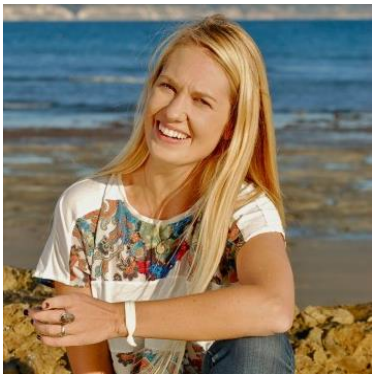
Virtual Academic Roadshow with UC Santa Barbara

California Ocean Science Trust, California Ocean Protection Council,
California Sea Grant and USC Sea Grant

Monday, October 19th, 2020
1:00 pm – 4:00 pm

UC Santa Barbara Participants



Dr. Darcy Bradley
Co-Director of the Ocean & Fisheries Program for the EmLab
Assistant Research Biologist, Marine Science Institute

Bradley's research aims to find actionable solutions for conservation challenges in the ocean, with a particular focus on marine predators. She works with NGOs, government agencies, and multi-disciplinary academic teams and uses field surveys, big data and emerging data collection technologies, and spatially and temporally explicit analytical modeling to improve fisheries management, inform marine spatial planning efforts, and develop new theory on how to design institutions for better marine conservation outcomes.

Dr. Mark Brzezinski
Director, Marine Science Institute
Professor of Biological Oceanography

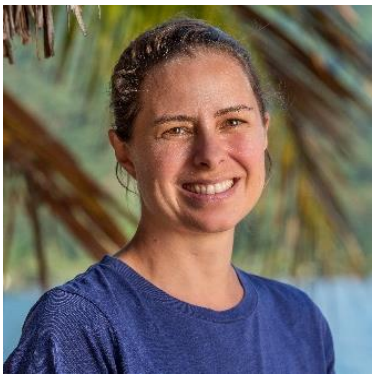
Brzezinski's research focuses on assessing the role of silicon as a limiting resource for diatom growth in the sea. His studies of silicon limitation of diatoms in Gulf Stream warm-core rings, in the Sargasso Sea, in the coastal waters off Southern California, and in the Southern Ocean have established silicic acid availability as a strong determinant of the level of diatom activity in these systems. In recent years, members of Brzezinski's laboratory discovered that diatoms fractionate isotopes of silicon when building their siliceous frustules and that this tool can be used to examine silicic acid use by diatoms onetime scales from days to millennia. Research is underway to use this tool to reconstruct relative diatom silicic acid use from diatom frustules recovered from dated sediment cores. Work on cores from the Southern Ocean has shown that diatom productivity has changed dramatically on glacial-interglacial cycles which has profound implications for ocean productivity, carbon export and climate.

Dr. Jenn Caselle
Research Biologist, Marine Science Institute
Principal Investigator for the Caselle Lab

Caselle's research is focused on marine conservation and reef ecology. She works in both coral reef and kelp forest ecosystems studying community dynamics, recruitment, and larval dispersal and movement patterns of fishes. She also manages a large-scale field-based monitoring program of kelp forests in the California current ecosystem with goals of assessing long-term changes due to climate and anthropogenic impacts

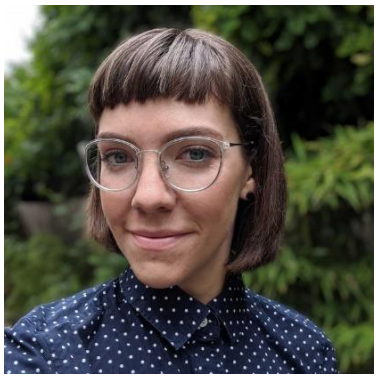
Dr. Jennifer Dugan
Associate Research Biologist, Marine Science Institute
Deputy Director for the Coastal Marine Institute
Project Coordinator for the Santa Barbara Coastal LTER

Dugan studies questions concerning the influence of environmental and anthropogenic drivers on community and population dynamics of marine animals across a diversity of shorelines, latitudes, and time scales. She works with colleagues from UCSB and around the world to investigate ecological connectivity, marine conservation and restoration, responses to and recovery from disturbance, species interactions, historical ecology, and the physical and biological drivers of community structure and function in coastal ecosystems. Much of her research has focused on sandy beach ecosystems, investigating numerous components of beaches, their ecology, food webs, and ecological functions ranging from the bottom up effects and nutrient cycling implications of macroalgal wrack subsidies to exploring the role of shorebirds as ecosystem indicators and intertidal predators. She also collaborates with coastal managers on more applied studies designed to increase our understanding of and evaluate ecological impacts and implications of widespread human alterations of the coast. This applied component of my research is intended to help develop an ecological framework that may be used to inform coastal conservation and management of sandy beaches and other coastal ecosystems.



Dr. Erika Eliason
Assistant Professor, Ecology, Evolution, and Marine Biology
Principal Investigator for the Eliason Lab

Eliason's research examines how climate change constrains the performance and persistence of marine animals. She takes an integrative approach to examine questions across multiple levels of biological organization (population, whole animal, organ, cellular) using a variety of techniques (e.g. biologgers, respirometry, in vivo surgical techniques, blood gas measurements, microscopy, enzyme assays). The Eliason Lab also investigates how functional traits shape species distributions. The lab is specifically interested in how fish are physiologically locally adapted to their environments and how they respond to current and future environmental change. Their research can help identify the optimal range of habitats and stressor thresholds which can be used to inform conservation policy and manage natural resources.

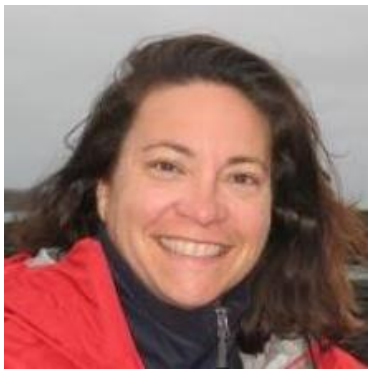


Dr. Halley Froehlich
Assistant Professor, Ecology, Evolution, and Marine Biology
Principal Investigator for the Froehlich Lab

Froehlich's research aims to tackle problems around sustainable seafood and marine ecosystems by understanding the links between patterns and process at the species to global scale, using field- and lab-based physiology and behavior analyses, combined with social and ecological modelling and data science. Currently, she is exploring interactions and impacts of aquaculture, wild fisheries, and climate change.

Dr. Ben Halpern
Executive Director, National Center for Ecological Analysis & Synthesis
Professor of Marine Ecology and Conservation Planning, Bren School
Principal Investigator for the Halpern Lab

Halpern's research interests are primarily in marine ecology and conservation planning, but span a wide range of disciplines. His research has addressed questions that span local to global scales, including spatial population dynamics, trophic interactions in community ecology, and the interface between ecology and human dynamics, all with the ultimate aim of informing and facilitating conservation and resource management efforts in marine systems. He has led several research initiatives that have influenced ocean management, including a global analysis of the effectiveness of marine protected areas (MPAs), a global assessment of the cumulative impacts of human activities on oceans, and the development and global application of the Ocean Health Index.

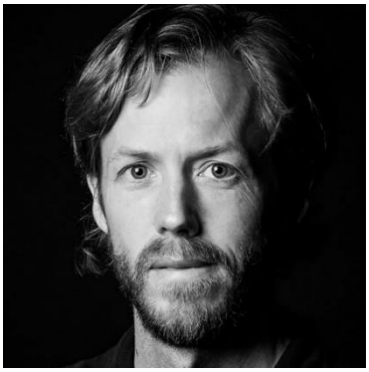


Dr. Gretchen Hofmann
Professor, Ecology, Evolution, and Marine Biology
Principal Investigator for the Hofmann Lab

Hofmann's research focuses on the responses of marine species to future ocean change such as ocean acidification and ocean warming. Working in places as diverse as the coastal oceans of California and Antarctic waters, Dr. Hofmann and her lab group are trying to understand whether and how marine species can adapt to future changes in the ocean. Studies in the lab focus on how organisms work in the face of these changes, whether species have the physiological flexibility to respond to future oceans and whether adaption is possible.

Dr. Christopher Jerde
Assistant Researcher, Marine Science Institute

Jerde uses a multidisciplinary approach to link ecological theory to conservation and natural resources management to address pressing environmental problems. This approach includes the application of established statistical techniques, the development of new methodological approaches, the formulation of novel ecological theory, and the communication of ideas between scientists, managers, educators, and the public.

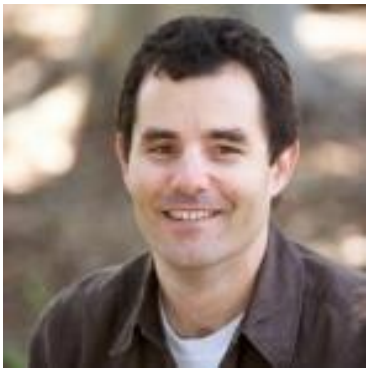


Dr. Douglas McCauley
Director, Benioff Ocean Initiative
Associate Professor of Ecology, Evolution, and Marine Biology
Principal Investigator for the McCauley Lab

McCauley's research is directed at understanding how community structure influences ecosystem dynamics, in determining how ecosystems are interactively and energetically coupled to one another, and quantifying how humans perturb these dynamics and shape patterns of biodiversity. Research is conducted in a variety of ecological contexts (e.g. coral reefs, tropical savannas, Californian ecosystems) pursuing the philosophy that first principles in ecology can be most effectively derived via observation of pattern and process in diverse settings. An important aim of this research is to generate results that both advance the pure science of ecology and that can be of practical service to decision makers responsible for shaping the future of our environment.

Dr. Adrian Stier
Associate Professor of Ecology, Evolution, and Marine Biology
Principal Investigator for the Ocean Recovery Lab

Stier's research program is motivated by a desire to deepen our basic understanding of how ecosystems are assembled and an urgent need to develop sustainable management strategies for coastal marine ecosystems. The unifying thread linking his work is an interest in how species interactions drive ecosystem assembly, biodiversity, and resilience. Stier's research program focuses on the recovery and assembly of disturbed and degraded ecosystems in the face of ongoing human impact. The following questions guide his current research: (1) How do ecosystems respond to disturbance?, (2) What drives the trajectory of ecosystem recovery? (3) What makes ecosystems resilient?



Dr. David Valentine
Professor of Geochemistry and Microbiology
Principal Investigator for the Valentine Lab

Valentine's research focuses on the interaction of microbes and chemicals - how the smallest living beings impact Earth's environment and how the environment structures the ecology and evolution of the microbes. His projects include study of Archaea, methane's biogeochemistry, hydrocarbon seeps and spills, accelerated microbial evolution, microbial symbiosis, ocean exploration, the application of microbial technology to address societal problems, and the development of stable-isotope-based tools. Dr. Valentine is also actively engaged in the communication of science beyond his peer group, through media and other stakeholders.