pyrifera*, increases faunal diversity through physical engineering.. *Proc. R. Soc. B*. 285 20172571.. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes
- Muller-Karger, F.E., Hestir, E. , Ade, C. , Turpie, K. , Roberts, D. A., Siegel, D. , Miller, R. J., Humm, D. , Izenberg, N. , Keller, M. , Morgan, F. , Frouin, R. , Dekker, A. G., Gardner, R. , Goodman, J. , Schaeffer, B. , Franz, B. A., Pahlevan, N. , Mannino, A. G., Concha, J. A., Ackleson, S. G., Cavanaugh, K. C., Romanou, A. , Tzortziou, M. , Boss, E. S., Pavlick, R. , Freeman, A. , Rousseaux, C. S., Dunne, J. , Long, M. C., Klein, E. , McKinley, G. A., Goes, J. , Letelier, R. , Kavanaugh, M. , Roffer, M. , Bracher, A. , Arrigo, K. R., Dierssen, H. , Zhang, X. , Davis, F. W., Best, B. , Guralnick, R. , Moisan, J. , Sosik, H. M., Kudela, R. , Mouw, C. B., Barnard, A. H., Palacios, S. , Roesler, C. , Drakou, E. G., Appeltans, W. and Jetz, W. (2018). Satellite sensor requirements for monitoring essential biodiversity variables of coastal ecosystems. *Ecological Applications*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: [doi:10.1002/eap.1682](https://doi.org/10.1002/eap.1682)
- Nezhlin, N.P., K. McLaughlin, J.A.T. Booth, C.L. Cash, D.W. Diehl, K.A. Davis, A. Feit, R. Goericke, J.R. Gully, M.D.A. Howard, S. Johnson, A. Latker, M.J. Mengel, G.L. Robertson, A. Steele, L. Terriquez, L. Washburn, S.B. Weisberg (2018). Spatial and Temporal Patterns of Chlorophyll Concentration in the Southern California Bight. *J. Geophys. Res. Oceans*. 123 231. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: <https://doi.org/10.1002/2017JC013324>
- Rassweiler, A., Reed, D.C., Harrer, S.L. and Nelson, J.C. (). Improved estimates of net primary production, growth and standing crop of *Macrocystis pyrifera* in Southern California.. *Ecology*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes
- Reynolds, L.C., Simms, A.R., Ejarque, A., King, B., Anderson, R.S., Carlin, J.A., Bentz, J.M., Rockwell, T.K., Peters, R., 2018. Marine Geology 400: 49-59 (2018). Coastal flooding and the 1861-2 California storm season.. *Marine Geology*. 400 49. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes
- Smith, J. M., M. A. Brzezinski, J. M. Melack, R. J. Miller, and D. C. Reed. 2018. (2018). Urea as a source of nitrogen to giant kelp (*Macrocystis pyrifera*).. *Limnology and Oceanography Letters*. 3 (4), 365. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: [doi: 10.1002/lol2.10088](https://doi.org/10.1002/lol2.10088).
- Viola, S, HM Page, S Zaleski, RJ Miller, B. Doheny, JE Dugan, DM Schroeder (2018). Anthropogenic disturbance facilitates a non-native species on offshore oil platforms.. *Journal of Applied Ecology*. 55 (4), 1583. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes
- Washburn, L., E. Romero, C. Johnson, B. Emery, and C. Gotschalk (2017). Measurement of antenna patterns for oceanographic radars using aerial drones. *J. of Atmos. Oceanic. Tech.* 971. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: [doi: 10.1175/JTECH-D-16-0180.1](https://doi.org/10.1175/JTECH-D-16-0180.1),

- Wear, EK, EG Wilbanks, CE Nelson, and CA Carlson. (2018). Primer selection impacts specific population abundances but not community dynamics in a monthly time-series 16S rRNA gene amplicon analysis of coastal marine bacterioplankton. *Environmental Microbiology*. . Status = AWAITING\_PUBLICATION; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes ; DOI: doi:10.1111/1462-2920.14091
- Wong, J., K. Johnson, M. Kelly and G. E. Hofmann. (2018). Transcriptomics reveal transgenerational effects in purple sea urchins exposed to upwelling conditions, and the response of their progeny to differential pCO<sub>2</sub> levels.. *Molecular Ecology*. 27 1120. Status = PUBLISHED; Acknowledgment of Federal Support = Yes ; Peer Reviewed = Yes

## Licenses

### Other Conference Presentations / Papers

- Dugan, J., K. Emery, M. Alber, C. Alexander, J. Byers, A. Gehman, S. Lawson, K. McGlathery, N. McLenaghan (2015). *A conceptual model for predicting the ecological effects of coastal armoring in soft sediment environments*. 2015 LTER All Scientists Meeting. Estes Park, Colorado. Status = OTHER; Acknowledgement of Federal Support = Yes
- Schooler, NK and Dugan, JE and Martin, K and Hubbard, DM (2016). *A new method for monitoring urban beach ecosystems*. National Sea Grant Site Review, University of Southern California. Los Angeles, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Osborne, E., Thunell, R., Bizimis, M., Buckley, W., and Cai, W. (2015). *A sediment trap evaluation of B/Ca in planktonic foraminifera as a carbonate system proxy, August 2015*. Goldschmidt Conference. Prague., Status = OTHER; Acknowledgement of Federal Support = Yes
- Jones, J, J Sweet, U Passow, GE Hofmann and L Washburn (2013). *A year of in situ pH monitoring at Stearns Wharf: Establishing variance and reliability with point sampling*. SBC LTER Annual Meeting. Santa Barbara, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Dugan, JE and Schooler, NK and Martin, K (2015). *All Ashore - Introducing a New Program for Monitoring Sandy Beaches by Citizen Scientists*. Beach Ecology Coalition, Pepperdine University. Malibu, CA. Status = OTHER; Acknowledgement of Federal Support = No
- Emery, K. A., N. K. Schooler, J. E. Dugan, D. M. Hubbard, and K. Cavanaugh. (2018). *Assessing the recovery and resilience of sandy beach consumers following a major disturbance*.. 6th International Sandy Beach Symposium. Heraklion, Crete, Greece., Status = OTHER; Acknowledgement of Federal Support = Yes
- Bell, TW and Siegel, DA (2016). *Assessment of giant kelp physiological state using airborne hyperspectral imagery (EC21B-04)*. 2016 Ocean Sciences Meeting (ASLO, AGU, TOS). New Orleans, LA, USA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Dugan, JE, Hubbard, DM and Quigley, B (2013). *Beyond beach width: steps toward identifying and integrating dynamic ecological envelopes with geomorphic features and datums for sandy beach ecosystems (invited)*. 44th Annual Binghamton Geomorphology Symposium. Newark, NJ. Status = OTHER; Acknowledgement of Federal Support = Yes
- Dugan, JE and Hubbard, DM and Blanchette, CA (2016). *Birds as indicator of ecosystem condition on rocky and sandy shores*. Annual Meeting of the Western Society of Naturalists. Sacramento, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Wear, EK and Carlson, CA and Siegel, DA and Guillocheau, N and Nelson, CE (2016). *Bottom-up controls on a coastal bacterioplankton time-series: relative utility of in situ vs. remotely-sensed measurements*. Coastal and Estuarine Research Federation. Portland, OR. Status = OTHER; Acknowledgement of Federal Support = Yes
- Goodridge, B and Melack, JM (2013). *Carbon and nitrogen stoichiometry regulates the magnitude and temporal dynamics of nitrogenous nutrient regeneration in sandy beach pore water*. American Geophysical Union, Annual Meeting. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Jones, J (2014). *Carbonate system monitoring and manipulation: current and future research*. UCSB Interdepartmental Graduate Program in Marine Science Seminar. Santa Barbara, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- D.C. Reed, D.A. Siegel, R.D. Simons P.T. Raimondi, and F. Alberto. (2017). *Castorani, M.C.N., T.W. Bell, K.C. Cavanaugh, Aerial and satellite remote sensing reveals the spatial ecology of kelp forests and seagrass meadows*.. 24th Biennial Conference of the Coastal & Estuarine Research Federation.. Providence, RI. Status = OTHER; Acknowledgement of Federal Support = Yes

- Schooler, NK, Dugan, JE, Hubbard, DM and Straughan, D (2013). *Changing sandy beach ecosystems in California: comparisons of intertidal biodiversity three decades apart*. 44th Annual Binghamton Geomorphology Symposium. Newark, NJ. Status = OTHER; Acknowledgement of Federal Support = Yes
- Schooler, NK, Dugan, JE, Hubbard, DM and Straughan, D (2013). *Changing sandy beach ecosystems in California: comparisons of intertidal biodiversity three decades apart (poster)*. 44th Annual Binghamton Geomorphology Symposium. Newark, NJ. Status = OTHER; Acknowledgement of Federal Support = Yes
- Romero, L and Siegel, DA and McWilliams, JC and Uchiyama, Y and Jones, C (2016). *Characterizing stormwater dispersion and dilution from small coastal streams (EC12B-04)*. 2016 Ocean Sciences Meeting (ASLO, AGU, TOS). New Orleans, LA, USA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Washburn, L (2014). *Circulation along the central California coast: Response to relaxations of upwelling winds*. King Abdullah University of Science and Technology. Thuwal Kingdom of Saudi Arabia. Status = OTHER; Acknowledgement of Federal Support = Yes
- Dugan, JE (2016). *Coastal Ecosystem Vulnerability Assessment for Santa Barbara County: Sandy Beaches*. Workshop: Santa Barbara Area Coastal Ecosystem Vulnerability Assessment for Coastal Communities (SBA CEVA). Santa Barbara, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Melack, JM (2016). *Coastal Ecosystem Vulnerability Assessment for Santa Barbara County: Watershed Impacts*. Workshop: Santa Barbara Area Coastal Ecosystem Vulnerability Assessment for Coastal Communities (SBA CEVA). Santa Barbara, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Page, HM (2015). *Coastal Ecosystem Vulnerability Assessment for Santa Barbara County: Wetland vulnerability*. Workshop: Santa Barbara Area Coastal Ecosystem Vulnerability Assessment for Coastal Communities (SBA CEVA). Santa Barbara, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Emery, N and D'Antonio, C (2014). *Coastal fog effects on live fuel moisture of California shrublands*. International Society of Mediterranean Ecology (MEDECOS XIII). Olmue Chile. Status = OTHER; Acknowledgement of Federal Support = Yes
- Schooler, NK, JE Dugan, DM Hubbard. (2018). *Coastal urbanization: intense management regimes alter and strongly degrade sandy beach ecosystems..* 6th International Symposium on Sandy Beaches. Heraklion, Crete, Greece. Status = OTHER; Acknowledgement of Federal Support = Yes
- Okamoto, DK (2016). *Competition among Eggs Shifts to Cooperation along a Sperm Supply Gradient in an External Fertilizer*. International Temperate Reef Symposium. Pisa Italy. Status = OTHER; Acknowledgement of Federal Support = Yes
- Okamoto, DK (2014). *Competition among eggs shifts to cooperation along a sperm supply gradient in an external fertilizer*. Annual Meeting of the Western Society of Naturalists. Tacoma, WA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Castorani, MC, DC Reed, F Alberto, TW Bell, RD Simons, KC Cavanaugh, DA Siegel and PT Raimondi (2015). *Connectivity structures local population dynamics: a long-term empirical test in a large metapopulation network*. Annual Meeting of the Ecological Society of America (ESA). Baltimore, MD. Status = OTHER; Acknowledgement of Federal Support = Yes
- Hendrikx-Freitas, F, Stassinis, F, Halewood, S, Washburn, L and Siegel, DA (2014). *Coupling between physical and bio-optical variability across the innershelf Santa Barbara Channel, CA (poster)*. 2014 Ocean Sciences Meeting (ASLO, TOS, AGU). Honolulu, HI. Status = OTHER; Acknowledgement of Federal Support = Yes
- Dugan, JE and Emery, K and Alber, M and Alexander, C and Beyers, J and Gehman, A and McLenaghan, N and Sojka, S (2016). *Cross-site synthesis: a conceptual model for predicting the ecological effects of coastal armoring in soft-sediment environment (Poster)*. Coastal and Estuarine Research Federation. Portland, OR. Status = OTHER; Acknowledgement of Federal Support = Yes
- Simon, SE, Johnson, M, Cano, A.; Blanchette, C, and Whitmer, A.C. (2013). *Culturally Relevant Ecology, Learning Progressions and Environmental Literacy at the Santa Barbara Coastal LTER, Poster*. Santa Barbara Coastal Long-term Ecological Research Project Annual Meeting. Santa Barbara, CA. USA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Johnson, M, Simon, SE, Cano, A, Blanchette, C, and Whitmer, AC (2013). *Culturally Relevant Ecology, Learning Progressions and Environmental Literacy at the Santa Barbara Coastal LTER. Poster..* Santa

- Barbara Coastal Long-term Ecological Research Project Annual Meeting. Santa Barbara, CA. USA. Status = OTHER; Acknowledgement of Federal Support = Yes
- O' Brien, M., M. Schildhauer, M. Jones, D. McGuinness, B. Leinfelder, C. Jones, S. Hou, L. Walker (2015). *DataONE Semantics and Provenance*. 2015 LTER All Scientists Meeting. Estes Park, Colorado. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Reynolds, LC and Truong, C and Ejarque, M and Simms, AR and Anderson, S (2016). *Dating historical sediments in estuaries: A multiproxy approach (Poster)*. American Geophysical Union, Annual Meeting. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Castorani, MC and Reed, DC and Raimondi, PT and Alberto, F and Bell, TW and Cavanaugh, KC and Siegel, DA and Simons, RD (2016). *Demographic connectivity structures the dynamics of giant kelp metapopulations*. International Temperate Reef Symposium. PisaItaly. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Catlett, D and Siegel, DA and Guillocheau, N (2017). *Derivative analysis demonstrates the potential and limitations for deriving phytoplankton community structure from hyperspectral ocean color observations (Poster)*. ASLO, AGU, TOS - Ocean Sciences. Honolulu, HI. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Marks, LM and Reed, DC and Holbrook, SJ (2016). *Development of management strategies for the invasive seaweed Sargassum horneri (poster)*. International Conference on Marine Bioinvasions. SydneyAustralia. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Michaud, K, K. Emery, J. E. Dugan, R Miller, D. Hubbard (2018). *Differential use of wrack resources provides niche separation in intertidal consumers on California beaches..* 6th International Symposium on Sandy Beaches., Heraklion, Crete, Greece. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Marks, LM and Reed, DC and Holbrook, SJ (2016). *Ecological causes and consequences of the invasive seaweed Sargassum horneri in the eastern Pacific*. International Conference on Marine Bioinvasions. SydneyAustralia. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Guerrini, A (2015). *Ecological histories: Contrasting uses of history at two LTER sites*. Annual Meeting of the Ecological Society of America (ESA). Baltimore, MD. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Frazier, HN and Melack, JM (2016). *Ecosystem metabolism response to urban development in coastal California streams*. Society for Freshwater Science Annual Meeting. Sacramento, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Hanan, E and Schimel, JP and Tague, CL (2016). *Effects of climate and fire timing on nitrogen cycling and retention in chaparral watersheds*. American Geophysical Union, Annual Meeting. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Smith, C., H. Lowman, and J. Melack. (2018). *Effects of low pH on Microbially Mediated Nitrogen Transformations in Marine Sediments..* Ocean Sciences Meeting (ASLO, AGU, TOS).. Portland, OR, USA., Status = OTHER; Acknowledgement of Federal Support = Yes
  - James, A., C. Carlson, U. Passow, M. Brzezinski, R. Parsons, J.N. Trapani (2015). *Elevated pCO2 Increases Respiration of DOC by Natural Bacterioplankton*. 2015 LTER All Scientists Meeting. Estes Park, Colorado. Status = OTHER; Acknowledgement of Federal Support = Yes
  - James, A (2016). *Elevated pCO2 Increases Respiration of DOC by Natural Bacterioplankton (poster)*. LTER All Scientists Meeting. Estes Park, CO. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Servilla, M, O'Brien, MC, and Costa, D (2013). *Ensuring the quality of data packages in the LTER Network data management system*. American Geophysical Union, Annual Meeting. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Osleger, D.J., Simms, A.R. (2017). *Estuarine Response to Disturbance: A Holocene Record of Storm Episodes, Tectonics, and Climatic Shifts as Preserved in Coastal Systems (72-2)..* Geological Society of America Annual Meeting., Seattle, WA, USA., Status = OTHER; Acknowledgement of Federal Support = Yes
  - Ellis, DP, Washburn, L, Ohlmann, C, Schofield, O and Moline, M (2014). *Evaluating the performance of underwater gliders as virtual moorings off Pt. Sal, California*. 2014 Ocean Sciences Meeting (ASLO, TOS, AGU). Honolulu, HI. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Reed, DC (2016). *Extreme warming challenges kelp forests as sentinels of climate change*. International Temperate Reef Symposium. PisaItaly. Status = OTHER; Acknowledgement of Federal Support = Yes

- Hanan, E., N. Tague, J. Schimel (2015). *Factors regulating nitrogen retention during the early stages of recovery from fire in coastal chaparral ecosystems*. 2015 LTER All Scientists Meeting. Estes Park, Colorado. Status = OTHER; Acknowledgement of Federal Support = Yes
- Hanan, E (2015). *Factors regulating nitrogen retention during the early stages of recovery from fire in coastal chaparral ecosystems (poster)*. LTER All Scientists Meeting. Estes Park, CO. Status = OTHER; Acknowledgement of Federal Support = Yes
- Dugan, JE, C. Ohlmann, RJ Miller, DM Hubbard, K Emery, T. Koeper, J. Madden. (2018). *Fate and Transport of Giant Kelp in Coastal California Waters..* Ocean Sciences Meeting (ASLO, AGU, TOS).. Portland, OR, USA,. Status = OTHER; Acknowledgement of Federal Support = Yes
- Liedle, J and Yorke, C (2016). *Feeding and distribution of the Norris's kelp snail*. UCSB Undergraduate Research Colloquium. Santa Barbara, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Harrison, CS, Siegel, DA and Mitarai, S (2014). *Filamentation and eddy-eddy interactions in marine larval accumulation and transport*. 2014 Ocean Sciences Meeting (ASLO, TOS, AGU). Honolulu, HI. Status = OTHER; Acknowledgement of Federal Support = Yes
- Bentz, M and Simms, AR and Buzzas-Stephans, P (2015). *Foraminifera zonations in southern California Salt Marshes. (poster)*. Pacific Section American Association of Petroleum Geologists/Society for Sedimentary Geology (AAPG/SEPM). Oxnard, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Osborne, EB, Thunell, RC, Benitez-Nelson, CR and Cai, WJ (2013). *Foraminiferal area density as a proxy for changing ocean acidity in the California Current System (poster)*. American Geophysical Union, Annual Meeting. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reed, DC (2014). *Forest Restoration: A case study of the Wheeler North Artificial Reef in southern California (invited)*. Marine Ecological Restoration (MER) Workshop. Eilat/Israel. Status = OTHER; Acknowledgement of Federal Support = Yes
- Castorani, MC and Reed, DC and Raimondi, PT and Alberto, F and Bell, TW and Cavanaugh, KC and Siegel, DA and Simons, RD (2016). *Giant kelp: a model system for testing metapopulation theory*. Annual Meeting of the Western Society of Naturalists. Sacramento, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Ohlmann, JC and Washburn, L and Ellis, DP and Fewings, MR (2016). *HF Radar Observations of Pressure-Driven Coastal Flows Opposing the Prevailing Winds*. 2016 Ocean Sciences Meeting (ASLO, AGU, TOS). New Orleans, LA, USA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reynolds, L.C., Simms, A.R., Rockwell, T.K., Yokoyama, Y., Miyairi, Y., and Hangsterfer, A. (2017). *Holocene co-seismic Subsidence along a non-subducting active margin (EP31B-1875)*. Paper presented at the , December, 2017. American Geophysical Union Annual Meeting,. New Orleans, LA, USA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reynolds, LC and Simms, AR and Rockwell, T and Peters, R (2016). *Holocene evolution of Carpinteria Marsh, southern California: storms and subsidence..* Southern California Earthquake Center, Annual Meeting. Palm Springs, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reynolds, L, AR Simms, T Rockwell and R Peters (2015). *Holocene evolution of Carpinteria Salt Marsh, Southern California: Evidence for Subsidence*. Annual Meeting of the Seismological Society of America. Pasadena, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reynolds, L and Simms, AR (2015). *Holocene relative sea level in southern California: implications for estimates of recent tectonic rates on the coast*. Pacific Section American Association of Petroleum Geologists/Society for Sedimentary Geology (AAPG/SEPM). Oxnard, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Bell, TW and Siegel, DA (2017). *Hyperspectral remote sensing: Unlocking process in a marine foundation species*. Ecological Society of America. Portland, OR. Status = OTHER; Acknowledgement of Federal Support = Yes
- Flannery, N and Dodgen, R and Schooler, NK and Dugan, JE (2016). *Impacts of urbanization on sandy beach ecosystems*. UCSB Undergraduate Research Colloquium. Santa Barbara, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Hanan, E and Schimel, JP (2015). *Integrating pH, substrate, and plant regrowth effects on soil N cycling after fire*. Annual Meeting of the Ecological Society of America (ESA). Baltimore, MD. Status = OTHER; Acknowledgement of Federal Support = Yes

- Hanan, E., Schimel, J.P., Tague, C.L. and D'Antonio, C. (2014). *Integrating pH, substrate, and plant regrowth effects on soil N cycling after fire*. American Geophysical Union, Annual Meeting. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Aristizabal, MF and Fewings, MR and Washburn, L (2016). *Intermittency in the Diurnal and Semidiurnal Temperature Oscillations in the Santa Barbara Channel, California*. 2016 Ocean Sciences Meeting (ASLO, AGU, TOS). New Orleans, LA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Iglesias-Rodriguez, M.D., P.G. Matson, T.M. Ladd, and Z.S. Welch. (2018). *Intraspecific Variation in Cellular Carbon Compartmentalization Across Coccolithophore Morphotypes (MM44A-1508)*. Ocean Sciences Meeting (ASLO, AGU, TOS). Portland, OR, USA,. Status = OTHER; Acknowledgement of Federal Support = Yes
- Hubbard, DM, JE Dugan, P Barnard, D Hoover, A Snyder,. K Emery. (2018). *Life on the edge: Predicting effects of sea level rise on sandy beach ecosystems*.. 6th International Symposium on Sandy Beaches. Heraklion, Crete, Greece. Status = OTHER; Acknowledgement of Federal Support = Yes
- Lowman, H., J. Melack, and M. Page. (2018). *Lignin Phenols as Biomarkers of Terrestrial Organic Matter in the Santa Barbara Channel*.. Association for the Sciences of Limnology and Oceanography (ASLO) Summer Meeting.. Victoria, BC, Canada,. Status = OTHER; Acknowledgement of Federal Support = Yes
- Chen, H and Jones, C and Melack, JM (2016). *Linkages between rainfall regimes and storage-discharge relations under climate variability in coastal California watersheds (Poster GC13-1210)*. American Geophysical Union - fall meeting. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Simons, RD, MM Nishimoto, L Washburn, and DA Siegel (2014). *Linking physical dynamics and biological productivity in a coastal mesoscale eddy*. American Geophysical Union, Annual Meeting. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Hubbard, DM, Dugan, JE, Schooler, NK, and Viola, S. (2013). *Local extirpations and regional declines: the case of endemic upper beach fauna in southern California*. Coastal and Estuarine Research Federation. San Diego, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Bell, TW (2016). *Longterm Monitoring of Giant Kelp Biomass Dynamics Exposes Non-Linear Relationships with Environmental Drivers*. Annual Meeting of the Western Society of Naturalists. Sacramento, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Castorani, M.C.N., R.J. Miller, and D.C. Reed. (2017). *Loss of giant kelp forests: how disturbance frequency and severity affect reef communities*.. 98th Annual Meeting of the Western Society of Naturalists. Pasadena, CA.. Status = OTHER; Acknowledgement of Federal Support = Yes
- Cavanaugh, KC (2016). *Macroecology of giant kelp forests: Environmental and spatial controls of giant kelp dynamics*. Scripps Institute of Oceanography Marine Biology Seminar. San Diego, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Washburn, L., B. Emery, E. Romero, D. Salazar, and C. Johnson, (2018). *Measurement of Near-Field Variability and the 3-D structure of Antenna Patterns of Oceanographic Radars using Small Aerial Drones*.. European Conference on Antennas and Propagation,. London, UK,. Status = OTHER; Acknowledgement of Federal Support = Yes
- Jones, J, Sweet, J, Gotschalk, C, Washburn, L, Hofmann, GE and Passow, U (2014). *Monitoring the carbonate system at Stearns Wharf*. UCSB Interdepartmental Graduate Program in Marine Science Seminar. Santa Barbara, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Romero, L, Uchiyama, Y, Ohlmann, JC, McWilliams, JC and Siegel, DA (2014). *Nearshore anisotropic relative dispersion in Southern California*. 2014 Ocean Sciences Meeting (ASLO, TOS, AGU). Honolulu, HI. Status = OTHER; Acknowledgement of Federal Support = Yes
- Washburn, L and Romero, E and Johnson, C and Emery, BM (2016). *New applications for autonomous aerial vehicles in coastal oceanographic research*. 2016 Ocean Sciences Meeting (ASLO, AGU, TOS). New Orleans, LA, USA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Dodgen, R and Dugan, JE and Schooler, NK (2016). *Niche separation in California beachhoppers*. UCSB Undergraduate Research Colloquium. Santa Barbara, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Castorani, MC and Reed, DC and Raimondi, PT and Alberto, F and Bell, TW and Cavanaugh, KC and Siegel, DA and Simons, RD (2017). *Novel insight into metapopulation theory through long-term study of giant kelp forests*. Ecological Society of America. Portland, OR. Status = OTHER; Acknowledgement of Federal Support = Yes



- Washburn, L, Ohlmann, C, Ellis, DP, Schofield, O and Moline, M (2014). *Observations of poleward flows around the bio-geographic boundary at Pt. Conception, CA using ocean observing system technologies*. 2014 Ocean Sciences Meeting (ASLO, TOS, AGU). Honolulu, HI. Status = OTHER; Acknowledgement of Federal Support = Yes
- Fernandez, J, Reed, N, Barloon, W, Johnson, C and Washburn, L (2014). *Oceanographic pressure sensor calibration*. 2014 Ocean Sciences Meeting (ASLO, TOS, AGU). Honolulu, HI. Status = OTHER; Acknowledgement of Federal Support = Yes
- Emery, BM and Mezic, I and Loire, S and Arabi, H and Ohlmann, JC and Harlan, J (2016). *Oil Spill Trajectories from HF Radars: Applied Dynamical Systems Methods vs. a Lagrangian Stochastic Model*. 2016 Ocean Sciences Meeting (ASLO, AGU, TOS). New Orleans, LA, USA. Status = OTHER; Acknowledgement of Federal Support = No
- Dugan, JE and Miller, RJ and Ohlmann, JC and Hubbard, DM and Emery, K and Madden, J and Koeper, T (2017). *Patterns and processes affecting the transport, retention and fate of trophic subsidies to sandy beach ecosystems (Poster)*. Ecological Society of America. Portland, OR. Status = OTHER; Acknowledgement of Federal Support = Yes
- Matson, P (2016). *Physical dynamics associated with a novel coccolithophore bloom in the Santa Barbara Channel*. UCSB Interdepartmental Graduate Program in Marine Science. Santa Barbara, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reed, DC, L Washburn, C Blanchette and TW Bell (2015). *Physical-chemical anomalies and associated ecological responses in southern California kelp forests*. Pacific Anomalies Science and Technology Workshop, Scripps Institution of Oceanography. La Jolla, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Osborne, E., Thunell, R., Bizimis, M., and Benitez-Nelson, C. (2014). *Planktonic foraminiferal response to ocean acidification in the Santa Barbara Basin over the last century*. AGU Fall Meeting., San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Osborne, R., Thunell, R., Gruber, N., Benitez-Nelson, C., and Cai, W. (2015). *Planktonic foraminiferal shell thickness as a carbonate ion concentration proxy*. SCOR Workshop on the Biology of Planktonic Foraminifera., Catalina Island, CA., Status = OTHER; Acknowledgement of Federal Support = Yes
- Bell, TW, Cavanaugh, KC, Reed, DC and Siegel, DA (2013). *Primary controls on giant kelp biomass throughout California*. Annual Meeting of the Western Society of Naturalists. Oxnard, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Wear, EK, EG Wilbanks, CE Nelson, and CA Carlson. (2018). *Primer selection impacts specific population abundances but not community dynamics in a monthly time-series 16S rRNA amplicon analysis of coastal marine bacterioplankton..* Ocean Sciences Meeting. Portland, OR, USA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reed, DC (2013). *Production not attraction accounts for high macroalga biomass at Wheeler North Reef*. Annual Meeting of the Western Society of Naturalists. Oxnard, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Jin, H.; Shin, H.J.; Johnson, M.; Kim, J.; Anderson, C.W. (2014). *Promise and Problems of Learning Progression-guided Interventions*. Oral presentation. National Association for Research in Science Teaching Annual International Conference. Pittsburgh, PA. USA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Dugan, JE, DM Hubbard, KE Emery, R Miller, C Ohlman, J Madden. (2018). *Quantifying ecological responses to trophic connectivity between sandy beaches and kelp forests..* 6th International Symposium on Sandy Beaches. Heraklion, Crete, Greece. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reynolds, L, Holmquist, J, Brown, L, Southon, J, Simms, AR and McDonald, G (2014). *Radiocarbon Reservoir Variability in California Estuaries*. International Radiocarbon in the Environment Conference. Belfast, Northern Ireland, UK. Status = OTHER; Acknowledgement of Federal Support = Yes
- Washburn, L and Emery, BM and Ohlmann, JC and Fewings, MR and Romero, E and Johnson, C and Salazar, D and Robbins, I (2015). *Recent research and technology development using HF radars in Southern California*. Radiowave Oceanography Workshop, Woods Hole Oceanographic Institution. Woods Hole, MA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Chen, M and Wetherley, E and Roberts, DA and Potapenko, J (2016). *Reconstructing Fire Severity and Post-Fire Recovery in a Southern California Watershed Using Hyperspectral Imagery and LiDAR*. Annual

Meeting of the American Association of Geographers. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes

- Bell, TW (2014). *Remote monitoring of giant kelp biomass and photosynthetic condition: An evaluation of the potential for the Hyperspectral Infrared Imager (HyspIRI) mission (poster)*. Annual Meeting of the Western Society of Naturalists. Tacoma, WA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Bell, TW (2014). *Remote monitoring of giant kelp biomass and photosynthetic condition: An evaluation of the potential for the Hyperspectral Infrared Imager (HyspIRI) mission (poster)*. HyspIRI Science Workshop. Pasadena, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Bell, TW (2014). *Remote monitoring of giant kelp biomass and physiological condition: An evaluation of the potential for the Hyperspectral Infrared Imager (HyspIRI) mission (poster)*. American Geophysical Union, Annual Meeting. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Bell, TW (2015). *Remote monitoring of giant kelp biomass and physiological condition: An evaluation of the potential for the Hyperspectral Infrared Imager (HyspIRI) mission (poster)*. International Ocean Color Meeting. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Simons, RD, Nishimoto, MM, Washburn, L, Brown, KS and Siegel, DA (2014). *Retention of juvenile fish in a coastal mesoscale eddy: Field observations and three-dimensional modeling*. 2014 Ocean Sciences Meeting (ASLO, TOS, AGU). Honolulu, HI. Status = OTHER; Acknowledgement of Federal Support = Yes
- Koenigs, C. (2015). *Role of biodiversity in promoting stability in kelp forest communities (poster)*. LTER All Scientists Meeting. Estes Park, CO. Status = OTHER; Acknowledgement of Federal Support = Yes
- Simon, S., D. Reed (2015). *SBC sLTER: Place-based Ocean Science Education*. 2015 LTER All Scientists Meeting. Estes Park, Colorado. Status = OTHER; Acknowledgement of Federal Support = Yes
- Bell, T.W., Allen, J.A., Cavanaugh, K.C., Siegel, D.A. (2018). *SEPARATING POTENTIAL GLOBAL CHANGE TRENDS FROM LOW FREQUENCY CLIMATE OSCILLATIONS IN NORTHEAST PACIFIC KELP FORESTS*. ASLO Summer Meeting, Victoria, BC, Canada. Status = OTHER; Acknowledgement of Federal Support = Yes
- Dugan, JE, Hubbard, DM and Page, HM (2013). *Sandy beaches as recipient ecosystems: the influence of subsidies on intertidal community structure and higher trophic levels*. Coastal and Estuarine Research Federation. San Diego, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Bell, TW and Siegel, DA (2017). *Scale dependence of bottom-up versus demographic controls on the dynamics of giant kelp forests*. Ecological Society of America. Portland, OR. Status = OTHER; Acknowledgement of Federal Support = Yes
- Bell, TW and Siegel, DA (2016). *Scale dependence of bottom-up vs. demographic controls on the dynamics of giant kelp forests*. Western Society of Naturalists. Monterey, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reynolds, LC and Simms, AR and Carlin, J (2016). *Sedimentary Record of Recent Flood Events from Saucos Canyon, Santa Cruz Island, California*. Cordilleran Section, Geological Society of America 112th Annual Meeting. Ontario, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reynolds, LC and Simms, AR and Carlin, J (2016). *Sedimentary Record of Recent Flood Events from Saucos Canyon, Santa Cruz Island, California*. University of California Natural Reserve System Mathias Symposium. Bodega Bay, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reynolds, L, Simms, AR, King, B, Rockwell, T and Peters, R (2013). *Sedimentological Evidence of the 1812 Santa Barbara Tsunami in Carpinteria Marsh, CA*. American Geophysical Union, Annual Meeting. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reynolds, L, Simms, AR, King, B, Rockwell, T and Peters, R (2013). *Sedimentological Evidence of the 1812 Santa Barbara Tsunami in Carpinteria Marsh, CA (poster)*. Southern California Earthquake Center, Annual Meeting. Palm Springs, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Romero, L, Uchiyama, Y, Ohlmann, JC, McWilliams, JC and Siegel, DA (2013). *Simulations of nearshore particle-pair dispersion in Southern California*. 60th Annual Eastern Pacific Ocean Conference. Fallen Leaf Lake, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Wear, EK and Carlson, CA and Siegel, DA and Guillocheau, N and Nelson, CE (2016). *Spatial variability in bacterioplankton community composition can equal the magnitude of seasonal changes within a highly*

- heterogeneous coastal system (Poster)*. International Society for Microbial Ecology (ISME). Montreal, ON, Canada. Status = OTHER; Acknowledgement of Federal Support = Yes
- Aquilera, R and Melack, JM and Goodridge, BM (2016). *Spatio-temporal patterns of nutrient fluxes as a function of hydrologic variability, land cover and fires in coastal California catchments*. American Geophysical Union - fall meeting. San Francisco, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Emery, K. A., J. E. Dugan, and R. J. Miller. (2017). *Species identity controls consumer-mediated ecosystem function in a sandy beach ecosystem*. Coastal and Estuarine Research Federation (CERF), Providence, RI. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Chen, M (2015). *Studying Fire Severity and Post-fire Landscape Recovery on SBC Site Using Hyperspectral and LiDAR Data*. UCSB Departmental of Evolution, Ecology and Marine Biology Seminar. Santa Barbara, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Rahimi, A.M., Miller, R.J., Fedorov, D.V., Sunderrajan, S., Doheny, B.M., Page, H.M. and Manjunath, B.S. (2014). *Subtidal marine biodiversity classification using dropout regularization*. Proceedings of the 22th International Conference on Pattern Recognition (ICPR); workshop on Computer Vision for Analysis of Underwater Imagery. . Status = OTHER; Acknowledgement of Federal Support = Yes
  - Kramer, V, K. Emery, J. Dugan, D. Hubbard, R. Miller (2018). *Surface activity patterns as a mechanism of niche separation of sympatric talitrid amphipods on California beaches*. 6th International Symposium on Sandy Beaches. Heraklion, Crete, Greece. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Hendrikx Freitas, F and Fields, E and Maritorena, S and Siegel, DA (2016). *Surface waves as major controls on particle backscattering in southern California coastal waters (ME52A-04)*. 2016 Ocean Sciences Meeting (ASLO, AGU, TOS). New Orleans, LA, USA. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Reed, DC (2014). *Targets and evaluation of ecological restoration (invited)*. Marine Ecological Restoration (MER) Workshop. EilatIsrael. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Simms, AR and Reynolds, LC and Bentz, M and Roman, A and Rockwell, T and Peters, R (2016). *Tectonics subsidence of California estuaries increases forecasts of relative sea-level rise*. Cordilleran Section, Geological Society of America 112th Annual Meeting. Ontario, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Bell, TW (2014). *Temporal and spatial variability in the photosynthetic condition of giant kelp*. Annual Meeting of the Western Society of Naturalists. Tacoma, WA. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Guerrini, A (2016). *The Long View: History, Novelty, and Change*. Annual Meeting of the Ecological Society of America (ESA). Ft. Lauderdale, FL. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Aristizabal, MF, Fewings, MR, Washburn, L and Dorman, C (2014). *The influence of internal waves on the temperature variability in the Santa Barbara Channel*. 2014 Ocean Sciences Meeting (ASLO, TOS, AGU). Honolulu, HI. Status = OTHER; Acknowledgement of Federal Support = Yes
  - O'Brien, MC (2016). *The repository landscape from the data contributor point-of-view*. Earth Science Information Partners (ESIP), Summer Meeting. Durham, NC. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Viola, S., M. Page, R. Miller, S. Zaleski, B. Doheny, J. Dugan, D. Schroeder (2015). *The role of disturbance, larval supply, and native community on the establishment of a non-native species on oil platforms in the Santa Barbara Channel*. 2015 LTER All Scientists Meeting. Estes Park, Colorado. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Viola, SV and Page, HM and Miller, RJ and Zaleski, S and Doheny, B and Dugan, JE and Schroeder, D (2015). *The role of disturbance, larval supply, and native community on the establishment of a non-native species on oil platforms in the Santa Barbara Channel (poster)*. LTER All Scientists Meeting. Estes Park, CO. Status = OTHER; Acknowledgement of Federal Support = Yes
  - Viola, SV and Page, HM and Miller, RJ and Zaleski, S and Doheny, BM and Dugan, JE and Schroeder, D (2016). *The role of disturbance, larval supply, and native community on the establishment of a non-native species on offshore oil platforms in the Santa Barbara Channel (Poster)*. 2016 Ocean Sciences Meeting (ASLO, AGU, TOS). New Orleans, LA, USA. Status = OTHER; Acknowledgement of Federal Support = Yes

- Reed, DC (2013). *The value of Long Term Ecological Research (invited plenary)*. Annual Meeting of the Western Society of Naturalists. Oxnard, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reed, DC (2014). *The value of a long-term perspective in understanding short-term dynamics of giant kelp ecosystems (invited plenary)*. 10th International Temperate Reefs Symposium. Perth, Western Australia, Australia. Status = OTHER; Acknowledgement of Federal Support = Yes
- Goodridge, B and Melack, JM (2014). *Time-scale of stream nutrient recovery following wildfire in an upland chaparral watershed in Santa Barbara, California*. Joint Aquatic Sciences Meeting. Portland, OR. Status = OTHER; Acknowledgement of Federal Support = Yes
- Hanan, E., Schimel, JP and Tague, CL (2015). *Timing of fire influences nitrogen cycling and retention in chaparral watersheds*. Southern California Chaparral Symposium (USFS). Arcadia, CA. Status = OTHER; Acknowledgement of Federal Support = Yes
- Yorke, C., R. Miller, H.M. Page (2015). *Trophic resources to subtidal suspension feeders*. 2015 LTER All Scientists Meeting. Estes Park, Colorado. Status = OTHER; Acknowledgement of Federal Support = Yes
- Yorke, C (2015). *Trophic resources to subtidal suspension feeders (poster)*. LTER All Scientists Meeting. Estes Park, CO. Status = OTHER; Acknowledgement of Federal Support = Yes
- Lamy, T and Miller, RJ and Rassweiler, AR and Siegel, DA and Kyriakidis, P and Reed, DC and Staines, J (2016). *Uncovering the complex and multiscale drivers of marine community dynamics*. International Temperate Reef Symposium. Pisa, Italy. Status = OTHER; Acknowledgement of Federal Support = Yes
- Reynolds, R.C., Simms, A.R., Ejarque, A., King, B.L., Anderson, R.S., Carlin, J.A., Bentz, J.M., Rockwell, T.K., and Peters, R.B. (2017). *Variability in sedimentation rates in southern Californian estuaries from the late Holocene through the Anthropocene (B097)*. Coastal and Estuarine Research Federation meeting. Providence, RI, USA,. Status = OTHER; Acknowledgement of Federal Support = Yes
- Washburn, L., E. Romero, D. Salazar, A. Valdez-Shulz, Z. Welch, D. Iglesias-Rodriguez, (2018). *Water Sampling from aerial drones for water quality research in coastal and inland waters (CD14A-0023)*. Ocean Sciences Meeting (ASLO, AGU, TOS). Portland, OR, USA,. Status = OTHER; Acknowledgement of Federal Support = Yes
- Cooper, SD, Peterson, S, Bookhagen, B, Roberts, D, Wiseman, SW, Roberts, D, Bennett, D, Page, HM, Even, T, Sadro, S, Nelson, CE and Dudley, TL (2014). *Wildfire impacts from watersheds to stream food webs*. Joint Aquatic Sciences Meeting. Portland, OR. Status = OTHER; Acknowledgement of Federal Support = Yes
- Fewings, MR, L Washburn, C Dorman, C Gotschalk, K Brown and J Bane (2014). *Wind relaxations in the California Current upwelling System*. 2015 Ocean Sciences Meeting (ASLO, AGU). Grenada, Spain. Status = OTHER; Acknowledgement of Federal Support = Yes

## Other Products

## Other Publications

## Patents

## Technologies or Techniques

## Thesis/Dissertations

- Viola, S.M.. *Anthropogenic disturbance facilitates a non-native species on offshore oil platforms*. (2016). University of California Santa Barbara. Acknowledgement of Federal Support = Yes
- Schooler, NK. *Biodiversity of coastal ecosystems: exploring spatial and temporal patterns in sandy beach macroinvertebrate communities*. (2018). University of California, Santa Barbara. Acknowledgement of Federal Support = Yes
- Wear, Emma K.. *Bottom-up drivers of bacterial community composition and metabolism of dissolved organic carbon in the Santa Barbara Channel, CA*. (2017). University of California Santa Barbara. Acknowledgement of Federal Support = Yes
- Chen, YJ. *Climate variability, fire disturbances, and subsurface storage dynamics: An examination of spatial-temporal variability of rainfall-runoff patterns in coastal Santa Barbara watersheds*. (2018). University of California, Santa Barbara. Acknowledgement of Federal Support = Yes
- Frazier, H.N.. *Ecosystem productivity and water temperature in coastal California streams*. (2017). University of California, Santa Barbara. Acknowledgement of Federal Support = Yes

- Bell, T. *Environmental Drivers of Giant Kelp Biomass and Physiological Condition Dynamics Across Space and Time..* (2016). University of California Santa Barbara.. Acknowledgement of Federal Support = Yes
- Bentz, M. *Establishing foraminifera based biofacies within shallow marine deposits, Carpinteria Slough, CA. Implications for southern California sea-level studies.* (2016). University of California Santa Barbara. Acknowledgement of Federal Support = Yes
- Osleger, D.. *Estuarine Response to Disturbance: A Holocene Record of Storm Episodes and Seismicity as Preserved in Coastal Systems..* (2018). University of California, Santa Barbara. Acknowledgement of Federal Support = Yes
- Chen, X.. *Factors affecting the streamflow and in-stream nitrate concentration in semi-arid areas: sub-surface flow-generation, vertical distribution of soil nitrate and drainage properties, and the connectivity of impervious areas.* (2017). University of California, Santa Barbara. Acknowledgement of Federal Support = Yes
- Johnson, K.. *Investigating the Molecular Response of the Marine Calcifying Pteropod, *Limacina Helicina*, to Ocean Acidification and Ocean Warming.* (2017). University of California, Santa Barbara. Acknowledgement of Federal Support = Yes
- Nelson, Z.. *Late Pleistocene to Holocene Evolution of Devereux Slough.* (2017). University of California, Santa Barbara. Acknowledgement of Federal Support = Yes
- Reynolds, L. *Late Quaternary Evolution of the Southern California Coast: Sea-Level Change, Storms, and Subsidence..* (2017). University of California Santa Barbara. Acknowledgement of Federal Support = Yes
- Koenigs, C. J.. *Species dominance scales with richness to promote population and community stability in a marine community.* (2018). University of California, Santa Barbara.. Acknowledgement of Federal Support = Yes
- James, A. *The Effects of pCO<sub>2</sub> on Bacterioplankton-Mediated Carbon Cycling.* (2017). University of California, Santa Barbara. Acknowledgement of Federal Support = Yes
- Marks, L. M.. *The distribution, biology and ecology of the invasive seaweed *Sargassum horneri* in its introduced range..* (2018). University of California, Santa Barbara.. Acknowledgement of Federal Support = Yes

## Websites

- *SBC LTER*  
<http://sbc.lternet.edu/>  
 This is the SBC LTER project website with pages for participants, products, research activities, study sites and our data catalog

## Participants/Organizations

### What individuals have worked on the project?

Name	Most Senior Project Role	Nearest Person Month Worked
<a href="#">Reed, Daniel</a>	PD/PI	3
<a href="#">Holbrook, Sally</a>	Co PD/PI	1
<a href="#">Melack, John</a>	Co PD/PI	1
<a href="#">Miller, Robert</a>	Co PD/PI	2
<a href="#">Siegel, David</a>	Co PD/PI	1
<a href="#">Alberto, Filipe</a>	Co-Investigator	1

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Benitez-Nelson, Claudia</a>	Co-Investigator	0
<a href="#">Blanchette, Carol</a>	Co-Investigator	1
<a href="#">Brzezinski, Mark</a>	Co-Investigator	1
<a href="#">Byrnes, Jarrett</a>	Co-Investigator	1
<a href="#">Carlson, Craig</a>	Co-Investigator	1
<a href="#">Castorani, Max</a>	Co-Investigator	1
<a href="#">Cavanaugh, Kyle</a>	Co-Investigator	1
<a href="#">Cooper, Scott</a>	Co-Investigator	1
<a href="#">D'Antonio, Carla</a>	Co-Investigator	1
<a href="#">Dugan, Jenifer</a>	Co-Investigator	4
<a href="#">Fewings, Melanie</a>	Co-Investigator	1
<a href="#">Guerrini, Anita</a>	Co-Investigator	1
<a href="#">Hofmann, Gretchen</a>	Co-Investigator	1
<a href="#">Lenihan, Hunter</a>	Co-Investigator	1
<a href="#">Lopez-Carr, David</a>	Co-Investigator	0
<a href="#">MacIntyre, Sally</a>	Co-Investigator	1
<a href="#">McPhee-Shaw, Erika</a>	Co-Investigator	1
<a href="#">McWilliams, Jim</a>	Co-Investigator	1
<a href="#">Ohlmann, Carter</a>	Co-Investigator	1
<a href="#">Page, Henry</a>	Co-Investigator	1
<a href="#">Passow, Uta</a>	Co-Investigator	1
<a href="#">Raimondi, Pete</a>	Co-Investigator	0
<a href="#">Rassweiler, Andrew</a>	Co-Investigator	1

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Roberts, Dar</a>	Co-Investigator	0
<a href="#">Romero, Leonel</a>	Co-Investigator	1
<a href="#">Schimel, Josh</a>	Co-Investigator	0
<a href="#">Schmitt, Russ</a>	Co-Investigator	1
<a href="#">Schroeter, Steve</a>	Co-Investigator	1
<a href="#">Simms, Alexander</a>	Co-Investigator	1
<a href="#">Tague, Naomi</a>	Co-Investigator	0
<a href="#">Washburn, Libe</a>	Co-Investigator	2
<a href="#">Whitmer, Ali</a>	Co-Investigator	0
<a href="#">Wright, Bill</a>	Co-Investigator	0
<a href="#">Goodridge, Blair</a>	Faculty	1
<a href="#">Thunell, Robert</a>	Faculty	0
<a href="#">Kay, Matt</a>	Community College Faculty	0
<a href="#">Paddack, Michele</a>	Community College Faculty	0
<a href="#">Madrigal, Larry</a>	K-12 Teacher	2
<a href="#">Aguilera, Rosana</a>	Postdoctoral (scholar, fellow or other postdoctoral position)	1
<a href="#">Bell, Tom</a>	Postdoctoral (scholar, fellow or other postdoctoral position)	3
<a href="#">Cortes, Alicia</a>	Postdoctoral (scholar, fellow or other postdoctoral position)	0
<a href="#">Ejarque, Ana</a>	Postdoctoral (scholar, fellow or other postdoctoral position)	0
<a href="#">Hendrikx Freitas, Fernanda</a>	Postdoctoral (scholar, fellow or other postdoctoral position)	1
<a href="#">James, Anna</a>	Postdoctoral (scholar, fellow or other postdoctoral position)	6

Name	Most Senior Project Role	Nearest Person Month Worked
	position)	
<a href="#">Lamy, Thomas</a>	Postdoctoral (scholar, fellow or other postdoctoral position)	6
<a href="#">Rognstad, Rhiannon</a>	Postdoctoral (scholar, fellow or other postdoctoral position)	6
<a href="#">Sadro, Steven</a>	Postdoctoral (scholar, fellow or other postdoctoral position)	0
<a href="#">Smith, Jason</a>	Postdoctoral (scholar, fellow or other postdoctoral position)	9
<a href="#">Gotschalk, Chris</a>	Other Professional	2
<a href="#">Hubbard, David</a>	Other Professional	1
<a href="#">Johnson, Cyril</a>	Other Professional	0
<a href="#">Johnson, Michelle</a>	Other Professional	0
<a href="#">Klose, Kristie</a>	Other Professional	0
<a href="#">O'Brien, Margaret</a>	Other Professional	6
<a href="#">Simon, Scott</a>	Other Professional	3
<a href="#">Wiseman, Sheila</a>	Other Professional	1
<a href="#">Beecher, Brittany</a>	Technician	0
<a href="#">Beresford, Laura</a>	Technician	1
<a href="#">Bitter, Mark</a>	Technician	0
<a href="#">Curtis, Joe</a>	Technician	0
<a href="#">DeNicola, Michael</a>	Technician	0
<a href="#">Doheney, Brandon</a>	Technician	2
<a href="#">English, Chance</a>	Technician	2
<a href="#">Fields, Erik</a>	Technician	1



<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Guillocheau, Nathalie</a>	Technician	1
<a href="#">Halewood, Elisa</a>	Technician	3
<a href="#">Halewood, Stuart</a>	Technician	4
<a href="#">Harrer, Shannon</a>	Technician	4
<a href="#">Jones, Janet</a>	Technician	1
<a href="#">Madden, Jessica</a>	Technician	1
<a href="#">Meyerhof, Matthew</a>	Technician	12
<a href="#">Nelson, Clint</a>	Technician	12
<a href="#">Opalk, Keri</a>	Technician	1
<a href="#">Purzer, Frankie</a>	Technician	1
<a href="#">Romero, Eduardo</a>	Technician	1
<a href="#">Salazar, David</a>	Technician	3
<a href="#">Sampson, Sarah</a>	Technician	8
<a href="#">Spencer, Devin</a>	Technician	0
<a href="#">Stassinis, Erik</a>	Technician	1
<a href="#">Sugano, Cailan</a>	Technician	1
<a href="#">Bennett, Danuta</a>	Staff Scientist (doctoral level)	0
<a href="#">Even, Thomas</a>	Staff Scientist (doctoral level)	1
<a href="#">Kui, Li</a>	Staff Scientist (doctoral level)	8
<a href="#">Miller, Paige</a>	Staff Scientist (doctoral level)	1
<a href="#">Nelson, Craig</a>	Staff Scientist (doctoral level)	1
<a href="#">Simons, Rachel</a>	Staff Scientist (doctoral level)	1
<a href="#">Allen, James</a>	Graduate Student (research assistant)	0

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Berry, Heather</a>	Graduate Student (research assistant)	0
<a href="#">Catlett, Dylan</a>	Graduate Student (research assistant)	1
<a href="#">Chen, Helen</a>	Graduate Student (research assistant)	1
<a href="#">Chen, Xiaoli</a>	Graduate Student (research assistant)	1
<a href="#">Chen, Mingquan</a>	Graduate Student (research assistant)	1
<a href="#">Csik, Samantha</a>	Graduate Student (research assistant)	0
<a href="#">Dauhajre, Daniel</a>	Graduate Student (research assistant)	1
<a href="#">Emery, Kyle</a>	Graduate Student (research assistant)	1
<a href="#">Hoshijima, Umi</a>	Graduate Student (research assistant)	3
<a href="#">Huynh, Nicholas</a>	Graduate Student (research assistant)	1
<a href="#">Johnson, Kevin</a>	Graduate Student (research assistant)	0
<a href="#">Jones, Jonathan</a>	Graduate Student (research assistant)	0
<a href="#">Koenigs, Craig</a>	Graduate Student (research assistant)	3
<a href="#">Lowman, Heili</a>	Graduate Student (research assistant)	2
<a href="#">Ma, Stephanie</a>	Graduate Student (research assistant)	0
<a href="#">Malakhoff, Katrina</a>	Graduate Student (research assistant)	3
<a href="#">Marks, Lindsay</a>	Graduate Student (research assistant)	1
<a href="#">McNair, Heather</a>	Graduate Student (research assistant)	1
<a href="#">Michaud, Kristen</a>	Graduate Student (research assistant)	2
<a href="#">Peters, Joseph</a>	Graduate Student (research assistant)	2
<a href="#">Reynolds, Laura</a>	Graduate Student (research assistant)	2
<a href="#">Sainz, Jade</a>	Graduate Student (research assistant)	1
<a href="#">Schooler, Nicholas</a>	Graduate Student (research assistant)	1

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Valdez, Andrea</a>	Graduate Student (research assistant)	1
<a href="#">VanderZee, David</a>	Graduate Student (research assistant)	1
<a href="#">Viola, Sloane</a>	Graduate Student (research assistant)	0
<a href="#">Wear, Emma</a>	Graduate Student (research assistant)	1
<a href="#">Welch, Zoe</a>	Graduate Student (research assistant)	1
<a href="#">Wetherly, Erin</a>	Graduate Student (research assistant)	1
<a href="#">Wolfe, Shaun</a>	Graduate Student (research assistant)	0
<a href="#">Wong, Juliet</a>	Graduate Student (research assistant)	1
<a href="#">Yorke, Christie</a>	Graduate Student (research assistant)	1
<a href="#">Adamson, Carter</a>	Undergraduate Student	1
<a href="#">Aguilar, Jessica</a>	Undergraduate Student	0
<a href="#">Ahn, Bryce</a>	Undergraduate Student	1
<a href="#">Ajina, Alia</a>	Undergraduate Student	2
<a href="#">Amiri, Sarah</a>	Undergraduate Student	0
<a href="#">Amirkiai, Semira</a>	Undergraduate Student	0
<a href="#">Amundsen, William</a>	Undergraduate Student	1
<a href="#">Anderson, Kylie</a>	Undergraduate Student	0
<a href="#">Anderson, Ellyse</a>	Undergraduate Student	1
<a href="#">Antonio, Cristiana</a>	Undergraduate Student	0
<a href="#">Aplin, Allison</a>	Undergraduate Student	3
<a href="#">Applewhite, Conner</a>	Undergraduate Student	0
<a href="#">Arcega, Abraham</a>	Undergraduate Student	0
<a href="#">Arcega, Abraham</a>	Undergraduate Student	3

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Argiris, Jennay</a>	Undergraduate Student	1
<a href="#">Armantrout, Kim</a>	Undergraduate Student	0
<a href="#">Armstrong, Kevin</a>	Undergraduate Student	0
<a href="#">Avalos, Mark</a>	Undergraduate Student	3
<a href="#">Bachhuber, Silke</a>	Undergraduate Student	0
<a href="#">Bagla, Anshika</a>	Undergraduate Student	2
<a href="#">Bailey, Benjamin</a>	Undergraduate Student	0
<a href="#">Baker, Elijah</a>	Undergraduate Student	0
<a href="#">Baldwin, Daniel</a>	Undergraduate Student	4
<a href="#">Bao, Zhiping</a>	Undergraduate Student	0
<a href="#">Bar, Matthew</a>	Undergraduate Student	0
<a href="#">Barger, Chandler</a>	Undergraduate Student	2
<a href="#">Barlev, Stephanie</a>	Undergraduate Student	0
<a href="#">Belkowiche, Cindy</a>	Undergraduate Student	0
<a href="#">Bendell, Bradford</a>	Undergraduate Student	0
<a href="#">Berkon, Daniel</a>	Undergraduate Student	0
<a href="#">Bicomong, Megan</a>	Undergraduate Student	0
<a href="#">Biskner, Kyle</a>	Undergraduate Student	1
<a href="#">Blalock, Allyssa</a>	Undergraduate Student	3
<a href="#">Blasco, Gordon</a>	Undergraduate Student	3
<a href="#">Bognar, Sebastian</a>	Undergraduate Student	0
<a href="#">Boyle, Sarah</a>	Undergraduate Student	2
<a href="#">Bragg, Austin</a>	Undergraduate Student	0

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Bryant Williams, Dominique</a>	Undergraduate Student	3
<a href="#">Caldwell, Jordan</a>	Undergraduate Student	0
<a href="#">Callihan, Isolde</a>	Undergraduate Student	0
<a href="#">Capacete, Nicole</a>	Undergraduate Student	0
<a href="#">Casey, Thomas</a>	Undergraduate Student	0
<a href="#">Cassel, Summer</a>	Undergraduate Student	2
<a href="#">Chan, Christopher</a>	Undergraduate Student	1
<a href="#">Chandler Campbell, Della</a>	Undergraduate Student	1
<a href="#">Chang, Caroline</a>	Undergraduate Student	0
<a href="#">Chellew, Joe</a>	Undergraduate Student	0
<a href="#">Childs, Jeffrey</a>	Undergraduate Student	3
<a href="#">Chowdhury, Soham</a>	Undergraduate Student	1
<a href="#">Claycomb, Noelle</a>	Undergraduate Student	0
<a href="#">Colburn, Natalie</a>	Undergraduate Student	1
<a href="#">Coleman, Alex</a>	Undergraduate Student	0
<a href="#">Combs, Annie</a>	Undergraduate Student	1
<a href="#">Corwin, Garrett</a>	Undergraduate Student	0
<a href="#">Crane, Samuel</a>	Undergraduate Student	0
<a href="#">Culpepper, Peter</a>	Undergraduate Student	3
<a href="#">Curry, Stephen</a>	Undergraduate Student	2
<a href="#">Daleiden, Cheyenne</a>	Undergraduate Student	0
<a href="#">Daniel, Bryn</a>	Undergraduate Student	0

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Dao, Michael</a>	Undergraduate Student	0
<a href="#">Darrow, Hailey</a>	Undergraduate Student	0
<a href="#">De Barros, Bowin</a>	Undergraduate Student	2
<a href="#">Demeter, Jillian</a>	Undergraduate Student	1
<a href="#">DeVille, Marissa</a>	Undergraduate Student	1
<a href="#">Dezzani, Alecia</a>	Undergraduate Student	2
<a href="#">Ditzler, Hannah</a>	Undergraduate Student	1
<a href="#">Dodgen, Rose</a>	Undergraduate Student	0
<a href="#">Dorji, Shey</a>	Undergraduate Student	1
<a href="#">Drake, Josh</a>	Undergraduate Student	0
<a href="#">Duenas, Daisy</a>	Undergraduate Student	0
<a href="#">Eakin, Pete</a>	Undergraduate Student	0
<a href="#">Edlund, Hayley</a>	Undergraduate Student	1
<a href="#">Eldridge, Michael</a>	Undergraduate Student	0
<a href="#">Ellman, Samantha</a>	Undergraduate Student	1
<a href="#">Fallgatter, Ryan</a>	Undergraduate Student	0
<a href="#">Fawaz, Mohamad</a>	Undergraduate Student	0
<a href="#">Fitzgerald, Chad</a>	Undergraduate Student	0
<a href="#">Flaherty, Devyn</a>	Undergraduate Student	0
<a href="#">Flannery, Nicolette</a>	Undergraduate Student	0
<a href="#">Flora, Kailey</a>	Undergraduate Student	0
<a href="#">Foster, Will</a>	Undergraduate Student	0
<a href="#">Foy, Megan</a>	Undergraduate Student	0

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Fozard, Dylan</a>	Undergraduate Student	0
<a href="#">Frank, Nora</a>	Undergraduate Student	3
<a href="#">Frey, Emily</a>	Undergraduate Student	0
<a href="#">Fried, William</a>	Undergraduate Student	0
<a href="#">Fyfe, Caroline</a>	Undergraduate Student	3
<a href="#">Gallagher, Jordan</a>	Undergraduate Student	1
<a href="#">Galvan, Journ</a>	Undergraduate Student	1
<a href="#">Garcia, Kristina</a>	Undergraduate Student	0
<a href="#">Garcia, Elisa</a>	Undergraduate Student	0
<a href="#">Garcia, Jonie</a>	Undergraduate Student	3
<a href="#">Garibian, Lucy</a>	Undergraduate Student	0
<a href="#">Ggrich, Grant</a>	Undergraduate Student	0
<a href="#">Ghadimi, Andrew</a>	Undergraduate Student	0
<a href="#">Gibbs, Briana</a>	Undergraduate Student	0
<a href="#">Gibney, Madison</a>	Undergraduate Student	0
<a href="#">Girling, Ivan</a>	Undergraduate Student	1
<a href="#">Glasmann, Haley</a>	Undergraduate Student	0
<a href="#">Goldston, Aiko</a>	Undergraduate Student	1
<a href="#">Gomez, Diana</a>	Undergraduate Student	3
<a href="#">Gomez-Torrero, Fernando</a>	Undergraduate Student	0
<a href="#">Gonzalez, Selena</a>	Undergraduate Student	0
<a href="#">Gorgas, Maya</a>	Undergraduate Student	1
<a href="#">Gorman, Deyana</a>	Undergraduate Student	3

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Gortner, Davis</a>	Undergraduate Student	1
<a href="#">Greene, Aral</a>	Undergraduate Student	0
<a href="#">Grundberg, Brandon</a>	Undergraduate Student	0
<a href="#">Guerrero, Eric</a>	Undergraduate Student	1
<a href="#">Gutierrez, Kali</a>	Undergraduate Student	0
<a href="#">Haas, Lauren</a>	Undergraduate Student	0
<a href="#">Halili, Dhanika</a>	Undergraduate Student	0
<a href="#">Harris, Elizabeth</a>	Undergraduate Student	0
<a href="#">Heber, Emily</a>	Undergraduate Student	0
<a href="#">Heimlich, Kera</a>	Undergraduate Student	1
<a href="#">Hernandez, Christian</a>	Undergraduate Student	3
<a href="#">Hernandez, Marisol</a>	Undergraduate Student	2
<a href="#">Herrington, Nasim</a>	Undergraduate Student	0
<a href="#">Hill, Allison</a>	Undergraduate Student	1
<a href="#">Hoegland, Victoria</a>	Undergraduate Student	1
<a href="#">Holbrook, Jack</a>	Undergraduate Student	4
<a href="#">Honeycutt, Randi</a>	Undergraduate Student	0
<a href="#">Honeyman, Christopher</a>	Undergraduate Student	0
<a href="#">Horanic, Emma</a>	Undergraduate Student	3
<a href="#">Howard, Rebecca</a>	Undergraduate Student	0
<a href="#">Howarth, Lincoln</a>	Undergraduate Student	0
<a href="#">Hsu, Jackie</a>	Undergraduate Student	0
<a href="#">Huang, Anthony</a>	Undergraduate Student	1



<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Hudson, Bryn</a>	Undergraduate Student	0
<a href="#">Ibarra, Diego</a>	Undergraduate Student	0
<a href="#">Idiarte, Fernando</a>	Undergraduate Student	0
<a href="#">Inga, Joshua</a>	Undergraduate Student	0
<a href="#">Issac, Inji</a>	Undergraduate Student	0
<a href="#">Jacobsen, Kim</a>	Undergraduate Student	1
<a href="#">Janerewong, Thummanoon</a>	Undergraduate Student	0
<a href="#">Johnson, Olivia</a>	Undergraduate Student	0
<a href="#">Johnson, Lucy</a>	Undergraduate Student	1
<a href="#">Jones, Matthew</a>	Undergraduate Student	3
<a href="#">Katsiovieris, Dimitri</a>	Undergraduate Student	1
<a href="#">Kaur, Sami</a>	Undergraduate Student	1
<a href="#">Kelley, Morgan</a>	Undergraduate Student	0
<a href="#">Kha, Kevin</a>	Undergraduate Student	0
<a href="#">Kim, Vivian</a>	Undergraduate Student	0
<a href="#">Kim, Wesley</a>	Undergraduate Student	0
<a href="#">Kim, Stephanie</a>	Undergraduate Student	0
<a href="#">Kim, Lisa</a>	Undergraduate Student	0
<a href="#">Kinder, Beatriz</a>	Undergraduate Student	0
<a href="#">Knutson, Emma</a>	Undergraduate Student	0
<a href="#">Koolmees, Wyatt</a>	Undergraduate Student	1
<a href="#">Krebs, Karina</a>	Undergraduate Student	3
<a href="#">Kudo, Marissa</a>	Undergraduate Student	0

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Kyaw, Ricky</a>	Undergraduate Student	0
<a href="#">LaManna, Renee</a>	Undergraduate Student	1
<a href="#">Lane, Aaron</a>	Undergraduate Student	0
<a href="#">Le, Katherine</a>	Undergraduate Student	2
<a href="#">LeDonne, Tasi</a>	Undergraduate Student	3
<a href="#">Lee, Sunny</a>	Undergraduate Student	0
<a href="#">Lee, Meikko</a>	Undergraduate Student	0
<a href="#">Leflore, Monica</a>	Undergraduate Student	0
<a href="#">Leong, Noelle</a>	Undergraduate Student	0
<a href="#">Leshuk, Elizabeth</a>	Undergraduate Student	3
<a href="#">Leung, Melanie</a>	Undergraduate Student	1
<a href="#">Lewis, Samuel</a>	Undergraduate Student	2
<a href="#">Lira, Anais</a>	Undergraduate Student	1
<a href="#">Loberg, Maria</a>	Undergraduate Student	0
<a href="#">Lomen, Kelsey</a>	Undergraduate Student	0
<a href="#">Loo, Emmaline</a>	Undergraduate Student	1
<a href="#">Macarewich, Sophia</a>	Undergraduate Student	0
<a href="#">Macler, Alicia</a>	Undergraduate Student	0
<a href="#">Malone, Shannon</a>	Undergraduate Student	0
<a href="#">Marks, Sean</a>	Undergraduate Student	0
<a href="#">Martin, Trace</a>	Undergraduate Student	0
<a href="#">Martin, Jack</a>	Undergraduate Student	2
<a href="#">Martinez, Luis</a>	Undergraduate Student	0

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Martinka, Arielle</a>	Undergraduate Student	3
<a href="#">Matamoros, Joselyne</a>	Undergraduate Student	0
<a href="#">Matousek, Kaitlyn</a>	Undergraduate Student	1
<a href="#">Mayho, Madison</a>	Undergraduate Student	0
<a href="#">Mayorga, Bella</a>	Undergraduate Student	0
<a href="#">McCamy, Colleen</a>	Undergraduate Student	3
<a href="#">McCausland, Maria</a>	Undergraduate Student	0
<a href="#">Mercier, Kristin</a>	Undergraduate Student	3
<a href="#">Messina, Claire</a>	Undergraduate Student	1
<a href="#">Mickelsen, Grant</a>	Undergraduate Student	1
<a href="#">Miller, Katrina</a>	Undergraduate Student	0
<a href="#">Moffitt, Emma</a>	Undergraduate Student	0
<a href="#">Montero, Alana</a>	Undergraduate Student	0
<a href="#">Montiano, Olivia</a>	Undergraduate Student	0
<a href="#">Moreno, Luiza</a>	Undergraduate Student	1
<a href="#">Morrison, Seamus</a>	Undergraduate Student	3
<a href="#">Munson, Brittany</a>	Undergraduate Student	0
<a href="#">Nelson, Sharlyn</a>	Undergraduate Student	0
<a href="#">O'Hare, Sophie</a>	Undergraduate Student	0
<a href="#">Ochoa, Jacob</a>	Undergraduate Student	3
<a href="#">Ogawa, Jacob</a>	Undergraduate Student	1
<a href="#">Ouyang, Ziyi</a>	Undergraduate Student	1
<a href="#">Overstreet, Taylor</a>	Undergraduate Student	1

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Paciotta, Samantha</a>	Undergraduate Student	3
<a href="#">Packard, Ian</a>	Undergraduate Student	3
<a href="#">Parkinson, Anne-Marie</a>	Undergraduate Student	0
<a href="#">Parks, Emily</a>	Undergraduate Student	1
<a href="#">Pasma, Robert</a>	Undergraduate Student	0
<a href="#">Patil, Ashwini</a>	Undergraduate Student	1
<a href="#">Perez, Yanelyn</a>	Undergraduate Student	3
<a href="#">Peterson, Ruby</a>	Undergraduate Student	0
<a href="#">Pettijohn, Dyer</a>	Undergraduate Student	0
<a href="#">Pham, Jessica</a>	Undergraduate Student	0
<a href="#">Phong, Kimberly</a>	Undergraduate Student	1
<a href="#">Platonoff, Kristina</a>	Undergraduate Student	1
<a href="#">Plouffe, Kyler</a>	Undergraduate Student	1
<a href="#">Quan, Charles</a>	Undergraduate Student	1
<a href="#">Quintanilla, Derek</a>	Undergraduate Student	0
<a href="#">Ramirez, Crystal</a>	Undergraduate Student	1
<a href="#">Raskin, Tatiana</a>	Undergraduate Student	0
<a href="#">Rathle, Shane</a>	Undergraduate Student	2
<a href="#">Reitman, Fred</a>	Undergraduate Student	1
<a href="#">Robles, Melanee</a>	Undergraduate Student	1
<a href="#">Roche, Janee</a>	Undergraduate Student	1
<a href="#">Rodriguez, Brenda</a>	Undergraduate Student	0
<a href="#">Rogalski, Alexa</a>	Undergraduate Student	3

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Rosenblatt, Sara</a>	Undergraduate Student	0
<a href="#">Royal, Keitasha</a>	Undergraduate Student	0
<a href="#">Rubio, Trent</a>	Undergraduate Student	1
<a href="#">Russel-Halterman, Kimikio</a>	Undergraduate Student	0
<a href="#">Sager, Ria</a>	Undergraduate Student	0
<a href="#">Salinas-Ruiz, Paulina</a>	Undergraduate Student	0
<a href="#">Schock, Ben</a>	Undergraduate Student	0
<a href="#">Scott, Issac</a>	Undergraduate Student	0
<a href="#">Sesoko, Ethan</a>	Undergraduate Student	1
<a href="#">Shapiro, Emma</a>	Undergraduate Student	0
<a href="#">Shelby, Ben</a>	Undergraduate Student	2
<a href="#">Shyshka, Emily</a>	Undergraduate Student	0
<a href="#">Sifontes, Lesly</a>	Undergraduate Student	2
<a href="#">Simon, Dana</a>	Undergraduate Student	0
<a href="#">Simon, Olivia</a>	Undergraduate Student	2
<a href="#">Skube, Lauren</a>	Undergraduate Student	1
<a href="#">Sloan, Erinn</a>	Undergraduate Student	0
<a href="#">Smith, Kaitlyn</a>	Undergraduate Student	0
<a href="#">Smith, Kegan</a>	Undergraduate Student	1
<a href="#">Smith Sanchez, Nicolas</a>	Undergraduate Student	0
<a href="#">Smithers, David</a>	Undergraduate Student	0
<a href="#">Soglin, Tatiana</a>	Undergraduate Student	2

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Stahl, Philip</a>	Undergraduate Student	0
<a href="#">Starceвич, Ana</a>	Undergraduate Student	0
<a href="#">Stead, Courtney</a>	Undergraduate Student	3
<a href="#">Stock da Cunha, Rita</a>	Undergraduate Student	2
<a href="#">Strauss, Rose</a>	Undergraduate Student	1
<a href="#">Sweetnam, Mariana</a>	Undergraduate Student	3
<a href="#">Szychowski, Gina</a>	Undergraduate Student	3
<a href="#">Ta, Hillary</a>	Undergraduate Student	0
<a href="#">Takata, Lance</a>	Undergraduate Student	0
<a href="#">Tang, Irvin</a>	Undergraduate Student	1
<a href="#">Thomson, Spencer</a>	Undergraduate Student	0
<a href="#">Torres, Cheyanne</a>	Undergraduate Student	1
<a href="#">Traina, Jack</a>	Undergraduate Student	0
<a href="#">Truong, Andrew</a>	Undergraduate Student	1
<a href="#">Truong, Anthony</a>	Undergraduate Student	0
<a href="#">Tsuruta, Gabriel</a>	Undergraduate Student	0
<a href="#">Van De Wyngaerde, Kylie</a>	Undergraduate Student	3
<a href="#">Vasquez, Jennifer</a>	Undergraduate Student	3
<a href="#">Vega, Jessica</a>	Undergraduate Student	2
<a href="#">Vidal, Bjorne</a>	Undergraduate Student	1
<a href="#">Wagner, Theresa</a>	Undergraduate Student	1
<a href="#">Walton, Sebastian</a>	Undergraduate Student	0
<a href="#">Walton, Miette</a>	Undergraduate Student	1

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Watson, Valerie</a>	Undergraduate Student	0
<a href="#">Watt, William</a>	Undergraduate Student	0
<a href="#">Weigel, Amber</a>	Undergraduate Student	0
<a href="#">Weinstein, Drew</a>	Undergraduate Student	0
<a href="#">Wellington, Bethalem</a>	Undergraduate Student	3
<a href="#">Wensloff, Gwendelyn</a>	Undergraduate Student	3
<a href="#">Weston, Joseph</a>	Undergraduate Student	0
<a href="#">White, Carly</a>	Undergraduate Student	0
<a href="#">White, Alison</a>	Undergraduate Student	0
<a href="#">Wilken, John</a>	Undergraduate Student	0
<a href="#">Wilson, Claire</a>	Undergraduate Student	0
<a href="#">Witt, Kendra</a>	Undergraduate Student	0
<a href="#">Worl, Kelli</a>	Undergraduate Student	0
<a href="#">Wright, Michael</a>	Undergraduate Student	0
<a href="#">Yom, Kimberly</a>	Undergraduate Student	0
<a href="#">Zarate, Daniel</a>	Undergraduate Student	0
<a href="#">Zhoa, Rick</a>	Undergraduate Student	1
<a href="#">Ziemer, Sarah</a>	Undergraduate Student	0
<a href="#">Zink, Shayla</a>	Undergraduate Student	0
<a href="#">Campbell, Rosie</a>	High School Student	1
<a href="#">Holehouse, Erin</a>	High School Student	0
<a href="#">Lebow, Rose</a>	High School Student	0
<a href="#">Magoun, Erin</a>	High School Student	0

<b>Name</b>	<b>Most Senior Project Role</b>	<b>Nearest Person Month Worked</b>
<a href="#">Perez, Daniel</a>	High School Student	0
<a href="#">Wachtell, Alexis</a>	High School Student	0
<a href="#">Wheaton, Olivia</a>	High School Student	0
<a href="#">Cedeno, Tiffany</a>	Research Experience for Undergraduates (REU) Participant	4
<a href="#">Cornish, Michael</a>	Research Experience for Undergraduates (REU) Participant	3
<a href="#">Kahler, Alexandra</a>	Research Experience for Undergraduates (REU) Participant	3
<a href="#">Koeper, Trenton</a>	Research Experience for Undergraduates (REU) Participant	0
<a href="#">Kramer, Valerie</a>	Research Experience for Undergraduates (REU) Participant	1
<a href="#">Kubler-Dudgeon, Lila</a>	Research Experience for Undergraduates (REU) Participant	3
<a href="#">Liedle, John</a>	Research Experience for Undergraduates (REU) Participant	0
<a href="#">Lowenberg, Lance</a>	Research Experience for Undergraduates (REU) Participant	0
<a href="#">Oda, Kai</a>	Research Experience for Undergraduates (REU) Participant	3
<a href="#">Pantaleo, Gianna</a>	Research Experience for Undergraduates (REU) Participant	4
<a href="#">Smith, Chloe</a>	Research Experience for Undergraduates (REU) Participant	0
<a href="#">Staguhn, Elena</a>	Research Experience for Undergraduates (REU) Participant	3
<a href="#">Traxler, Taylor</a>	Research Experience for Undergraduates (REU) Participant	0
<a href="#">Trong, Michael</a>	Research Experience for Undergraduates (REU) Participant	0



Name	Most Senior Project Role	Nearest Person Month Worked
<a href="#">Carlson, Sydney</a>	Other	0
<a href="#">Simon, Eleanor</a>	Other	0

### Full details of individuals who have worked on the project:

#### Daniel C Reed

**Email:** reed@lifesci.ucsb.edu

**Most Senior Project Role:** PD/PI

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Oversaw all project research and activities, led kelp forest research components

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

#### Sally J Holbrook

**Email:** holbrook@lifesci.ucsb.edu

**Most Senior Project Role:** Co PD/PI

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Served as co-investigator for kelp forest ecosystem studies

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

#### John M Melack

**Email:** melack@bren.ucsb.edu

**Most Senior Project Role:** Co PD/PI

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Served as co-principal investigator on the project. Directed watershed research.

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

#### Robert J Miller

**Email:** miller@msi.ucsb.edu

**Most Senior Project Role:** Co PD/PI

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Served as co-principal investigator on project. Co-led research on kelp forest ecosystems

**Funding Support:** NSF, BOEM

**International Collaboration:** Yes, new zealand

**International Travel:** No

#### David A Siegel

**Email:** davey@eri.ucsb.edu

**Most Senior Project Role:** Co PD/PI

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Served as co-investigator on project. Directed research on oceanography and remote sensing

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

#### Filipe Alberto

**Email:** albertof@uwm.edu

**Most Senior Project Role:** Co-Investigator  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** conducted research on population genetics of giant kelp  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Claudia Benitez-Nelson**

**Email:** cbnelson@geol.sc.edu  
**Most Senior Project Role:** Co-Investigator  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** conducted research on harmful algal blooms and biogeochemical cycling and mixing of ocean water  
**Funding Support:** University of South Carolina  
**International Collaboration:** No  
**International Travel:** No

**Carol Blanchette**

**Email:** blanchette@lifesci.ucsb.edu  
**Most Senior Project Role:** Co-Investigator  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** investigated ocean acidification and coordinated K-12 education activities  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Mark Brzezinski**

**Email:** brzezins@lifesci.ucsb.edu  
**Most Senior Project Role:** Co-Investigator  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Directed monthly monitoring of water chemistry at the core kelp forests sites. Participated in process studies involving i) the analysis of oceanographic data from SBC cruises ii) the partitioning of net primary production among giant kelp, understory algae and phytoplankton within kelp forests, iii) interactions between the kelp forest and its flow environment and iv) the connectivity between kelp forests and offshore waters and the exchange of materials across the continental shelf.  
**Funding Support:** University of California, Santa Barbara  
**International Collaboration:** No  
**International Travel:** No

**Jarrett Byrnes**

**Email:** Jarrett.Byrnes@umb.edu  
**Most Senior Project Role:** Co-Investigator  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Investigated the direct and indirect effects of wave disturbance on kelp forest food web structure via changes in kelp abundance and productivity using long-term data records.  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Craig Carlson**

**Email:** carlson@lifesci.ucsb.edu  
**Most Senior Project Role:** Co-Investigator  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Investigates the role of microbial mediation of dissolved organic matter in near shore SBC system. Involved with data synthesis and sample analyses of DOM for SBC researchers.  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Max Castorani****Email:** max.castorani@ucsb.edu**Most Senior Project Role:** Co-Investigator**Nearest Person Month Worked:** 1**Contribution to the Project:** Investigated long-term dynamics of kelp forest communities**Funding Support:** NSF other**International Collaboration:** No**International Travel:** No**Kyle Cavanaugh****Email:** kyle@eri.ucsb.edu**Most Senior Project Role:** Co-Investigator**Nearest Person Month Worked:** 1**Contribution to the Project:** Conducted studies of spatiotemporal variability of giant kelp biomass and production across multiple scales of observation. Combined satellite and aerial remote sensing with detailed field measurements to scale up local observations to larger areas and longer times.**Funding Support:** none**International Collaboration:** No**International Travel:** No**Scott Cooper****Email:** scooper@lifesci.ucsb.edu**Most Senior Project Role:** Co-Investigator**Nearest Person Month Worked:** 1**Contribution to the Project:** Coordinated and oversaw projects dealing with stream ecology, performed field and laboratory work, analyzed data and wrote papers and reports.**Funding Support:** UCSB**International Collaboration:** No**International Travel:** No**Carla D'Antonio****Email:** dantonio@lifesci.ucsb.edu**Most Senior Project Role:** Co-Investigator**Nearest Person Month Worked:** 1**Contribution to the Project:** Led evaluations of how plant communities and soil and plant nitrogen respond to high intensity wildfire**Funding Support:** University of California, Santa Barbara**International Collaboration:** No**International Travel:** No**Jenifer Dugan****Email:** j\_dugan@lifesci.ucsb.edu**Most Senior Project Role:** Co-Investigator**Nearest Person Month Worked:** 4**Contribution to the Project:** Assisted with overall project coordination. Led core measurements and ecological studies of sandy beach ecosystems**Funding Support:** NSF, NOAA, BOEM**International Collaboration:** Yes, chile, spain**International Travel:** Yes, greece - 0 years, 0 months, 10 days**Melanie Fewings****Email:** melanie.fewings@uconn.edu**Most Senior Project Role:** Co-Investigator**Nearest Person Month Worked:** 1**Contribution to the Project:** investigated tidal and subtidal-frequency variations of water velocity and temperature on the inner continental shelves of California's Channel Islands and along the mainland in the Santa Barbara Basin, and how those patterns relate to the delivery of larval fish and invertebrates.**Funding Support:** University of Connecticut

**International Collaboration:** No

**International Travel:** No

**Anita Guerrini**

**Email:** anita.guerrini@oregonstate.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 1

**Contribution to the Project:** investigating the role of history in informing ecological restoration in the coastal zone of the Santa Barbara Channel

**Funding Support:** Oregon State University

**International Collaboration:** No

**International Travel:** No

**Gretchen Hofmann**

**Email:** hofmann@lifesci.ucsb.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Led investigations of the impact on marine organisms of rising atmospheric CO<sub>2</sub> concentrations via ocean warming and acidification

**Funding Support:** University of California, Santa Barbara

**International Collaboration:** No

**International Travel:** No

**Hunter Lenihan**

**Email:** lenihan@bren.ucsb.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Directed and conducted collaborative research in fisheries biology, ecology and management

**Funding Support:** University of California, Santa Barbara

**International Collaboration:** No

**International Travel:** No

**David Lopez-Carr**

**Email:** carr@geog.ucsb.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Conducted research on human impacts to coastal marine ecosystems, and the adaptations of humans to environmental change in these systems

**Funding Support:** University of California, Santa Barbara

**International Collaboration:** No

**International Travel:** No

**Sally MacIntyre**

**Email:** sally@eri.ucsb.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 1

**Contribution to the Project:** studied inputs of incoming streams and delivery of subsidies to kelp and other organisms in the nearshore environment

**Funding Support:** University of California, Santa Barbara

**International Collaboration:** No

**International Travel:** No

**Erika McPhee-Shaw**

**Email:** eshaw@mlml.calstate.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Collaborated on nearshore oceanographic analyses and research

**Funding Support:** University

**International Collaboration:** No

**International Travel:** No

**Jim McWilliams**

**Email:** jcm@atmos.ucla.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Contributes to studies of coastal circulation at SBC. Ran and applied the Regional Ocean Model System (ROMS) to several SBC LTER sites in the Santa Barbara Channel

**Funding Support:** UCLA

**International Collaboration:** No

**International Travel:** No

**Carter Ohlmann**

**Email:** carter@eri.ucsb.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 1

**Contribution to the Project:** conducted research on nearshore oceanographic circulation and dispersal of particles

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Henry M Page**

**Email:** page@lifesci.ucsb.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 1

**Contribution to the Project:** led research on studies that use stable isotope techniques to explore the sources of organic matter used by kelp forest and stream consumers

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Uta Passow**

**Email:** uta.passow@lifesci.ucsb.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 1

**Contribution to the Project:** data collection and analysis, manuscript preparation

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Pete Raimondi**

**Email:** raimondi@biology.ucsc.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Co-leads investigations of the metapopulation dynamics of giant kelp, *Macrocystis pyrifera*

**Funding Support:** UCSC

**International Collaboration:** No

**International Travel:** No

**Andrew Rassweiler**

**Email:** rassweil@lifesci.ucsb.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Investigated long-term dynamics of kelp forest communities

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Dar Roberts****Email:** dar@geog.ucsb.edu**Most Senior Project Role:** Co-Investigator**Nearest Person Month Worked:** 0**Contribution to the Project:** led studies mapping vegetation species and plant functional types, urban composition, pre-fire fuel conditions (fuel types, canopy moisture and fuel loads) and post-fire impacts in the various SBC watersheds that feed in to the coastal zone**Funding Support:** UCSB**International Collaboration:** No**International Travel:** No**Leonel Romero****Email:** leromero@eri.ucsb.edu**Most Senior Project Role:** Co-Investigator**Nearest Person Month Worked:** 1**Contribution to the Project:** investigates the coastal circulation and mixing of runoff waters using the Regional Ocean Model System (ROMS) coupled to a wave model (e.g. Simulating Waves Nearshore - SWAN) to model surface wave-current interactions and stream water dispersion for several SBC LTER sites**Funding Support:** none**International Collaboration:** No**International Travel:** No**Josh Schimel****Email:** Schimel@lifesci.ucsb.edu**Most Senior Project Role:** Co-Investigator**Nearest Person Month Worked:** 0**Contribution to the Project:** investigated patterns and mechanisms affecting nutrient transport to the coastal ocean**Funding Support:** UCSB**International Collaboration:** No**International Travel:** No**Russ Schmitt****Email:** Schmitt@lifesci.ucsb.edu**Most Senior Project Role:** Co-Investigator**Nearest Person Month Worked:** 1**Contribution to the Project:** co-leads investigations of kelp forest community dynamics**Funding Support:** UCSB**International Collaboration:** No**International Travel:** No**Steve Schroeter****Email:** schroete@lifesci.ucsb.edu**Most Senior Project Role:** Co-Investigator**Nearest Person Month Worked:** 1**Contribution to the Project:** led integration of ongoing collection of long term dataset on coastal invertebrate larval settlement patterns into SBC core monitoring.**Funding Support:** none**International Collaboration:** No**International Travel:** No**Alexander Simms****Email:** asimms@geol.ucsb.edu**Most Senior Project Role:** Co-Investigator**Nearest Person Month Worked:** 1**Contribution to the Project:** Directed research on the sedimentary record of SBC coastal ecosystems that can be used to decipher the long-term history of environmental changes. He directed the collection and analysis of sediment cores for reconstructing a long-term record of how physical processes affecting the coast have change through time.**Funding Support:** University of California, Santa Barbara

**International Collaboration:** Yes, Spain, United Kingdom

**International Travel:** No

**Naomi Tague**

**Email:** ctague@bren.ucsb.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 0

**Contribution to the Project:** used LTER data on stream flow and stream chemistry as well as remote sensing analysis of terrestrial vegetation and land use to improve the parameterization of coupled eco-hydrologic models

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Libe Washburn**

**Email:** washburn@eri.ucsb.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Continued analysis and synthesis of data from SBC-LTER cruises. Advised and helped design new mooring hardware. Assisted and advised on oversight of mooring operations. Coordinated ocean acidification sampling for SBC-LTER. Assisted with project planning. Helped develop SBC-LTER oceanographic research directions

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** Yes, United Kingdom - 0 years, 0 months, 5 days

**Ali Whitmer**

**Email:** acw39@georgetown.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Contributes to education and outreach. Co-PI on MSP grant, works with all research and theme groups. Mentors postdoc (Hammond) in demographic research.

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Bill Wright**

**Email:** wwright@chapman.edu

**Most Senior Project Role:** Co-Investigator

**Nearest Person Month Worked:** 0

**Contribution to the Project:** conducted research on predator-prey interactions and behavior inside and outside marine reserves

**Funding Support:** Chapman University

**International Collaboration:** No

**International Travel:** No

**Blair Goodridge**

**Email:** bgoodridge@bren.ucsb.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Blair collected base flow samples manually and used automated sampling machines to collect storm samples from streams. He processed base flow samples. He measured conductivity and temperature of base flow samples. He prepared base flow samples for analysis of ammonium, nitrate, and phosphate. He prepared base flow, storm, and marine plume samples for analysis of total dissolved nitrogen (TDN) and total dissolved phosphorus (TDP) concentrations. He analyzed ammonium, nitrate, phosphate, total dissolved nitrogen (TDN), and total dissolved phosphorus (TDP) concentrations in base flow, storm, and marine plume samples. He analyzed total suspended solids (TSS) in storm samples. He downloaded data from in situ dataloggers and rain gauges. He surveyed the studied streams and measured discharge of them. He maintained field equipment including in situ dataloggers, rain gauges, and automated sampling machines. He interviewed, hired, trained, and supervised

undergraduate student workers. He edited and updated the field and laboratory Standard Operating Procedures (SOPs). He edited and updated the Chemical Hygiene Plan and MSDS binders for the laboratory. He typed up and processed field and laboratory data. He analyzed field and laboratory data using Matlab. He maintained cleanliness and organization of the laboratory, field room, and storage areas.

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Robert C. Thunell**

**Email:** thunell@geol.sc.edu

**Most Senior Project Role:** Faculty

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Project Coordinator

**Funding Support:** University Supported

**International Collaboration:** No

**International Travel:** No

**Matt Kay**

**Email:** mattckay@gmail.com

**Most Senior Project Role:** Community College Faculty

**Nearest Person Month Worked:** 0

**Contribution to the Project:** conducted collaborative fisheries research on spiny lobster populations

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Michele Paddack**

**Email:** mjpaddack@sbcc.edu

**Most Senior Project Role:** Community College Faculty

**Nearest Person Month Worked:** 0

**Contribution to the Project:** ROA participant

**Funding Support:** ROA

**International Collaboration:** No

**International Travel:** No

**Larry Madrigal**

**Email:** mrpalolo@gmail.com

**Most Senior Project Role:** K-12 Teacher

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Assist with development of oceanographic instrumentation platform and with oceanographic field data collection.

**Funding Support:** MRL-RET (Materials Research Laboratory - Research Experience for Teachers)

**International Collaboration:** No

**International Travel:** No

**Rosana Aguilera**

**Email:** raguilera@bren.ucsb.edu

**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Hydrological modeling

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Tom Bell**

**Email:** thomas.bell@lifesci.ucsb.edu

**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Investigates biomass dynamics in kelp forests



**Funding Support:** NASA, NSF  
**International Collaboration:** No  
**International Travel:** Yes, canada - 0 years, 0 months, 5 days

**Alicia Cortes**

**Email:** alicia.cortes@ucsb.edu  
**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Physical oceanographic process studies  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Ana Ejarque**

**Email:** ana.ejarque@nau.edu  
**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Data Collection/Analysis/manuscript preparation  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Fernanda Hendriks Freitas**

**Email:** fernanda@eri.ucsb.edu  
**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Conducted research on ocean optical properties using the autonomous glider  
**Funding Support:** NASA  
**International Collaboration:** No  
**International Travel:** No

**Anna James**

**Email:** anna.james@lifesci.ucsb.edu  
**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)  
**Nearest Person Month Worked:** 6  
**Contribution to the Project:** investigated the impact of variable pCO<sub>2</sub> on DOM production by Diatoms and DOM utilization by heterotrophic bacterioplankton. She uses samples and data from the SBC to help with interpretation of results.  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Thomas Lamy**

**Email:** thomas.lamy27@gmail.com  
**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)  
**Nearest Person Month Worked:** 6  
**Contribution to the Project:** Reef data analysis, research mentor, Analyzing and writing up results from LTER data  
**Funding Support:** BOEM MBON  
**International Collaboration:** Yes, france, germany  
**International Travel:** No

**Rhiannon Rognstad**

**Email:** rlrogstad@gmail.com  
**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)  
**Nearest Person Month Worked:** 6  
**Contribution to the Project:** Analyzing and writing up results from LTER data  
**Funding Support:** None  
**International Collaboration:** No

**International Travel:** No

**Steven Sadro**

**Email:** sadro@lifesci.ucsb.edu

**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Analyzed stream physical-chemical data and assisted with paper development.

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Jason Smith**

**Email:** jsmith@ucsb.edu

**Most Senior Project Role:** Postdoctoral (scholar, fellow or other postdoctoral position)

**Nearest Person Month Worked:** 9

**Contribution to the Project:** Nitrogen cycling in nearshore sediments

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Chris Gotschalk**

**Email:** gots@lifesci.ucsb.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 2

**Contribution to the Project:** assisted with development of SBC's autonomous glider program, which included hands on experience in programming missions, trouble shooting equipment failures and developing methods of methods of processing and analyzing sensor data

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**David Hubbard**

**Email:** hubbard@lifesci.ucsb.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 1

**Contribution to the Project:** assisted with sandy beach core monitoring

**Funding Support:** NSF other

**International Collaboration:** No

**International Travel:** No

**Cyril Johnson**

**Email:** cjohnson@msi.ucsb.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with design and fabrication of mooring hardware

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Michelle Johnson**

**Email:** mjohnson@msi.ucsb.edu

**Most Senior Project Role:** Other Professional

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Collaborated in the planning and delivery of professional development for teachers, as well as in-classroom support for teachers for the SBC and MSP projects.

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Kristie Klose****Email:** kristieaklose@fs.fed.us**Most Senior Project Role:** Other Professional**Nearest Person Month Worked:** 0**Contribution to the Project:** Worked on papers associated with algal data.**Funding Support:** None**International Collaboration:** No**International Travel:** No**Margaret O'Brien****Email:** mob@msi.ucsb.edu**Most Senior Project Role:** Other Professional**Nearest Person Month Worked:** 6**Contribution to the Project:** serves as information manager for project**Funding Support:** NSF**International Collaboration:** No**International Travel:** No**Scott Simon****Email:** simon@msi.ucsb.edu**Most Senior Project Role:** Other Professional**Nearest Person Month Worked:** 3**Contribution to the Project:** Coordinate SBC education and outreach activities, develop and maintain relevant partnerships, train undergraduate outreach support**Funding Support:** NSF**International Collaboration:** No**International Travel:** No**Sheila Wiseman****Email:** wiseman9@cox.net**Most Senior Project Role:** Other Professional**Nearest Person Month Worked:** 1**Contribution to the Project:** Managed laboratory, assisted with field work, processed stream invertebrate samples, invertebrate gut analyses, entered and analyzed stream invertebrate and leaf litter data.**Funding Support:** None**International Collaboration:** No**International Travel:** No**Brittany Beecher****Email:** brittanycbeecher@gmail.com**Most Senior Project Role:** Technician**Nearest Person Month Worked:** 0**Contribution to the Project:** Assisted with diving research**Funding Support:** BOEM**International Collaboration:** No**International Travel:** No**Laura Beresford****Email:** lauraberesford@sbcglobal.net**Most Senior Project Role:** Technician**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with kelp forest and sandy beach laboratory, field and data activities**Funding Support:** NSF, BOEM**International Collaboration:** No**International Travel:** No**Mark Bitter****Email:** mcbitter@umail.ucsb.edu**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Ocean acidification studies  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Joe Curtis**

**Email:** joseph.curtis@lifesci.ucsb.edu  
**Most Senior Project Role:** Technician  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with diving research  
**Funding Support:** BOEM  
**International Collaboration:** No  
**International Travel:** No

**Michael DeNicola**

**Email:** miked1204@gmail.com  
**Most Senior Project Role:** Technician  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Brandon Doheney**

**Email:** bdoheny13@gmail.com  
**Most Senior Project Role:** Technician  
**Nearest Person Month Worked:** 2  
**Contribution to the Project:** Assisted with LTER fieldwork and trained LTER students in diving and boating operations.  
**Funding Support:** BOEM MBON  
**International Collaboration:** No  
**International Travel:** No

**Chance English**

**Email:** cje@umail.ucsb.edu  
**Most Senior Project Role:** Technician  
**Nearest Person Month Worked:** 2  
**Contribution to the Project:** Assist with coastal oceanographic research  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Erik Fields**

**Email:** fields@eri.ucsb.edu  
**Most Senior Project Role:** Technician  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Contributed to oceanographic remote sensing research  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Nathalie Guillocheau**

**Email:** nathalie@eri.ucsb.edu  
**Most Senior Project Role:** Technician  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** conducted HPLC analyses for oceanographic research  
**Funding Support:** none  
**International Collaboration:** No

**International Travel:** No

**Elisa Halewood**

**Email:** elisa.wallner@lifesci.ucsb.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Served as laboratory manager and conducts DOM analyses. She has analyzed several large data sets for the SBC including the inshore monthly Time Series as well as experimental data sets from SBC researchers. She serves as the point of contact for data management for SBC related projects on microbial oceanography including DOM.

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Stuart Halewood**

**Email:** halewood@eri.ucsb.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 4

**Contribution to the Project:** assisted with development of SBC's autonomous glider program, which included hands on experience in programming missions, trouble shooting equipment failures and developing methods of methods of processing and analyzing sensor data

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Shannon Harrer**

**Email:** harrer@msi.ucsb.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 4

**Contribution to the Project:** Conduct field activities, supervise undergraduate interns and lead data management, quality control analysis and synthesis for kelp forests

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Janet Jones**

**Email:** ja\_jones@lifesci.ucsb.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Data Collection/Analysis

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Jessica Madden**

**Email:** jessicamadden831@gmail.com

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with field research

**Funding Support:** BOEM

**International Collaboration:** No

**International Travel:** No

**Matthew Meyerhof**

**Email:** mmeyerhof@bren.ucsb.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 12

**Contribution to the Project:** Collected base flow samples manually and used automated sampling machines to collect storm samples from streams. He processed base flow samples. He measured conductivity and temperature of

base flow samples. He prepared base flow samples for analysis of ammonium, nitrate, and phosphate. He prepared base flow, storm, and marine plume samples for analysis of total dissolved nitrogen (TDN) and total dissolved phosphorus (TDP) concentrations. He analyzed ammonium, nitrate, phosphate, total dissolved nitrogen (TDN), and total dissolved phosphorus (TDP) concentrations in base flow, storm, and marine plume samples. He analyzed total suspended solids (TSS) in storm samples. He downloaded data from in situ dataloggers and rain gauges. He surveyed the studied streams and measured discharge of them. He maintained field equipment including in situ dataloggers, rain gauges, and automated sampling machines. He interviewed, hired, trained, and supervised undergraduate student workers. He edited and updated the field and laboratory Standard Operating Procedures (SOPs). He edited and updated the Chemical Hygiene Plan and MSDS binders for the laboratory. He typed up and processed field and laboratory data. He analyzed field and laboratory data using Matlab. He maintained cleanliness and organization of the laboratory, field room, and storage areas.

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Clint Nelson**

**Email:** c\_nelson@lifesci.ucsb.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 12

**Contribution to the Project:** Lead SBC Field research activities

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Keri Opalk**

**Email:** kerilynno@gmail.com

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Phytoplankton and Carbon Cycling Sampling and Analysis, Optimized TCO<sub>2</sub> system

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Frankie Purzer**

**Email:** fpurzer7412@gmail.com

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Eduardo Romero**

**Email:** romero@msi.ucsb.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted Salazar and Washburn in coordinating field sampling. Assisted with preparation of instruments for field deployments. Participated in SCUBA diving to deploy instruments. Assisted with instrument repairs. Designed and fabricated parts for pumped components of moorings

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**David Salazar**

**Email:** Salazar@msi.ucsb.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Coordinated field sampling. Oversaw preparation of instruments for field

deployments and oversaw instrument downloading from instruments and uploading to data base. Operated research launch for mooring deployments and other field sampling. Kept project records, and oversaw instrument calibrations, and arranged instrument servicing.

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Sarah Sampson**

**Email:** srsampson@ucsb.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 8

**Contribution to the Project:** Assisted with LTER fieldwork and trained LTER students in diving and boating operations.

**Funding Support:** BOEM MBON, NSF

**International Collaboration:** No

**International Travel:** No

**Devin Spencer**

**Email:** devinspencer@me.com

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with diving research

**Funding Support:** BOEM

**International Collaboration:** No

**International Travel:** No

**Erik Stassinis**

**Email:** eriks@eri.ucsb.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 1

**Contribution to the Project:** assisted with SBC's autonomous glider program, which included hands on experience in programming missions, trouble shooting equipment failures and developing methods of methods of processing and analyzing sensor data

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Cailan Sugano**

**Email:** cailan.sugano@lifesci.ucsb.edu

**Most Senior Project Role:** Technician

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Maintains ocean Ph sensors

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Danuta Bennett**

**Email:** bennett@lifesci.ucsb.edu

**Most Senior Project Role:** Staff Scientist (doctoral level)

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Processed algal samples, entered algal data, analyzed algal and invertebrate gut data.

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Thomas Even**

**Email:** even@lifesci.ucsb.edu

**Most Senior Project Role:** Staff Scientist (doctoral level)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with manuscript production  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Li Kui**

**Email:** li.kui@ucsb.edu  
**Most Senior Project Role:** Staff Scientist (doctoral level)  
**Nearest Person Month Worked:** 8  
**Contribution to the Project:** Data management and analysis  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Paige Miller**

**Email:** crissieo@sbcglobal.net  
**Most Senior Project Role:** Staff Scientist (doctoral level)  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Worked on NSF RAPID project investigating organic material in marine sediments  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Craig Nelson**

**Email:** cr\_nelson@lifesci.ucsb.edu  
**Most Senior Project Role:** Staff Scientist (doctoral level)  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Prepared and analyzed microbial samples. Entered and analyzed microbial data.  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Rachel Simons**

**Email:** simons@eri.ucsb.edu  
**Most Senior Project Role:** Staff Scientist (doctoral level)  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** investigated larval transport and population connectivity in the Southern California Bight, which includes the Santa Barbara Channel, using a three-dimensional physical-biological model.  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**James Allen**

**Email:** jgallen@eri.ucsb.edu  
**Most Senior Project Role:** Graduate Student (research assistant)  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Data Collection/Analysis  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Heather Berry**

**Email:** heather.berry@geog.ucsb.edu  
**Most Senior Project Role:** Graduate Student (research assistant)  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Investigated responses of watershed hydrology to land use change, including data analysis and thesis preparation  
**Funding Support:** NSF, GRFP Fellowship, teaching assistant  
**International Collaboration:** No



**International Travel:** No

**Dylan Catlett**

**Email:** dcat4444@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Studies of phytoplankton optics and genomics

**Funding Support:** NASA, MBON

**International Collaboration:** No

**International Travel:** No

**Helen Chen**

**Email:** hc10024@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Data Collection/Analysis

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Xiaoli Chen**

**Email:** xiaoli\_chen@umail.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Data Collection/Analysis

**Funding Support:** ERPI

**International Collaboration:** No

**International Travel:** No

**Mingquan Chen**

**Email:** mingquan@geog.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Land use and remote sensing

**Funding Support:** NASA

**International Collaboration:** No

**International Travel:** No

**Samantha Csik**

**Email:** samantha.csik@lifesci.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with diving research

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Daniel Dauhajre**

**Email:** ddauhajre@atmos.ucla.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Investigated nearshore ocean circulation using ROMs and other models

**Funding Support:** NSF

**International Collaboration:** Yes, japan

**International Travel:** No

**Kyle Emery**

**Email:** kyle.emery@lifesci.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Sandy Beach ecosystem research  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** Yes, greece - 0 years, 0 months, 8 days

**Umi Hoshijima**

**Email:** umihiko.hoshijima@lifesci.ucsb.edu  
**Most Senior Project Role:** Graduate Student (research assistant)  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Data Collection/Analysis for ocean acidification studies  
**Funding Support:** NSF, NSF Fellowship  
**International Collaboration:** No  
**International Travel:** No

**Nicholas Huynh**

**Email:** nicholasquynh@gmail.com  
**Most Senior Project Role:** Graduate Student (research assistant)  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Microbial oceanography and carbon cycling  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Kevin Johnson**

**Email:** kevin.johnson@lifesci.ucsb.edu  
**Most Senior Project Role:** Graduate Student (research assistant)  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Conducts research on ocean acidification  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Jonathan Jones**

**Email:** jonathan.jones@lifesci.ucsb.edu  
**Most Senior Project Role:** Graduate Student (research assistant)  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Data Collection/Analysis and manuscript preparation  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Craig Koenigs**

**Email:** craig.koenigs@lifesci.ucsb.edu  
**Most Senior Project Role:** Graduate Student (research assistant)  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Data Collection/Analysis  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Heili Lowman**

**Email:** heili.lowman@lifesci.ucsb.edu  
**Most Senior Project Role:** Graduate Student (research assistant)  
**Nearest Person Month Worked:** 2  
**Contribution to the Project:** Nitrogen cycling in nearshore sediments  
**Funding Support:** NSF  
**International Collaboration:** Yes, canada  
**International Travel:** Yes, canada - 0 years, 0 months, 5 days

**Stephanie Ma**

**Email:** stephanie.ma@lifesci.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Participated in data collection, data entry, sample processing, sample analysis, data analysis for studies of watershed vegetation

**Funding Support:** NSF, other

**International Collaboration:** No

**International Travel:** No

**Katrina Malakhoff**

**Email:** kmalakhoff@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Assisted with LTER field sampling, and is using LTER data in her PhD project.

**Funding Support:** BOEM

**International Collaboration:** No

**International Travel:** No

**Lindsay Marks**

**Email:** lindsay.marks85@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Investigated population dynamics of the invasive seaweed, *Sargassum horneri*.

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Heather McNair**

**Email:** hmcnair72@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** assisted with monthly water sample processing

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Kristen Michaud**

**Email:** kmichaud@umass.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 2

**Contribution to the Project:** assisted with sandy beach research and sample processing, conducted independent study on beachhopper feeding

**Funding Support:** BOEM MBON, NSF

**International Collaboration:** No

**International Travel:** Yes, greece - 0 years, 0 months, 8 days

**Joseph Peters**

**Email:** jpeters@umail.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 2

**Contribution to the Project:** impact of consumer-derived nutrients in kelp forest ecosystems and how these nutrients affect kelp production and species interactions.

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Laura Reynolds**

**Email:** lcreynolds15@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Assisted with research on the sedimentary record of SBC coastal ecosystems including the collection and analysis of sediment cores for reconstructing a long-term record of how physical processes affecting the coast have change through time.

**Funding Support:** none

**International Collaboration:** Yes, spain

**International Travel:** No

**Jade Sainz**

**Email:** jadesainz@uamail.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Fisheries research

**Funding Support:** UC Mexxus

**International Collaboration:** No

**International Travel:** No

**Nicholas Schooler**

**Email:** schooler@lifesci.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assists with sandy beach monitoring and investigates biodiversity of sandy beaches

**Funding Support:** Sea Grant

**International Collaboration:** No

**International Travel:** Yes, greece - 0 years, 0 months, 10 days

**Andrea Valdez**

**Email:** andrea.valdez@lifesci.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Phytoplankton and Carbon Cycling Sampling and Analysis

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**David VanderZee**

**Email:** dlvanderzee@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** assisted with sandy beach research and sample processing

**Funding Support:** BOEM

**International Collaboration:** No

**International Travel:** No

**Sloane Viola**

**Email:** sloaneviola@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 0

**Contribution to the Project:** assisted with sandy beach research and sample processing

**Funding Support:** Sea Grant, BOEM

**International Collaboration:** Yes, new zealand

**International Travel:** No

**Emma Wear**

**Email:** ekwear@gmail.com

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Investigated temporal and spatial variability of DOM availability in the SBC and

impacts to bacterioplankton production and diversity. Uses data and samples from the SBC and Plumes and Blooms projects

**Funding Support:** NASA, BOEM

**International Collaboration:** No

**International Travel:** No

**Zoe Welch**

**Email:** zoe.welch@lifesci.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Conducted research on marine calcifying organisms

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Erin Wetherly**

**Email:** wetherley@geog.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Data Collection/Analysis

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Shaun Wolfe**

**Email:** swolfe@bren.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with diving research

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Juliet Wong**

**Email:** juliet.wong@lifesci.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Data Collection/Analysis for ocean acidification studies

**Funding Support:** NSF fellowship

**International Collaboration:** No

**International Travel:** No

**Christie Yorke**

**Email:** christie.yorke@lifesci.ucsb.edu

**Most Senior Project Role:** Graduate Student (research assistant)

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with field sampling and also designed and executed two projects that will contribute to her PhD. Trained and mentored undergraduates.

**Funding Support:** NSF fellowship. UCSB

**International Collaboration:** No

**International Travel:** No

**Carter Adamson**

**Email:** cpadamson@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Jessica Aguilar**

**Email:** jessica\_aguilar@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** Coastal Fund, NOAA BWET

**International Collaboration:** No

**International Travel:** No

**Bryce Ahn**

**Email:** hawaiiibryce12@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Alia Ajina**

**Email:** aliaajina@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Sarah Amiri**

**Email:** protectphytoplankton@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with remote sensing of kelp forests

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Semira Amirkiai**

**Email:** semira.amirkiai@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** stream sample processing, data entry, data collection

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**William Amundsen**

**Email:** amundsen752@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Kylie Anderson**

**Email:** kylieandersonn@yahoo.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 0**

**Contribution to the Project:** sorted samples and participated in field work on sandy beaches

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Ellyse Anderson**

**Email:** ellyse\_anderson@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 1**

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Cristiana Antonio**

**Email:** cca@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 0**

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Allison Aplin**

**Email:** allyaplin22@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 3**

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Conner Applewhite**

**Email:** conner.b.apple@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 0**

**Contribution to the Project:** sLTER/REEF informal science education intern

**Funding Support:** UCSB Coastal Fund

**International Collaboration:** No

**International Travel:** No

**Abraham Arcega**

**Email:** abraham\_m\_arcega@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 0**

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** Coastal Fund, NOAA BWET

**International Collaboration:** No

**International Travel:** No

**Abraham Arcega**

**Email:** abemax12@yahoo.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 3**

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Jennay Argiris****Email:** argirisjennay@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** stream sample processing, data entry, data collection**Funding Support:** none**International Collaboration:** No**International Travel:** No**Kim Armantrout****Email:** kim\_armantrout@yahoo.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Salaried sLTER informal science educator**Funding Support:** Coastal Fund, NOAA BWET**International Collaboration:** No**International Travel:** No**Kevin Armstrong****Email:** kevinarmstrong@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Assisted with diving research**Funding Support:** None**International Collaboration:** No**International Travel:** No**Mark Avalos****Email:** markavalos96@hotmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 3**Contribution to the Project:** Volunteer sLTER informal science educator**Funding Support:** None**International Collaboration:** No**International Travel:** No**Silke Bachhuber****Email:** bachhuber@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** sLTER/REEF informal science education intern**Funding Support:** UCSB Coastal Fund**International Collaboration:** No**International Travel:** No**Anshika Bagla****Email:** bagla.anshika@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 2**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern**Funding Support:** UCSB**International Collaboration:** No**International Travel:** No**Benjamin Bailey****Email:** ben.bailey782@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Worked on mooring hardware. Assisted with instrument preparation



**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Elijah Baker**

**Email:** ebaker00@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Daniel Baldwin**

**Email:** danielbaldwin@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 4  
**Contribution to the Project:** Salaried sLTER informal science educator, Assisted with kelp forest laboratory, field and data activities.r  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Zhiping Bao**

**Email:** zbao13@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** sLTER/REEF informal science education intern  
**Funding Support:** UCSB Coastal Fund  
**International Collaboration:** No  
**International Travel:** No

**Matthew Bar**

**Email:** Mbarr0118@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Data Collection/Analysis  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Chandler Barger**

**Email:** chandlemicolebarger@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 2  
**Contribution to the Project:** Volunteer sLTER informal science educator  
**Funding Support:** Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Stephanie Barlev**

**Email:** stephaniebarlev@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** sorted samples and participated in field work on sandy beaches  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Cindy Belkowiche**

**Email:** cindybelkowiche@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Volunteer sLTER informal science educator

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Bradford Bendell**

**Email:** fordbendell@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Data collection, processing, and analysis for sandy beach ecosystems

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Daniel Berkon**

**Email:** danielberkon@aol.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** Coastal Fund, NOAA BWET

**International Collaboration:** No

**International Travel:** No

**Megan Bicomong**

**Email:** maprilbico@rocketmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Sample processing in lab for sandy beaches

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Kyle Biskner**

**Email:** biskerkyle@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Allyssa Blalock**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Gordon Blasco**

**Email:** gordonblasco@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Sebastian Bognar**

**Email:** sebastian17@comcast.net  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** sample processing; data entry; field assistance  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Sarah Boyle**

**Email:** sarahboyle@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 2  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Austin Bragg**

**Email:** austinbragg5195@aol.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB Coastal fund  
**International Collaboration:** No  
**International Travel:** No

**Domnique Bryant Williams**

**Email:** dbryantwilliams@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Jordan Caldwell**

**Email:** jcaldwell2014@yahoo.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Sample processing in lab and field work for sandy beaches  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Isolde Callihan**

**Email:** ibcallihan@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** sample processing; data collection; data entry; field assistance  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Nicole Capacete**

**Email:** n\_capacete@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** Coastal Fund, NOAA BWET

**International Collaboration:** No

**International Travel:** No

#### **Thomas Casey**

**Email:** twcasey@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

#### **Summer Cassel**

**Email:** summercassel@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Volunteer sLTER informal science educator

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

#### **Christopher Chan**

**Email:** ckc@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

#### **Della Chandler Campbell**

**Email:** della@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

#### **Caroline Chang**

**Email:** cbc@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Data collection, data analysis

**Funding Support:** S. Calif. Earthquake Center

**International Collaboration:** No

**International Travel:** No

#### **Joe Chellew**

**Email:** joechellew@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** UCSB Coastal fund, NOAA BWET

**International Collaboration:** No

**International Travel:** No

**Jeffrey Childs**

**Email:** jchilds@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Soham Chowdhury**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Noelle Claycomb**

**Email:** claycomb.noelle@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Data collection, processing, and analysis for sandy beach ecosystems

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Natalie Colburn**

**Email:** natalie.colburn@sbcglobal.net

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Alex Coleman**

**Email:** alex2018@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** Coastal Fund, NOAA BWET

**International Collaboration:** No

**International Travel:** No

**Annie Combs**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Garrett Corwin**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Samuel Crane**

**Email:** enarcmas@hotmail.co.uk  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** stream sample processing, data entry, data collection  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Peter Culpepper**

**Email:** pculpepper@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Stephen Curry**

**Email:** sc.curry@yahoo.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 2  
**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Cheyenne Daleiden**

**Email:** chey.daleiden@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Bryn Daniel**

**Email:** brynsomerset@mac.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB Coastal fund  
**International Collaboration:** No  
**International Travel:** No

**Michael Dao**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Volunteer sLTER informal science educator  
**Funding Support:** None  
**International Collaboration:** No

**International Travel:** No

**Hailey Darrow**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Volunteer sLTER informal science educator

**Funding Support:** Coastal Fund, NOAA BWET

**International Collaboration:** No

**International Travel:** No

**Bowin A. De Barros**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Assist with oceanographic field data collection.

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Jillian Demeter**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Marissa DeVille**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Alecia Dezzani**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Hannah Ditzler**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Rose Dodgen**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 0**

**Contribution to the Project:** sorted samples and participated in field work on sandy beaches

**Funding Support:** UCSB Coastal Fund

**International Collaboration:** No

**International Travel:** No

**Shey Dorji**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 1**

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Josh Drake**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 0**

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Daisy Duenas**

**Email:** semidaisyy@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 0**

**Contribution to the Project:** Volunteer sLTER informal science educator

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Pete Eakin**

**Email:** peakin@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 0**

**Contribution to the Project:** stream sample processing, data entry, data collection

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Hayley Edlund**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 1**

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Michael Eldridge**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked: 0**

**Contribution to the Project:** stream sample processing, data entry, data collection

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No



**Samantha Ellman****Email:** samanthaellman@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern**Funding Support:** none**International Collaboration:** No**International Travel:** No**Ryan Fallgatter****Email:** rtfallgatter@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Stream sample collection and processing**Funding Support:** none**International Collaboration:** No**International Travel:** No**Mohamad Fawaz****Email:** mohamadfawaza@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Participated in data collection, data entry, sample processing, sample analysis, data analysis for studies of watershed vegetation**Funding Support:** none**International Collaboration:** No**International Travel:** No**Chad Fitzgerald****Email:** fitzchad@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Volunteer sLTER informal science educator**Funding Support:** None**International Collaboration:** No**International Travel:** No**Devyn Flaherty****Email:** devyn.flaherty@yahoo.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** sLTER/REEF informal science education intern**Funding Support:** UCSB Coastal Fund**International Collaboration:** No**International Travel:** No**Nicolette Flannery****Email:** nflannery1993@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Data collection, processing, and analysis for sandy beach ecosystems**Funding Support:** none**International Collaboration:** No**International Travel:** No**Kailey Flora****Email:** kflora97@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0

**Contribution to the Project:** assisted with sandy beach research and sample processing  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Will Foster**

**Email:** wil.fos.c@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with diving research  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Megan Foy**

**Email:** meganfoy@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Dylan Fozard**

**Email:** dylfoz@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Nora Frank**

**Email:** norahawaii18@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Emily Frey**

**Email:** emily8frey@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Data collection, processing, and analysis for sandy beach ecosystems  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**William Fried**

**Email:** williamfried77@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** MSI  
**International Collaboration:** No  
**International Travel:** No

**Caroline Fyfe****Email:** carolineecfyfe@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 3**Contribution to the Project:** Salaried sLTER informal science educator**Funding Support:** UCSB**International Collaboration:** No**International Travel:** No**Jordan Gallagher****Email:** jordanpgallagher@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities**Funding Support:** NSF**International Collaboration:** No**International Travel:** No**Journ Galvan****Email:** journgalvan@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory**Funding Support:** none**International Collaboration:** No**International Travel:** No**Kristina Garcia****Email:** kristina.g993@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** sLTER/REEF informal science education intern**Funding Support:** UCSB Coastal Fund**International Collaboration:** No**International Travel:** No**Elisa Garcia****Email:** elisa0\_o@hotmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Salaried sLTER informal science educator**Funding Support:** Coastal Fund, NOAA BWET**International Collaboration:** No**International Travel:** No**Jonie Garcia****Email:** joniegarciax@yahoo.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 3**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern**Funding Support:** none**International Collaboration:** No**International Travel:** No**Lucy Garibian****Email:** lucine1726@hotmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Assisted with remote sensing of kelp forests

**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Grant Ggrich**

**Email:** ggrgich@uemail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities and outreach activities, sLTER/REEF informal science education intern  
**Funding Support:** Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Andrew Ghadimi**

**Email:** a.n.ghadimi@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Briana Gibbs**

**Email:** bree.gibbs18@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0

**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB Coastal fund  
**International Collaboration:** No  
**International Travel:** No

**Madison Gibney**

**Email:** madisongibney@yahoo.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0

**Contribution to the Project:** assisted with sandy beach research and sample processing  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Ivan Girling**

**Email:** ivan.girling@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Haley Glasmann**

**Email:** haleyskat@cox.net  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0

**Contribution to the Project:** Volunteer sLTER informal science educator  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Aiko Goldston****Email:** aikogoldston0@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory**Funding Support:** none**International Collaboration:** No**International Travel:** No**Diana Gomez****Email:** dianagomez@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 3**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern**Funding Support:** UCSB**International Collaboration:** No**International Travel:** No**Fernando Gomez-Torrero****Email:** fgomeztorrero@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** sLTER/REEF informal science education intern**Funding Support:** UCSB Coastal Fund**International Collaboration:** No**International Travel:** No**Selena Gonzalez****Email:** selenajg@comcast.net**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** stream sample processing, data entry, data collection**Funding Support:** none**International Collaboration:** No**International Travel:** No**Maya Gorgas****Email:** mgorgas15@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities**Funding Support:** NSF**International Collaboration:** No**International Travel:** No**Deyana Gorman****Email:** deyana@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 3**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern**Funding Support:** none**International Collaboration:** No**International Travel:** No**Davis Gortner****Email:** dgortner@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Aral Greene**

**Email:** aralgreene@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Brandon Grundberg**

**Email:** bgrundberg@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Worked on new sampling bottle for pH. Assisted with instrument preparation  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Eric Guerrero**

**Email:** ericguerrero62@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Assist with design and development of oceanographic instrumentation as well as participate in field data collection.  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Kali Gutierrez**

**Email:** waterpolochica@yahoo.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** sLTER/REEF informal science education intern  
**Funding Support:** UCSB Coastal Fund  
**International Collaboration:** No  
**International Travel:** No

**Lauren Haas**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Dhanika Halili**

**Email:** dhanika.halili@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Sample processing in lab for sandy beaches  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Elizabeth Harris**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** Coastal Fund, NOAA BWET

**International Collaboration:** No

**International Travel:** No

**Emily Heber**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** sLTER/REEF informal science education intern

**Funding Support:** UCSB Coastal Fund

**International Collaboration:** No

**International Travel:** No

**Kera Heimlich**

**Email:** kera.nicole.heimlich@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** sample processing; data entry; field assistance

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Christian Hernandez**

**Email:** chernandez@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Marisol Hernandez**

**Email:** myh@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Nasim Herrington**

**Email:** nrh@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Sample processing in lab and field work for sandy beaches

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Allison Hill**

**Email:** ahill2349@outlook.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Victoria Hoegland**

**Email:** vrhoeglund@pipeline.sbccc.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Jack R. Holbrook**

**Email:** jrh@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 4  
**Contribution to the Project:** Assist with oceanographic field data collection.  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Randi Honeycutt**

**Email:** randihoneycutt@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Christopher Honeyman**

**Email:** chrishoneyman94@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Emma Horanic**

**Email:** ehoranic@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Rebecca Howard**

**Email:** howardrebecca@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** sLTER/REEF informal science education intern  
**Funding Support:** UCSB Coastal Fund  
**International Collaboration:** No  
**International Travel:** No

**Lincoln Howarth**



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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Sample processing in lab for sandy beaches

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Jackie Hsu**

**Email:** hsu@kenyon.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Sample processing in lab for sandy beaches

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Anthony Huang**

**Email:** anthonyzhuang@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** assisted with sandy beach research and sample processing

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Bryn Hudson**

**Email:** brynhudson8@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Volunteer sLTER informal science educator

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Diego Ibarra**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** Coastal Fund, NOAA BWET

**International Collaboration:** No

**International Travel:** No

**Fernando Idiarte**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** data collection, field assistance

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Joshua Inga**

**Email:** jinga@ca.rr.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Worked on mooring hardware. Assisted with instrument preparation

**Funding Support:** none

**International Collaboration:** No  
**International Travel:** No

**Inji Issac**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** UCSB Coastal Fund

**International Collaboration:** No

**International Travel:** No

**Kim Jacobsen**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Thummanoon Janerewong**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Olivia Johnson**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Data collection, processing, and analysis for sandy beach ecosystems

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Lucy Johnson**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Matthew Jones**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Dimitri Katsiovieris**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Sami Kaur**

**Email:** samikaur711@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Morgan Kelley**

**Email:** morgankelley@sbcglobal.net  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Kevin Kha**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB Coastal fund  
**International Collaboration:** No  
**International Travel:** No

**Vivian Kim**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** sLTER/REEF informal science education intern  
**Funding Support:** UCSB Coastal Fund  
**International Collaboration:** No  
**International Travel:** No

**Wesley Kim**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Sample processing in lab for sandy beaches and outreach activities  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Stephanie Kim**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** None  
**International Collaboration:** No

**International Travel:** No

**Lisa Kim**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** assisted with sandy beach research and sample processing

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Beatriz Kinder**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Volunteer sLTER informal science educator

**Funding Support:** Coastal Fund, NOAA BWET

**International Collaboration:** No

**International Travel:** No

**Emma Knutson**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** REU participant, Engaged in independent research project

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Wyatt Koolmees**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Karina Krebs**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** sample processing; data collection; sample analysis; data entry; field assistance

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Marissa Kudo**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Ricky Kyaw**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** assisted with sandy beach research and sample processing

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Renee LaManna**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Aaron Lane**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Katherine Le**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Tasi LeDonne**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Sunny Lee**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Data collection, processing, and analysis for sandy beach ecosystems

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Meikko Lee**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Stream sample processing

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Monica Leflore****Email:** monica.leflore@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Salaried sLTER informal science educator**Funding Support:** Coastal Fund, NOAA BWET**International Collaboration:** No**International Travel:** No**Noelle Leong****Email:** noellekleong@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Salaried sLTER informal science educator**Funding Support:** Coastal Fund, NOAA BWET**International Collaboration:** No**International Travel:** No**Elizabeth Leshuk****Email:** eleshuk@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 3**Contribution to the Project:** Salaried sLTER informal science educator**Funding Support:** UCSB**International Collaboration:** No**International Travel:** No**Melanie Leung****Email:** Leungmelanie.s@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.**Funding Support:** none**International Collaboration:** No**International Travel:** No**Samuel Lewis****Email:** samuellewis@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 2**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities**Funding Support:** NSF REU**International Collaboration:** No**International Travel:** No**Anais Lira****Email:** anaislira@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.**Funding Support:** none**International Collaboration:** No**International Travel:** No**Maria Loberg****Email:** marialoberg@yahoo.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** sLTER/REEF informal science education intern

**Funding Support:** UCSB Coastal Fund

**International Collaboration:** No

**International Travel:** No

**Kelsey Lomen**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Sample processing in lab for sandy beaches

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Emmaline Loo**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Sophia Macarewich**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** sLTER/REEF informal science education intern

**Funding Support:** UCSB Coastal Fund

**International Collaboration:** No

**International Travel:** No

**Alicia Macler**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Sample processing in lab for sandy beaches

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Shannon Malone**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Data Collection/Analysis

**Funding Support:** UCSB Coastal Fund

**International Collaboration:** No

**International Travel:** No

**Sean Marks**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Trace Martin**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** sample processing; data entry; sample collection; field assistance  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Jack T. Martin**

**Email:** jackmartin@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 2  
**Contribution to the Project:** Assist with oceanographic field data collection.  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Luis Martinez**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Arielle Martinka**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Joselyne Matamoros**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Volunteer sLTER informal science educator  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Kaitlyn Matousek**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** sample processing, data entry  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Madison Mayho**

**Email:** madmayho10@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** Coastal Fund, NOAA BWET



**International Collaboration:** No

**International Travel:** No

**Bella Mayorga**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Sample processing in lab and field work for sandy beaches

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Colleen McCamy**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Maria McCausland**

**Email:** mariamccausland@comcast.net

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Kristin Mercier**

**Email:** kristinmercier@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Claire Messina**

**Email:** clairemessina@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** sample processing; data entry

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Grant J. Mickelsen**

**Email:** grantmickelsen@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assist with Stearns Wharf web development and with oceanographic field data collection.

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Katrina Miller**

**Email:** katrina.louise4@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with diving research  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Emma Moffitt**

**Email:** emmamoffitt@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Sample processing in lab for sandy beaches  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Alana Montero**

**Email:** montero@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Olivia Montiano**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Luiza Moreno**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Assisted with kelp forest laboratory and data activities  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Seamus Morrison**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Brittany Munson**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Volunteer sLTER informal science educator  
**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Sharlyn Nelson**

**Email:** sharlynnelson@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Data collection, processing, and analysis for sandy beach ecosystems

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Sophie O'Hare**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Jacob Ochoa**

**Email:** jakeochoa97@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Jacob Ogawa**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.

**Funding Support:** NSF ROA

**International Collaboration:** No

**International Travel:** No

**Ziyi Ouyang**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Taylor Overstreet**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Salaried sLTER informal science educator, Assisted with kelp forest laboratory, field and data activities

**Funding Support:** Coastal Fund, NOAA BWET

**International Collaboration:** No

**International Travel:** No

**Samantha Paciotta**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Ian Packard**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Anne-Marie Parkinson**

**Email:** amlparkinson@yahoo.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Participated in data collection, data entry, sample processing, sample analysis, data analysis for studies of watershed vegetation  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Emily Parks**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** assisted with sandy beach research and sample processing  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Robert Pasma**

**Email:** rpassma95@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Worked on mooring hardware. Assisted with instrument preparation  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Ashwini Patil**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Yanelyn Perez**

**Email:** Yanelyntperez@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Ruby Peterson**

**Email:** rubyepeterson@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0

**Contribution to the Project:** Participated in data collection, data entry, sample processing, sample analysis, data analysis for studies of watershed vegetation

**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Dyer Pettijohn**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0

**Contribution to the Project:** Sample processing in lab for sandy beaches

**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Jessica Pham**

**Email:** jessicamkpham@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0

**Contribution to the Project:** assisted with sandy beach research and sample processing

**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Kimberly Phong**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Kristina Platonoff**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Kyler Plouffe**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Charles Quan****Email:** xwyvern@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities**Funding Support:** NSF**International Collaboration:** No**International Travel:** No**Derek Quintanilla****Email:** dquintanilla@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Salaried sLTER informal science educator**Funding Support:** Coastal Fund, NOAA BWET**International Collaboration:** No**International Travel:** No**Crystal Ramirez****Email:** c.ramchaves@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory**Funding Support:** none**International Collaboration:** No**International Travel:** No**Tatiana Raskin****Email:** tar@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities**Funding Support:** NSF**International Collaboration:** No**International Travel:** No**Shane Rathle****Email:** shanerathle@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 2**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern**Funding Support:** none**International Collaboration:** No**International Travel:** No**Fred Reitman****Email:** freitman10@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern**Funding Support:** none**International Collaboration:** No**International Travel:** No**Melanee Robles****Email:** melanee@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Janee Roche**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Brenda Rodriguez**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Alexa Rogalski**

**Email:** Alexarogalski2014@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Sara Rosenblatt**

**Email:** serosenblatt@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** sLTER/REEF informal science education intern  
**Funding Support:** UCSB Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Keitasha Royal**

**Email:** keitasha.royal07@yahoo.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** stream sample processing, data entry, data collection  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Trent Rubio**

**Email:** trubio@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Volunteer sLTER informal science educator  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Kimikio Russel-Halterman**

**Email:** kimiko@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** UCSB Coastal fund

**International Collaboration:** No

**International Travel:** No

**Ria Sager**

**Email:** riasager@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Data collection, processing, and analysis for sandy beach ecosystems

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Paulina Salinas-Ruiz**

**Email:** pausr91@hotmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Ben Schock**

**Email:** bschock7@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with remote sensing of kelp forests

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Issac Scott**

**Email:** isaacscott93@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with diving research

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Ethan Sesoko**

**Email:** siggyftw@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Emma Shapiro**

**Email:** eshapiro@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** Coastal Fund, NOAA BWET



**International Collaboration:** No  
**International Travel:** No

**Ben Shelby**

**Email:** benjamintshelby@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Emily Shyshka**

**Email:** emilyshyshka@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Lesly Sifontes**

**Email:** leslysifontes@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Assisted with kelp forest and sandy beach laboratory, field and data activities

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Dana Simon**

**Email:** snoopfrog555@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** sample processing; data collection

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Olivia Simon**

**Email:** oliviamsimon3@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Lauren Skube**

**Email:** laurenskube@yahoo.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Erinn Sloan**

**Email:** esloan@umail.ucsb.edu

**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Worked on new sampling bottle for pH. Assisted with instrument preparation  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Kaitlyn Smith**

**Email:** kaitlyncsmith11@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Stream sample collection and processing  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Kegan Smith**

**Email:** kegansmith415@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Nicolas Smith Sanchez**

**Email:** nicolassmithsanchez@hotmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with diving research  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**David Smithers**

**Email:** smithers\_david@yahoo.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Volunteer sLTER informal science educator  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Tatiana Soglin**

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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 2  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Philip Stahl**

**Email:** philipstahl@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** assisted with sandy beach research and sample processing  
**Funding Support:** None  
**International Collaboration:** No

**International Travel:** No

**Ana Starcevich**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Sample processing in lab for sandy beaches and outreach

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Courtney Stead**

**Email:** 4courtneystead@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Rita Stock da Cunha**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 2

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Rose Strauss**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Mariana Sweetnam**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Gina Szychowski**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern

**Funding Support:** UCSB

**International Collaboration:** No

**International Travel:** No

**Hillary Ta**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Lance Takata**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Salaried sLTER informal science educator

**Funding Support:** Coastal Fund, NOAA BWET

**International Collaboration:** No

**International Travel:** No

**Irvin Tang**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Spencer Thomson**

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**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Cheyenne Torres**

**Email:** cheyannet1996@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

**Jack Traina**

**Email:** trainaboi@gmail.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Assisted with diving research

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Andrew Truong**

**Email:** Truong.andrew.736@yahoo.com

**Most Senior Project Role:** Undergraduate Student

**Nearest Person Month Worked:** 1

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Anthony Truong****Email:** A\_truong@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities**Funding Support:** None**International Collaboration:** No**International Travel:** No**Gabriel Tsuruta****Email:** gtsuruta@sbcglobal.net**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 0**Contribution to the Project:** Salaried sLTER informal science educator**Funding Support:** UCSB Coastal fund, NOAA BWET**International Collaboration:** No**International Travel:** No**Kylie Van De Wyngaerde****Email:** caliswimchic98@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 3**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern**Funding Support:** UCSB**International Collaboration:** No**International Travel:** No**Jennifer Vasquez****Email:** vjennifer24@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 3**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern**Funding Support:** none**International Collaboration:** No**International Travel:** No**Jessica Vega****Email:** jessicarvega@umail.ucsb.edu**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 2**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern**Funding Support:** none**International Collaboration:** No**International Travel:** No**Bjorne Vidal****Email:** bjorne.vidal@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with sandy beach sampling and processing samples in the laboratory**Funding Support:** none**International Collaboration:** No**International Travel:** No**Theresa Wagner****Email:** Tcmwagner7@gmail.com**Most Senior Project Role:** Undergraduate Student**Nearest Person Month Worked:** 1**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.

**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Sebastian Walton**

**Email:** sebastianwalton@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Sample processing in lab for sandy beaches  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Miette Walton**

**Email:** miette.walton@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Valerie Watson**

**Email:** valeriewatson421@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**William Watt**

**Email:** williamhwatt@aol.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Amber Weigel**

**Email:** amber.wiegel@yahoo.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Drew Weinstein**

**Email:** dreweweinstein@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Data collection, processing, and analysis for sandy beach ecosystems  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Bethlehem Wellington**

**Email:** bethlehemwellington@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Gwendelyn Wensloff**  
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**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 3  
**Contribution to the Project:** Outreach Activities, sLTER/REEF informal science education intern  
**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Joseph Weston**  
**Email:** joeweston2@yahoo.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB Coastal fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Carly White**  
**Email:** carlyqwhite@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** UCSB Coastal fund  
**International Collaboration:** No  
**International Travel:** No

**Alison White**  
**Email:** aw24932@yahoo.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** sample processing; data entry; field assistance  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**John Wilken**  
**Email:** johntwilken@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Claire Wilson**  
**Email:** wilsonclaire4@yahoo.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Participated in data collection, data entry, sample processing, sample analysis, data analysis for studies of watershed vegetation

**Funding Support:** UCSB  
**International Collaboration:** No  
**International Travel:** No

**Kendra Witt**

**Email:** kwitt@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Volunteer sLTER informal science educator  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Kelli Worl**

**Email:** kworl111@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Data collection, processing, and analysis for sandy beach ecosystems  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Michael Wright**

**Email:** mdwright@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Kimberly Yom**

**Email:** ksyom3@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Stream sample collection and processing  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Daniel Zarate**

**Email:** danielzarate@umail.ucsb.edu  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities  
**Funding Support:** NSF  
**International Collaboration:** No  
**International Travel:** No

**Rick Zhao**

**Email:** rickzhao1998@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Sarah Ziemer**



**Email:** sarahelisez@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** assisted with sandy beach research and sample processing  
**Funding Support:** None  
**International Collaboration:** No  
**International Travel:** No

**Shayla Zink**  
**Email:** szink8@gmail.com  
**Most Senior Project Role:** Undergraduate Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Salaried sLTER informal science educator  
**Funding Support:** Coastal Fund, NOAA BWET  
**International Collaboration:** No  
**International Travel:** No

**Rosie Campbell**  
**Email:** rosiescampbell@gmail.com  
**Most Senior Project Role:** High School Student  
**Nearest Person Month Worked:** 1  
**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Erin Holehouse**  
**Email:** eholehouse76@gmail.com  
**Most Senior Project Role:** High School Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory and data activities  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Rose Lebow**  
**Email:** rlebow144@gmail.com  
**Most Senior Project Role:** High School Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory and data activities  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Erin Magoun**  
**Email:** erinmagoun@gmail.com  
**Most Senior Project Role:** High School Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Assisted with kelp forest laboratory and data activities  
**Funding Support:** none  
**International Collaboration:** No  
**International Travel:** No

**Daniel Perez**  
**Email:** danperezsbsd@gmail.com  
**Most Senior Project Role:** High School Student  
**Nearest Person Month Worked:** 0  
**Contribution to the Project:** Volunteer sLTER informal science educator  
**Funding Support:** none

**International Collaboration:** No  
**International Travel:** No

**Alexis Wachtell**

**Email:** wachtell@sbcglobal.net

**Most Senior Project Role:** High School Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Volunteer sLTER informal science educator

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Olivia Wheaton**

**Email:** wheaton@gmail.com

**Most Senior Project Role:** High School Student

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Scientific illustrations of kelp forest organisms

**Funding Support:** Pinhead Program

**International Collaboration:** No

**International Travel:** No

**Tiffany Cedeno**

**Email:** cedeno\_tiffany@hotmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 4

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities, conducted independent research project

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:** Junior

**Home Institution:** UCSB

**Government fiscal year(s) was this REU participant supported:** 2017, 2018

**Michael Cornish**

**Email:** mcornish@coa.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Analysis of 2ndary production of intertidal wrack consumers

**Funding Support:** NSF REU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:** Junior

**Home Institution:** UCSB

**Government fiscal year(s) was this REU participant supported:**

**Alexandra Kahler**

**Email:** amkahler@umail.ucsb.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF REU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:** Junior

**Home Institution:** UCSB

**Government fiscal year(s) was this REU participant supported:** 2018

**Trenton Koeper**

**Email:** tmkoeper@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Conducted oceanographic modeling of kelp transport from reefs to beaches using tag returns, ROMS and drifters

**Funding Support:** NSF REU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

**Valerie Kramer**

**Email:** mepineapple44@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 1

**Contribution to the Project:** assisted with sandy beach research and sample processing, conducted independent study on Beachhopper behavior

**Funding Support:** NSF REU

**International Collaboration:** No

**International Travel:** Yes, greece - 0 years, 0 months, 8 days

**Year of schooling completed:** Junior

**Home Institution:** Ohio State University

**Government fiscal year(s) was this REU participant supported:** 2017

**Lila Kubler-Dudgeon**

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**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** stream sample processing, data entry, data collection, field research

**Funding Support:** NSF REU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:** Junior

**Home Institution:** UCSB

**Government fiscal year(s) was this REU participant supported:** 2018

**John Liedle**

**Email:** johnliedle@umail.ucsb.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Data Collection/Analysis, Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

**Lance Lowenberg**

**Email:** lancelowenberg@umail.ucsb.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 0

**Contribution to the Project:** Worked on new sampling bottle for pH. Assisted with instrument preparation

**Funding Support:** NSF REU

**International Collaboration:** No

**International Travel:** No  
**Year of schooling completed:**  
**Home Institution:**  
**Government fiscal year(s) was this REU participant supported:**

**Kai Oda**

**Email:** kaioda141@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities.

**Funding Support:** NSF REU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:** Junior

**Home Institution:** UCSB

**Government fiscal year(s) was this REU participant supported:**

**Gianna Pantaleo**

**Email:** gianna\_pantaleo@yahoo.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 4

**Contribution to the Project:** Assisted with kelp forest monitoring and research

**Funding Support:** NSF REU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:** Junior

**Home Institution:** UCSB

**Government fiscal year(s) was this REU participant supported:** 2018

**Chloe Smith**

**Email:** Chloe.Smith@oit.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 0

**Contribution to the Project:** data collection, data analysis

**Funding Support:** NSF REU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

**Elena Staguhn**

**Email:** estaguhn@terpmail.umd.edu

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked:** 3

**Contribution to the Project:** REU participant; sample collection; sample processing; data collection; sample analysis; equipment/instrument maintenance; supervision and training of laboratory and field assistants; data analysis; data entry; field assistance

**Funding Support:** NSF REU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:** Junior

**Home Institution:** UCSB

**Government fiscal year(s) was this REU participant supported:**

**Taylor Traxler**

**Email:** Ttrax4240@yahoo.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked: 0**

**Contribution to the Project:** Assisted with kelp forest laboratory, field and data activities

**Funding Support:** NSF REU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

**Michael Trong**

**Email:** michaeltruong994@gmail.com

**Most Senior Project Role:** Research Experience for Undergraduates (REU) Participant

**Nearest Person Month Worked: 0**

**Contribution to the Project:** Data collection, data analysis

**Funding Support:** NSF REU

**International Collaboration:** No

**International Travel:** No

**Year of schooling completed:**

**Home Institution:**

**Government fiscal year(s) was this REU participant supported:**

**Sydney Carlson**

**Email:** sjcarlson223@icloud.com

**Most Senior Project Role:** Other

**Nearest Person Month Worked: 0**

**Contribution to the Project:** Worked on science fair project examining Kelp degradation and beach hoppers

**Funding Support:** None

**International Collaboration:** No

**International Travel:** No

**Eleanor Simon**

**Email:** ELSimon02@gmail.com

**Most Senior Project Role:** Other

**Nearest Person Month Worked: 0**

**Contribution to the Project:** Volunteer sLTER informal science educator

**Funding Support:** none

**International Collaboration:** No

**International Travel:** No

## **What other organizations have been involved as partners?**

<b>Name</b>	<b>Type of Partner Organization</b>	<b>Location</b>
<a href="#">American Assoc. Univ. Women, Tech Trek</a>	Other Nonprofits	Santa Barbara, CA
<a href="#">Arizona State University</a>	Academic Institution	Tempe, Arizona
<a href="#">LTER Math Science Partnership</a>	Academic Institution	Santa Barbara, CA
<a href="#">La Cumbre Junior High School</a>	School or School Systems	Santa Barbara, CA
<a href="#">Monash University</a>	Academic Institution	Melbourne, Australia
<a href="#">Moss Landing Marine Laboratory</a>	Academic Institution	Moss Landing, CA

<b>Name</b>	<b>Type of Partner Organization</b>	<b>Location</b>
<a href="#">National Marine Fisheries Service</a>	Other Organizations (foreign or domestic)	California
<a href="#">National Oceanic and Atmospheric Association</a>	Other Organizations (foreign or domestic)	Washington, D.C.
<a href="#">Ocean Education Trust</a>	Other Nonprofits	Kingston, RI
<a href="#">Santa Barbara Channel Keeper</a>	Other Nonprofits	Santa Barbara, CA
<a href="#">Santa Barbara Unified School District (SBusd)</a>	School or School Systems	Santa Barbara, CA
<a href="#">SciFund Challenge</a>	Other Nonprofits	Santa Barbara, CA, US
<a href="#">California Dept of Fish and Wildlife</a>	State or Local Government	Sacramento, C
<a href="#">Scripps Institution of Oceanography</a>	Academic Institution	La Jolla, CA
<a href="#">Southern California Coastal Ocean Observing System (SCCOOS)</a>	Other Organizations (foreign or domestic)	California
<a href="#">The Bay Foundation</a>	Other Nonprofits	Los Angeles, CA
<a href="#">The Nature Conservancy</a>	Other Nonprofits	United States
<a href="#">US Forest Service</a>	Other Organizations (foreign or domestic)	Santa Barbara, CA
<a href="#">US Geological Survey</a>	Other Organizations (foreign or domestic)	Santa Cruz, CA
<a href="#">Universidad Austral de Chile</a>	Academic Institution	Valdivia, Chile
<a href="#">University of Auckland</a>	Academic Institution	Auckland, New Zealand
<a href="#">University of Barcelona</a>	Academic Institution	Barcelona, Spain
<a href="#">University of California Davis</a>	Academic Institution	Bodega Bay, CA
<a href="#">California Sea Grant Extension Program</a>	Academic Institution	La Jolla, CA
<a href="#">University of California Los Angeles</a>	Academic Institution	Los Angeles, CA
<a href="#">University of California San Diego</a>	Academic Institution	La Jolla, CA
<a href="#">University of California Santa Cruz</a>	Academic Institution	Santa Cruz, CA

Name	Type of Partner Organization	Location
<a href="#">University of California, Berkeley</a>	Academic Institution	Berkeley, CA
<a href="#">University of Coimbra</a>	Academic Institution	Coimbra, Portugal
<a href="#">University of Connecticut</a>	Academic Institution	Groton, CT
<a href="#">University of Girona</a>	Academic Institution	Girona, Spain
<a href="#">University of New Mexico</a>	Academic Institution	Albuquerque, NM
<a href="#">University of South Carolina</a>	Academic Institution	Columbia, SC
<a href="#">University of Wisconsin</a>	Academic Institution	Milwaukee, WI
<a href="#">Channel Islands National Marine Sanctuary</a>	Other Organizations (foreign or domestic)	Santa Barbara, CA
<a href="#">Université du Québec à Montréal</a>	Academic Institution	Montréal, Québec, Canada
<a href="#">Channel Islands National Park</a>	Other Organizations (foreign or domestic)	Ventura, CA
<a href="#">City of Santa Barbara</a>	State or Local Government	Santa Barbara, CA
<a href="#">County of Santa Barbara</a>	State or Local Government	Santa Barbara, CA
<a href="#">Hope School District GATE Program</a>	School or School Systems	Santa Barbara, CA
<a href="#">Kobe University</a>	Academic Institution	Japan

### Full details of organizations that have been involved as partners:

#### American Assoc. Univ. Women, Tech Trek

**Organization Type:** Other Nonprofits

**Organization Location:** Santa Barbara, CA

**Partner's Contribution to the Project:**

Financial support

Facilities

**More Detail on Partner and Contribution:** Tech Trek is a math/science camp designed to develop interest, excitement and self-confidence in young women who will enter eighth grade in the fall. It features hands-on activities in math, science and related fields. All sleeping, eating, instructional and recreational facilities are located on a university campus where camps are held. Tech Trek is an ongoing SBC Schoolyard partner.

#### Arizona State University

**Organization Type:** Academic Institution

**Organization Location:** Tempe, Arizona

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**California Dept of Fish and Wildlife**

**Organization Type:** State or Local Government

**Organization Location:** Sacramento, C

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**California Sea Grant Extension Program**

**Organization Type:** Academic Institution

**Organization Location:** La Jolla, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Collaborate on new climate change assessment study for SBC

**Channel Islands National Marine Sanctuary**

**Organization Type:** Other Organizations (foreign or domestic)

**Organization Location:** Santa Barbara, CA

**Partner's Contribution to the Project:**

Facilities

**More Detail on Partner and Contribution:** Collaborated with SBC on oceanographic data collection and education activities

**Channel Islands National Park**

**Organization Type:** Other Organizations (foreign or domestic)

**Organization Location:** Ventura, CA

**Partner's Contribution to the Project:**

Facilities

Collaborative Research

**More Detail on Partner and Contribution:** Shared and collaborated on long term data on kelp forest communities in the Santa Barbara Channel

**City of Santa Barbara**

**Organization Type:** State or Local Government

**Organization Location:** Santa Barbara, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**County of Santa Barbara**

**Organization Type:** State or Local Government

**Organization Location:** Santa Barbara, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**Hope School District GATE Program**

**Organization Type:** School or School Systems

**Organization Location:** Santa Barbara, CA

**Partner's Contribution to the Project:**

Financial support

Facilities

**More Detail on Partner and Contribution:** Collaborates with SBC on K-12 education

**Kobe University**

**Organization Type:** Academic Institution

**Organization Location:** Japan

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**



**LTERR Math Science Partnership**

**Organization Type:** Academic Institution

**Organization Location:** Santa Barbara, CA

**Partner's Contribution to the Project:**

Financial support

Collaborative Research

**More Detail on Partner and Contribution:** LTER Math-Science-Partnership (MSP) The project connects the research and education prowess in the environmental sciences of universities and sites within LTER with teacher professional development in science and mathematics of partner middle schools and high schools. It extends across the nation and involves four LTER research sites, the Shortgrass Steppe, Baltimore Ecosystems Study, Kellogg Biological Station, and Santa Barbara Coastal and their partnering institutions, the LTER Network Office, and a group of 22 K-12 schools and districts that will directly impact over 250 science and mathematics teachers and 70,000 students from diverse backgrounds.

**La Cumbre Junior High School**

**Organization Type:** School or School Systems

**Organization Location:** Santa Barbara, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** SBC-LTER is collaborating with LCJHS through the NSF funded Math and Science Partnership.

**Monash University**

**Organization Type:** Academic Institution

**Organization Location:** Melbourne, Australia

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**Moss Landing Marine Laboratory**

**Organization Type:** Academic Institution

**Organization Location:** Moss Landing, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**National Marine Fisheries Service**

**Organization Type:** Other Organizations (foreign or domestic)

**Organization Location:** California

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Santa Barbara, Long Beach and Santa Cruz, CA

**National Oceanic and Atmospheric Association**

**Organization Type:** Other Organizations (foreign or domestic)

**Organization Location:** Washington, D.C.

**Partner's Contribution to the Project:**

Financial support

**More Detail on Partner and Contribution:**

**Ocean Education Trust**

**Organization Type:** Other Nonprofits

**Organization Location:** Kingston, RI

**Partner's Contribution to the Project:**

In-Kind Support

Facilities

Personnel Exchanges

**More Detail on Partner and Contribution:** NautilusLive! program, ; in-kind support, supply facilities and equipment, exchange personnel.

**Santa Barbara Channel Keeper****Organization Type:** Other Nonprofits**Organization Location:** Santa Barbara, CA**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** The Santa Barbara Channel Keeper staff conduct monthly collections along the Ventura River, and we complement their in situ measurements with high quality nutrient chemistry on water samples from local streams and rivers.**Santa Barbara Unified School District (SBUSD)****Organization Type:** School or School Systems**Organization Location:** Santa Barbara, CA**Partner's Contribution to the Project:**

Financial support

Facilities

**More Detail on Partner and Contribution:** Collaborates to conduct Explore the Sea Summer Program for K-12 students**SciFund Challenge****Organization Type:** Other Nonprofits**Organization Location:** Santa Barbara, CA, US**Partner's Contribution to the Project:**

In-Kind Support

**More Detail on Partner and Contribution:** provided a platform for outreach and blogging opportunities**Scripps Institution of Oceanography****Organization Type:** Academic Institution**Organization Location:** La Jolla, CA**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Collaborate on new climate change assessment study for SBC**Southern California Coastal Ocean Observing System (SCCOOS)****Organization Type:** Other Organizations (foreign or domestic)**Organization Location:** California**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** SCCOOS: SBC partners with Scripps Institution of Oceanography, the University of Southern California, and Cal Poly San Luis Obispo as part of the Southern California Coastal Ocean Observing System (SCCOOS). SCCOOS has provided data and instrumentation to the SBC-LTER**The Bay Foundation****Organization Type:** Other Nonprofits**Organization Location:** Los Angeles, CA**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:****The Nature Conservancy****Organization Type:** Other Nonprofits**Organization Location:** United States**Partner's Contribution to the Project:**

Facilities

Collaborative Research

**More Detail on Partner and Contribution:****US Forest Service****Organization Type:** Other Organizations (foreign or domestic)**Organization Location:** Santa Barbara, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**US Geological Survey**

**Organization Type:** Other Organizations (foreign or domestic)

**Organization Location:** Santa Cruz, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Conducts collaborative research on kelp forest communities and coastal sediment inputs and dynamics

**Universidad Austral de Chile**

**Organization Type:** Academic Institution

**Organization Location:** Valdivia, Chile

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**University of Auckland**

**Organization Type:** Academic Institution

**Organization Location:** Auckland, New Zealand

**Partner's Contribution to the Project:**

In-Kind Support

Facilities

Collaborative Research

**More Detail on Partner and Contribution:**

**University of Barcelona**

**Organization Type:** Academic Institution

**Organization Location:** Barcelona, Spain

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**University of California Davis**

**Organization Type:** Academic Institution

**Organization Location:** Bodega Bay, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Collaborate on effects of kelp forests on flow and water column subsidies

**University of California Los Angeles**

**Organization Type:** Academic Institution

**Organization Location:** Los Angeles, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Collaborate on modeling studies of nearshore plume and particle dispersal

**University of California San Diego**

**Organization Type:** Academic Institution

**Organization Location:** La Jolla, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Collaborate on oceanographic data collection and analyses

**University of California Santa Cruz**

**Organization Type:** Academic Institution

**Organization Location:** Santa Cruz, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Collaborate on kelp forest metapopulation research

**University of California, Berkeley**

**Organization Type:** Academic Institution

**Organization Location:** Berkeley, CA

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**University of Coimbra**

**Organization Type:** Academic Institution

**Organization Location:** Coimbra, Portugal

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**University of Connecticut**

**Organization Type:** Academic Institution

**Organization Location:** Groton, CT

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** collaborates on coastal physical oceanography including observational process studies of wind-, wave-, and tidally-driven circulation, heating and cooling of the shallow continental shelf, and coastal-trapped waves.

**University of Girona**

**Organization Type:** Academic Institution

**Organization Location:** Girona, Spain

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**University of New Mexico**

**Organization Type:** Academic Institution

**Organization Location:** Albuquerque, NM

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:**

**University of South Carolina**

**Organization Type:** Academic Institution

**Organization Location:** Columbia, SC

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** Collaborate to maintain a sediment trap time-series in the Santa Barbara Basin designed to provide data on the composition and flux of particles sinking to the seafloor

**University of Wisconsin**

**Organization Type:** Academic Institution

**Organization Location:** Milwaukee, WI

**Partner's Contribution to the Project:**

Collaborative Research

**More Detail on Partner and Contribution:** collaborates on population genetics and metapopulation analyses of kelp forests

**Université du Québec à Montréal**

**Organization Type:** Academic Institution

**Organization Location:** Montréal, Québec, Canada

**Partner's Contribution to the Project:**

Other: performed analyses

**More Detail on Partner and Contribution:** performed analysis of sediments for lignin content as part of RAPID sediments project

## **What other collaborators or contacts have been involved?**

Nothing to report

## **Impacts**

### **What is the impact on the development of the principal discipline(s) of the project?**

Results from SBC are addressing the growing need for understanding ecosystem level processes in coastal systems. Of particular importance are our unique time series data and findings pertaining to: (1) controls and fate of primary production, (2) the movement and utilization of different sources of nutrients, (3) environmental drivers of nearshore food webs, and (4) exchange of organic and inorganic materials among ecosystems.

SBC's development of an ongoing time series of canopy biomass for giant kelp in California and Mexico from Landsat satellite imagery has provided an outstanding opportunity to test ecological theory regarding patterns and drivers of population dynamics at unprecedented temporal resolution and spatial and temporal scales. In Baja California, physical disturbances, such as the ENSO events of 1982-83, 1997-98, and 2015-16 have diminished *M. pyrifera* abundance and caused range contractions near its southern distribution limit. With co-funding from UC Mexus, the SBC time series of giant kelp canopy area and biomass across its range from 1984-present is being used to examine historical variability in its abundance and distribution in Baja California, Mexico including disturbance events such as the notable ENSO events of 1997-1997 and 2015-2016. Remote estimates of giant kelp canopy cover and biomass are being validated with in situ diver measurements and high resolution unmanned aerial vehicle (UAV) imagery. High resolution maps and datasets of giant kelp distributions will provide a baseline for future monitoring and management of giant kelp ecosystems in Mexico.

Investigators Byrnes and Cavanaugh (both former post docs) are continuing their partnership with Zooniverse to develop Floating Forests (<https://www.floatingforests.org/>), a web-based citizen science project that uses the volunteers to analyze Landsat imagery of giant kelp around the globe. Since 17 December 2017, Floating Forests has had 2980 registered volunteers complete 83,272 classifications of 8,528 images. Byrnes also conceived and initiated the Kelp Ecosystem Ecology Network (KEEN) designed to assess the impacts of environmental change on kelp forests globally. This network includes 79 members from >20 bioregions and six continents who use standardized sampling methods and experimental protocols (based on those developed by SBC LTER) to create an unified open access dataset for assessing past and predicting future changes in kelp forests worldwide.

With collaborative funding from NASA, BOEM, and NOAA, SBC investigators Miller, Carlson, Iglesias-Rodriguez, Rassweiler, Reed and Siegel, continue developing a prototype Marine Biodiversity Observation Network (MBON) in the Santa Barbara Channel that is intimately linked with SBC LTER. Tracking biodiversity in marine habitats will improve capacity for science-based decision-making intended to protect natural ecosystems and sustain the services that they provide amid increasing threats of coastal development, invasive species and climate change. The wide array of biodiversity measurements already collected in the Santa Barbara Channel, particularly by SBC and Channel Islands National Park, make this area ideal for testing this pioneering effort. To date we have assembled data from 173 sites monitored by 4 different programs, two of which have 30+ year data time series, and documented abundance of >350 distinct taxa of fish, invertebrates and algae. To facilitate data synthesis, we developed a scalable taxonomic database to enable comparison of biodiversity data from different sources. SBC's information management team has worked closely with the MBON to develop an LTER compatible system for managing and publishing the large amount of biodiversity data generated. Ongoing research is using these data to investigate physical and biological drivers of biodiversity and metacommunity stability and to develop ecological forecasting models that predict changes in biodiversity and community composition with climate. MBON has also supported genomic investigation of the diversity and function of microbial and phytoplankton communities in the

Channel, including microbial communities within SBC kelp forests. The foundation thus provided will be built on in SBC IV.

Ongoing analysis of the large volume of data collected during the 16 SBC LTER UNOLS cruises continues to provide new insights into the fate and transport of phytoplankton. Analysis of towed Scanfish data has continued over the past year providing new insights into processes and rates responsible for subduction of phytoplankton in the northern part of the Southern California Bight. Signatures of chlorophyll below the euphotic zone were obtained from the Scanfish fluorometer observations. In collaboration with researchers in the UCSB Mathematics Department, SBC researchers quantitatively estimated vertical velocities associated with frontal subduction processes that transport chlorophyll-containing phytoplankton well below the euphotic zone. Ongoing research is aimed at refining the estimates of vertical velocity and the computational domain over which they are computed. These analyses will positively impact the principal discipline of biological oceanography. In particular, modeling efforts to understand the evolution of phytoplankton blooms, including harmful algal blooms, in the coastal ocean will improve as they incorporate effects of frontal processes that lead to subduction of phytoplankton biomass.

Additional efforts and cross site collaborations during the past year that broaden the reach of SBC research include:

- 1) Investigator Cooper is a member of an LTER working group conducting a meta-analysis of nutrient enrichment effects on stream ecosystems and serves on the STREON technical advisory committee, advises NEON personnel on stream ecology issues, and organized an NCEAS workshops for the NSF Stream Resiliency Research Coordination Network, collectively dealing with the effects of nutrient loading, biodiversity loss, and extreme events on stream ecosystems.
- 2) Two SBC researchers (M. Castorani, T. Lamy) are part of the LTER Metacommunities Working Group at NCEAS (funded by LTER NCO). Using long-term data this working group is assessing how well dispersal, niche differentiation, and habitat heterogeneity explain metacommunity stability across time and space. M. Castorani also participated in the LTER Synchrony Working Group at NCEAS. Building on many sources of long-term data, this working group aims to understand the drivers and timescales of synchrony and its effect on ecological stability. SBC spatial time series community data figure prominently in the research and analyses of both of these working groups.
- 3) A new synthesis of the ecological responses of soft sediment ecosystems to armoring and coastal squeeze developed by an LTER working group led by Investigator Dugan was published in a special issue of *Estuaries and Coasts* in 2018 and represents an important step in advancing a general understanding of the ecological impacts of coastal armoring across soft sediment ecosystems.
- 4) Researchers Lamy, Holbrook, Miller and Reed are collaborating with ILTER colleagues on a synthesis of long-term data from SBC LTER and four coastal LTER sites located in the western Arctic Ocean, the northern Baltic Sea, the southern North Sea and the western Mediterranean Sea. Comparative analyses are aimed at determining whether: (1) directional trends in species abundance are similar across a broad range of taxa and oceans, and (2) biological changes in different ocean domains correspond with changes in ocean temperature and regional climate indices.
- 5) SBC contributed to an LTER Network synthesis activity 'Ecological futures' that will be part of a special issue to be published in *Ecosphere*. SBC's contribution focuses on the theme of connectivity and the value of long-term data in assessing species change in systems whose foundations are formed by relatively short-lived species.

## **What is the impact on other disciplines?**

The research mission of SBC LTER is very interdisciplinary in scope. As such, our research contributes to a wide range of disciplines including: marine, aquatic and terrestrial ecology, physical, biological and chemical oceanography, hydrology, geology, geography, environmental history, science education and informatics. Investigators Guerrini and Dugan with PhD student D. Burnette contributed an invited chapter entitled "Invisible landscapes: perception, heritage, and coastal change in Southern California," on their results from historical research on SBC landscapes for an edited volume, *Coastal Heritage and Cultural Resilience*, (ed. Lisa Price and Nemer Marchi, publisher Springer) that is now in press.

## **What is the impact on the development of human resources?**

Our project provides significant opportunities for scientific training in research at multiple levels. During the past year 127 undergraduate students, 25 graduate students, 6 post doctoral fellows were trained through substantial involvement in SBC research. The 8 REU students from 2017-18 worked closely with SBC researchers and graduate students on a wide range of topics. Many have plans to pursue an advanced degree following their undergraduate

education. Additionally, SBC faculty investigators actively incorporate the activities and findings of SBC LTER research into their teaching and curriculum development, thereby extending the project's contributions to the broader student body. The active involvement of large numbers of undergraduate students in SBC research not only provides valuable undergraduate training, but also affords SBC's graduate students and post docs with significant opportunities for mentorship training. In 2017-18, 35 UCSB undergraduate students received academic credit to participate in a structured SBC marine research training program that runs the entire academic year. Students in the program actively participated in the collection, processing and analysis of core LTER data and several developed their own independent research projects. The experience gained from such training has proven to be very important to SBC graduate students and postdoctoral fellows who routinely go on to academic positions where the training legacy from SBC LTER continues.

This year SBC graduate students collaborated on a successful proposal to the UC Ship Funds program (Scripps Institution of Oceanography) for time aboard the *R/V Sally Ride (AGOR-28)* to lead a study, Across the Channel: Investigating Diel Dynamics (ACIDD) on microbial processes, in the SBC from December 16-22, 2017. The students developed cruise research plans for over a year to investigate daily variability in microbial and biogeochemical stocks and rates. Their cruise coincided with the eruption of then the largest wildfire in California history, the Thomas Fire. Consequently, the team adjusted their plans to incorporate a direct investigation of how ash-deposition from wildfires impacts microbial life in the coastal ecosystem. This provided unique opportunity for SBC graduate students to assume stronger roles in the planning and decision-making needed to execute a successful research cruise.

During this reporting period, former graduate students, Anna James started a postdoc at UCSB and Lindsay Marks became a California Sea Grant Fellow for the Channel Islands National Marine Sanctuary program.

Additional impacts on the development of human resources are achieved through SBC's extensive outreach programs (see Accomplishments), which primarily target K-12 students and teachers. These outreach programs, particularly the REEF, provide large numbers (29 in 2017-18) of undergraduate student interns with a solid foundation in marine ecology and training in communicating their knowledge in an educational format. The REEF utilizes SBC graduate students, research staff, and post-docs to train REEF interns, which, in turn, enhances their training as laboratory and field assistants for SBC research. Several SBC investigators mentor middle and high school students in developing and executing science projects and conducting research each year.

The success of SBC's outreach programs has led us to explore new methods for reaching larger audiences. To this end Investigators Blanchette and Dugan led SBC's efforts on an LTER children's book, *The Golden Forest*, which explores the connection between giant kelp forests and sandy beaches through the adventures of a young girl and her cousin. The book was published in Fall 2017 and is actively being used in SBC's K-12 Schoolyard programming. In addition, an iPhone application for sandy beach ecosystems developed with collaborative funding is due to be released on iTunes in Fall 2018. This new guide will complement the SBC LTER Kelp Forest Field Guide application, that provides information on >150 marine algae, plants, fish and invertebrates that inhabit the unique ecosystem of California nearshore kelp forests.

## **What is the impact on physical resources that form infrastructure?**

NSF funds awarded to SBC are being used to maintain a custom 22' research vessel that was specifically designed for diving and oceanographic research and an autonomous ocean glider that is customized for coastal research. Both items were purchased with NSF funds awarded to SBC. Research groups collaborating with SBC have access to the vessel and glider for their research needs. Led by Investigators Hofmann and Washburn, SBC partners with other research programs (e.g. Southern California Ocean Observing System (SCOOS), California's Ocean Protection Council, the Partnership for Interdisciplinary Study of Coastal Oceans (PISCO)) to maintain an extensive array of moored sensors that is providing spatially comprehensive high frequency data on ocean properties including currents, temperature salinity, chlorophyll, oxygen and pH.

## **What is the impact on institutional resources that form infrastructure?**

Nothing to report.

## **What is the impact on information resources that form infrastructure?**

SBC's publicly available data holdings increased by 10% in total volume over the past year. A total of 48% of the datasets were updated during the reporting period. Among the total of 203 archived datasets, 14 (7%) datasets were

newly added and 83 (41%) are time-series data updated since Sep 2017. As in the past, new datasets often represent data from students or postdoctoral scholars, specifically designed to meet journals' increasingly frequent requirement to post data along with research papers. All metadata are available in the XML specification Ecological Metadata Language (EML), with data and metadata uploaded regularly to the repository of the Environmental Data Initiative (EDI), where it becomes available to the LTER Network catalog. SBC's own data catalog is based on this same corpus and organized into sampling collections, which are accessible from the website's research descriptions and sampling sites map. Our local infrastructure provides daily backup for all data.

The transition from O'Brien to Li Kui, as primary data manager is nearly complete. During this transition, components of our dataset production workflow (metadata database and R scripts) were streamlined and modernized. Li Kui gave two online webinars about the SBC LTER Information Management System (IMS) during summer 2018 in the Environmental Data Initiative (EDI) webinar series. See below for potential technology transfer.

One of our signature data collections, the ongoing kelp forest community survey, has been heavily used by synthesis working groups. Accordingly we have spent considerable effort on data cleaning and update. We validated our taxonomic information through World Register of Marine Species (WORMS) and tagged each SBC taxon (usually species) with the WORMS ID, making our datasets available for broader research groups. Over time new taxa have been observed. These time series now include all currently observed taxa in all years, and early years (ie, before a taxon was measured) we populated values with "NA" and zero-filled if a taxon was not observed. We also add more stringent controls to reduce the data entry errors. These improvements enhance usability and reduce likelihood of misinterpretation.

## **What is the impact on technology transfer?**

The streamlined metadata database used by the SBC LTER IMS was leveraged in earlier years by Santa Barbara Channel Marine BON project (SBC MBON, <http://sbc.marinebon.org> LPI R. Miller). That work is now being ported to a larger LTER community for broader use (<https://github.com/lter/LTER-core-metabase>). Two major components, the database for managing the metadata and scripts to export EML, are now of particular interest to new LTER sites, and an initial version has been made available to a larger community via GitHub, and data manager Kui is active in that LTER working group. Further, it has benefited SBC LTER by speeding the transfer of certain data management tasks from O'Brien to Kui during 2018.

Our R scripts for taxonomic validation and tagging are already used by other research groups at UCSB. Ostensibly, they could be distributed further, e.g., for data harmonization, where tagging taxa with external authorities is essential. Our datasets have demonstrated an important practice that makes the data sharing easier. SBC LTER continues to work regularly with repository developers at BCO-DMO to streamline cross-linkages between data from associated projects that are tightly coupled to SBC LTER, but which should also be visible through the BCO-DMO catalog (at the request of NSF). These linkages are facilitated by SBC LTER's experience with the DataONE system.

O'Brien leads a project of the Environmental Data Initiative (EDI, <https://environmentaldatainitiative.org/>, ) to coordinate dataset design for community survey datasets to better serve reuse by data synthesis. SBC LTER data were instrumental in: (1) helping to identify the best data formats, code, packaging patterns, metadata content, and vocabularies, and (2) building formal recommendations for data providers.

## **What is the impact on society beyond science and technology?**

SBC investigators actively apply their knowledge of coastal ecosystems to inform, develop and implement changes in local and regional policies. Investigators serve as advisors and committee and board members for a number of local and national groups concerned with conservation and management of natural resources.

Investigators Reed, Cavanaugh and Bell were invited to participate in workshop on "Advancing Kelp Conservation and Science in California" hosted by the Nature Conservancy and the California Department of Fish and Wildlife. The workshop brought together kelp scientists, leading conservation organizations, resource managers, and other stakeholders to identify statewide and region-specific gaps in kelp science and management, and to develop



recommendations to direct resources towards addressing those challenges through innovative investments. Reed was a featured speaker and reported on the status of kelp resources in southern California.

Investigators Reed and Page work with the staff of the California Coastal Commission (CCC) on a large multi-dimensional program designed to mitigate for the loss of coastal marine resources caused by the operation of the San Onofre Nuclear Generating Station (SONGS), a coastal power plant located in north San Diego County. The major emphasis in this program is compensation for lost marine resources via wetland and kelp forest restoration. Reed and Page's primary responsibilities are to consult with the CCC and their staff, the employees of the power plant (Southern California Edison), and other resource agencies on ecological issues relating to the design of the mitigation projects and to develop and implement monitoring programs capable of determining whether the biological and physical performance of these projects meet pre-determined standards. Much of the science done on these mitigation projects is very complementary to that done by SBC and there is considerable exchange of information and ideas between the two projects.

SBC investigators and students continue to contribute time and expertise to the ongoing NRDA (National Response Damage Assessment) investigation of the impacts of the May 2015 Refugio Oil Spill on coastal ecosystems of the Santa Barbara Channel. SBC time series data that provide information on some of the coastal ecosystems affected by the oil spill are being used in the NRDA analyses.

SBC investigators and students are collaborating with the Bureau of Ocean Energy Management, National Marine Fisheries Service and the Channel Islands National Marine Sanctuary to assess factors affecting the spread and ecological consequences of two recent and rapidly spreading invasive species in southern California (the brown seaweed *Sargassum horneri* and the colonial bryozoan *Watersipora subtorquata*). These projects have resulted the development and testing of protocols and strategies for controlling invasive marine species in nearshore ecosystems such as kelp forests.

SBC researchers are also engaged in informing policy for local watershed issues. We have developed mutually beneficial, cooperative associations with local and national government agencies and departments, and NGOs. For example, Investigator Cooper regularly provides advice about stream environmental issues and the monitoring and management of southern California steelhead populations to personnel from the California Department of Fish and Wildlife (DFW), National Marine Fisheries Service (NMFS), U.S. Forest Service (USFS), the cities of Santa Barbara and Goleta, and the Environmental Defense Center and the Audubon Society's Conservation Committee. SBC research has led to a growing recognition of the unique biodiversity, functions and wildlife supported by beaches and the role of kelp and other macroalgal wrack as an ecological resource by local and state agencies. SBC results are contributing to the development of new policies for conservation and management of sandy beach ecosystems worldwide. Investigator Dugan plays an active advisory role with coastal consortiums, state agencies and groups concerned with improving the conservation and management of beach ecosystems, including the California Coastal Commission, California Dept. of Fish and Wildlife, and the Ocean Science Trust. Dugan, Miller, Page and SBC graduate students N. Schooler and K. Emery provided field support and protocol refinements for the ecological monitoring program for sandy beach ecosystems on Santa Rosa Island in Channel Islands National Park. This monitoring program, established in 1991 is the only comprehensive long term sandy beach monitoring program in the state of California. SBC investigators and graduate and undergraduate students are also working with the Bay Foundation to provide quantitative monitoring on the recovery of wrack-associated intertidal invertebrates as part of a demonstration beach and dune restoration and coastal resilience enhancement project (3 acres) located on a heavily groomed section of Santa Monica State Beach (link: <http://www.santamonica.org/explore/beaches-dunes-bluffs/beach-restoration/santa-monica-beach-restoration-pilot/>).

## **Changes/Problems**

### **Changes in approach and reason for change**

Nothing to report.

### **Actual or Anticipated problems or delays and actions or plans to resolve them**

Nothing to report.

### **Changes that have a significant impact on expenditures**

Nothing to report.

**Significant changes in use or care of human subjects**

Nothing to report.

**Significant changes in use or care of vertebrate animals**

Nothing to report.

**Significant changes in use or care of biohazards**

Nothing to report.